

Oracle® Calendar

Administrator's Guide

10g Release 1 (10.1.1)

B14472-02

October 2005

This book describes administration and maintenance procedures for Oracle Calendar.

Oracle Calendar Administrator's Guide, 10g Release 1 (10.1.1)

B14472-02

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Preface

Oracle Calendar is scalable calendaring software, based on open standards, for efficiently scheduling people, resources, and events. Among other features, it offers real-time lookups and free-time searches; multiple time zone support and UTF-8 encoding to support international deployments; e-mail and wireless alerts; multiplatform support; and an extensible Authentication, Compression, and Encryption (ACE) framework for enhanced security.

The Oracle Calendar server is the back end to an integrated suite of calendaring and scheduling products. Networked users can use a desktop client (Windows, Mac OS, Linux), Web client or Microsoft Outlook to manage their calendars. Mobile users can synchronize their agendas with a variety of PDAs or, with the addition of Oracle wireless technology, can send and receive calendar entries using a mobile phone.

Oracle Calendar is part of Oracle Collaboration Suite, which offers integrated e-mail, voice mail, calendaring, and wireless services. For more information about the other components of Oracle Collaboration Suite, please see the Oracle Web site or consult the relevant product documentation.

Audience

This *Oracle Calendar Administrator's Guide* is directed at any administrator whose task is the installation, configuration, use, and maintenance of Oracle Calendar, or of any Oracle Calendar components. This guide documents deployment, configuration, and maintenance procedures for calendar components. It is a companion volume to the *Oracle Calendar Reference Manual*, which provides detailed information about configuration parameters and command-line administration utilities.

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Related Documentation

For more information, see the following manuals in the Oracle Calendar documentation set:

- *Oracle Calendar Reference Manual*
- *Oracle Calendar Application Developer's Guide*

See also the following manuals in the Oracle Collaboration Suite documentation set:

- *Oracle Collaboration Suite Concepts Guide*
- *Oracle Collaboration Suite Deployment Guide*
- *Oracle Collaboration Suite Upgrade Guide*
- *Oracle Collaboration Suite Migration and Coexistence Guide*
- *Oracle Collaboration Suite Security Guide*

Conventions

The following text conventions are used in this document:

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

New in this Release

This chapter describes changes to administrative features in Oracle Calendar 10g Release 1 (10.1.1), and new features of Oracle Calendar application system 10g Release 1. If you are upgrading to Oracle Calendar 10g from a previous release, read the following information carefully, as there are differences in Oracle Calendar features, tools, and procedures.

The new features of Oracle Calendar server 10g include:

- [Automatic User Provisioning](#)
- [User Deprovisioning](#)
- [Configurable Automatic Log Rotation](#)
- [Service Registry and Discovery](#)
- [Oracle Process Management and Notification Integration](#)
- [Oracle Enterprise Manager Integration](#)
- [Common Address Book](#)
- [Defence Against Denial of Service Protection](#)
- [Memory Information Utility](#)
- [Utility Password Option Removed](#)

The new features of Oracle Calendar application system 10g include:

Oracle Calendar Web Client

- [Searching](#)
- [Preferences](#)
- [Scheduling](#)
- [Per-instance possibilities](#)

Oracle Mobile Data Sync

- [New device certification](#)
- [Support for per instance details and personal notes](#)
- [Consistent display of multi-day events across Oracle Calendar clients](#)

New in Oracle Calendar Server

This section describes changes to administrative features in Oracle Calendar 10g Release 1.

Automatic User Provisioning

Control how users are automatically provisioned to the Oracle Calendar server. Choose from on-demand, bulk and notification-based provisioning models and define policies based on Oracle Internet Directory object classes.

For more information about automatic Oracle Calendar user provisioning, see the ["Calendar User Account Provisioning"](#) section in [Chapter 7, "Managing Calendar User Accounts"](#).

User Deprovisioning

Deprovision Oracle Calendar user accounts using the `uniuser` utility. Users that are deprovisioned from Oracle Calendar server can later be provisioned again without any loss of data.

For more information about Oracle Calendar user deprovisioning, see the ["Calendar User Account Deprovisioning"](#) section in [Chapter 7, "Managing Calendar User Accounts"](#).

Configurable Automatic Log Rotation

Configure automatic log rotation based on size or age of log files. Logs can automatically be moved to a specified location by configuring parameters in the `$ORACLE_HOME/ocal/misc/unison.ini` file. Rotated log files can also be automatically deleted based on size or age.

For more information about Oracle Calendar's automatic log rotation feature, see the ["Managing Log File Rotation"](#) section in [Chapter 14, "Calendar Server Maintenance and Monitoring"](#).

Service Registry and Discovery

Oracle Calendar server can now automatically discover host and URL information for different components at server startup. Automatic service registry and discovery parameters can be configured in the `$ORACLE_HOME/ocal/misc/unison.ini` file and are denoted by the `_auto` suffix.

For more information about these parameters, see "Calendar Server Parameters" in Chapter 3 of *Oracle Calendar Reference Manual*.

Oracle Process Management and Notification Integration

Oracle Calendar server can now be stopped and started using Oracle Process Management and Notification (OPMN). Use the `opmnctl` command with appropriate options to start, stop and check the status of the Oracle Calendar server.

For more information about starting and stopping Oracle Calendar Server using OPMN, see the ["Starting and Stopping the Oracle Calendar Server"](#) section in [Chapter 5, "Introduction to Oracle Calendar Server Administration"](#).

Oracle Enterprise Manager Integration

When deployed with Oracle Collaboration Suite, the Oracle Calendar server is now integrated with Oracle Enterprise Manager 10g Application Server Control. If the Oracle Calendar server was not configured at the time of Oracle Collaboration Suite installation, it can now be configured from Oracle Enterprise Manager. Moreover, the Oracle Calendar administrator can now be accessed directly through a link from Oracle Enterprise Manager.

Common Address Book

Oracle Calendar server now stores user address books in a Common Address Book (CAB) on Oracle Internet Directory. After address book migration, users will be able to access their Common Address Books from Oracle Calendar clients as well as other Oracle Collaboration Suite component clients.

For more information about the Common Address Book, see the "[About the Common Address Book \(CAB\)](#)" section in [Chapter 6, "Using Oracle Calendar with Directory Servers"](#)

Defence Against Denial of Service Protection

Oracle Calendar server can be configured to warn and protect against denial of service attacks by configuring parameters in the [ENG] section of the \$ORACLE_HOME/ocal/misc/unison.ini file.

For more information about Oracle Calendar server security options and denial of server protection configuration, see "Securing Oracle Calendar" in Chapter 2 of *Oracle Collaboration Suite Security Guide*.

Memory Information Utility

Use the unimem utility to display information on memory usage.

For more information about the unimem utility, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

Utility Password Option Removed

Oracle Calendar server utilities no longer accept the -p option to specify the SYSOP password. A prompt now appears after every running a utility requiring the SYSOP password.

For more information about the syntax all Oracle Calendar server utilities, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

New in Oracle Calendar Application System

This section describes new features in Oracle Calendar application system 10g Release 1.

New in Oracle Calendar Web Client

This section describes new features in the Oracle Calendar Web client

Searching

- Search capability has been improved, and the new "Advanced Search" feature provides an even more accurate and specific way of searching for users.

Preferences

- More details are displayed in the Agenda views, and you can customize the level of detail you want printed and displayed.
- Under Preferences, printouts can now be set to include your entries in a detailed, tabular list.
- You can now choose a default Calendar view under Preferences.
- You can set default start and due times for tasks, under Preferences.

Scheduling

- Various improvements have been made to the Scheduler: Tool tips have been improved, the Scheduler grid now automatically gets populated with the most recent resource search results, user and resource names can be clicked for more information, and time slots can be clicked to see the entries they contain.
- Icons can now be clicked to show more details about entries or to change the reply status for events.
- The Daily List and Daily Planner are now referred to as the "List Mode" and "Planner Mode" of the Daily View. The same change applies to the Weekly List and Weekly Planner.
- The Date Control Bar now includes a link to today's date.
- Day Events and Daily Notes can span multiple days.
- When you book a resource, you can choose to automatically fill in the "Location" field of the meeting with the name of the resource.

Per-instance possibilities

- You can create personal notes - information only you or a designate can see - in an entry, or in selected instances of a repeating entry.
- You can attach a file to an instance of a repeating event.

New in Oracle Mobile Data Sync

This section describes new features in the Oracle Mobile Data Sync.

New device certification

- Nokia 6020, 6021, 6260, 6822, 7260, 7610, 9300
- Siemens C65, CX65, S65, S66, SX1
- Sony Ericsson K700i, K750i, S700i, Z600

Support for per instance details and personal notes

- Oracle Mobile Data Sync now features the ability to add per instance meeting details. When you create a recurring meeting, you can now customize the details per instance, such as a meeting agenda. You can also now add personal notes to meetings that you do not own, which will be maintained on your device, even when you next synchronize with the Oracle Calendar server.

Consistent display of multi-day events across Oracle Calendar clients

- Multi-day events scheduled in Oracle Connector for Outlook will now display correctly in all Oracle Calendar clients, so that they will not appear to block off time in invitees agendas. Note that this feature is based on device capability.

Overview of Oracle Calendar

This chapter examines the overall structure of Oracle Calendar server. An introduction to the concepts and terminology involved is followed by an illustration of the basic internal operations and processes involved in client connections, and an examination of the function of the calendar server daemons/services. This chapter contains the following sections:

- [Introduction to Oracle Calendar](#)
- [About Oracle Calendar Server Architecture](#)
- [About Calendar Daemons/Services](#)

Introduction to Oracle Calendar

This section is a quick introduction to the concepts and terminology at the heart of the calendar server design. This information is intended as a introduction to the architectural and structural information later in this chapter. More details on these subjects are presented in following chapters.

What Is Oracle Calendar?

Oracle Calendar is scalable calendaring software, based on open standards, for efficiently scheduling people, resources, and events. Among other features, it offers real-time lookups and free-time searches; multiple time zone support, and UTF-8 encoding to support international deployments; e-mail and wireless alerts; multiplatform support and an extensible authentication, compression, and encryption (ACE) framework for enhanced security.

The Oracle Calendar server is the back end to an integrated suite of calendaring and scheduling products. Networked users can use a desktop client (Windows, Mac OS, Linux), Microsoft Outlook, Web client or Oracle Workspaces to manage their calendars. Mobile users can synchronize their agendas with a variety of PDAs or, with the addition of Oracle wireless technology, can send and receive calendar entries using a mobile phone.

Where Is the Calendar in Oracle Collaboration Suite?

Oracle Calendar can be found on the host housing the Applications tier of Oracle Collaboration Suite. Most files relating to the Oracle Calendar server can be found in the subdirectories within `$ORACLE_HOME/ocal`.

What Is a Host?

A **host** is the computer running an installation of the Oracle Calendar server. It is possible to have more than one installation of the calendar server on the same host, except on Windows where only one installation of the server may be present on any one host. When more than one calendar server is installed on the same computer, the two are differentiated by the port number used to access them. This is reflected by the `<hostname:portnumber>` combination used to access a server using a utility. For example:

```
uniping -host host1:5730
```

What Is a Node?

A **node** is a local database where the server stores information such as user records, meetings, and events. Each node has a specific, unique identification number called the **Node-ID**. Multiple nodes may exist for the same calendar server. Nodes may also be connected into a **node network**, enabling users on separate servers to schedule meetings and events transparently with one another. When the Calendar server is installed, a node is automatically configured.

What Are Clusters and Master Nodes?

A **cluster** is a node network in which one node is designated the **master node**. The master node coordinates network management, and provides support for finding user accounts on installations spanning multiple nodes and hosts. When master node is in use, Oracle Calendar clients will connect to the master node upon the first login. The Oracle Calendar server will then resolve the node on which the requesting user resides. The Oracle Calendar client will then cache the appropriate node for that user account locally, and connect directly to the appropriate node upon the subsequent login.

Use of a cluster type of network is optional. A cluster type of network, with the first configured node set as the master node is the default at installation when Oracle Calendar is deployed with Oracle Collaboration Suite.

What Is a Standalone Installation?

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 a **standalone** installation, the Oracle 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 calendar server's database.

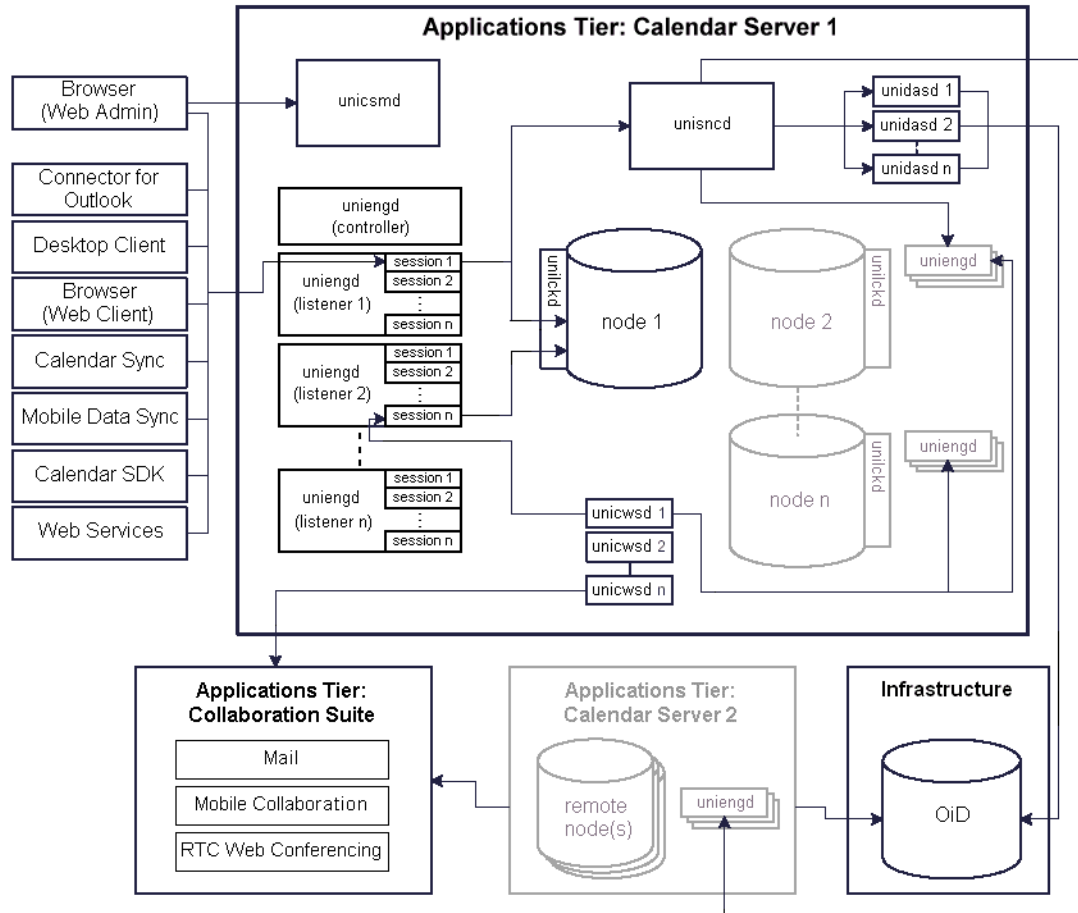
This Administrator's Guide applies to Oracle Calendar standalone deployments and Oracle Collaboration Suite deployments. Exceptions are noted where there is a difference in behavior or supported functionality between a standalone Oracle Calendar deployment and that of an Oracle Collaboration Suite deployment.

About Oracle Calendar Server Architecture

When Oracle Collaboration Suite is installed, the default configuration uses Oracle Internet Directory to store user attributes. All nodes in a node network must use the

same directory server. Figure 2–1 shows the Oracle Calendar server internal architecture.

Figure 2–1 Oracle Calendar Server Internal Architecture



Initial Client Connection

For each client it accepts, the uniengd listener either forks a uniengd session process or creates a uniengd session thread. All subsequent requests from a client are processed by that client's dedicated uniengd session. The connection that exists between a client and the Oracle Calendar server is a persistent TCP/IP network connection. The connection remains persistent until terminated by the client or the server. If the client's network connection is lost, a new client connection must be triggered to establish a connection with the Oracle Calendar server.

Note: Web clients do not adhere to this model. Instead, the Web client application running on the Web server establishes a pool of persistent connections to the calendar server at startup. The client divides these connections among the users actively making requests through their Web browsers.

Client Requests

During a user session, calendar and user information may be viewed, created, modified, or deleted. These operations involve either reads from, or writes to, node databases. The client's `uniengd` session handles reads and writes on the local node (the node containing the user) differently from reads and writes on remote nodes.

Reads and Writes on the Local Node To perform reads or writes on the local node, the client's `uniengd` session requests access to the node database (`$ORACLE_HOME/ocal/db/<node name>`) from the `unilckd`. When the `unilckd` grants access, the `uniengd` session performs the read or write operation. It then relinquishes access to the node database, and if necessary, returns data to the client.

Reads from a Remote Node To read information from a remote node, the client's `uniengd` session requests a connection to the remote node from the `unisncd`. When the `unisncd` passes a connection to that node, the client's `uniengd` session sends the read request to the `uniengd` server at the other end of the connection (see ["Connections to Nodes"](#) later in this chapter). The remote `uniengd` server then requests access to its local node database from its `unilckd`. When the `unilckd` grants access, the `uniengd` server retrieves the information, relinquishes access to the node database, and sends the information to the requesting `uniengd` session. The requesting `uniengd` session receives the information, returns the connection to the `unisncd`, and then passes the information to the client.

Writes to a Remote Node Writes to a remote node arise when the user adds, modifies, or deletes calendar or user information. In this case, the `uniengd` session places a request in the queue of the local node (see ["Node Request Queue"](#) later in this chapter for a discussion of the node queue). Another `uniengd` session associated with this local node services these requests in the same manner as reads on a remote node.

Connections to Nodes

The `uninode` utility reads information in the `$ORACLE_HOME/ocal/misc/nodes.ini` file to determine the number of connections to establish to each node, and propagates this information to every node in the node network.

`unisncd` establishes persistent connections to other nodes on startup, using information stored in the local node(s). It establishes a connection by sending a request to the `uniengd daemon/service` (the `uniengd daemon/service` on the local host for nodes on the local machine, and the `uniengd daemons/services` on remote hosts for nodes on remote hosts). That `uniengd daemon/service` creates a `uniengd` session process or thread to handle requests to the specified node. A `uniengd` session sits on the end of each connection to a remote node. Each of these sessions obtains access to their node database from `unilckd`.

Node Request Queue

Each node has a request queue associated with it. This request queue is maintained within the node database and used by all `uniengd` sessions associated with the node. These request queues contain requests for alerts and e-mail notification, and requests for replication of data (resulting from creation, modification, or deletion of calendar information).

`unicwsd` manages the request queue of each node on the local host. On startup, `unicwsd` sends a request to the `uniengd daemon/service` for a `uniengd` session for each node on the local machine. The `uniengd daemon/service` then creates one

uniengd session process or thread per node to service each node's request queue. The diagram shows one of these uniengd sessions.

unicwsd examines each request in the request queue and determines how to handle it. If the request is for a mail notification, it hands the mail to the mail server. Similarly, it passes requests for wireless reminders and notifications to Oracle Mobile Collaboration. If the request is for a replication to a remote node, it hands the request to the uniengd session servicing the request queue of the node. unicwsd also deletes redundant requests in order to optimize performance.

Connections to the Directory Server

On startup, unisncd reads the numconnect parameter from the [YOURHOSTNAME, unidas] section of the \$ORACLE_HOME/ocal/misc/unison.ini file to determine the number of connections to establish to the LDAP directory server. It then sends a request to the unidasd daemon/service. The unidasd daemon/service spawns a unidasd server for each of the requested connections. When a uniengd session requires directory server access, it requests a connection to a unidasd server from unisncd. unisncd passes a connection to the requesting uniengd session, which retrieves the necessary information from unidasd and subsequently returns the connection to unisncd.

About Calendar Daemons/Services

The calendar server can contain up to six UNIX daemons or multithreaded Windows processes. The calendar server daemons/services are discussed in the following sections:

- [About the Oracle Calendar Engine](#)
- [About the Oracle Calendar Lock Manager](#)
- [About the Oracle Calendar Synchronous Network Connection](#)
- [About the Oracle Calendar Directory Access Server](#)
- [About the Oracle Calendar Corporate-Wide Services](#)
- [About the Oracle Calendar Server Manager](#)

About the Oracle Calendar Engine

The Engine (uniengd) accepts and services calendar requests. All communication with the calendar database is handled by the engine. At startup, a series of uniengd daemons/services are started automatically for each node.

The first uniengd process created is the uniengd Controller. It then creates multiple uniengd Listeners. A listener listens for incoming client connections and (depending on the operating system) either starts uniengd session processes or creates uniengd session threads for each client it accepts. At least one of the uniengd sessions belongs to the Synchronous Network Connection daemon (unisncd described later in this chapter).

Because many of the calendar requests can be received at the same time, the servicing engines rely on the Lock Manager to ensure orderly access to the database of the local node (see Oracle Calendar Lock Manager later in this chapter). Therefore, the Lock Manager must be running in order for the engine to function. The engine must be running in order to operate the calendar server.

About the Oracle Calendar Lock Manager

The Lock Manager (`unilckd`) queues and processes the many requests for access to the calendar server's database. The Lock Manager must be running in order to operate the calendar server. Typically, one lock manager exists per node. However, on UNIX, it is possible to have more than one lock manager per calendar server when more than one node is configured for the same calendar server. This is controlled by the server parameter `[LCK] maxnodesperlistener`.

See Also: For more information about the `[LCK] maxnodesperlistener` parameter, see "Calendar Server Parameters" in Chapter 3 of *Oracle Calendar Reference Manual*.

About the Oracle Calendar Synchronous Network Connection

There is one Synchronous Network Connection daemon/service (`unisncd`) per server which services every node. It fulfills two roles in the server architecture. First, the `unisncd` is used to maintain open TCP/IP connections between nodes, and to grant those connections to clients that request access to another node. Each connection is unidirectional, from the current node to another node, but not vice versa. It is therefore important to ensure that node connections are set in both directions.

The Synchronous Network Connection daemon/service grants connections on a first in, first out basis. Requests that cannot be processed immediately are put in a queue. The number of connections between two nodes may be increased or decreased to minimize both the number of connections used and the traffic and connection time between two nodes. If a Synchronous Network Connection daemon/service loses a connection due to network problems, it will attempt to reconnect later.

In its second role, it is used in implementations with an external directory server, the `unisncd` acts as a broker, granting connections to the Directory Access Server (`unidasd`).

Configuring Synchronous Network Connections

The configuration of the Synchronous Network Connections daemon/service is controlled by several server parameters, and the `uninode` utility. Unless otherwise indicated, the Synchronous Network Connections daemon/service must be restarted for configuration changes to take effect.

See Also: For more information about the `[SNC]` parameters used to configure the Synchronous Network Connections daemon/service, see "Calendar Server Parameters" in Chapter 3 of *Oracle Calendar Reference Manual*.

For more information about the `uninode` utility, see "UNINODE" in Chapter 6 of *Oracle Calendar Reference Manual*.

About the Oracle Calendar Directory Access Server

The Directory Access Server (`unidasd`) is used to maintain open connections to an LDAP directory server. Connections to the Directory Access Server are granted by the Synchronous Network Connection (`unisncd`) daemon/service. The `unidasd` daemon/service is not used when there is no external directory. By default, more than one `unidasd` is started when the calendar server is started.

Configuring the Directory Access Server

The number of `unidasd` connections to establish to the directory server is defined by the server parameter `numconnect` in [`<YOURHOSTNAME>, unidas`] section of the `unison.ini` file. If this parameter is set too low, the server may not be able to handle all requests made for directory server operations, in which case end users will get errors of the type "Unable to contact directory server".

See Also: For more information about the server [DAS] parameters used to configure the Directory Access Server daemon/service, see "Calendar Server Parameters" in Chapter 3 of *Oracle Calendar Reference Manual*.

About the Oracle Calendar Corporate-Wide Services

The Corporate-Wide Services (`unicwsd`) daemon/service replicates data between nodes and provides e-mail notification through an SMTP mail server and wireless notification through Oracle's wireless services. It also processes server-side reminders (SSR) and synchronizes the calendar database with the directory server when necessary.

`unicwsd` communicates with other nodes using TCP/IP sockets and named pipe connections. These links provide fast communication. The TCP/IP sockets and named pipe connections are provided and managed by the Synchronous Network Connection daemon/service (`unisncd`).

By default, two `unicwsd` daemons/services are created when the calendar is started, one for the replication of calendar data between nodes and one for all the other tasks (mail, reminders, and so on).

Configuring Corporate-Wide Services

For each of the following activities one CWS (Corporate-Wide Services) job can be enabled:

ABSync:	Synchronizing the Common Address Book with OiD
ConsistencyScan:	Scanning the database for inconsistencies
DirProv:	Performing notification based calendar account provisioning
DirSync:	Synchronizing with a directory server
EventCalendar:	Replicating Event Calendar events to all nodes
EventSync:	Updating synchronization data for events recently modified
GALSync:	Synchronizing the Global Address List
LogRotation:	Rotating the Calendar server log files to the attic location
Messaging:	Messaging requests for e-mail, wireless alerts, and RTC
Replication:	Node to node data replication
Snooze:	Handling snoozed requests
SSR:	Server-side reminders

A CWS task is a process that handles one or more jobs.

The server can be configured to support one or many separate processes per job using server parameter [CWS] `prioritizedjobs` and the maximum number of nodes a Corporate-Wide Services task can service can be configured using [CWS]

maxnodepertask. Unless otherwise indicated, the Corporate-Wide Services must be restarted in order for a configuration change to take effect.

See Also: For more information about the [CWS] parameters used to configure the Corporate Wide Services service/daemon, see "Calendar Server Parameter" in Chapter 3 of *Oracle Calendar Reference Manual*.

Processing

Whenever a client performs an operation that requires a service from the Corporate-Wide Services daemon, a request is put in a local queue and the appropriate `unicwsd` will service it depending on the type of the request. A `unicwsd` daemon/service processes the requests by reading them from the queue.

When a remote node is temporarily shut down, replication requests destined for that node are accumulated in the queue and tagged as on hold until the node becomes available again. Similarly, if for any reason mail cannot be sent, mail notification requests accumulate in the queue. The utility `unireqdump` can be used to output the set of requests currently in the queue of the Corporate-Wide Services daemon/service.

See Also: For more information about the `unireqdump` utility, see "Calendar Server Utilities " of *Oracle Calendar Reference Manual*.

About the Oracle Calendar Server Manager

The Calendar Server Manager or CSM (`uniccmd`) provides the capability for remote administration of the calendar server. The following administrative operations use the services provided by the CSM:

- Starting a remote server
- Stopping a remote server
- Obtaining the status of a remote server
- Stopping a node located on a remote server
- Starting a node located on a remote server

Before you can start a server remotely, the server must be in stand-by mode. In this mode, all daemons/services are stopped except for `uniccmd`, which is left up and running and waiting for a remote calendar request. If a server is stopped completely (all daemons/services are stopped including `uniccmd`), it will not be possible to restart it remotely.

At installation, the CSM is configured with the parameters in the [CSM] section of the `$ORACLE_HOME/ocal/misc/unison.ini` file. The `port` parameter specifies the TCP port on which the `uniccmd` daemon/service listens. This port must be open (as is the port for `uniengd`) on any firewall for remote management of the server to be possible. To disable remote management of the server, set the `enable` parameter to `FALSE`.

In a standalone installation of the calendar server, the `password` parameter must be specified in the [CSM] section of the `unison.ini` file. This will be the password to access the local calendar server through `uniccmd` from a remote location. The password must be encrypted using the `uniencrypt` utility.

See Also: For more information about the server parameters mentioned above, see "Calendar Server Parameters" in Chapter 3 of *Oracle Calendar Reference Manual*.

See Also: For more information about the `uniencrypt` utility, see "Calendar Server Utilities" of *Oracle Calendar Reference Manual*.

When Calendar is deployed with Oracle Collaboration Suite, the SYSOP password is used. The ACE (authentication, compression and encryption) framework is not used when authenticating remotely using the CSM. For more information about ACE, see [Appendix C, "Calendar Security"](#).

Note: There is only one password for remote access. Two administrators who remotely manage the same server will use the same password, and there will be no way of determining who did what.

The calendar utilities that use the services of the CSM are `unistart`, `unistop`, `unistatus`, and the Calendar Administrator. When accessing a remote server, you invoke the local utility with the host name and port number of the remote server's CSM, using the `-csmhost` option. The CSM password (for standalone installations) or SYSOP password of the remote server must be supplied. For example:

```
% unistart -n 120 -csmhost hercules:7688
Passwd:
```

The local utility communicates with the remote CSM, which invokes the remote version of the utility. Error codes and output produced by the remote utility are passed back and displayed by the local utility. However, any log output is only written to the log files on the remote host. Sign in to the remote host directly to access the log files.

See Also: For more information about the `unistop`, `unistart` and `unistatus` utilities, see "Calendar Server Utilities" of *Oracle Calendar Reference Manual*.

You can also use the Calendar Administrator to manage a calendar server remotely. As with the utilities, you must enter the remote host name, CSM port, and password.

Note that the CSM is an optional part of the Oracle Calendar server. Whether `uniccmd` is up or down, it has no effect on the local calendar operations. Normal calendaring operations are not affected by CSM failure. Only the ability to manage the server remotely is affected.

The remote administration is cross-platform: a calendar server on a Windows system can be started remotely from a calendar server on a UNIX system and vice versa.

Overview of Oracle Calendar Application System

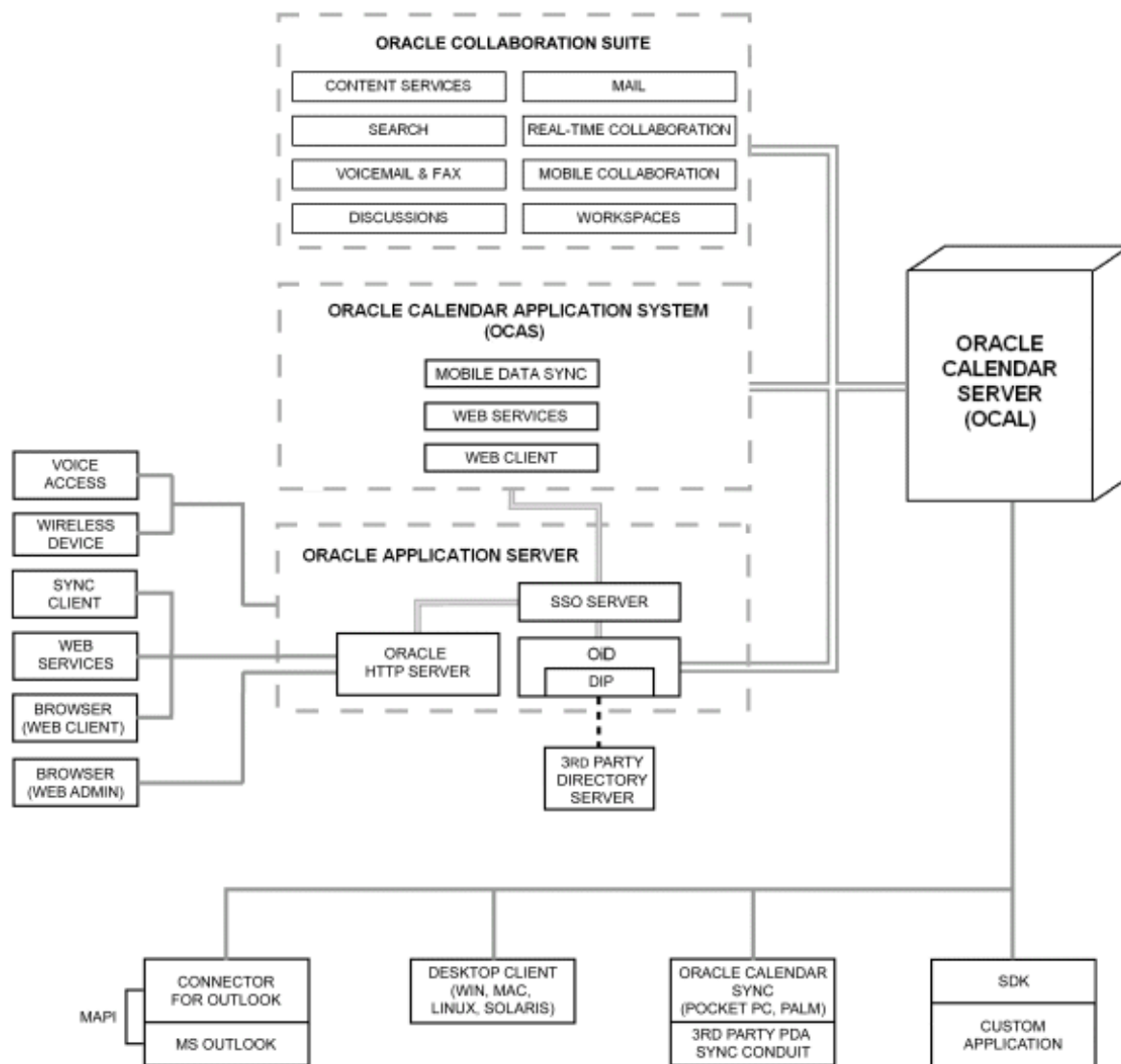
This chapter provides an overview of the Oracle Calendar application system, including a summary of its components and architectural information.

This chapter contains the following sections:

- [About the Oracle Calendar Application System](#)
- [Customizing Oracle Calendar Application System Components](#)
- [Oracle Calendar Application System Administrative Tasks](#)
- [Oracle Calendar Web Client Administrative Tasks](#)
- [Oracle Mobile Data Sync Administrative Tasks](#)

About the 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. Oracle Calendar application system provides a set of shared proprietary APIs that interface with the Oracle Calendar server and run alongside the Oracle HTTP Server, as shown in [Figure 3-1](#).

Figure 3–1 Oracle Calendar Application System

About Oracle Calendar Application System Components

This section includes descriptions and configuration information for the components of Oracle Calendar application system.

Oracle Calendar Web client Enables users to share agendas, schedule meetings, and book resources and equipment through a web interface. When Oracle Calendar application system is deployed with Oracle Collaboration Suite, Oracle Calendar Web client can be accessed through a user's Oracle Collaboration Suite portal page.

Oracle Mobile Data Sync Offers direct two-way synchronization with Oracle Calendar server over any standard Hypertext Transfer Protocol (HTTP) connection, opening up the Calendar infrastructure to any SyncML-compliant device or application with Internet access. The Oracle Mobile Data Sync architecture can also be extended to support third-party standards-based or proprietary infrastructures.

Oracle Mobile Data Sync provides a flexible way to create common information formats and share both the format and the data on the World Wide Web, intranets, and elsewhere. For more information about Oracle Mobile Data Sync, and administrative tasks, see "[Oracle Mobile Data Sync Administrative Tasks](#)".

Oracle Calendar Web Services Enables applications to retrieve, through common XML queries, calendaring data for display in any portal, client application, or back-end server. iCal data is coded in XML, wherein iCal becomes xCal. SOAP is used to encapsulate the messages for delivery. The calendaring data Web Services SOAP is stored directly on the Calendar Server store. This is in effect the Calendar Web Services Language.

Developers can use the Oracle Calendar Web Services toolkit, included with Oracle Calendar, to build Web services applications and create SOAP 1.1 queries. The toolkit contains functionality to search, create, modify, and delete calendar events, as well as search tasks.

Customizing Oracle Calendar Application System Components

The configuration files of Oracle Calendar application system and its components are:

- `ocas.conf`: Oracle Calendar application system itself
- `ocwc.conf`: Oracle Calendar Web client
- `ocws.conf`: Oracle Calendar Web services
- `ocst.conf`: Oracle Mobile Data Sync
- `ocal.conf`: Apache directives, included from
`$ORACLE_HOME/Apache/Apache/conf/oracle_apache.conf`

The configuration files are located in the `$ORACLE_HOME/ocas/conf` directory. Oracle strongly recommends that for reference purposes you make a copy, in either printed or electronic format, of these files before you modify them.

See Also: For more information about all Oracle Calendar application system related configuration files, see "Calendar Application System Parameters" in Chapter 4 of *Oracle Calendar Reference Manual*.

Configuring Which Oracle Calendar Application System Components are Available

When started, the Oracle Calendar application system launches four plugins: The Oracle Calendar application system itself, the Oracle Calendar Web client, Oracle Calendar Web services, and Oracle Mobile Data Sync. Configure which plugins are launched when the Oracle Calendar application system is started by following these steps:

- With a text editor, open the `$ORACLE_HOME/ocas/conf/ocas.conf` file.
- Locate the `[plugins]` section.
- Using the `#` symbol, comment out any plugins that you do not want to be launched when the Oracle Calendar application system is started. The available modules are:

`plugin01=./liblexcaldata.so` -- the Oracle Calendar Application System itself

`plugin02=./liblexwebhtml.so` -- the Oracle Calendar Web Client

`plugin03=./liblexsyncml.so` -- Oracle Mobile Data Sync

plugin04=../liblxml.so -- Oracle Calendar Web services

WARNING: Do not add a # symbol in front of plugin01, as it is required in order to successfully start all other plugins.

- Save the file.
- Restart the Oracle Calendar application system. For more information about how to restart Oracle Calendar application system, see [Starting and Stopping Oracle Calendar Application System](#).

Tips: You can verify which Oracle Calendar application system components are available by going to the following URL:

`http://<host>:<port>/ocas-bin/ocas.fcgi?sub=sys`

You can view statistical information about Oracle Calendar application system by going to the following URL:

`http://<host>:<port>/ocas-bin/ocas.fcgi?sub=sys&sys=stats`

Oracle Calendar Application System Administrative Tasks

This section explores common administrative tasks that may be required to customize and maintain the Oracle Calendar application system.

Starting and Stopping Oracle Calendar Application System

Oracle Calendar application system always requires a restart after a configuration file has been modified in order to recognize the changes. Stopping and starting Oracle HTTP Server or Apache will not restart the Oracle Calendar application system, as it is running as an external FCGI process. Moreover, the Oracle Calendar application system cannot be controlled using `opmnctl`.

To start, stop and check the status of the Oracle Calendar application system, follow these steps:

1. To start the Oracle Calendar application system, use the `ocasctl` command line utility, with the options specified below:

```
$ORACLE_HOME/ocas/bin/ocasctl -start
$ORACLE_HOME/ocas/bin/ocasctl -start -t ochecklet
```

Note: Ports 8010 and 8020 are default port numbers for Oracle Calendar application system and `ochecklet`. The valid range is 8010 through 8020. For more information about viewing and changing the Oracle Calendar application system port, see ["Changing the Oracle Calendar Application System Port"](#).

2. To stop the Oracle Calendar application system, use the `ocasctl` command line utility:

```
$ORACLE_HOME/ocas/bin/ocasctl -stopall
```

3. To check the status of the Oracle Calendar application system, use the `ocasctl` command line utility with the `-status` option:

```
$ORACLE_HOME/ocas/bin/ocasctl -status
```


When to Restart the Oracle Calendar Application System

Generally, the Oracle Calendar application system will not need to be restarted. In certain circumstances; however, you will need to restart it. The following list represents the situations in which the Oracle Calendar application system will need to be restarted:

- When a parameter is changed in any of the configuration files located in the `$ORACLE_HOME/ocas/conf` directory.
- After a node is added to the Oracle Calendar server, and the Oracle Calendar server has been restarted.
- In the case where the Oracle Calendar server has not discovered the Real-Time Collaboration service or the resource approval e-mail addresses and the Oracle Calendar server has been restarted in order to discover those values.

For more information about the `[RESOURCE_APPROVAL] url_auto` and `[CONFERENCING] url_auto` parameters on the Oracle Calendar server, see "Calendar Server Parameter" in Chapter 3 of *Oracle Calendar Reference Manual*.

Configuring the Number of Fast-CGI Processes

Situations may arise where it becomes necessary to increase the number fast-CGI processes that are started for Oracle Calendar application system. In order to modify the number of processes the `[procmgr] nprocs` parameter must be modified in the `$ORACLE_HOME/ocas/conf/ocas.conf` file.

Follow these steps to modify the number of processes started for Oracle Calendar application system:

- With a text editor, open the `$ORACLE_HOME/ocas/conf/ocas.conf` file.
- Locate the `[procmgr]` section of the file.
- Modify the `numprocs` parameter to reflect the number of Oracle Calendar application system processes you want to be available. For example, if you want 10 processes to be available, modify the `nprocs` parameter in the following way:

```
nprocs = 10
```

- Save and close the file.
- Restart the Oracle Calendar application system. For more information on restarting Oracle Calendar application system, see ["Starting and Stopping Oracle Calendar Application System"](#).

Changing the Oracle Calendar Application System Port

The Oracle Calendar application system external fcgi process shares the same port as Oracle HTTP Server or Apache. If the port that Oracle HTTP Server or Apache uses is changed, the Oracle Calendar application system must be modified to reflect this change. To change the port values for Oracle Calendar application system, both the `$ORACLE_HOME/ocas/conf/ocal.conf` and the `$ORACLE_HOME/ocas/conf/ocas.conf` files must be modified.

To change the port number that Oracle Calendar application system uses, follow these steps:

- With a text editor, open the `$ORACLE_HOME/ocas/conf/ocal.conf` file.

- Locate the `FastCgiExternalServer` directive. The directive will look similar to the following example:

```
FastCgiExternalServer <ORACLE_HOME>/ocas/bin/ocas.fcgi -appConnTimeout 300  
-idle-timeout 300 -pass-header REMOTE_USER -host myhost.com:8010
```

Where `myhost.com` is the machine that hosts the Oracle HTTP Server or Apache, and `8010` represents the port.

- Modify the directive to reflect the new port value.
- Save and close the `ocal.conf` file.
- With a text editor, open the `$ORACLE_HOME/ocas/conf/ocas.conf` file.
- Locate the `[procmgr]` section.
- Modify the `ocasport` parameter to reflect the new port value. For example, if you want to modify the port to a new value of `8011`, modify the `ocasport` parameter in the following way:

```
ocasport = 8011
```

- Save and close the `ocas.conf` file.
- Restart Oracle HTTP Server or Apache.
- Restart the Oracle Calendar application system. For more information on restarting Oracle Calendar application system, see ["Starting and Stopping Oracle Calendar Application System"](#).

Increasing the Logging Level

When troubleshooting issues with the Oracle Calendar application system, increasing the logging level to debug can often help provide greater insight to the source of a problem.

Follow these steps to increase the logging level to debug for Oracle Calendar application system:

- With a text editor, open the `$ORACLE_HOME/ocas/conf/ocas.conf` file.
- Locate the `[system]` section of the file.
- Modify the `eventlevel` parameter within the `[system]` section to reflect that that debug logging should be output:

```
eventlevel = debug
```

- Save and close the file.
- Restart the Oracle Calendar application system. For more information on restarting Oracle Calendar application system, see ["Starting and Stopping Oracle Calendar Application System"](#).

Debug logging will be written to the `$ORACLE_HOME/ocas/logs/ocas_log` file.

Note: Increasing the logging level for Oracle Calendar application system to debug will cause the `ocas_log` file to grow at a rapid rate. Oracle recommends resetting the `eventlevel` parameter to a lower logging level, such as `error`, after the troubleshooting process is complete.

Oracle Calendar Application System Metrics and Statistics

Oracle Calendar application system offers advanced metrics and statistics logging. Enabling metrics and statistics logging will compile information about response times, and can help administrators when troubleshooting data bottlenecks, or slow response times.

Enabling Performance Metrics and Statistics

When enabling performance metrics and statistics, the level of detail of logging is controlled by the `performanceloglevel` parameter. The supported values, from least detail to greatest detail are: `normal`, `calserv`, `detailed` or `debug`. When `calserv`, `detailed` or `debug` is specified, Oracle Calendar server and Oracle Calendar application system response times will be logged.

To enable performance metrics and statistics, follow these steps:

- With a text editor, open the `$ORACLE_HOME/ocas/conf/ocas.conf` file.
- Locate the `[system]` section of the file.
- Modify the `performance`, `performancelogpath` and `performanceloglevel` parameters within the `[system]` section to reflect the values in the following text:

```
performance=true
performancelogpath=../logs/performance
performanceloglevel=calserv
```

- Save and close the file.
- Restart the Oracle Calendar application system. For more information on restarting Oracle Calendar application system, see ["Starting and Stopping Oracle Calendar Application System"](#).

After following the instructions above, the logs will appear in the directory specified by the `performancelogpath` parameter with these file names:

```
performance_stats_<component>_log
```

The `<component>` in the above example, represents the component name, as described in a `[components]` section of the `$ORACLE_HOME/ocas/conf/ocas.conf` file. For more information about customizing statistic file names, see ["Customizing Statistic File Names"](#).

Note: Enabling performance metrics and statistics logging for Oracle Calendar application system will cause the associated log file to grow at a rapid rate. Oracle recommends setting the `performance` parameter to `false` after the investigation process is complete.

Enabling Transaction Metrics and Statistics

To enable logging of transaction information between the Oracle Calendar applications system and Oracle Calendar server, follow these steps:

- With a text editor, open the `$ORACLE_HOME/ocas/conf/ocas.conf` file.
- Locate the `[system]` section of the file.
- Configure the value for either the `dispatchstats` parameter **or** the `dispatchtransactionstats` parameter to be set to `true`, as in the following example:

```
dispatchstats=true
```

or

```
dispatchtransactionstats=true
```

- Configure the value `dispatchstatslog` parameter to be set to the destination path for the statistics logs, as in the following example:

```
dispatchstatslog=../logs/stats
```

- Save and close the file.
- Restart the Oracle Calendar application system. For more information on restarting Oracle Calendar application system, see ["Starting and Stopping Oracle Calendar Application System"](#).

Note: When transaction metrics and statistics are enabled on the Oracle Calendar application system, the Oracle Calendar server will stop logging this type of information for that particular instance of the Oracle Calendar application system in the `$ORACLE_HOME/ocal/log/stats.log`.

After following the instructions above, the logs will appear in the directory specified by the `dispatchstatslog` parameter with these file names:

```
stats_<component>_log
```

The `<component>` in the above example, represents the component name, as described in a `[components]` section of the `$ORACLE_HOME/ocas/conf/ocas.conf` file. For more information about customizing statistic file names, see ["Customizing Statistic File Names"](#).

Note: Enabling transaction metrics and statistics logging for Oracle Calendar application system will cause the associated log file to grow at a rapid rate. Oracle recommends setting the `dispatchstats` or the `dispatchtransactionstats` parameter to `false` after the investigation process is complete.

Customizing Statistic File Names

Statistic file names can be customized on a sub-component basis. You will need to include additional lines in the `$ORACLE_HOME/ocas/conf/ocas.conf` file in order to accomplish this task.

To customize statistic log names, follow these steps:

- With a text editor, open the `$ORACLE_HOME/ocas/conf/ocas.conf` file.
- Locate the `[sortalgorithm]` section of the file.
- Add the following lines after the `[sortalgorithm]` section and its associated parameters:

```
#-----  
# The components section details the name of each request handler and  
# the product or component it belongs to so that the dispatch  
# transaction statistics generated can be grouped on a per component  
# basis and not on a per request handler basis
```

```
#-----
[components]
ApplicationServer=ocas
HTMLCalendarClient=ocwc
CalendarUploadClient=ocwc
SyncMLXMLSynchronization=ocst
SyncMLWBXMLSynchronization=ocst
WebServicesSOAP=ocws
WebServicesWSDL=ocws
```

- Save and close the file.
- Restart the Oracle Calendar application system. For more information on restarting Oracle Calendar application system, see ["Starting and Stopping Oracle Calendar Application System"](#).

Oracle Calendar Web Client Administrative Tasks

This section explores common administrative tasks that may be required to customize and maintain the Oracle Calendar Web client.

Enabling Support for Other Download Types

By default, users cannot download certain file types using the Oracle Calendar Web client. Accepted file types are listed in the [download_extension] section of the \$ORACLE_HOME/ocas/conf/ocwc.conf file. You can extend the supported download types by adding file extensions and associated MIME types to this list. For example, if you wish to allow users to be able to download .zip, .bmp and .png type files, follow the steps outlined below:

- With a text editor, open the \$ORACLE_HOME/ocas/conf/ocwc.conf file.
- Locate the [download_extension] section and include the following three lines within the section:

```
.zip = application/zip
.bmp = image/bmp
.png = image/png
```

- Save and close the ocwc.conf file.
- Restart the Oracle Calendar application system. For more information on restarting Oracle Calendar application system, see [Starting and Stopping Oracle Calendar Application System](#).

Increasing the Size of the Favorites List

By default, the Oracle Calendar Web client allows 15 agendas to be saved in a user's **Favorites** list. This may be increased by modifying a parameter in the \$ORACLE_HOME/ocas/conf/ocwc.conf file in conjunction with a modification to a parameter in the \$ORACLE_HOME/ocal/conf/unison.ini file.

Depending on the number of Favorites you want users to be able to store, modify the files according to the values listed in [Table 3-1](#):

Table 3-1 Configuration Values to Increase the Size of the Favorites List

ocwc.conf [limits] maxfavourite=	unison.ini [ENG] itemextinfo maxsize=
15	1500

Table 3–1 (Cont.) Configuration Values to Increase the Size of the Favorites List

ocwc.conf [limits] maxfavourite=	unison.ini [ENG] itemextinfo-maxsize=
20	1800
30	2500
50	3800
60	4500

For more information about the [limits] maxfavourite parameter in the ocwc.conf file, see "Calendar Application System Parameters" in Chapter 4 of *Oracle Calendar Reference Manual*.

For more information about the [ENG] itemextinfo-maxsize parameter in the unison.ini file, see "Calendar Server Parameters" in Chapter 3 of *Oracle Calendar Reference Manual*.

Oracle Mobile Data Sync Administrative Tasks

This section explores common administrative tasks that may be required to customize and maintain Oracle Mobile Data Sync.

Device Profiles

Before discussing common administrative tasks, it is important to understand some terminology used in this section.

- A device is a phone or personal digital assistant that communicates with the Oracle Mobile Data Sync to synchronize data.
- Device profiles are sections within the \$ORACLE_HOME/ocas/conf/ocst.conf file that contain parameters that are associated with a device or many devices, and control the device's behavior when synchronizing with Oracle Mobile Data Sync.

Defined Device Descriptions

Oracle Mobile Data Sync supports numerous devices. Devices are defined and listed in the [ocst-devices] section of the \$ORACLE_HOME/ocas/conf/ocst.conf configuration file. Each device in this section is defined in the following format:

```
device<#>=<device>
```

Some of the defined devices are specific to one device whereas other defined devices can apply to multiple devices. The following table helps explain the specific device(s) included in each defined device, as listed in the [ocst-devices] section of the \$ORACLE_HOME/ocas/conf/ocst.conf configuration file.

Table 3–2 Defined Device Descriptions

Device	Device Description
nokia9210	Nokia 9210 phones.
nokia9290	Nokia 9290 phones.
nokia7650	Nokia 7650 phones.
nokia3300	Nokia 3300 phones.
nokia3650	Nokia 3650 phones.

Table 3–2 (Cont.) Defined Device Descriptions

Device	Device Description
nokia6108	Nokia 6108 phones.
nokia6200	Nokia 6200 phones.
nokia6600	Nokia 6600 phones.
nokia6630	Nokia 6630 phones.
nokia6800	Nokia 6800 phones.
nokia6810	Nokia 6810 phones.
nokia6820	Nokia 6820 phones.
nokia7250	Nokia 7250 phones.
nokia7250i	Nokia 7250i phones.
nokia_phones_v1	Nokia phones using SyncML version 1.0, that do not otherwise have a device specific profile.
nokia_phones_v11	Nokia phones using OMA DS 1.1.2, that do not otherwise have a device specific profile.
nokia_corp_phones_v11	Phones identified as "Nokia Corporation" and using OMA DS 1.1.2.
ericsson_phones	Ericsson T39 and R520 phones.
sonyericsson_phones	Sony Ericsson T68i, T610, T616, T630, T637 phones.
sonyericsson_p800	Sony Ericsson P800
sonyericsson_p900	Sony Ericsson P900
siemens_s55	Siemens S55 phone.
siemens_m55	Siemens M55 phone.
synthesis_palm_std	Synthesis 2.1.x Palm Standard clients.
synthesis_pocketpc_std	Synthesis 2.1.x Pocket PC Standard clients.
synthesis_palm_pro	Synthesis 2.1.x Palm Pro clients.
synthesis_pocketpc_pro	Synthesis 2.1.x Pocket PC Pro clients.
siemens	Siemens phones that otherwise do not have a device specific profile.
consilient	Consilient2 clients.
nokia9500	Nokia 9500 phone.
nokia9300	Nokia 9300 phone.
nokiaNGage	Nokia N-Gage phone.
nokia6620	Nokia 6620 phone.
nokia6230	Nokia 6230 phone.
sonyericsson_p910a	Sony Ericsson p910a phone.
sonyericsson_p910i	Sony Ericsson p910i phone.
sysync_palm_std	Synthesis 2.5.x Palm Standard clients.
sysync_palm_pro	Synthesis 2.5.x Palm Pro clients.

Table 3–2 (Cont.) Defined Device Descriptions

Device	Device Description
sysync_pocketpc_std	Synthesis 2.5.x Pocket PC Standard clients.
sysync_pocketpc_pro	Synthesis 2.5.x Pocket PC Pro clients.
sysync_smartphone_std	Synthesis 2.5.x Smartphone Standard clients.
sysync_smartphone_pro	Synthesis 2.5.x Smartphone Pro clients.
nokia6610i	Nokia 6610i phones.
nokia6822	Nokia 6822 phones.
sonyericsson_SEMC	Sony Ericsson K700i, S700a and S700i phones.
nokiaCatalina	Nokia 7610 and 6260 phones.
nokia7260	Nokia 7260 phones.
nokia6810_v528	Nokia 6810 v528 phones.
siemensSX1	Siemens SX1 phones.
sonyericsson_k750i	Sony Ericsson K750i phone
consilient_j2me	Consilient Blackberry Java Client
nokia6021	Nokia 6021
nokia6020	Nokia 6020
siemens_s65	Siemens S65 phone
siemens_cx65	Siemens CX65 phone
siemens_c65	Siemens C65 phone
siemens_s66	Siemens S66 phone

Note: The devices listed in [Table 3–2](#) represent defined devices at the time of this release. Accepted values can be added to the configuration file as specified in any Oracle Calendar application system one-off ReadMe.

Device Profile Sections

Each device listed in the [ocst-devices] section of the \$ORACLE_HOME/ocas/conf/ocst.conf has a corresponding [ocst-<device>] section, called a device profile. Within each device profile, a list of parameters are included. Some parameters identify the device, and others allow administrators to customize preferences on a per device profile basis. The following is an example of a device profile that appears in the ocst.conf:

```
[ocst-nokia7650]

# For all software revisions on the 7650
man=NOKIA
mod=7650
swv=
devinfver=1.0

# Configuration options that can be changed
syncrangeback=7
syncrangeforward=30
```



```
wantrefusedentries=false
deloutofrange=true
confresolution=1
clientsupportsattendeesync=false
wantattendanceintitle=true
wantownershipintitle=true
wantlocationintitle=false
```

The first four lines of a device profile specify the characteristics of the device. In the above example, the manufacturer (`man`) is Nokia, the model (`mod`) is a 7650, the software version (`swv`) is not specified, and the development information version (`devinfver`) is 1.0. The remaining parameters are options that are available for configuration that, if changed, will apply only to devices matching this device profile. For more information on configurable parameters that can be applied to device profiles, see "OCST.CONF" in Chapter 4 of *Oracle Calendar Reference Manual*.

The first four lines of the device profile are referenced when a device is authenticating with Oracle Mobile Data Sync. At the time of authentication, the device identifies itself, by providing technical specifications of the device to Oracle Mobile Data Sync. Oracle Mobile Data Sync then attempts to match the device that is authenticating with a device profile specified in the `$ORACLE_HOME/ocas/conf/ocst.conf` file.

Matching Devices to Device Profiles

The matching of a device to a device profile occurs in the following sequence:

- Look for an exact match of all four properties: `man`, `mod`, `swv` and `devinfver`
- If no match is found, look for an exact match for three properties: `man`, `mod`, `devinfver`.
- If no match is found, look for an exact match for `man`, `mod` and `devinfver`, where the value assigned to `swv` represents the value assigned `mod`.
- If no match is found, look for an exact match for `man`, `swv` and `devinfver`.
- If no match is found, look for an exact match for `man` and `devinfver`.
- If no match is found, then use the system -wide default values specified in the `[ocst]` section of the `$ORACLE_HOME/ocas/conf/ocst.conf`.

See Also: For information about preventing unmatched devices from synchronizing with Oracle Mobile Data Sync, see "[Controlling Uncertified Clients](#)"

Creating a Device Profile

Often, new devices are manufactured that may conform to an existing profile, and can synchronize successfully with Oracle Mobile Data Sync. If the device does not conform to an existing profile, it may be necessary to create a new device profile.

Note: Creating a new device profile is only recommended for new devices released by a vendor that are in a family of devices that has already been certified for use with Oracle Mobile Data Sync.

Creating a new device profile for a certified device can be broken down into three parts:

- [Discovering Device Profile Information](#)

- [Adding Device Profile Information to the ocst.conf](#)

Discovering Device Profile Information

Follow these steps to discover information for a new device profile for a certified device:

1. With a text editor, open the `$ORACLE_HOME/ocas/conf/ocst.conf` file.
2. Set the `[ocst] wantcapturedeviceinfo` parameter to `TRUE`.
3. Specify a valid directory path for the `[ocst] deviceinfopath`.
4. Save and close the `ocst.conf` file.
5. Restart the Oracle Calendar application system. For information on starting and stopping Oracle Calendar application system, see ["Starting and Stopping Oracle Calendar Application System"](#).
6. Attempt to synchronize the device with Oracle Mobile Data Sync.
7. After the synchronization attempt, an `.xml` file will appear in the directory path specified for the `[ocst] deviceinfopath`.

Note: The `.xml` file may appear in a subdirectory of the path specified. For example,
`<deviceinfopath>/SonyEricsson/P910a/<uniquedeviceid>.xml`

Open the `<uniquedeviceid>.xml` file.

Tip: If Oracle Mobile Data Sync is currently being used in a production environment, more than one `<uniquedeviceid>.xml` files may appear in the `<deviceinfopath>`. Make sure to open the file that corresponds to the new device just synchronized. Comparing the time of synchronization with the date and time stamp on the file is often helpful.

8. Four elements similar to the following example will appear within the `<uniquedeviceid>.xml` file:

```
<VerDTD>1.0</VerDTD>
<Man>Sony Ericsson</Man>
<Mod>P900</Mod>
<SwV>1.0</SwV>
```

These elements correspond to device profile information that will need to be added to the `ocst.conf` file.

Adding Device Profile Information to the ocst.conf

Follow these steps to add a new device profile for a certified device:

1. With a text editor, open the `$ORACLE_HOME/ocas/conf/ocst.conf` file.
2. Add a line to the `[ocst-devices]` section that will correspond to the device profile you are adding. For example:

```
device123=sonyericsson_p900
```

Note: The number that appears after `device` (in the above example, 123) must be a unique number. The string that appears to the right of the `device<#>` (in the above example, `sonyericsson_p900`) can be any unique string.

3. Copy a similar existing device profile, and all corresponding parameters to a new section.
4. Rename the new device profile to reflect the name of the value associated with the `device<#>` parameter in Step 2. Using the above example, the device profile section name for `device123=sonyericsson_p900` would have to be:

```
[ocst-sonyericsson_p900]
```

5. Replace the `man`, `mod`, `swv` and `devinfver` parameters of the newly created device profile section with the values discovered in Step 8 of [Discovering Device Profile Information](#).
 - Set `man` to the value between `<Man>` and `</Man>`.
 - Set `mod` to the value between `<Mod>` and `</Mod>`.
 - Set `swv` to the value between `<SwV>` and `</SwV>`.
 - Set `devinfver` to the value between `<VerDTD>` and `</VerDTD>`.

Using the same example, the first four parameter entries in the `[ocst-sonyericsson_p900]` section should look like this:

```
man=Sony Ericsson
mod=P900
swv=1.0
devinfver=1.0
```

6. Restart the Oracle Calendar application system. For information on starting and stopping Oracle Calendar application system, see [Starting and Stopping Oracle Calendar Application System](#).

Controlling Uncertified Clients

Oracle Mobile Data Sync can be configured to restrict synchronization of certain devices. You may, for example, want to configure Oracle Mobile Data Sync to restrict synchronization of certain devices if secure synchronization of data is a high priority for your organization. You can restrict Oracle Mobile Data Sync to only accept synchronization requests from devices that support SSL synchronization. Oracle Mobile Data Sync supports SSL connections that are properly configured on the appropriate port during Oracle Collaboration Suite installation and configuration. This section discusses how to configure Oracle Mobile Data Sync to prevent users with unsupported devices from synchronizing.

Configuration

Follow these steps to restrict certain devices from synchronizing with Oracle Mobile Data Sync:

1. With a text editor, open the `$ORACLE_HOME/ocas/conf/ocst.conf` file
2. Set the `[ocst] uncertifiedclients` parameter to `disallow`.

3. Add the following parameter and value to every device profile that you wish to define as uncertified:

```
uncertified=TRUE
```

4. Restart the Oracle Calendar application system. For information on starting and stopping Oracle Calendar application system, see ["Starting and Stopping Oracle Calendar Application System"](#).

Example

Vision Corporation wishes to prevent users with XYZMobile phones from synchronizing with Oracle Mobile Data Sync. At an earlier date, the administrator had defined mobile phones of this type in the `$ORACLE_HOME/ocas/conf/ocst.conf` file with the following device profile: `[ocst-xyz_mobile]`. In order to prevent users from synchronizing with Oracle Mobile Data Sync using these devices, the administrator applies the following changes to the `ocst.conf` file:

- Change the `[ocst]` `uncertifiedclients` parameter to `disallow`:

```
[ocst]
uncertifiedclients=disallow
```

- Locate the `[ocst-xyz_mobile]` device profile.
- Within the `[ocst-xyz_mobile]` add the `uncertified` parameter and set it to `TRUE`:

```
uncertified=TRUE
```

- Restart the Oracle Calendar application system.

Configuring the Links Database

By default, each Oracle Mobile Data Sync application tier stores the following information in its own respective internal location:

- Session database: Information used during a synchronization session; in other words, a location to store messages that are passed between the device and server during a device synchronization.
- Links database: Information maintained for all synchronizations, such as device time zones, last recorded synchronizations, device-ID to server-ID mappings, and so on.

If you have multiple Oracle Mobile Data Sync tiers, you must point them all to a central, unified location to store this information, such as an NFS mount or a data store (network appliance). Failure to do this can result in many unnecessary slow (full) synchronizations. An improperly maintained links database can result in many unnecessary slow (full) synchronizations.

In order to configure your links database to point to the same location, the following steps must be carried out on all Application tier instances:

1. Open the `$ORACLE_HOME/ocas/conf/ocas.conf` configuration file with a text editor.
2. Locate the `linkdbstorepath` parameter in the `[system]` section.
3. Specify the path where link database information should be stored. The path specified must be the same physical location on all Application tier instances, such as an NFS mount.

4. Locate the `sessionpath` parameter in the `[sessiondb]` section.
5. Specify the path where session path information should be stored. The path specified must be the same physical location on all Application tier instances, such as an NFS mount.
6. Save the file.
7. Restart the Oracle Calendar application system. For information on starting and stopping Oracle Calendar application system, see "[Starting and Stopping Oracle Calendar Application System](#)".

Planning a Calendar Deployment

This chapter outlines the deployment and installation of the Oracle Calendar server and Oracle Calendar application system. Prior planning is an integral part of a successful implementation in your organization. You should read this chapter before installing the server to ensure that the installation is properly customized to suit your needs.

This chapter contains the following chapters:

- [How to Plan a Calendar Deployment](#)
- [Preinstallation Checklist](#)
- [Installation Notes](#)
- [Oracle Calendar Application System Installation Considerations](#)
- [Oracle Calendar Application System Postinstallation Issues](#)
- [Calendar Client Deployment Information](#)

How to Plan a Calendar Deployment

To realize the optimal Oracle Calendar server configuration for your organization, you must first evaluate who your users are, how they should be organized, and how the product will be installed and managed. Consider the following factors:

- [Determine the Number of Users](#)
- [Assign Product Administration Tasks](#)

Determine the Number of Users

Planning an Oracle Calendar deployment requires an understanding of the number of Oracle Calendar users anticipated. Moreover, it is important to understand Calendar server usage patterns by different users on different Calendar server nodes.

For all information about planning a logical division of users on Oracle Calendar server nodes, see "Planning for Oracle Calendar Deployment" in Chapter 5 of *Oracle Collaboration Suite Deployment Guide*.

Assign Product Administration Tasks

As a final task in this deployment exercise, determine who will be responsible for the different tasks that are part of setting up and maintaining an Oracle Calendar system. The major tasks are:

- System administration on the UNIX or Windows server (including monitoring and backups)
- Adding, modifying, and deleting users, resources and event calendars
- Manage administrative and public groups
- Resource administration (assigning designates, creating categories)
- Holiday administration
- Front-line support
- Client training

Different levels of administration tasks can be assigned to calendar users.

Preinstallation Checklist

To ensure a quick deployment and minimize later tuning, you should consider a number of configuration issues before installation. Calendar server behavior can be controlled by parameters set in the `$ORACLE_HOME/ocal/misc/unison.ini` file. For more information about these parameters see "Calendar Server Parameters" in Chapter 3 of *Oracle Calendar Reference Manual*.

- **Kernel parameters**

Evaluate operating system kernel parameters, and if necessary tune them for each installation. See [Appendix B, "Adjusting Kernel Parameters for Calendar"](#) for information concerning the relevant parameters for each supported operating system, the procedure used to alter the current values, and the formulas used to derive correct settings for your installation.

- **Client connections**

The [ENG] `maxsessions` parameter determines the number of available client connections to the calendar server. Set it high enough to accommodate the traffic and expected usage of each node, but be aware that setting this value too high will waste system resources.

- **Attachments**

The [LIMITS] `allowattachments` parameter enables or disables the ability of the calendar clients to attach files to events or tasks. If attachments are permitted, you can be limit in size using the [LIMITS] `maxattachmentsize` parameter.

- **Group administration**

The server offers four different group types: personal, members-only, public, and administrative. All users have the right to create personal and members-only groups. The administrator must assign the rights to create public and administrative groups must be assigned by the administrator. See [Chapter 10](#) for more details on the differences between the group types and the methods used to change default administration rights.

- **ACE security framework**

The calendar server's authentication, compression and encryption (ACE) framework is an extensible system ensuring the security and integrity of all information passing from server to server and between servers and clients. By default, the ACE framework is enabled and cannot be disabled unless you are using a standalone installation of the Oracle Calendar server. If you are using a standalone installation, you can use the [ACE] `frameworkenable` parameter to

disable the ACE framework. For more information on the ACE framework, see "Understanding the ACE Framework" in Chapter 2 of *Oracle Collaboration Suite Security Guide*.

■ Resource scheduling

You can set up resources either on a first-come first-served basis where double-bookings are not permitted, or to permit conflicts to occur. You can restrict resources to only a few users or make them available to all users with required approval. The default value for the [ENG] `allowresourceconflict` parameter prohibits double-bookings. See [Chapter 8, "Managing Calendar Resources Accounts"](#) for more details on managing resources.

Information to Consider Before Installing

Before launching the Oracle Universal Installer, whether installing Oracle Collaboration Suite or Oracle Calendar standalone, consider the information required from various prompts during the installation process.

Installing Calendar with Oracle Collaboration Suite

When installing Oracle Collaboration Suite, the Oracle Universal Installer, the only Calendar specific prompt will be a request to enter the Calendar server's host name alias.

Installing Oracle Calendar Standalone

[Table 4–1](#) is a list of the items to consider before installing Oracle Calendar server in standalone mode with or without an external directory server. Each item listed in this table can help prepare for prompts from the Oracle Universal Installer when installing Calendar server standalone.

Table 4–1 Installation Information Checklist for Calendar Standalone Deployments

Item	Accepted Values	Type of Deployment
Oracle Calendar Server Host Alias To allow the flexibility to move the Calendar server instance, or change the host name, it is recommended that you use an alias in place of the host name. If an alias is not configured, specify your host name.	A valid host name	Internal or External
Node-ID	A unique positive integer in the range of 1-49999.	Internal or External
Oracle Calendar Master Node The Master node coordinates the management of the Calendar node network. Typically, the node created during the first Calendar installation is designated as the master node. Only one master node is permitted on a node network.	Enable (Yes) or Disable (No)	Internal or External
Mail Notification *Windows only	Enable (Yes) or Disable (No)	Internal or External
Mail Host *Windows only	Any host	Internal or External

Table 4–1 (Cont.) Installation Information Checklist for Calendar Standalone

Item	Accepted Values	Type of Deployment
Oracle Calendar Administrative Password (SYSOP) Oracle Calendar server sets two passwords to one value on installation. The node or "SYSOP" password is required for node administration. The Calendar Server Manager (CSM) password is required for remote management of nodes. Both values can be reset individually after installation.	Up to 15 alphanumeric characters in length	Internal or External
Base DN	The point in the directory hierarchy from which searches are performed	External only
SuperUser DN	User with "unrestricted access". Must be a DN already in the directory server	External only
Calendar server Administrators' Parent DN	Any DN, offset from the base DN	External only
Calendar server Administrators' Group DN	A new group created under the base DN	External only

Installation Notes

Ensure that you complete all the instructions in the *Oracle Collaboration Suite Installation Guide*.

Distributed Installations

Multiple instances of the calendar server can be installed on the same UNIX host (not on Windows). Whether one instance or many instances of Oracle Calendar are installed on one host, each instance will include many components which will be installed on the same host. These components include the Oracle Calendar server, Oracle Calendar administrator, Oracle Mobile Data Sync, Oracle Calendar Web client, Oracle Calendar Web services and Oracle Calendar SDK. To run different components on different hosts (for example, to run Web calendar clients on a different host from the calendar server) consider the following:

- When the Oracle Calendar server is installed in a standalone mode, Oracle Calendar Web Clients identify themselves to the Calendar server using a shared key stored in both the Web client and server configuration files. This shared key must match exactly across all Web clients and server instances. See the [Appendix C](#) for more information about shared keys.
- To use multiple Oracle Calendar server nodes, whether on the same host or distributed across multiple hosts, you must connect the nodes into a network. See [Chapter 14](#), for details.

Oracle Calendar Application System Installation Considerations

Consider the following factors when you install Oracle Calendar application system:

- Because Oracle Calendar application system uses a shared memory mechanism, an Oracle Calendar application system installation must be run under one specific user on a host. A single user cannot have two independent Oracle Calendar application system installations, as they will share the same memory. However, having multiple users on a single machine is supported, because each user's shared memory is insulated from the other users.
- For security reasons, it is best that Oracle Mobile Data Sync only be accessible through secure socket layer connections (HTTPS). You may also want to install Oracle Mobile Data Sync on a separate host for easier accessibility from phones.
- Standalone installations of Oracle Calendar application system require Apache mod-fastcgi. You will need to find the latter through FTP access, as it is not readily available from the Apache Web site.

Oracle Calendar Application System Postinstallation Issues

Generally, the default settings of the Oracle Calendar application system enable you to get the system working immediately after installation. However, there are some configuration options you should consider, depending on your environment.

See Also: For more information about deploying Oracle Calendar application system see "Deploying the Oracle Calendar Web Client and Oracle Calendar Web Services" in Chapter 5 of *Oracle Collaboration Suite Deployment Guide*.

General Configuration

The following list provides general configuration consideration for the Oracle Calendar application system:

- Run several instances of `ocas.fcgi` (the number of instances depends on setup and load). You can configure this in `ocas.conf` file. For more information about modifying the number of fast-cgi processes running for the Oracle Calendar application system, see ["Configuring the Number of Fast-CGI Processes"](#) in [Chapter 3](#).
- You must run one instance of `ochecklet.fcgi` per installation or host. This is also configured in the `ocal.conf` file.
- Make sure that the `linkdb` and `sessiondb` variables in all hosts' `ocas` files refer to the same path; for example, the same NFS mount. For more information about configuring the `linkdb`, see [Configuring the Links Database](#) in [Chapter 3](#).
- Set Authentication, Compression, and Encryption (ACE) values in each component's `conf` file. AUTH Web settings for all products should be configured in the `[ACE_PLUGINS_CLIENT]` section of the `ocas.conf` file. For more information about configuring authentication, compression, and encryption for Oracle Calendar application system, see "Securing Oracle Calendar" in Part I, Chapter 2 of *Oracle Collaboration Suite Security Guide*.
- Make sure you restart Oracle Calendar application system or Apache after any changes to the `conf` files. For information on how to stop and start the Oracle Calendar application system when it has been deployed with Oracle Collaboration Suite, see ["Starting and Stopping Oracle Calendar Application System"](#) in [Chapter 3](#) of this guide.

For more information about restarting Oracle Calendar application system, see [Chapter 3, "Overview of Oracle Calendar Application System"](#)

- If you experience any problems, check for error messages in:
`$ORACLE_HOME/ocas/logs/ocas_log`
- To see if the client and its components are running, open the system page at `http://server:port/ocas-bin/ocas.fcgi?sub=sys`. If a component is not running, it will not appear in the system page.
- To connect to a component with an appropriate client, use the following URLs:
 - **Oracle Calendar Web client**
`http://<host>:<port>/ocas-bin/ocas.fcgi?sub=web`
 - **Oracle Mobile Data Sync**
`http://<host>:<port>/ocst-bin/ocas.fcgi`
 - **Oracle Calendar Web services**
`http://<host>:<port>/ocws-bin/ocas.fcgi`

Configuring Your Web Server

If you are using the Oracle HTTP Server in a Collaboration Suite installation of Oracle Calendar, Oracle HTTP Server is automatically configured to recognize the Calendar application system and the Calendar Administrator tool.

However, if you are running a standalone installation of Oracle Calendar using Apache or Oracle HTTP Server, add the following to the Web server's `httpd.conf` file in order to recognize the Oracle Calendar Administrator:

```
include $ORACLE_HOME/ocad/config/ocad.conf
```

(Make sure there is read access to `ocad.conf`.)

In addition, make the following changes to your `httpd.conf` file so that you can use the Oracle Calendar application system:

- Include `$ORACLE_HOME/ocas/conf/ocal.conf`
- Set the system library search path to include `$ORACLE_HOME/lib`
- Set the `ORACLE_HOME` environment variable to the directory where Oracle Calendar is installed

Keep in mind that you may have to resolve conflicting settings if you customized your original Web server in a similar manner.

Restart the Web server after you make the changes.

Calendar Client Deployment Information

Information about Oracle Calendar client deployments can be found in the End-User Documentation Portal. The End-User Documentation Portal is a set of customizable HTML pages that provide an overview of Oracle Collaboration Suite clients, including Calendar clients, as well as information about how to download, install, and configure clients. 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.

A number of components, such as Mobile Data Sync, require frequent device certification updates. In such cases, the End-User Documentation Portal provides getting-started information for these components and links to OTN for device certification and configuration information.

The End-User Documentation Portal is included with the installation CD as a ZIP file.

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

Introduction to Oracle Calendar Server Administration

This chapter is an introduction to managing the calendar server. All administrative tasks and procedures are executed using command-line utilities or the Calendar Administrator.

This chapter contains the following sections:

- [General Administration Concerns](#)
- [About the Oracle Calendar Administrator](#)
- [About the Command-Line Utilities for the Oracle Calendar Server](#)
- [Starting and Stopping the Oracle Calendar Server](#)
- [Checking Server Status](#)
- [Viewing Current User Activity](#)
- [Changing the SYSOP Administrator Password](#)
- [Populating the Calendar Server](#)
- [Other Administrative Tasks](#)

General Administration Concerns

Administration concerns for Oracle Calendar fall into four broad categories:

- Initial deployment planning, including sizing estimates and operating system configuration. Throughout this guide you will find a variety of information to aid you in designing a deployment that will meet your needs efficiently and effectively, including common deployment scenarios, recommended sizing guidelines, recommended kernel parameter settings for UNIX platforms and more.
- Installing the Oracle Calendar software and performing basic initial configuration. This information can be found in the *Oracle Collaboration Suite Installation Guide*.
- Performing ongoing system maintenance, such as tuning calendar configuration parameters according to anticipated and observed usage, backing up the calendar database and monitoring the system. Most of these tasks can be performed using a variety of command-line administration tools provided with the calendar server.
- Managing the information in the calendar database, such as adding and modifying calendar users, resources, event calendars, holidays, groups. Most of these tasks

can be performed using either command-line utilities or the Oracle Calendar administrator.

About the Oracle Calendar Administrator

The Oracle Calendar administrator is an web-based server management tool that enables users and administrators to manage user accounts, resources, event calendars, groups and holidays in the calendar server database. In addition, the Oracle Calendar administrator provides easy access to basic system administration tasks such as viewing the status of calendar nodes and databases, and starting or stopping nodes and servers.

A majority of the administration tasks can be performed using the Oracle Calendar administrator. This web application is normally installed in the `$ORACLE_HOME/ocad` directory. The Calendar administrator can be used by the administrator (SYSOP) or calendar users who have administration rights.

The Calendar administrator interface is divided into two sections, accessible through tabs appearing on the top right of the page. Access to specific commands and functionality is determined by the user's assigned calendar administrative rights. The Calendar Management tab lets the user manage users, resources, event calendars, and groups. The Server Administration tab lets the administrator start and stop individual nodes and calendar servers, configure nodes and calendar servers, and organize holiday management.

For more information about all tunable parameters available to configure your Oracle Calendar Administrator in the `$ORACLE_HOME/ocad/bin/ocad.ini` configuration file, see "Calendar Administrator Parameters" in Chapter 5 of *Oracle Calendar Reference Manual*.

About Oracle Enterprise Manager

Certain Calendar server administration tasks can be accomplished with the Oracle Enterprise Manager. For more information about Oracle Enterprise Manager, see "Introduction to Oracle Enterprise Manager 10g Application Server Control for Collaboration Suite" in Chapter 3 of *Oracle Collaboration Suite Administrator's Guide*.

About the Command-Line Utilities for the Oracle Calendar Server

The Oracle Calendar server comes with a number of command-line utilities that provide scriptable control over a wide range of calendar server information and features. These command-line utilities are installed in the `$ORACLE_HOME/ocal/bin` of your Calendar server's installation directory.

Note that all server administration performed with the command-line utilities provided must be carried out on UNIX platforms as the instance owner. The instance owner is the UNIX user account used to install and run the server. The calendar server daemons should all run under this user name as well.

For a complete list of the utilities included with your calendar server and full details on their operation, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

Starting and Stopping the Oracle Calendar Server

If you have deployed Oracle Calendar in standalone mode with an external LDAP directory server (the `unison.ini` parameter `[DAS] enable=TRUE`), your directory server must be running before you can start the calendar server. If you have enabled e-mail notification in the clients (the `unison.ini` parameter `[LIMITS] mail=TRUE`), a mail server should be running.

Start the calendar server by using the `unistart` utility. Stop it by using the `unistop` utility. For full information on use and syntax of these utilities, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

Example To start the Calendar server (bringing up five daemons if using an internal directory and six daemons if using an external LDAP directory), execute the following command from the `$ORACLE_HOME/ocal/bin` directory:

```
% unistart
```

Example For an orderly shutdown of the calendar server, execute the following command from the `$ORACLE_HOME/ocal/bin` directory:

```
% unistop
```

Note: The number of client connections, the number of processes running, and the volume of network traffic all affect the amount of time that the server takes to stop.

Using OPMN to Stop and Start the Calendar Server

When deployed with Oracle Collaboration Suite, Oracle Calendar server can also be started and stopped using the Oracle Process Management and Notification (OPMN) `opmnctl` utility. This utility is located in the `$ORACLE_HOME/opmn/bin` directory.

Example To start the Calendar server, bringing up six daemons, execute the following command from the `$ORACLE_HOME/opmn/bin` directory:

```
% opmnctl startproc ias-component=CalendarServer
```

Example For an orderly shutdown of the calendar server, execute the following command from the `$ORACLE_HOME/opmn/bin` directory:

```
% opmnctl stopproc ias-component=CalendarServer
```

Checking Server Status

To view the current status of the calendar daemons/services and servers, run the `unistatus` utility. For full information about use and syntax of this utility, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

Example To verify the status of the calendar server's daemons/services, run the following command:

```
% unistatus -d
```

UID	PID	PPID	STIME	TIME	COMMAND	CLASS	INFORMATION
oracle	4739	2570	May31	00:00:03	unisncd	Listener	
oracle	4632	2570	May31	00:00:00	unidasd	Listener	

```

oracle 4262 2570 May31 00:00:00 unicsmd Listener
oracle 1629 4444 Jun03 00:00:11 uniengd Listener 2/25 sess
oracle 2366 4444 Jun15 00:00:00 uniengd Listener 0/25 sess
oracle 4444 2570 May31 00:00:00 uniengd Controller 5 lstn
oracle 4525 4444 May31 00:00:03 uniengd Listener 2/25 sess
oracle 7084 4444 Jun15 00:00:00 uniengd Listener 0/25 sess
oracle 7417 4444 Jun15 00:00:00 uniengd Listener 0/25 sess
oracle 4858 2570 May31 00:00:00 unicwsd Controller 2 tasks
oracle 28607 4858 Jun15 00:00:05 unicwsd Task
Messaging,SSR,Snooze,EventSync,DirSync,GALSync,Calendar store consistency
scan,EventCalUpdate,DirProv,LogRotation
oracle 28929 4858 Jun15 00:00:00 unicwsd Task Replication
oracle 4250 2570 May31 00:00:00 unilckd Controller 1 lstn
oracle 4298 4250 May31 00:00:02 unilckd Listener 7 DB sess

```

Using OPMN to Check the Calendar Server Status

When deployed with Oracle Collaboration Suite, Oracle Calendar server's status can also be checked using the Oracle Process Management and Notification (OPMN) `opmnctl` utility. This utility is located in the `$ORACLE_HOME/opmn/bin` directory.

Example To verify the status of the calendar server's daemons/services, run the following command from the `$ORACLE_HOME/opmn/bin` directory:

```

% opmnctl status ias-component=CalendarServer
Processes in Instance: cal.visioncorp.com
-----+-----+-----+-----
ias-component | process-type | pid | status
-----+-----+-----+-----
CalendarServer | Calendar_CSM | 13305 | Alive
CalendarServer | Calendar_CWS | 13454 | Alive
CalendarServer | Calendar_DAS | 13387 | Alive
CalendarServer | Calendar_SNC | 13413 | Alive
CalendarServer | Calendar_ENG | 13356 | Alive
CalendarServer | Calendar_LCK | 13306 | Alive

```

Viewing Current User Activity

To view current logged-on users, run the `uniwho` utility. For full information about use and syntax, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

Example To view a list of current client connections, execute:

```

% uniwho
      PID      ADDRESS  NODEID      XITEMID  USER
-----
7721      193.77.49.162  20004      20004,2  CWSOP,na
14668     193.77.49.223  20004      20004,295  Alexander,James
10237     193.77.49.44  20004      20004,142  Addison,Thomas
TOTAL STANDARD SHARED CONNECTIVITY
      3          2          0          1

```

Changing the SYSOP Administrator Password

To change the password of the SYSOP (the administrator) run the `unioidconf` utility from the command line with the `-setsysoppassword` option. This utility is also useful in cases where the administrator password is forgotten. In this case, you will be

asked for the Directory Manager's password, and then prompted for the new calendar administrator's password. For more information about use and syntax of this utility, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

Example To change the password, execute:

```
% unoidconf -setsysoppassword -D cn=orcladmin
Enter a bind password:
Enter new administrator password:
Re-enter new administrator password:
```

Note: `unoidconf` can only be used when Calendar is deployed with Oracle Collaboration Suite. Use the `unipasswd` utility to change the sysop password when using Oracle Calendar in a standalone environment. For more information on `unipasswd`, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

Populating the Calendar Server

Calendar server can be populated using command-line utilities or by using the Oracle Calendar administrator. Additionally, when Oracle Calendar server is deployed with Oracle Collaboration Suite, automatic provisioning features for users can be configured. For all information about populating the Calendar server, see the following chapters:

- [Chapter 7, "Managing Calendar User Accounts"](#)
- [Chapter 8, "Managing Calendar Resources Accounts"](#)
- [Chapter 9, "Managing Event Calendar Accounts"](#)

Other Administrative Tasks

Use command-line utilities for a variety of other less frequent tasks. Some of the utilities that you may want to be familiar with once the calendar server is up and running are:

- `uniaccessrights` — to manage user and resource access rights.
- `uniadmrights` — to grant, modify or remove administration rights.
- `unidbbackup` — to back up the calendar server.
- `unichk` (UNIX only) — to verify the presence of all necessary files and directories, and check the settings for permissions, owner, and group information.
- `uniclean` (UNIX only) — to remove or correct any problems found running `unichk`. Transient files will be removed and permission and ownership settings restored to the default.
- `unidsup` — to report the status of the directory server.
- `unidsdiff` — to report differences between the Calendar server and the directory server.
- `unidssync` — to synchronize the information in the Calendar server with that in the directory server.
- `unilogons` — to display calendar server signon/signoff statistics.

- `unireqdump` — to view and delete requests in the Corporate-Wide Services (CWS) queue.
- `unirmold` — to remove old data from the calendar server database.
- `uniuser` — to manage user, resource and event calendar accounts.
- `uniwho` — to display information about signed-on calendar users.

For more information on use and syntax of these utilities see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

Using Oracle Calendar with Directory Servers

The Oracle Calendar server can share information with other back end infrastructure components such as e-mail servers through the use of Oracle Internet Directory. Benefits include centralized user administration and consistency of information across multiple applications.

This chapter contains an overview of how the Oracle Calendar server interacts with Oracle Internet Directory, and a discussion of some more specific configuration issues. It also contains information about using third-party directory servers when using the calendar server in a standalone installation.

This chapter contains the following sections:

- [About Directory Servers](#)
- [Granting Directory Server Access to Administrators](#)
- [Using LDAP Groups and Distribution Lists](#)
- [Specifying Fail Over Host for the Directory Server](#)
- [About the Global Address List \(GAL\)](#)
- [About the Common Address Book \(CAB\)](#)
- [Securing Connections to the Directory Server](#)
- [Changing the Attribute Used for Single Sign-On Login](#)
- [When Does the Calendar Server Bind to the Directory Server?](#)

About Directory Servers

Directory servers store information about users, and make this information available to various other services, such as e-mail or calendar applications. Directory servers like Oracle Internet Directory centralize user information; if an administrator must add or change user accounts, the task only needs to be done in one place. At the same time, user information is always kept consistent between all the applications that use the directory server; your user profile in your e-mail client, for example, will be the same as what you see in your calendar client.

Oracle Calendar server integrates with Oracle Internet Directory, which uses the Lightweight Directory Access Protocol (or LDAP) for accessing user records. Those records are kept in a hierarchical tree, in which each record is accessible through a particular path (called a *Distinguished Name*, or DN) that specifies the record's unique

location in the tree. This is analogous to the way a file name and path specifies the location of a particular item in a file system.

What Is the Directory Schema?

Directory servers have schemas that define the information they store. These schemas consist, among other things, of *objects* and *attributes*. Objects are representations of real-world people or things, and attributes are defining characteristics of those objects. Directory servers come with preset schemas to represent people and things, providing attributes for names, addresses, phone numbers, and so on, that define a 'person'. You can also extend these schemas with new object classes and new attributes to reflect any information you care to store.

When you install Oracle Internet Directory as a part of Oracle Collaboration Suite, its infrastructure is preset with all the objects and attributes needed by the calendar server. For more information about standalone installations of the Oracle Calendar server with third-party directory servers, see "Calendar Extensions to the Directory Server Schema" in Chapter 8 of *Oracle Calendar Reference Manual*.

What Is the Base DN?

The calendar server requires a base DN, which is a location in the LDAP directory server under which all calendar users, resources and administrators will be located, and under which all directory searches will be performed.

This base DN is defined by the [LDAP] basedn parameter in the \$ORACLE_HOME/ocal/misc/unison.ini configuration file. The location for resources in the LDAP directory relative to the calendar server base DN is specified in the unison.ini file by the [LDAP] resourcerelatedn parameter. The location for event calendar accounts are defined by [LDAP] eventcalrelatedn.

In a group search operation, it is possible to override the search base using the [LDAP]group_searchbase parameter in the \$ORACLE_HOME/ocal/misc/unison.ini file. This is particularly useful if the directory group entries are stored in a central location.

For more information about server parameters, see "Calendar Server Parameters" in Chapter 3 of *Oracle Calendar Reference Manual*.

Granting Directory Server Access to Administrators

Using calendar administration tools, calendar administrators have the ability to modify entries in the directory server. The level of access depends upon the access control restrictions set on your directory server.

Granting Access to Oracle Internet Directory Servers

When deployed with Oracle Collaboration Suite, the Oracle Calendar server creates two types of administrator entries: *calendar application entity* (CAE) and *calendar instance administrator*. These administrator entries are created at the time of installation, thus requiring no action from the Collaboration Suite administrator. The CAE entry is created under the subtree "cn=Application Entities, cn=Calendar, cn=Products, cn=OracleContext", whereas the calendar instance administrator entry is created under "cn=Admins, cn=Calendar, cn=Products, cn=OracleContext, <subscriberdn>".

By default, the calendar instance administrator entry is not granted any explicit rights in the directory server. This entry is used for password validation only. The CAE entries have full access rights under the two calendar product containers, "cn=Calendar, cn=Products, cn=OracleContext" and "cn=Calendar, cn=Products, cn=OracleContext, <subscriber DN>". The CAE entry is also a member of the group "cn=OracleDASEditUser, cn=groups, <subscriber DN>" which grants it the right to modify user entries.

For a given instance of a calendar server, the distinguished names of the CAE and of the calendar instance administrator are defined in the [LDAP] section of that instance's `unison.ini` configuration file. The distinguished name of the CAE is defined by the [LDAP] `applicationentitydn` parameter and the distinguished name of the calendar instance administrator is defined by [LDAP] `admindn`.

WARNING: The calendar application entity and calendar instance administrator should never be modified manually.

Granting Access to Other Directory Servers

In a standalone Calendar Server installation, where the calendar server is installed with a third-party LDAP directory server, there are two ways to give directory access to administrator users.

One way is to grant default access control to an LDAP group which will be specified by the [LDAP] `admingroup` parameter. Calendar administrators can then inherit this right by becoming a member of this group. When the SYSOP grants administrative rights to a user, he must also add him to that group. For more information about the [LDAP] `admingroup` parameter, see "Calendar Server Parameters" in Chapter 3 of *Oracle Calendar Reference Manual*.

The second way to give non SYSOP users access to the directory server is to provide a DN and a password which will be used by the calendar server to sign in to the directory for directory administrative write operations. Set the parameter [DAS] `dir_usewritednforadmin` to TRUE and set parameters [LDAP] `writedn` and [LDAP] `writednpassword`. Make sure the specified DN has full write access to the calendar user, resource and event calendar information in the directory. For more details about these parameters, see "Calendar Server Parameters" in Chapter 3 of *Oracle Calendar Reference Manual*.

By default, calendar administrators have full access rights for all entries under the calendar base DN. If you are familiar with your LDAP directory server's access control information, you may want to configure it to restrict the administrator permissions.

Your directory server may or may not support access control restrictions at the necessary level of granularity. Consult your directory server documentation for details on configuring access control information. You must ensure that certain permissions remain at a minimum to avoid calendar client and server errors.

Using LDAP Groups and Distribution Lists

The Calendar Server supports directory groups. In order to expose groups to calendar clients, set the [LDAP] `group_enable` parameter in the `unison.ini` file. You can also add a corresponding filter to locate these groups using the [LDAP] `groupfilter` parameter. Users will be able to see all groups in the directory server, and any members of these groups who are also calendar users. These groups will appear to users as Public groups. By default, all groups in the directory server located under the calendar base DN will be listed in the calendar client. However, because the

calendar client will only display calendar users, if a given LDAP group has only non-calendar users as members, that group will appear as an empty group, with no members.

Using the preceding parameters, you can control which groups in the directory should be accessible to the calendar user. One way is to create a custom object class (one with the name "calendargroup" for example) and add that custom object class to the group entries that you want to expose. The parameter `[LDAP]groupfilter` should then be set to: `"(objectClass=calendargroup)"`.

If you have a deployment when group entries are centrally located, it is advisable to set the parameter `[LDAP]group_searchbase` to the subtree where the group entries are located. This will improve the performance of the group search operation.

The calendar server also supports dynamic groups. A dynamic group is a group where the membership information is stored in an LDAP URL. When the calendar server detects that the value of a group member is an LDAP URL, the calendar server will expand the URL to establish the group membership.

To expose dynamic groups to calendar clients, add a corresponding filter to locate that type of group using the `[LDAP] groupfilter` parameter. Also include the attribute that contains the URI to locate the members using the `[LDAP]groupmemberlistattribute` parameter.

Oracle Mail distribution lists can also be exposed to users as public groups if Oracle Collaboration Suite is installed. Users will then be able to use the distribution lists to send e-mails (Oracle Connector for Outlook) or to invite a group of users (Oracle Connector for Outlook and Oracle Desktop Calendar Clients). To give users access to these groups, set the `[LDAP] group_dlfilter` and `[LDAP] group_dlenable` parameters. For more information on these server parameters, see "Calendar Server Parameters" in Chapter 3 of *Oracle Calendar Reference Manual*. For more information on distributions lists, see also [Chapter 10, "Managing Calendar Groups"](#).

Specifying Fail Over Host for the Directory Server

You can specify an alternate directory server host to be used if your main host becomes unavailable. The `unison.ini [LDAP] host` parameter lists the directory server hosts in preferred order; if multiple hosts are listed and the first host listed becomes unavailable, the calendar server will instead attempt to connect to the next host listed.

Because, by default, the Calendar server maintains a persistent connection to the directory server, the Calendar server will not attempt to reconnect to the primary directory server when it becomes available again. Instead it will wait for the next recycle time, specified in the parameter `[DAS]dir_connectrecycletime`. Once the recycle time is reached, the calendar server will terminate the current directory server connection and attempt to reestablish a connection to the primary directory server. If the primary directory server is available at that time, it will establish the connection, otherwise it will connect to the secondary directory server again.

For more information about the `[LDAP] host` parameter, see "Calendar Server Parameters" in Chapter 3 of *Oracle Calendar Reference Manual*.

About the Global Address List (GAL)

The Global Address List, or GAL, is the interface used by Calendar clients to select users (including non-calendar users), resources and event calendars from the directory server. When a user uses the GAL, it attempts to display all the entries in the directory, regardless of whether the entry has been provisioned to Calendar. Users can filter out

some entries. This filtering is performed on the client interface after all the entries have been downloaded to the client.

The Oracle Connector for Outlook works with the Calendar Server to improve the efficiency of the GAL. The server caches the GAL entries to reduce the number of requests made to the directory server. Parameters can be set in the server configuration file to control the cache and how GAL requests are serviced.

In the [CWS] section of the `unison.ini` file, the parameter `galsyncinterval` controls the frequency of the cache refresh. In the [ENG] section, `gal_enable`, `gal_enumsize`, `gal_enablegroupsearch`, `gal_enableldapsearch`, `gal_refreshintimes`, and `gal_view` let you control other aspects of the GAL. For more information about these server parameters, see "Calendar Server Parameters" in Chapter 3 of *Oracle Calendar Reference Manual*.

About the Common Address Book (CAB)

The Common Address Book, or CAB, is a personal address book that is stored in a central location on Oracle Internet Directory. Personal contacts that are created in the CAB using various Calendar clients are subsequently accessible through other Oracle Collaboration Suite components, such as Oracle WebMail.

This feature can be enabled/disabled by configuring the [ENG] `cab_enable` parameter in the `$ORACLE_HOME/ocal/misc/unison.ini` file. For more information about this parameter, see "Calendar Server Parameters" in Chapter 3 of *Oracle Calendar Reference Manual*.

Note: The Common Address Book feature is not available in Oracle Calendar standalone deployments.

Client Interfaces

At the time of release, the following Oracle Calendar clients will be able to interface with the Common Address Book:

- Oracle Connector for Outlook
- Oracle Calendar Desktop Clients
- Oracle Calendar Sync for Palm
- Oracle Calendar Sync for Pocket PC

When accessing address books, Calendar clients will be accessing a cached copy of the CAB from the Calendar server. All read operations will be pulled from Calendar server's cached copy of the Common Address Book whereas all modifications made to the CAB from a Calendar client will immediately be written to Oracle Internet Directory, and then written to the Calendar server's cached copy of the CAB. As a result, Oracle Internet Directory will always be kept up to date.

Synchronization with Oracle Internet Directory

In order to keep information up to date, the CAB on the Calendar server needs to be synchronized with the Oracle Internet Directory. The synchronization of the Common Address Book is done in segments, at different times. Each user's Common Address Book is synchronized, on average, based on the value assigned to the [ENG] `cab_syncinterval` parameter, in the `$ORACLE_HOME/ocal/misc/unison.ini` file. For more information about this parameter see "Calendar Server Parameters" in Chapter 3 of *Oracle Calendar Reference Manual*.

Synchronization of the Common Address Book is triggered in three possible ways: by the Calendar server's CWS daemon, by Directory Integration Platform (DIP) notifications, and manually by using the `unidssync` utility.

- **CWS Initiated Synchronization**

This type of synchronization is a regular background task and can be configured in the Calendar server's `$ORACLE_HOME/ocal/misc/unison.ini` file. The `[CWS] cabsynctime` parameter enables you to configure a list of times at which the Common Address Book synchronization is initiated. For more information on this parameter, see "Calendar Server Parameters" in Chapter 3 of *Oracle Calendar Reference Manual*.

- **DIP Initiated Synchronization**

This type of synchronization can be viewed as a push synchronization. The Calendar server receives an asynchronous notification from the Oracle Internet Directory DIP. Once the notification has been received by the Calendar server, the synchronization will be processed.

- **Manual Synchronization**

A manual synchronization can be performed using the `unidssync` utility with the `-absync` option. This option can be used to force a synchronization of a specific user's Common Address Book or the entire Common Address Book. For more information about this utility and option, see "Calendar Server Parameters" in Chapter 3 of *Oracle Calendar Reference Manual*.

Note: When the Common Address Book is updated using a non-Calendar client, such as Oracle WebMail, the modification is made on Oracle Internet Directory. As such, the modification may not immediately be propagated to the Calendar server's cached copy of the Common Address Book. The Calendar server will be updated within the time value assigned to the `[ENG] cab_syncinterval` parameter, in the `$ORACLE_HOME/ocal/misc/unison.ini` file.

Determining Address Book Type

In certain cases, Calendar users can have different types of address books. This is likely a result of time elapsed since upgrade from a previous version of Calendar.

A user attribute exists in order to verify the type of address book that is associated with a specific Calendar user. The attribute that will reveal this information is called `ABSTATUS`. In order to see this user attribute for a specific user or all users, use the `$ORACLE_HOME/ocal/bin/uniuser` utility. When using the utility, you must specify the `-ext` flag in order to view the `ABSTATUS` attribute.

See Also: For more information about the `uniuser` utility, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

The `ABSTATUS` attribute can have three different values. The following is a list of the possible values for `ABSTATUS` accompanied with brief explanations:

- `LOCAL904` - The user's address book has not yet been upgraded to the current version of the Calendar server's local address book.

- LOCAL - The user's address book has been upgraded to the current version of Calendar server's local address book and is not currently being synchronized with the Common Address Book on the Oracle Internet Directory.
- CAB - The user's address book has been upgraded to the current version of the Calendar server's local address book, and is being synchronized with the Common Address Book on the Oracle Internet Directory.

Reconciliation Policy for Address Book Migration

After upgrading to Oracle Calendar server 10g Release 1, and users' address books have been migrated to the Common Address Book, some address book entries may be duplicated. This applies to Oracle Collaboration Suite deployments only.

When reconciling the Oracle Calendar address book with the Common Address Book, Oracle Calendar server queries the existing contacts based on first name and last name in both the Oracle Calendar address book, and the Common Address Book. If a match is found, the attributes present in both address books entries are compared. If all the attribute values are equivalent, the Oracle Calendar server will merge the two entries. Conversely, if the attribute values differ, to prevent data loss, the Oracle Calendar server will create a new contact, thus creating a duplicate entry.

Note: After upgrade, the Oracle Calendar address books are only migrated once to the Common Address Book. Consequently, duplicate entries resulting from address book migration will only occur once.

Securing Connections to the Directory Server

For greater security, the connections between your calendar server and directory server will be protected by default using the Secure Sockets Layer (SSL) protocol. Without the use of SSL, passwords may be sent across the network in clear text.

In a Collaboration Suite installation, the calendar server will configure and establish an SSL connection to Oracle Internet Directory if it is available.

In a standalone Calendar Server installation, the following procedures are required to establish an SSL connection to a third-party directory server.

1. Make sure your calendar server is not running before you proceed.
2. Run Netscape Navigator on the calendar server host, and access your directory server using its secure port. For example:

https://<yourDSname>:<yourSSLport>/
In the pop-up site certificate window, select **Accept** the certificate forever.
3. Find the cert<X>.db file on your system (likely in the netscape/users/<username> directory). Note the location of this file.
4. Edit your \$ORACLE_HOME/ocal/misc/unison.ini file, and add or modify the following parameters:

```
[LDAP]
security=TRUE
secure-port=636 (encryption port set on your directory server)
certdbpath="<path_including_file>" (the value from Step 3)
```

Note: The Calendar instance owner must have read access to the file specified in the `certdbpath` parameter.

For more information about these parameters and their correct values for your operating system, see "Calendar Server Parameters" in Chapter 3 of *Oracle Calendar Reference Manual*.

5. Restart your calendar server. All further communications with the directory server will use SSL.

Changing the Attribute Used for Single Sign-On Login

In a Oracle Collaboration Suite installation, one directory server attribute is designated as the attribute that the Oracle Internet Directory uses to authenticate Oracle Application Server Single Sign-On (SSO) logins. The calendar server configuration file stores this information with the parameter `attr_uid` in the `[LDAP]` section. This parameter controls the directory server attribute the calendar server uses as a unique user identifier.

If you change this attribute at any time on the directory server after you have installed the calendar server, it is vital that you perform the following calendar server configuration change. Otherwise, users will be unable to sign in using Web clients, and the integrity of your calendar database may be threatened.

1. Stop all calendar servers in your network.
2. Edit the `$ORACLE_HOME/ocal/misc/unison.ini` file on each calendar server host in the network, and modify the value of the following parameter:

```
[LDAP]
attr_uid = <attribute_used_for_login>
```

3. Restart all servers stopped in Step 1.
4. Run the following command from the `$ORACLE_HOME/ocal/bin` directory

```
% unidssync -remote -n <masternode>
```

When Does the Calendar Server Bind to the Directory Server?

In a standalone Calendar Server installation, when users query the calendar server for lists of other users, resources, or groups, the calendar server binds to the directory server using the "anonymous" profile.

If your directory server does not permit anonymous binding, or if you want to prevent the calendar server from binding anonymously, you can use the `[LDAP] binddn` and `[LDAP] bindpwd` parameters in the calendar server configuration file `unison.ini` to specify a directory server user account and password with which to bind.

This bind DN will be used for all read access to the directory server (such as user and resource searches). However, users and administrators still bind to the directory server as themselves when performing modifications to user, resources, or event calendar records.

Remember that you must encrypt the value of the bind password before including it in the `unison.ini` file. Use the `uniencrypt` utility with the `-s` argument, and include the entire output, enclosed within double quotation marks as the parameter value. For

details on the use and syntax of `uniencrypt`, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

Managing Calendar User Accounts

This chapter describes the different tasks involved in managing user accounts within a calendar server node. Whether user information is stored internally or in an LDAP directory, the administrative procedures required are similar.

This chapter contains the following sections:

- [About Calendar User Accounts](#)
- [Calendar User Account Provisioning](#)
- [Calendar User Account Deprovisioning](#)
- [Adding Calendar User Accounts](#)
- [Modifying Calendar User Accounts](#)
- [Deleting Calendar User Accounts](#)
- [Modifying User Defaults](#)
- [Setting Up E-mail Notification](#)
- [Granting Access Rights From One User to Another](#)
- [Other User Configuration Options](#)
- [About Calendar Server Administrative Rights](#)
- [Scope of Administrative Rights](#)
- [Assigning Administrative Rights to Users](#)

About Calendar User Accounts

Administrators of installations using LDAP directories must be familiar with user creation and management on their directory server, or should refer to the appropriate online Help. In an external directory context, users are generally added to calendar server nodes from the directory server, but it is also possible to migrate existing information from a calendar node to a directory server.

Calendar User Account Provisioning

When Oracle Calendar server is deployed with Oracle Collaboration Suite, different provisioning models are available to help manage user account creation on the Calendar server. The provisioning models offer the flexibility of choosing either Oracle on-demand account creation, bulk account creation or notification-based account creation.

Calendar Provisioning Models

On-Demand Provisioning

In this on-demand provisioning model, the Oracle Calendar server creates a Calendar account when the user accesses the Oracle Calendar server for the first time. When the user logs in through Single Sign-On, and selects Calendar, the account is automatically created. To control whether on-demand provisioning is enabled, consult the [ENG] `ondemandprov_enable` parameter. For more information about this parameter, see "Calendar Server Parameters" in Chapter 3 of *Oracle Calendar Reference Manual*.

Bulk Provisioning

This bulk provisioning model is widely used in an environment where Calendar is being deployed with a populated Oracle Internet Directory. Bulk provisioning is a manual policy, initiated by the person administering the Calendar server. To initiate this type of provisioning use either the Oracle Calendar administrator, or the `uniuser` utility. For more information about provisioning multiple users to the Oracle Calendar server at once from a populated Directory Server, consult the [Adding Users from a Populated Directory Server](#) section of this chapter.

Notification-Based Provisioning

This notification-based provisioning model can be viewed as a push provisioning model. The Oracle Calendar server receives an asynchronous notification from Oracle Internet Directory that includes modifications that have occurred since the last notification. These modifications can include user additions, modifications, or deletions. Once the notification is received from Oracle Internet Directory, the Oracle Calendar server processes the modifications. To control whether notification-based provisioning is enabled, use the [CWS] `dirprovenable` parameter. For more information on this parameter, see "Calendar Server Parameters" in Chapter 3 of *Oracle Calendar Reference Manual*.

Calendar Provisioning Policies

When the Oracle Calendar server is deployed with Oracle Collaboration Suite, policies can be defined in the `$ORACLE_HOME/ocal/misc/unison.ini` file that help manage where user accounts are created based on defined criteria. These policies apply only when on-demand or notification-based provisioning models are in use.

Weighted Provisioning Policies

Weighted provisioning policies determine the Calendar node on which to create a new user. Multiple weighted policies can exist, where the lowest weight assigned takes priority. To define these policies, configure the [PROVISIONING] `policy.<weight>` parameters in the `$ORACLE_HOME/ocal/misc/unison.ini` file. For more information about the parameters in the [PROVISIONING] section, see "Calendar Server Parameters" in Chapter 3 of *Oracle Calendar Reference Manual*.

The Default Provisioning Policy

The default provisioning policy determines the calendar node on which to create a new user if the user does not meet the criteria of any weighted provisioning policy. Only one default policy can be defined on the Calendar server. For more information about configuring the [PROVISIONING] `policy.default` parameter, see "Calendar Server Parameters" in Chapter 3 of *Oracle Calendar Reference Manual*.

Example

University X wants to provide Calendar accounts to all of its staff members. It has selected three of its departments for initial deployment of Calendar accounts: Law, Business, and Engineering. The administrator has created three nodes on a single Calendar host: 100, 300, and 500. These nodes serving Law, Business, and Engineering respectively.

The University has extended the directory schema on Oracle Internet Directory to introduce objectclasses "universityXPerson" and "universityXPersonRole". Attribute "universityXPersonRole" will be assigned values of either "staff" or "student" to indicate whether the person is a staff member or student.

Existing staff members and students have been added to the Oracle Calendar server manually, using bulk provisioning; however, all new users will be added to the Oracle Calendar server using on-demand provisioning.

To accomplish the on-demand user provisioning previously mentioned, the administrator has configured the following parameters in the \$ORACLE_HOME/ocal/misc/unison.ini file:

```
[ENG]
ondemandprov_enable = TRUE

[PROVISIONING]
enable = TRUE
policy.1 = "100:(&(universityXPersonRole=staff) (ou=law)) "
policy.2 = "300:(&(universityXPersonRole=staff) (ou=business)) "
policy.3 = "500:(&(universityXPersonRole=staff) (ou=engineering)) "
#policy.default = "100:(objectclass=*)" "
```

Note: The [PROVISIONING]policy.default parameter has been marked out with a pound sign (#) to make it a comment. This means that only users meeting the criteria set out in the weighted policies will be provisioned to Calendar. If there is no default provisioning policy, then user accounts that do not conform to the defined policies will not be provisioned to Calendar.

Calendar User Account Deprovisioning

Once users have been provisioned to Oracle Calendar, they can also be deprovisioned. Deprovisioning is not the same concept as disabling or deleting a user account. When a user is deprovisioned from Oracle Calendar the data remains in the Calendar server. The following list illustrates various characteristics of a deprovisioned user:

- The deprovisioned user cannot log in to Oracle Calendar.
- Provisioned users will not be able to see deprovisioned users when performing a lookup.
- A deprovisioned user will still appear in events that occurred in the past.
- The deprovisioned user's data remains on the Calendar server.
- The deprovisioned user can still own calendar data.
- Administrators will be able to see deprovisioned users when performing a lookup.
- A `uniuser -ls` output of a deprovisioned user will display the DEPROVISION-TIME attribute, and the UID attribute will be scrambled.
- A deprovisioned user can be re-provisioned to Calendar.

Deprovisioning a Calendar User Account

In order to deprovision a Calendar user, use the `uniuser` utility with the `-deprovision` option. For example:

```
% uniuser -user -deprovision "UID=jsmith" -n 1
Enter a password:
Deprovision "S=smith/G=john/UID=jsmith/ID=304/NODE-ID=1" [y/n]: y
uniuser: "S=smith/G=john/UID=jsmith/ID=304/NODE-ID=1" has been deprovisioned
```

Now that user John Smith has been deprovisioned, the `uniuser -ls` output will return the following information and attributes for the user:

```
. S=smith/G=john/ID=304/EMAIL=john.smith@visioncorp.com/
+ UID=FA37BCFB44B93C64E0340003BA19065D/AUTOREFRESH=1/
+ DEPROVISION-TIME=2005-06-23 00:00/EMAIL-REMINDERDELIVERYRULE=ALTERNATE/
+ ENABLE=TRUE/LANG=en/NODE-ID=1/REFRESHFREQUENCY=60
```

Notice that the `DEPROVISION-TIME` attribute appears in the output, and the `UID` attribute is scrambled.

Re-Provisioning a Deprovisioned Calendar User Account

Find the deprovisioned user's full DID by using the `unidssearch` utility. For example:

```
% unidssearch
DID=cn=john.smith,cn=users,dc=us,dc=visioncorp,dc=com
```

Take note of the full DID

Re-provision the deprovisioned Calendar user account by using the `uniuser` utility with the `-user -add` and `-attach` options:

```
% uniuser -user -add "DID=cn=john.smith,cn=users,dc=us,dc=visioncorp,dc=com"
-attach "S=smith" -n 1
Enter a password:
uniuser: "S=smith/G=john/UID=jsmith/ID=304/NODE-ID=1" has been added
```

Controlling Delete Notifications from Oracle Internet Directory

When a user is deleted from Oracle Internet Directory, a delete notification is sent to the Oracle Calendar server. Calendar administrators can control the Oracle Calendar server's subsequent action to an Oracle Internet Directory delete notification using the `[PROVISIONING] cascade_deletion` parameter in the `$ORACLE_HOME/ocal/misc/unison.ini` file. Depending on the setting of this parameter, when receiving a delete notification from Oracle Internet Directory, the Oracle Calendar server will either delete the user, or set the user account as deprovisioned.

See Also: For more information about the `cascade_deletion` parameter, see "Calendar Server Parameters" in Chapter 3 of the *Oracle Calendar Reference Manual*.

Adding Calendar User Accounts

Each person who plans to use calendar services must have an account on the Calendar server. Once a user's profile has been created and added to a node, that person can then use any calendar client to connect to the server and manage their personal agenda.

Adding Users from a Populated Directory Server

Before you can create calendar accounts for users, they must already exist in the directory server. Adding Calendar services implies using the existing directory data to create calendar profiles on the calendar server node. When Oracle Calendar server is deployed in standalone mode, with no external directory server, an account does not have to exist on an external directory before account creation.

You can add users using the Oracle Calendar administrator web GUI, or by using a command line utility.

Oracle Calendar Administrator

Creating calendar accounts for existing directory users can be done through the Oracle Calendar administrator.

1. Sign in to the node on which you want to create the account.
2. Click **Users** in the main screen.
3. Click **Provision Calendar Service to User** on the Users page.
4. The Directory Users page will appear where you can list users in the directory who do not have a calendar account. Search for the user or users to whom you wish to provision calendar services.
5. Click **Go** to list all users, or select a filter and enter a value in the **Search** edit box to limit the search.
6. When the user is listed, click the **Provision Calendar Service** icon in the **Actions** column for that user. To provision services for more than one user at a time, select them in the **Select** column and then click the **Provision Calendar Service to User** button at the top right of the list.

Command Line

Adding calendar users from an existing directory server using the utilities is a two-step process. The first step is to identify all directory server users who are not calendar users. The `unidssearch` utility to search the directory server DNs and return all entries without the attribute `ctCalXItemId`. All or a selection of these users can then be added to a calendar server node using the `uniuser` utility. For more information about how to use `uniuser`, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

Determine which users on the directory server have not yet been added to a calendar server node: Use `unidssearch` to search the directory server. For more information about how to use `unidssearch`, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

```
% unidssearch -c 10
A DID=cn=Lan Nguyen,cn=Users,dc=us,dc=visioncorp,dc=com
A DID=cn=James Alexander,cn=Users,dc=us,dc=visioncorp,dc=com
A DID=cn=Chris Robbins,cn=Users,dc=us,dc=visioncorp,dc=com
A DID=cn=Thomas Addison,cn=Users,dc=us,dc=visioncorp,dc=com
A DID=cn=Claire Roslyn,cn=Users,dc=us,dc=visioncorp,dc=com
A DID=cn=Denis Tremblay,cn=Users,dc=us,dc=visioncorp,dc=com
A DID=cn=Maija Laine,cn=Users,dc=us,dc=visioncorp,dc=com
A DID=cn=Elizabeth McKinley,cn=Users,dc=us,dc=visioncorp,dc=com
A DID=cn=Walter Chen,cn=Users,dc=us,dc=visioncorp,dc=com
A DID=cn=Oliver Maxwell,cn=Users,dc=us,dc=visioncorp,dc=com
```

Note: If you are using a Sun ONE Directory Server, the attribute `cn` (common name) might be replaced by the attribute `uid` (user ID or login).

To add users one at a time:

Use `uniuser -add -user` to add users one at a time. For more information about how to use `uniuser`, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

```
% uniuser -user -add "DID=cn=James Alexander, ou=Research, o=Acme, c=US" -n 134
Enter SysOp password:
uniuser: G=James/S=Alexander/ID=256/NODE-ID=134 has been added
```

To add several users:

1. Create a file of all users in the directory server who are not calendar users. The number of non-calendar users returned by a search may be limited by maximum search result settings on the directory server. You can also limit the scope of the search, as in the following example where five users are selected from the directory server. The greater-than symbol (`>`) redirects the output of `unidssearch` to a file named `userslist`.

```
% unidssearch -c 5 > userslist
```

2. The file created may then be modified, filtered, or added to as required and according to a set format and syntax. Additions are made in X.400 format. For a complete description of the X.400 keys, fields, and syntax used with the `uniuser` utility, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

```
A DID=cn=Chris Robbins,cn=Users,dc=us,dc=visioncorp,dc=com
A DID=cn=Thomas Addison,cn=Users,dc=us,dc=visioncorp,dc=com
A DID=cn=Claire Roslyn,cn=Users,dc=us,dc=visioncorp,dc=com
A DID=cn=Denis Tremblay,cn=Users,dc=us,dc=visioncorp,dc=com
A DID=cn=Maija Laine,cn=Users,dc=us,dc=visioncorp,dc=com
```

3. Attach all users in the `userlist` file to the specified node.

```
% uniuser -ex userslist -n 134
Enter SysOp password:
uniuser: added "cn=Chris Robbins,cn=Users,dc=us,dc=visioncorp,dc=com/G=Chris"
uniuser: added "cn=Thomas Addison,cn=Users,dc=us,dc=visioncorp,dc=com/G=Thomas"
uniuser: added "cn=Claire Roslyn,cn=Users,dc=us,dc=visioncorp,dc=com/G=Claire"
uniuser: added "cn=Denis Tremblay,cn=Users,dc=us,dc=visioncorp,dc=com/G=Denis"
uniuser: added "cn=Maija Laine,cn=Users,dc=us,dc=visioncorp,dc=com/G=Maija"
```

Adding Users to the Internal Calendar Server Directory

In a standalone installation of the Calendar server, where no LDAP directory server is used, user profiles are added to the internal calendar directory. A user password must be supplied. You can add users using the Oracle Calendar administrator web GUI, or by using a command line utility

Oracle Calendar Administrator

Use the Oracle Calendar administrator to add users to a node.

1. Click the **Calendar Management** tab.
2. Click on the **Users** secondary tab.

3. To add a new user click **Create Calendar Account** on the far right.
4. Enter the user information and click **Apply**.

Command Line

Use the `uniuser` utility with the **-add** and **-user** options to add users to the calendar server's internal directory. For more information about how to use `uniuser`, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

Example

```
uniuser -user -add "S=Addison/G=Thomas/PSW=test1/I=W/O=acme" -n 786
Enter SysOp password:
uniuser: added "Addison,Thomas,W"
```

Adding Calendar Users to a Directory Server

Instead of adding users from the directory server to the calendar server, the administrator may want to take one or more existing calendar databases and export the user and resource data in an LDIF format that is then used to populate the directory server.

Contact Oracle Support for assistance and utilities to handle the migration of all calendar users to the directory server.

Modifying Calendar User Accounts

Administrators can modify user attributes using the `uniuser` utility or using the Oracle Calendar administrator. Attributes include user information such as the user name, e-mail address, telephone number, and other personal information. It also includes access rights (designate, viewing rights, and so on), administrative rights (manage holidays, users, server, and so on.) and alert attributes (notifications).

A user's calendar account can be disabled. When an account is disabled, the owner cannot sign in and does not have access to his agenda. The calendar data of disabled accounts is not deleted and will be accessible again once the user account is reenabled.

You can modify users using the Oracle Calendar administrator web GUI, or by using a command line utility.

Oracle Calendar Administrator

Use the Oracle Calendar administrator to view and modify a user's calendar attributes.

1. To modify an existing user, click the **Calendar Management** tab.
2. Click on the **Users** secondary tab.
3. Using the search box, search for the user you want to modify. Select a filter from the drop down list, and enter a value in the **Search** edit box to limit the search then click **Go**. Alternatively, simply omit a filter, and click **Go** to list all users.
4. Find the user in the list and click the **Pencil** icon in the **Actions** column.
5. If you wish to modify a calendar-specific attribute, make the necessary modifications and click **Apply**.

To modify attributes that are not calendar-specific, use Oracle Internet Directory administration tools or third-party directory servers.

Command Line

You may view and modify a user's calendar attributes using the `uniuser` utility with the **-mod** option or **-s** option. To modify attributes that are not calendar-specific, use your Oracle Internet Directory administration tools.

To disable a calendar account, use `uniuser` with the **-mod** option. For example:

```
% uniuser -user -mod "S=Smith/G=John" -m "ENABLE=FALSE" -n 23
```

To grant access rights from one user to another use the `uniaccessrights` utility. See **Granting access rights** later in this chapter. To change a user password, the `unipasswd` utility can be used. User passwords can also be modified using the Oracle Internet Directory administration tools.

For full information about the use and syntax these utilities, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

Deleting Calendar User Accounts

When a user is deleted from a node, the user's Calendar account and records are removed from the local node. This means that all data owned by the user, including any meetings or groups, will be deleted. The user will no longer appear in other users' agendas, nor will any meetings or other calendar entries owned by this user remain. Any replicated copies of calendar data owned by the user will also be removed.

To preserve meetings and other calendar entries owned by the user, you should transfer ownership of these meetings to another user before the deletion.

You can delete users using the Oracle Calendar administrator web GUI, or by using a command line utility.

Oracle Calendar Administrator

Use the Oracle Calendar administrator to transfer calendar data from one user to another and then to delete the user from the server.

1. Click the **Calendar Management** tab.
2. Click on the **Users** secondary tab.
3. Search for the user you want to transfer or delete using the **Search** box. Click **Go** to list all users, or select a filter and enter a value in the **Search** edit box to limit the search, and then click **Go**.
4. To transfer data from this user to another, first click the **Pencil** icon in the **Actions** column for this user.
5. Click **Transfer Calendar** at the bottom of the menu on the left.
6. In the Recipient for Calendar page, click **Go** to list all users, or select a filter and enter a value in the Search edit box to limit the search, then click **Go**.
7. Find the target user, and click on the **Transfer** icon in the **Actions** column for that user.
8. From the Calendar Data to Transfer page, select the types of calendar entries you want to transfer and click **Apply**.
9. Once the data has been transferred you can proceed with the deletion. Click the **Users** tab on the top left.

10. To find the user to delete, use the Search filter and edit box. To delete one or more users, select the user by clicking on the corresponding check box in the **Select** column, and then click **Delete** at the top right.

Command Line

Remove one or more users from the calendar server node using the `uniuser -user -del` (single deletion) or `uniuser -ex` (multiple deletions) commands. For full information about use and syntax of these utilities, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

If the user is the owner of calendar entries (meetings, day events, and so on) that you do not want to delete, you may want to transfer these entries to another user before deleting the user. Use `uniuser` with the **-transfer** option to transfer ownership of selected entries in the user's agenda to another user.

For example, if a manager who controlled group scheduling leaves the company, you might transfer all non-personal entries from his agenda to the person replacing him. Use the **-event**, **-task**, **-group**, and **-folder** options of `uniuser` to define which type of calendar data to transfer.

To preserve a copy of the user's complete agenda in a file prior to deletion from the node, use the `unicpoutu` or `uniical` utilities. For more information about `uncpoutu` and `uniical`, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

Moving Calendar Users

Due to a variety of potential circumstances — organizational changes, employee relocation, or the need to redistribute node capacity — you may need to move one or more users from one node to another.

Command Line

Use the `unimvuser` utility. It is advisable to run `unimvuser` during off-peak hours for the calendar server. Always use the most recent version of `unimvuser` in your node network. For full information about use and syntax, including a number of crucial warnings and considerations, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

Modifying User Defaults

To set client display preferences, administrative rights, default viewing privileges, or other parameters for a group of users, define a default user profile before adding users to the node. This default user profile may also be applied to existing users.

Defining a default user profile:

- All configuration parameters for the user profile are stored in the `$ORACLE_HOME/ocal/misc/user.ini` file. Edit this file using a text editor supplied with your operating system.
- Values can be set and changed according to the information and limits defined in the `user.ini` file configuration file. For more information on these parameters, see "Calendar User and Resource Parameters" in Chapter 1 of *Oracle Calendar Reference Manual*.
- To make changes, delete the old value and insert a new value.

- The default value is assumed if the parameter is not included in the `$ORACLE_HOME/ocal/misc/user.ini` file.

Applying a default user profile:

- The profile is applied during user creation (using the `uniuser` utility, or the Oracle Calendar administrator).
- The default user profile is outlined under the section heading `[GEN]` in the `$ORACLE_HOME/ocal/misc/user.ini` file. Multiple profiles can be created from this template and appended to the file under different section heading names. These profiles can then be specified during user creation or modification using the `uniuser` utility with the `-s` option. For more information about the use and syntax of the `uniuser` utility, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

Setting Up E-mail Notification

The e-mail addresses let users notify each other of created, modified, or deleted calendar entries and are used for sending e-mail reminders.

When adding users with `uniuser`, on a standalone Calendar server with an internal directory, you can specify their e-mail addresses by using the `EMAIL` key/value pair. For example:

```
% uniuser -add "S=Kafka/G=Franz/EMAIL=fkafka@mail.org/PSW=userpassword" -n 23
Enter SysOp password:
uniuser: added "S=Kafka/G=Franz/ID=262/NODE-ID=23" has been added
```

For more information about the use and syntax of `uniuser`, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

Granting Access Rights From One User to Another

An administrator can grant a user the right to access the agenda of another user, resource, or event calendar. These rights include event viewing rights, task viewing rights, scheduling rights, and designate rights. A designate is a user assigned the right to modify the agenda of another user or resource. Granting scheduling rights to a user means giving that user the right to invite you to events.

Users can customize their own access rights from various Calendar clients including Oracle Calendar Desktop Client, Oracle Connector for Outlook and Oracle Calendar Web Client. Administrators can also set access rights using the Oracle Calendar administrator or the `uniaccessrights` utility.

You can grant access rights between users using the Oracle Calendar administrator web GUI, or by using a command line utility.

Oracle Calendar Administrator

Use the Oracle Calendar administrator to grant access rights from one user (grantor) to another (grantee).

1. Click the **Calendar Management** tab.
2. Click on the **Users** secondary tab.
3. Search for the user who will be the grantor. Click **Go** to list all users, or select a filter and enter a value in the **Search** edit box to limit the search, then click **Go**.

4. Find the user in the list and click the **Pencil** icon in the **Actions** column to open the profile for this calendar user.
5. Click **Access Rights** on the left.
6. On the Access Rights page, any user to whom you already have granted rights can be displayed. Click **Go** to list them all.
7. To grant rights to a user for the first time, click **Grant Rights** on the right.
8. Search for the user who will be the grantee and click the Grant Rights icon in the **Actions** column to change the rights granted to this user.
9. In the Access Rights to Calendar page, change the rights and click **Apply**.

Command Line

Use the `uniaccessrights` utility with the **-mod** option to grant access rights from one user to another or from one user to many users. For example:

```
% uniaccessrights -mod -grantee "S=OBrian" -grantor "S=Martin/G=Don" -host gravel  
-eventview "PERSONAL=ALL" -taskview "all=true"
```

For more information about the use and syntax of `uniaccessrights`, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

Other User Configuration Options

You can configure whether a user has a global and published agenda.

Global and Published Calendars

Calendar users can share their agenda with other users through the Oracle Calendar Web client. Calendar sharing is determined using the Global Read Access attribute.

Users with the Global Read Access attribute turned ON can share their agendas with any other Internet user by mailing them a URL defined by the Oracle Calendar Web Client. The default value for Global Read Access is OFF.

Set the Global Read Access attribute using the Oracle Calendar administrator or the `uniuser` utility. For more information about this feature, see your Oracle Calendar Web client online Help.

Note: A legacy attribute, Published Type is also available in Oracle Calendar. Created for ISPs with large numbers of users who needed to be able to do searches for each others' Calendars, this attribute is not necessary for current implementations of Oracle Calendar.

About Calendar Server Administrative Rights

Most of the administrative operations for Oracle Calendar can be performed by regular calendar users. The administrator (calendar system operator) must first grant the users administration rights. Different sets of rights can be granted to different users based on what they should manage: users, resources, event calendars, groups, node network, or calendar server. Once administrative rights have been granted, the user can then perform administrative operations by logging in to the Oracle Calendar

administrator as themselves or by using certain command-line utilities with the `-uid` option.

These administrative rights limit the operations any given user can perform using the Oracle Calendar administrator and command-line calendar utilities.

For example, it may be useful to give designated employees in Human Resources administrative rights for holidays. Those employees could then add, modify, and delete holidays in the Oracle Calendar administrator by signing in with their own user name and password.

For a complete list of the individual rights that can be assigned in Oracle calendar using the `uniadmrights` utility, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

Scope of Administrative Rights

Each user's profile of administrative rights also has a scope that defines which nodes the user's rights apply to. The **Node** scope limits all administrative rights to the node on which the user's own calendar account exists. The **Network** scope extends the user's administrative rights to all nodes that are in the network which includes that user's node.

For example, in a scenario where nodes 30 and 40 are in a node network together, a user on node 30 with a Node scope may only modify users and resources on node 30. A user on node 40 with Network scope may modify users and resources on both nodes.

Assigning Administrative Rights to Users

You can assign administrative rights to a user through the Oracle Calendar administrator or the command-line `uniadmrights` utility.

Note that the ability to manage other users' administrative rights is itself covered by an administrative right. In addition, you may only assign rights that you possess, and you may only assign Network scope if you possess Network scope. For example, in order to assign resource creation administrative rights to a user, you must possess *both* resource creation administration rights *and* the right to manage users' administrative rights.

Note: If your Calendar server is a standalone installation with a supported third-party directory server, additional configuration steps are necessary in order to use this feature. See the [Administrative Rights: Third-Party Directory Server Considerations](#) later in this chapter.

You can assign administrative rights to users using the Oracle Calendar administrator web GUI, or by using a command line utility.

Oracle Calendar Administrator

Use the Oracle Calendar administrator to grant administrative rights to users.

1. Click the **Calendar Management** tab.
2. Click on the **Users** secondary tab.

3. Search for the user you want to grant administrative rights to and then click the **Pencil** icon in the **Actions** column.
4. Click **Administrative Rights** in the menu on the left.
5. Use the check boxes to select the administrative rights you wish to grant to the user, then click the **Apply** button.

Command Line

Use the `uniadmrights` utility. For example:

```
% uniadmrights -u "S=Heller/G=Joseph" -n 22 -user "create=true/modify=true"
-resource "all=true" -csm "all=false"
```

The preceding command line grants Joseph Heller on node 22 the ability to create and modify users (but not to delete, set access rights or passwords); all rights for resources (including the rights to create, modify, delete, set passwords, and set access, viewing and designate rights). Lastly, it also removes all access rights to the Calendar Server Manager, denying this user the ability to start and stop nodes and servers.

For more details on the `uniadmrights` utility, including syntax, accepted key-value pairs and a complete list of all available access rights, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

Administrative Rights: Third-Party Directory Server Considerations

When assigning administrative rights to other Calendar users with a supported third-party directory server some additional configuration steps are required. These steps are not required when Calendar is deployed with Oracle Collaboration Suite, or in standalone installations with an internal directory. Failure to configure the Calendar server with the modifications listed below will result in the inability of users to administer the Calendar server.

- Open the `$ORACLE_HOME/ocal/misc/unison.ini` configuration file with a text editor.
- Add the following parameter to the `[DAS]` section of the `unison.ini` file:

```
dir_usewritednforadmin=TRUE
```

- Add the following parameters with the appropriate values to the `[LDAP]` section of the `unison.ini` file:

```
writedn=<writedn>
writednpassword=<encryptedwritednpassword>
```

See Also: For more information on the `writedn` and `writednpassword` parameters, see "Calendar Server Parameters" in Chapter 3 of *Oracle Calendar Reference Manual*.

- Save the file

Managing Calendar Resources Accounts

This chapter describes the various tasks involved in creating and managing resources. The administrative controls and functionality of resource management are similar to those of user management, with some important differences in an LDAP context.

This chapter contains the following sections:

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About Calendar Resources

An Oracle Calendar resource can be defined as an inanimate object, such as a conference room or a piece of equipment, that has its own account on the calendar server. When creating an event in their agenda, users can reserve resources by inviting them in the same way that they invite other users. Resources can be managed by local users who act as designates. Resources can be set up to permit reservations on a first come first served basis to prevent double-bookings, to permit more than one reservation at a time, or to require approval by a resource manager.

Resource accounts can also be used to create calendars for tracking related enterprise-wide information, such as company holidays or employees' travel schedules. For example, to create a Travel Planner for an organization, add a resource to the node and name it "Travel Planner". Whenever an employee is scheduled to travel, the employee is required to create an event in their personal agenda and invite the Travel Planner resource. The result is a calendar for the resource Travel Planner containing all entries related to employee travel.

Creating Calendar Resources

You can create resources using the Oracle Calendar administrator web GUI, or by using a command line utility.

Oracle Calendar Administrator

You can add resources to a node using the Oracle Calendar administrator.

1. Click the **Calendar Management** tab.
2. Click on the **Resources** secondary tab.
3. Click **Add Resource** on the far right. Click **Add Resource** on the far right.
4. Enter the resource information and then click **Apply**.

Command Line Utility

To add a resource: Use `uniuser -resource -add` to add a single resource. You must supply a password for the resource. For more information about use and syntax of the `uniuser` utility, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

```
% uniuser -add "R=conference room/N=4/PSW=abcd123" -resource -n 786
Enter SysOp password:
uniuser: "R=conference room/UID=conference room/ID=263/NODE_ID=786" has been added
```

To add several resources:

1. Create a file listing the resources you want to add to a node. Enter the information for each resource following the format and syntax detailed in the `uniuser` documentation. For more information about the `uniuser` utility, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

```
A R=conference room/N=104/CA=24/S=Alexander/G=James/PSW=abc1
A R=projector/N=2/S=Addison/G=Thomas/PHONE=123-4567/PSW=def2
```

2. Add the resources in the file (named "res1" in the following example) to the specified node.

```
% uniuser -ex res1 -resource -n 444
Enter SysOp password:
uniuser: added "conference room"
uniuser: added "projector"
```

Adding Resources in an LDAP Directory Context

In a standalone installation of the calendar server, using a third-party LDAP directory server, you may specify a Resource Relative DN for your installation using the server parameter `[LDAP] resourcerelativedn`. If you do, all resources will be stored by default in that location in the LDAP tree. Alternatively, you may specify a full DN for resources as you create them. For more details about the `[LDAP] resourcerelativedn` parameter, see "Calendar Server Parameters" in Chapter 3 of *Oracle Calendar Reference Manual*.

While users are typically added to the directory server before they are added to a calendar server node, resources are added directly to the Calendar server and the Calendar server adds them automatically to the directory server in a single operation.

You can add resources using the Oracle Calendar administrator web GUI, or by using a command line utility.

Oracle Calendar Administrator

You can easily add resources to a calendar server node using the Oracle Calendar administrator.

1. Click the **Calendar Management** tab.
2. Click on the **Resources** secondary tab.
3. Click **Create Resource** on the far right.
4. Enter the resource attributes and then click **Apply**.

Command Line

To add a resource: Use `uniuser -resource -add` to add a single resource. For more information about the use and syntax of `uniuser`, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*. This example specifies a full DN for the new resource after it is added.

```
% uniuser -resource -add "R=Res1/PSW=test1" -n 134
Enter SysOp password:
uniuser: "R=Res1/UID=Res1/ID=264/NODE-ID=134" has been added
```

This example specifies only a resource name, leaving the resource's location in the LDAP directory to be determined by the Resource Relative DN and the calendar server base DN.

```
% uniuser -resource -add "R=Room614/PSW=mypassword" -n 134
Enter SysOp password:
uniuser: added "R=Room614/UID=Room614/ID=265/NODE-ID=134" has been added
```

To add several resources:

1. Create a file of the resources you want to add. Enter the information for each resource following the format and syntax documented for `uniuser`. For more information on the format and syntax, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*. This example specifies full DNs for the new resources.

```
A DID=cn=Room24, o=visioncorp, c=US
A DID=cn=projector3, o=visioncopr, c=US
A DID=cn=lab5, o=visioncorp, c=US
```

2. Add the resources in the file (named "res1" in the following example) to the specified node.

```
% uniuser -resource -ex res1 -n 444
Enter SysOp password:
uniuser: R=Room24/UID=Room24/ID=266/NODE-ID=444" has been added
uniuser: R=projector3/UID=projector3/ID=267/NODE-ID=444" has been added
uniuser: R=lab5/UID=lab5/ID=268/NODE-ID=444" has been added
```

The resource now exists in the directory server and on the calendar server node.

Modifying Calendar Resources

You can modify resources using the Oracle Calendar administrator web GUI, or by using a command line utility.

Oracle Calendar Administrator

You can easily manage resources using the Oracle Calendar administrator.

1. Click the **Calendar Management** tab.
2. Click the **Resources** secondary tab.
3. Search for the resource you want to modify. You can click **Go** to list all resources, or select a filter and enter a value in the **Search** edit box to limit the search.
4. When the resource is listed, click the **Pencil** icon in the **Actions** column to modify the resource's attributes or click the **Key** icon to change the password.
5. Modify the necessary fields then click **Apply**.

Command Line

List resources using the `uniuser` utility with the `-resource` and the `-ls` options. List resource attributes using the `-resource` and the `-info` options. To modify resources, use `uniuser -resource -mod`. For more information about the `uniuser` utility, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*. For example:

```
% uniuser -resource -ls "R=HPLaser*" -format "%r% Contact: %g% %s%" -n 12
% uniuser -resource -mod "R=oakroom" -m "N=301/PSW=abc123" -n 23
```

Deleting Calendar Resources

When a resource is deleted from a node, the resource's directory entry and records are removed from the local node. The resource will no longer appear as invited in user's agendas, nor will it appear in any directory listings.

Calendar entries owned by the resource can be transferred to another resource before deleting the resource, using `uniuser` with the `-resource` and `-transfer` options.

Another option is to take a copy of the resource's agenda using the `unicpout` or `uniical` utilities. For more information about these utilities, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

You can delete resources using the Oracle Calendar administrator web GUI, or by using a command line utility.

Oracle Calendar Administrator

You can delete resources easily using the Oracle Calendar administrator.

1. Click the **Calendar Management** tab.
2. Click on the **Resources** secondary tab.
3. Search for the resources you want to delete using the **Search** edit box or select **Advanced Search**.
4. Select the resources you want to delete from the list using the check boxes in the **Select** column.
5. Click **Delete** on the top right.

Command Line

Remove the resources from the Oracle Calendar server node using the `uniuser -resource -del` (single deletion) or `uniuser -resource -ex` (multiple deletions) commands. For full information about use and syntax, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

Modifying Calendar Resource Defaults

You may define a default resource profile to apply as you add resources to the database. This profile can also be applied to existing resources.

Defining a default resource profile:

- All configuration parameters for the resource profile are stored in the `$ORACLE_HOME/ocal/misc/resource.ini` file. Edit this file using a text editor supplied with your operating system.
- Default values can be changed according to the information and limits defined in the `resource.ini`. For more information on these parameters, see "Calendar User and Resource Parameters" in Chapter 1 of *Oracle Calendar Reference Manual*.
- To make changes, delete the old value and insert a new value.
- The default value is assumed if the parameter is not included in the `$ORACLE_HOME/ocal/misc/resource.ini` file.

Applying a default resource profile:

- The resource profile is applied during resource creation (using either the `uniuser` utility or the Oracle Calendar administrator).
- The default resource profile is outlined under the section heading `[GEN]` in the `$ORACLE_HOME/ocal/misc/resource.ini` file. Multiple profiles can be created from this template and appended to the file under different section heading names. These profiles can then be specified during resource creation or modification using the `uniuser` command. For more information about the use and syntax of the `uniuser` utility, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

Granting Designate and Other Access Rights to Users

An administrator can grant a user the right to access the agenda of a resource. These rights include event viewing rights, task viewing rights, scheduling rights, and designate rights.

When a designate user is assigned to a resource, he can open the resource's agenda to add, delete, or modify entries. Designate and other access rights are set according to the default resource profile file (`resource.ini`) at the time the resource is added to the node.

If scheduling rights are granted on behalf of a resource to another user, the user has the right to book the resource. If the default access rights for all users is set such that no one has the right to book a resource, the resource is said to be restricted.

You can grant designate and other access rights to users on behalf of resources using the Oracle Calendar administrator web GUI, or by using a command line utility.

Oracle Calendar Administrator

Use the Oracle Calendar administrator to grant access rights from a resource to a user.

1. Click the **Calendar Management** tab.
2. Click on the **Resources** secondary tab.
3. Search for the resource and then click the **Pencil** icon in the **Actions** column.
4. Click **Access Rights** on the left side.

5. Click **Grant Rights** on the top right and search for the user or users who will be granted the access rights (grantees).
6. Select the users using the check boxes in the **Select** column, then click **Grant Rights** on the right.
7. Modify the necessary access rights by selecting options from the drop down lists and check boxes available, then click **Apply**.

Command Line

Use the `uniaccessrights` utility with the `-mod` option to grant access rights from a resource to a user or from a resource to many users. For example:

```
% uniaccessrights -mod -grantee "S=OBrian" -grantor "R=ConfRoom1" -host gravel  
-eventview "NORMAL=ALL"
```

For more information about the use and syntax of the `uniaccessrights` utility, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

Booking Calendar Resources

Resource reservation settings are controlled at the level of individual resources. By default, a resource is set to be reserved on a first come first served basis. The first user to reserve the resource will get the accepted reply automatically. Any subsequent request to reserve the resource for the same time slot will be refused.

A resource can also be set to permit double-booking. When a resource can be booked by more than one user for the same time slot, a resource designate can then choose which user gets the resource by accepting one of the requests and declining the others.

Some resources may be set up such that anyone requesting a resource will need approval by a resource manager before the resource can be booked. This mechanism can be made to include the automatic sending an e-mail to the approver notifying them that a resource has been requested. The e-mail message will include a link to the Oracle Calendar Web client where the approver can either approve or refuse the request. This e-mail will be sent in the language set for the resource.

When a resource is restricted, no one can reserve the resource. To permit a few users to reserve a restricted resource, the right to book the resource must be granted from this resource to each of these specific users.

You can easily set resource scheduling attributes using the Oracle Calendar administrator or the `uniaccessrights` utility. For more information about the use and syntax of the `uniaccessrights` utility, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

Setting the Resource to Allow Double-Booking

Setting the `ALLOW-CONFLICT` attribute to `YES` will permit the resource to be booked by more than one user for the same time slot. Set the `ALLOW-CONFLICT` attribute back to `NO` to let the resource be booked on a first come first served basis. Use `DEFAULT` to resort to the default set by the server parameter (`unison.ini`) [ENG] `allowresourceconflict`. For more information about these server parameters, see "Calendar Server Parameters" in Chapter 3 of *Oracle Calendar Reference Manual*.

You can set the resource double booking option using the Oracle Calendar administrator web GUI, or by using a command line utility.

Oracle Calendar Administrator

A resource can be set to *allow double-booking* using the Oracle Calendar administrator.

1. Click the **Calendar Management** tab.
2. Click on the **Resources** secondary tab.
3. Search for the resource you want to modify by selecting a **Search** filter and entering a value in the search edit box. Click **Go** to list the resources.
4. When the resources are listed, click the **Pencil** icon in the **Actions** column to the right of the resource that you wish to modify.
5. Scroll down to the **Scheduling Options** section. Select **Yes -- Requires Approval** in the **Allow Double-booking** drop-down list and click **Apply**.

Command Line

To allow double-booking for a resource, set the resource `ALLOW-CONFLICT` attribute to `YES` using the `uniuser` utility with the `-resource` and `-mod` options. Example:

```
% uniuser -n 1 -resource -mod "R=Pool Table" -m ALLOW-CONFLICT=YES
```

Setting Up the Approval Mechanism for a Resource

You can set up the approval mechanism for resources using the Oracle Calendar administrator, or by using a command line utility.

Oracle Calendar Administrator

1. Click the **Calendar Management** tab.
2. Click on the **Resources** secondary tab.
3. Search for the resource you want to modify and then click the **Pencil** icon in the **Actions** column.
4. Scroll down to the **Scheduling Options** section. Select **Yes -- Requires Approval** in the **Allow Double-booking** drop-down list.
5. For the approval mechanism to work, you must select the **Notify Approver by E-mail** check box and enter the e-mail address of the approver in the **Approver E-mail** text box.
6. If necessary, change the language that will be used for sending the e-mail using the pull down list.
7. Click **Apply**.

Command Line

To set resource approval using the `uniuser` utility, use the `-mod` option. Three attributes must be set: `ALLOW-CONFLICT` must be set to `YES`, `NOTIFY-APPROVER` must be set to `TRUE` and `APPROVER-EMAIL` must be set to the approver's e-mail address. For example:

```
% uniuser -n 1 -resource -mod "R=Projector" -m
"ALLOW-CONFLICT=YES/NOTIFY-APPROVER=TRUE/APPROVER-EMAIL=resmanager@test.com"
```

In order to grant approval, the approver must have full designate rights for the resource.

Restricting a Resource

Restricting a resource is done using the resource's `CanBookMe` attribute. Setting it to `FALSE` will make the resource restricted. To allow a user to reserve a restricted resource, the `CanBookMe` access right for the resource must be granted to the user.

You can restrict resources using the Oracle Calendar administrator web GUI, or by using a command line utility.

Oracle Calendar Administrator

You can restrict a resource easily using the Oracle Calendar administrator.

1. Click the **Calendar Management** tab.
2. Click on the **Resources** secondary tab.
3. Search for the resource you want to modify and then click the **Pencil** icon in the **Actions** column.
4. Click **Access Rights** on the left menu.
5. Click the **Modify Default Access Rights** button on the top right.
6. In the **Scheduling** section, un-check the **Can Invite Me** option. This will be reflected in the **Scheduling Options** section of the Resource Information Web page for this resource, where it will say **Restricted resource**.

To grant booking rights to specific users follow these steps:

1. From the same **Resources** page, search for the resource then click the **Pencil** icon in the **Actions** column.
2. Click **Access Rights** on the left menu, then click **Grant Rights** on the top right.
3. Find a user or all the users using the search box.
4. When the user or the list of users is displayed, select the user or users to whom you want to grant access rights in the **Select** column, then click **Grant Rights** at the top right of the list.
5. Scroll down to the **Scheduling** section and select **Can Invite Me**. Click **Apply**.

Command Line

Use the `uniuser` utility with the `-resource` and `-s` options to set a resource to be restricted. This option lets you specify a section of the configuration file `$ORACLE_HOME/ocal/misc/resource.ini` to use for determining the default values to be used for editing the attributes of a resource.

For more information about the use and syntax of `uniuser -s`, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*. For example:

1. Create a new section `[RESTRICT_RESOURCE]` in the `resource.ini` file with the `CanBookMe` parameter set to `FALSE`. Add these two lines at the end of the file:

```
[RESTRICT_RESOURCE]
CanBookMe=FALSE
```

You can list the values in any section of the `resource.ini` file:

```
% uniuser -resource -defaults -s "RESTRICT_RESOURCE" -n 23
CanBookMe = FALSE
```

2. Proceed with the modification for the OakRoom resource:

```
% uniuser -resource -mod "R=OakRoom" -s "RESTRICT_RESOURCE" -n 23
Enter SysOp password:
uniuser: "R=OakRoom/N=100/UID=oakroom/ID=308/NODE-ID=23" has been modified.
```

3. Then use `uniaccessrights` utility with the **-mod** option to grant access rights from the resource to a user; for example:

```
% uniaccessrights -mod -grantee "S=OBrian" -grantor "R=OakRoom" -scheduling
"canbookme=true" -n 23
```

4. You can also grant access rights to many users, such as, all the people in Engineering:

```
% uniaccessrights -mod -grantee "OU1=Engineering" -grantor "R=OakRoom"
-scheduling "canbookme=true" -n 23
```

For more information on the use and syntax of `uniaccessrights`, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

Searching for Calendar Resources

The calendar server facilitates the task of searching for resources through the use of resource categories and resource capacity for calendar clients that support it. When a new resource such as a conference room or a vehicle is added, a capacity value can be entered. The capacity can be used by the calendar users to select resources. The Oracle Calendar administrator interface and Oracle Connector for Outlook both allow users to filter resources based on the capacity.

When a user searches for resources using any calendar client, he can narrow his search by first selecting the country, then the facility and finally the type of resource (rooms, equipment, and so on). [Figure 8-1](#) shows how a user can search for a resource from a calendar client by selecting entries from three drop-down lists. Resource categories are used to store this information in the calendar server database.

Figure 8-1 Searching for a Resource in the Oracle Calendar Web Client

The screenshot shows the Oracle Calendar Web Client interface. At the top, there are three tabs: 'People', 'Resources' (which is selected), and 'Groups'. Below the tabs, there are three radio buttons for search criteria: 'Country' (selected), 'Resource name:', and 'Resource number:'. Under 'Country', there is a dropdown menu with 'United States' selected. Under 'Facility', there is a dropdown menu with 'Albany' selected. Under 'Resource type', there is a dropdown menu with 'Please select a resource type' and a list of options: 'Conference Room' and 'Equipment'. A 'Find' button is located to the right of the dropdowns.

Calendar Resource Categories

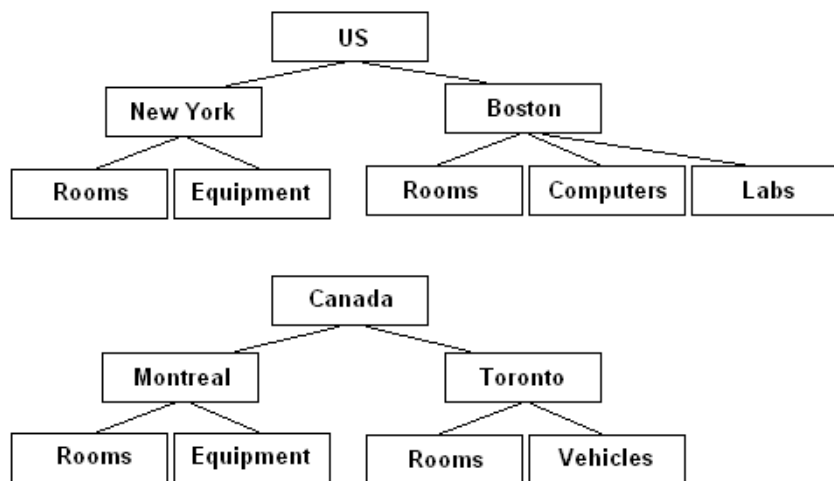
In order to provide this feature for end users, the list of resource categories must be defined in the category `$ORACLE_HOME/ocal/misc/category.ini` configuration file. A second category configuration file, `categorytype.ini`, exists in the same directory and should not be modified. The list of available countries, facilities and resource types will be displayed in the calendar clients according to the `category.ini` file. The administrator must edit this file and enter the data manually. These two files are needed to allow searching for resources using resource categories.

Defining Calendar Resource Categories

The categories must be organized in a tree structure which specifies the countries, the facilities in each country, and the types of resources available at each facility.

Figure 8–2 shows an example of resources in an organization with offices in two countries, in four different cities, and with different types of resources.

Figure 8–2 Resource Organization Tree



The file `category.ini` contains information describing each node of the resource tree and defines the names of the categories that will appear in the drop-down lists in the user interface (for example, the country "United-States", the facility "Boston", the resource type "Computers"). Each category name can be defined in different languages allowing localized calendar clients to display the list of categories in the proper language.

These files must be encoded in the UTF-8 format. To convert a string to UTF-8, use the `unistrconv` utility or use a UTF-8 editor. For more information about the use and syntax of this utility, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

Once you have defined the way to structure the resources in your organization, edit the `category.ini` file to enter the information. You may want to keep a copy of the sample `category.ini` file before changing it.

In order for the categories to apply to all resources in a node network, the `category.ini` file must be copied on all Calendar server hosts in the network.

Structure of the `category.ini` file:

The `category.ini` file contains the list of all countries, the list of all facilities for each country, and the list of all types of resources available at each facility. Every entry in the tree lists must have a corresponding section in the file. Each section is identified by a unique section name enclosed in square brackets, (ex. `[RL_NEWYORK]`). Section names must not exceed 32 characters.

Each section contains a list of labels to be displayed in the different languages available to end users. Each of these label strings must be encoded in UTF-8 format.

The `typeid` parameter in each section specifies whether the entry is part of the list of countries, of facilities, or of resource types. All section names must be different.

Country sections

Enter sections for each country. For example, if your organization has offices in three countries, USA, England, and Canada, then you should enter three sections, one for each country: `[RL_USA]`, `[RL_ENGLAND]`, and `[RL_CANADA]`. Within these sections, the `typeid` parameter should be set to `"RL_COUNTRY"` and the `parentid` parameter to `"RL_ROOT"`.

For example:

```
[RL_USA]
typeid = "RL_COUNTRY"
parentid = "RL_ROOT"
description.en = "USA"
```

Use the `description.xx` parameters to enter the country's label in more than one language. The translated labels will be used for calendar clients of different languages: where `description.fr` defines the French label, `description.es` defines the Spanish label, and so on. Each of these label strings must be encoded in UTF-8 format. If a translation is not available, English will be used as a default. As a result, the `description.en` should be present.

For example:

```
[RL_ENGLAND]
typeid = "RL_COUNTRY"
parentid = "RL_ROOT"
description.en = "England"
description.fr = "Angleterre"
description.es = "Inglaterra"
```

The language codes are the following:

en	(English)
fr	(French)
it	(Italian)
es	(Spanish)
de	(German)
pt	(Portuguese)
ja	(Japanese)
ko	(Korean)
zh-cn	(Traditional Chinese)
zh-tw	(Simplified Chinese)
pt-br	(Brazilian Portuguese)

Facility sections

Enter sections for each facility. For example, if your organization has two offices in the USA, enter two sections with the `typeid` parameter set to `"RL_FACILITY"` and `parentid` parameter to `"RL_USA"`. The section name should identify the facility. The name of the city it is located in or the name of the department that occupies it can be used. For example:

```
[RL_NEW_YORK]
typeid = "RL_FACILITY"
parentid = "RL_USA"
description.en = "New York Office"

[RL_SANFRANCISCO]
typeid = "RL_FACILITY"
parentid = "RL_USA"
description.en = "San Francisco Laboratory"
```

Resource type sections

Enter sections for each type of resource available at a facility. For example, if your office in New York has three types of resources (Conference rooms, Equipment, Vehicles), enter three sections with the `typeid` parameter set to "RL_RESOURCECETYPE" and `parentid` parameter set to "RL_NEW_YORK". The section name should identify the resource type and the facility, and should be unique. For example:

```
[RL_NY_VEHICLES]
typeid = "RL_RESOURCECETYPE"
parentid = "RL_NEW_YORK"
description.en = "Vehicle"
description.es = "vehículo"

[RL_NY_CONFROOM]
typeid = "RL_RESOURCECETYPE"
parentid = "RL_NEW_YORK"
description.en = "Conference room"
description.es = "Salón de Conferencias"

[RL_NY_EQUIPMENT]
typeid = "RL_RESOURCECETYPE"
parentid = "RL_NEW_YORK"
description.en = "Equipment"
description.es = "Equipos"
```

For each facility, in all countries, resource types must be entered this way with a section name reflecting the resource type and the facility, and the `parentid` parameter set to the facility's section name.

Assigning a Category to a Resource

Once all resource types have been entered in the `category.ini` file, each resource entered in the database can then be associated with a resource type category. Associating a category to a resource will ensure that this resource is found when the user selects the right category type from the drop-down list.

You can associate categories to resources using the Oracle Calendar administrator web GUI, or by using a command line utility.

Oracle Calendar Administrator

You can easily set categories for a resource using the Oracle Calendar administrator.

1. Click the **Calendar Management** tab.
2. Click on the Resources secondary tab.
3. Find the resource or resources you want to edit by using the **Search** option.
4. Once the resource is listed, click the **Pencil** icon to edit the resource's attributes.

5. Select **Categories** on the left side. The Available Categories will then be listed.
6. Click a category name to see the subcategories.
7. Click **View All** to view all categories available. Select the check boxes to choose categories to associate with the resource.
8. Click **Apply**.

Command Line

To associate a resource to the proper categories, the `uniuser` utility can be used with the `-resource` and `-mod` options. For example:

```
% uniuser -resource -n 1 -mod "R=ConfRoom202" -m "CATEGORY=RL_NY_CONFROOM"
```

Once categories have been assigned to all resources, you can list the resources based on categories using `uniuser -resource -ls`. For example:

```
% uniuser -resource -n 1 -ls "CATEGORY=RL_NY_CONFROOM"
```

For more information about the use and syntax on this utility, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

Managing Event Calendar Accounts

This chapter describes the various tasks involved in creating and managing event calendars.

This chapter contains the following sections:

- [About Event Calendars](#)
- [Creating Event Calendars](#)
- [Modifying and Deleting Event Calendars](#)
- [Populating Event Calendars](#)
- [Granting Designate Rights to Users](#)

About Event Calendars

Event calendars are similar to user accounts, but represent schedules such as sports matches, concerts, or other events that may be of interest to your user base. The administrative controls and functionality of resource management are also similar to those of user management. An event calendar can be accessed by signing in with the event calendar account password using the Oracle Calendar Desktop Client.

Creating Event Calendars

An event calendar is an administrative calendar account which exists to inform your user base about upcoming events that may be of interest to them. Users have read-only access to the events created in event calendars. However, using the Oracle Calendar Web client, users may copy events and appointments from the event calendar into their own calendars. Administrators or users who have been given special administrative rights may create event calendars.

You can create event calendars using the Oracle Calendar administrator web GUI, or by using a command line utility.

Oracle Calendar Administrator

Use the Oracle Calendar administrator to add event calendars easily.

1. Click the **Calendar Management** tab.
2. Click on the **Event Calendars** secondary tab.
3. Click **Add Event Calendar** on the far right.
4. Fill out the required fields and click **Apply**.

Command Line

To add an event calendar: Use `uniuser -eventcal -add` to add a single event calendar. A password for the event calendar must be supplied. For more information about the use and syntax of `uniuser`, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

```
% uniuser -eventcal -add "N=Training classes/PSW=abcd12" -n 786
Enter SysOp password:
uniuser: "N=Training clasees/UID=268/NODE-ID=786" has been added"
```

To add several event calendars:

1. Create a file listing the event calendars that you want to add to a node. The information for each event calendar must be entered following the format and syntax documented in the `uniuser` documentation. For more information about the `uniuser` utility, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

```
A N=Training Classes/PSW=abcd12
A N=Soccer Matches/PSW=abcd56
```

2. Add the event calendars in the file (named "evcal1" in the following example) to the specified node.

```
% uniuser -eventcal -ex evcal1 -n 444
Enter SysOp password:
uniuser: "N=Training Classes/UID=269/NODE-ID=444" has been added"
uniuser: "N=Soccer Matches/UID=270/NODE-ID=444" has been added"
```

Other Directory Servers

If your calendar configuration consists of a standalone installation using a third party directory server, a user account must first be created for this event calendar in the directory server. Once it exists in the directory, you can create a calendar account for the event calendar. In this configuration, the existing directory data is used to create a calendar profile for the event calendar. Providing a password is not mandatory. The Oracle Calendar administrator will list all entries existing in the directory server. From this list, the event calendar is found and calendar services can be added to the account.

Modifying and Deleting Event Calendars

You can modify and delete event calendars using the Oracle Calendar administrator web GUI, or by using a command line utility.

Oracle Calendar Administrator

You can manage event calendars easily using the Oracle Calendar administrator.

1. Click the **Calendar Management** tab.
2. Click on the **Event Calendars** secondary tab.
3. Search for the event calendar you want to modify and then click one of the icons in the **Actions** column.
4. Make the necessary modifications, then click **Apply**.

Command Line

View event calendar attributes using the `uniuser` utility with the `-ls` and `-eventcal` options. To modify event calendars, use `uniuser -eventcal -mod`. For more information about the use and syntax of the `uniuser` utility, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

Populating Event Calendars

Only administrators or users with designate rights may modify events in an event calendar. Users who have been given special administrative rights can also manage the agendas of event calendars. Unlike calendar users or resources, Event Calendars cannot be invited to meetings.

You can populate event calendars using the Oracle Calendar administrator web GUI, the Oracle Calendar Desktop client or by using a command line utility.

Oracle Calendar Administrator

As an administrator, use the Oracle Calendar administrator to easily populate event calendars.

1. Click the **Calendar Management** tab.
2. Click on the **Event Calendars** secondary tab.
3. Search for the event calendar you want to populate and then click the Manage Events icon in the **Actions** column.
4. You can then enter or modify meetings, day events or daily notes in the event calendar.

Oracle Calendar Desktop clients

To add new events to an event calendar, you may also sign in as that event calendar using one of the Oracle Calendar Desktop clients and change the content of the agenda. Remember to grant other users the right to view the events you create if you choose this method of managing events in your event calendars. Do this either by setting each event's access level to "Public" when you create it, or by setting the event calendar's default access right profile to allow all users to view "Normal" events.

Users with designate access using the Oracle Calendar Desktop clients or Oracle Connector for Outlook, can sign in to their own calendar account and then manage the contents of an event calendar by working as designate. See "[Granting Designate Rights to Users](#)" later in this chapter.

Command Line

Use the `uniical` utility to add entries to an event calendar. For more information about the use and syntax of `uniical`, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

Granting Designate Rights to Users

An administrator can grant to a user designate access to an event calendar. When a designate user is assigned to an event calendar, he can open the event calendar's agenda to add, delete, or modify entries. Designate rights can be set according to the default event calendar profile file (`eventcal.ini`) at the time the event calendar is added to the node.

You can grant designate access rights using the Oracle Calendar administrator web GUI, or by using a command line utility.

Oracle Calendar Administrator

Use the Oracle Calendar administrator to grant access rights from an event calendar to a user.

1. Click the **Calendar Management** tab.
2. Click on the **Event Calendars** secondary tab.
3. Search for the event calendar and then click the **Pencil** icon in the **Actions** column.
4. Click **Access Rights** on the left side.
5. Click **Grant Rights** on the far right.
6. Search for the grantees you want to have access rights, and select the appropriate check boxes next to each grantee.
7. Click **Grant Rights**.
8. Customize the Access Rights for the grantees by selecting the options in the check boxes and drop-down lists.
9. Click **Apply**.

Command Line

Use the `uniaccessrights` utility with the **-mod** option to grant access rights from an event calendar to a user or from an event calendar to many users. For example:

```
% uniaccessrights -mod -grantee "S=OBrian/OU1=teachers" -grantor "N=Training  
Classes" -host gravel -designate "ALL=TRUE"
```

For more information about the use and syntax of `uniaccessrights`, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

Managing Calendar Groups

This chapter describes the different tasks involved in managing groups and group members within a calendar server node network.

This chapter contains the following sections:

- [About Calendar Groups](#)
- [Adding Calendar Groups](#)
- [Modifying Calendar Groups](#)
- [Deleting Calendar Groups](#)

About Calendar Groups

Groups of users and resources can be created by an administrator to be used by everyone in the calendar network. Private groups can be created by any user for their personal usage. Calendar groups allow users to schedule meetings efficiently with other users and resources.

Groups can include members on any remote node. There are four types of groups:

Private groups

Private groups:

- Can be created by all calendar users
- Are available only to the user who created the group
- Are created and modified by users in the Group Management dialog box of a calendar client

Members-only groups

Members-only groups:

- Can be created by all calendar users
- Are available only to members of the group
- Are created and modified by users in the Group Management dialog box of a calendar client

Public groups

Public groups:

- Only users who have the right to administer public groups can create groups, and modify and delete public groups that they own

- Are available to all users
- Any user can be granted the right to administer public groups
- The ownership of a public group cannot be changed

NOTE: Oracle does not recommend the use of public groups. Public groups are supported only for backwards compatibility with previous versions. Administrative groups offer all of the characteristics of public groups with the added advantage that ownership of the groups can be shared and transferred among users possessing the necessary administrative rights.

Administrative groups

Administrative groups:

- Can be created and modified by any user who has been granted the rights to manage administrative groups
- Are available to all users
- Are owned by the SYSOP, not the users who create them

Private, public, and members-only groups are managed by the users who created them. Users can create or modify these groups using their Calendar client. Administrative groups can be managed by administrators using the group utility `unigroup` or the Calendar Administrator client. For more information about the `unigroup` utility, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

The Administrator of the Calendar server can also give special group administration rights to calendar users.

Note: When a user who has created groups is deleted, all private, members-only and public groups owned by that user are deleted. As administrative groups are owned by the SYSOP, they will not be deleted.

Directory Server Groups and Distribution Lists

If any groups exist in the LDAP directory server, these groups will also be available for viewing (but not modification) in the Calendar client. The Oracle Internet Directory server also allows users to view Oracle Mail distribution lists (DL) as groups. This includes any DLs present in Oracle Internet Directory.

Depending on the Calendar client used, users will be able to view these DLs through the Global Address List. Moreover, users can expand the distribution list to view the users included in the DL.

Note: When expanding distribution lists, only users who have been provisioned to Calendar will appear in the list of users.

For more information about directory groups and how to configure them, see ["Using LDAP Groups and Distribution Lists"](#), in Chapter 6, ["Using Oracle Calendar with Directory Servers"](#).

Adding Calendar Groups

You can add calendar groups using the Oracle Calendar administrator web GUI, or by using a command line utility.

Oracle Calendar Administrator

Use the Calendar Administrator to easily create groups.

1. Click the **Calendar Management** tab.
2. Click on the **Groups** secondary tab.
3. To add a new group click **Create Group** on the far right.
4. Enter the desired new group name in the **Group Name** text box, then click **Apply**.

Note: All Calendar groups created with Oracle Calendar administrator are of the Administrative Group type.

Command Line

Use `unigroup` with the `-add` option to create a new group. Use the `-mod` option to modify the group name or other attributes. Use the `-attach` option to add members to the group. Use the utility with the `-ls` and `-members` options to list public and administrative groups and their members. For more information about the use and syntax of `unigroup`, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

```
% unigroup -add "NAME=Marketing" -n 1
Enter a password:
unigroup: "NAME=Marketing/ID=4100/NODE-ID=1/TYPE=Admin" has been added
```

Modifying Calendar Groups

You can modify calendar groups using the Oracle Calendar administrator web GUI, or by using a command line utility.

Oracle Calendar Administrator

1. Click on the **Calendar Management** tab
2. Click on the **Groups** secondary tab
3. Search for the group that you wish to modify by selecting **Group Name** from the **Search** drop-down list. Then enter the group name in the **for** text box and press the **Go** button.
4. Select the **Pencil** to the right of the group that you wish to modify.
5. To modify the group name, select **Group Definition** on the left side of the screen. Modify the group name in the **Group Name** text box, and press the **Apply** button.
6. To add users to a group, select **User Members** on the left side of the screen. Select the **Add Users** button, then search for the user you wish to add using the **Search** functionality. Once you have found the user you wish to add, select the **Add User** icon to the right of the user.

To delete users from a group, select **User Members** on the left side of the screen. Search for the user you wish to delete using the **Search** functionality. Once you have found the user you wish to add, select the **Remove User** icon to the right of the user.

7. To add resources to a group, select **Resource Members** on the left side of the screen. Select the **Add Resource** button, then search for the resource you wish to add using the **Search** functionality. Once you have found the resource you wish to add, select the **Add Resource** icon to the right of the resource.

To delete resources from a group, select **Resource Members** on the left side of the screen. Search for the resource you wish to delete using the **Search** functionality. Once you have found the resource you wish to delete, select the **Remove Resource** icon to the right of the resource.

Command Line

Use the `unigroup` utility with the **-mod** option to modify attributes of the group. Use the utility with the **-attach** and **-detach** options to add and remove users and resources as group members.

To add a user to an existing group:

```
% unigroup -attach "NAME=Marketing" -u "UID=jsmith" -n 1
Enter a password:
unigroup: User "UID=jsmith" has been attached to the group
```

To remove a user from an existing group:

```
% unigroup -detach "NAME=Marketing" -u "UID=jsmith" -n 1
Enter a password:
unigroup: User "UID=jsmith" has been detached to the group
```

To modify the group name from "Marketing" to "Sales and Advertising":

```
% unigroup -mod "NAME=Marketing" -m "NAME=Sales and Advertising" -n 1
Enter a password:
unigroup: "NAME=Marketing/ID=4100/NODE-ID=1/TYPE=Admin" has been updated
```

Deleting Calendar Groups

You can delete calendar groups using the Oracle Calendar administrator web GUI, or by using a command line utility.

Oracle Calendar Administrator

1. Click on the **Calendar Management** tab
2. Click on the **Groups** secondary tab
3. Search for the group that you wish to delete by selecting **Group Name** from the **Search** drop-down list. Then enter the group name in the **for** text box and press the **Go** button.
4. Once you have found the group you wish to delete, click the **Trash Can** icon to the right of the group. If you wish to delete multiple groups, select the check boxes to the left of the groups, then press the **Delete** button.
5. You will then be asked to confirm the group deletion. Press the **OK** button.

Command Line

Use the `unigroup` utility with the **-delete** option to delete an existing group. For more information on the use and syntax of `unigroup`, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

To delete a group:

```
% ./unigroup -del "NAME=Sales and Advertising" -n 1
Enter a password:
Delete "NAME=Sales and Advertising/ID=4100/NODE-ID=1/TYPE=Admin" [y/n]: y
unigroup: "NAME=Sales and Advertising/ID=4100/NODE-ID=28482/TYPE=Admin" has been
deleted
```

Managing Calendar Holidays

This chapter describes the different tasks involved in managing holidays within a calendar server node network.

This chapter contains the following sections:

- [About Holidays](#)
- [Assigning Holiday Administration Rights](#)
- [Creating Holidays](#)
- [Modifying Holidays](#)

About Holidays

Holidays are special events that appear in the calendars of all users and event calendars in a node. Holidays can be created one-by-one by any user with the proper administrative rights, through the Oracle Calendar administrator, or one of the Oracle Calendar desktop clients.

Assigning Holiday Administration Rights

The SYSOP, by default, has holiday management rights. The administrator can also assign holiday administration rights to a regular Calendar user. This can be done either through the Calendar Administrator or the command line.

You can assign holiday administration rights using the Oracle Calendar administrator web GUI, or by using a command line utility.

Oracle Calendar Administrator

Use the Oracle Calendar administrator to assign holiday administrative rights to a user.

1. Sign in as the SYSOP user.
2. Click the **Calendar Management** tab.
3. Click on the **Users** secondary tab.
4. Search for the user, or click **Go** to list all users.
5. Select the **Pencil** icon in the **Actions** column next to the user who's administration rights you want to modify.
6. Click **Administrative Rights** from the menu on the left.

Note: The **Administrative Rights** option will only appear if you are signed in to the Oracle Calendar administrator as the SYSOP, or as a user with the right to manage other users' administrative rights.

7. Scroll down to the **Node Management** section.
8. Check the **Manage Holidays** checkbox, then click **Apply**.

Command Line

Use the `uniadmrights` utility to assign holiday administration rights. For more information about the use and syntax of the `uniadmrights` utility, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

For example:

```
% uniadmrights -u "S=Sitchin/G=Zechariah" -n 165 -node "holiday=true"
```

Creating Holidays

Oracle Calendar Desktop Client

Use the Oracle Calendar desktop client to create holidays.

1. Sign in as a user who has been granted holiday administration rights.
2. Select the holiday management menu item (**Tools | Manage Holidays...**).

See the Oracle Calendar desktop client online Help for more details.

Oracle Calendar Administrator

Use the Oracle Calendar administrator to create holidays.

1. Sign in to the Calendar administrator as the SYSOP user or as a user who has been granted holiday administration rights.
2. Click the **Server Administration** tab.
3. Click on the **Nodes** secondary tab.
4. Search for the node if it is not already listed.
5. Click the node's **Manage Holiday** icon in the **Actions** column.
6. A calendar will be displayed in which you can add, modify, or delete holidays.
7. Click the **Create Holiday** icon at the top to add new holidays.
8. Enter the holiday title in the **Title** text box, and the holiday date in the **Start Time** dropdown list, then click **Apply**.

Modifying Holidays

Oracle Calendar Desktop Client

Use the Oracle Calendar desktop client to modify holidays.

1. Sign in to the Oracle Calendar desktop client as a user who has been granted holiday administration rights.

2. Select the holiday management menu item (**Tools | Manage Holidays...**).

See your Oracle Calendar desktop client online Help for more details.

Oracle Calendar Administrator

Use the Oracle Calendar administrator to modify holidays.

1. Sign in as the SYSOP or as a user who has holiday administration rights.
2. Select the **Server Administration** tab.
3. Click on the **Nodes** secondary tab.
4. Search for the node if it is not already listed.
5. Click the node's **Manage Holiday** icon in the **Actions** column.
6. A calendar will be displayed in which you can add, modify or delete holidays. To modify an existing holiday, find it using the navigation links (Previous or Next) on the top right and then click its link in the calendar.
7. Once you have found the holiday you wish to modify, click on its title.
8. Modify the holiday, then click **Apply**.

Managing Calendar Nodes

This chapter contains the following sections:

- [About Calendar Nodes](#)
- [Creating a Calendar Node](#)
- [Deleting a Calendar Node](#)
- [Connecting Nodes](#)
- [Setting Up a Master Node](#)
- [Moving a Node](#)
- [Connecting LDAP and Non-LDAP Nodes](#)

About Calendar Nodes

A node is a database containing agendas and information for users, resources and event calendars. A node network is a set of two or more connected nodes. More than one node can exist on a single calendar host. This situation commonly occurs where a group of users requires a different time zone, or when there is a logical division that the administrator wants to maintain within a group of users.

Creating a Calendar Node

Each node is identified by a unique numeric key called the node-ID. Most administrators set one or more descriptive node aliases that may also be used when connecting to the calendar server. A SYSOP (node administrator) password restricts access to the calendar account used for all node management tasks. Each node has its own default time zone.

To create a node, you will need the following information:

- **Node-ID:** The node-ID can be any number between 1 and 49999. When setting up a node, it is important to note that the node-ID cannot be changed once the node has been created. To reuse a node-ID it must be deleted from the Calendar server, which in turn will remove references from Oracle Internet Directory, before adding a new node with the same node-ID. The `-r` flag can be used to "reset" a node (delete it and recreate it with the same node-ID). A warning will be issued before this action is taken. **Node-IDs are unique locally and across the node network.** Two nodes with the same node-ID cannot be connected in a network.
- **Node Alias:** A descriptive word of up to 32 characters containing no spaces. When multiple nodes are configured on a server, users may need to indicate which node

they want to connect to. Because, in general, a name is easier to remember than a numeric node-ID, aliases can be configured.

- **Node Time Zone:** Every node has a time zone associated with it. If you do not specify a time zone, your node will be created using the default time zone set during installation of the Calendar server. See Appendix F, "Time Zone Table," in the *Oracle Calendar Reference Manual*, for a complete list of countries with their corresponding time zone notation.
- **SYSOP Password:** The password for the SYSOP, or node administrator. If you are not using a directory server, the password cannot be longer than 15 alphanumeric characters. Otherwise the limit is 63 characters.
- **Directory Manager Password:** If you are using a directory server in a standalone calendar installation, the directory manager password must be provided when creating a node. This is the password associated with the LDAP directory server manager defined by the [LDAP]mgrdn parameter. In Oracle Collaboration Suite, all nodes of an instance share the SYSOP password, which is actually the password of the Calendar instance administrator, an entity stored in Oracle Internet Directory for use by the whole server instance. Its password is set when Calendar is installed with Oracle Collaboration Suite.

To create a node:

1. Use the `unistop` utility introduced in [Chapter 5, "Introduction to Oracle Calendar Server Administration"](#), to bring down the calendar server. Please note that the server must be down in order to create a node.
2. Run the `uniaddnode` utility. For more information about the use and syntax of the `unistop` and `uniaddnode` utilities, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.
3. Use the `unistart` utility introduced in [Chapter 5, "Introduction to Oracle Calendar Server Administration"](#), to restart the calendar server. For more information about the use and syntax of the `unistart` utility, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

Example To create a node with a node-ID of 144 and alias "Publications":

```
% uniaddnode -n 144 -a publications
Please enter Sysop password:
uniaddnode: Database initialization done
uniaddnode: node [144] has been successfully initialized
```

An entry similar to the following would now exist in the `$ORACLE_HOME/ocal/misc/unison.ini` file. Note that the name and version fields are for internal use and are automatically generated during node creation. The values of parameters in the node section should not be modified.

```
[144]
name = N2
version = A.06.10
timezone = EST5EDT
aliases = publications
```

Deleting a Calendar Node

Deleting a node manually requires an advanced knowledge of the calendar server. Before attempting to remove a node, familiarize yourself with the contents of the chapters referenced in the following procedure.

To delete a node manually:

1. Back up all of the nodes in your node network using the `uniddbackup` utility. For more information about how to back up the entire Calendar database, see "Server Backup and Restore" in Chapter 14.
2. Remove the node from the node network (if it is part of one) by editing the `$ORACLE_HOME/ocal/misc/nodes.ini` file and applying the change. Understand the contents of Chapter 14, "Calendar Node Networks", before attempting to do this.
3. If Oracle Calendar was deployed with Oracle Collaboration Suite, run the `unioidconf` utility with the **-deletenode** option. For more information about the `unioidconf` utility, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

If your Calendar server has been deployed with a third party directory server, delete all users, resources and event calendars on the node (using `uniuser -ex`). For more information about the `uniuser` utility, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

4. Shut down the calendar server.
5. Delete the entire `$ORACLE_HOME/ocal/db/nodes/<Nx>` directory, where `<Nx>` is the value of the name parameter in the appropriate node section of the `$ORACLE_HOME/ocal/misc/unison.ini` file. For example, if you are deleting the node with node-ID 144, `<Nx>` is the value of the name parameter in the `[144]` section of the `unison.ini` file. For details on `unison.ini` parameters, see "Calendar Server Parameters" in Chapter 3 of *Oracle Calendar Reference Manual*.
6. Delete the corresponding node section in the `$ORACLE_HOME/ocal/misc/unison.ini` file. For example, if you are deleting the node with node-ID 144, delete the `[144]` section of `unison.ini`.
7. Restart the calendar server.

Note: If you are using a third-party directory server, you may want to remove all references to reserved calendar users for the deleted node. Use your directory server's `ldapmodify` utility or other tools available with your directory server.

Connecting Nodes

The network configuration is stored in one file (`$ORACLE_HOME/ocal/misc/nodes.ini`), and is managed using the `uninode` utility. The file must reside on only one of the host members of the node network, and commands can only be executed from this host. The `uninode` utility is used to connect or disconnect nodes in the node network, and to set the number of TCP/IP connections between the nodes, which are maintained by the Synchronous Network Connection (SNC) daemon/service.

The number of connections to establish between each pair of nodes in a node network is dependent in large part on the size and configuration of your installation. As a general guideline, smaller implementations are well served by a configuration in which a single node has two connections to each node in the network. All connections are one-way, so a network of three nodes would have a total of 12 connections:

- Node A has two connections to node B and two connections to node C
- Node B has two connections to node A and two connections to node C

- Node C has two connections to node A and two connections to node B
- Total number of connections = 12

A different set of guidelines applies to larger installations which fit within the following configuration parameters:

- logged-on users per node is greater than 250
- hardware configuration adequately supports the demands of the software
- clients used are not the Oracle Calendar Web Client (that is, Oracle Calendar Desktop Clients, or Oracle Connector for Outlook)
- configured users per host does not exceed 5,000
- logged-on users per host does not exceed 2,500
- logged-on users per node does not exceed 1,000
- connected nodes per host does not exceed four
- number of nodes in a network does not exceed 10

For any installation in this category, the general recommendation is to establish four connections each way between a local node and a node on a remote machine, and three connections each way between nodes on the same machine. Most installations can probably optimize this further.

The `uninode` utility is used for all node management tasks for the calendar server. For more information about the use and syntax of the `uninode` utility, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

To connect two or more calendar server nodes:

1. Select the server which will be used to manage your node network.

Note: When Oracle Calendar is deployed with Oracle Collaboration Suite, the first Calendar server installed is automatically chosen as the one that will manage your node network.

2. In a standalone installation, run `uninode -init` to create and initialize a `$ORACLE_HOME/ocal/misc/nodes.ini` file. In an Oracle Collaboration Suite installation, this file is created automatically.

```
% uninode -init
checking password for node 24, please wait...
Enter SysOp password:

connected to clio, node 24
extracted existing connection information

created the "$ORACLE_HOME/ocal/misc/nodes.ini" file
initialization succeeded
```

3. The newly created `$ORACLE_HOME/ocal/misc/nodes.ini` file contains the following header with a summary of `uninode` syntax and connection rules.

```
#Description      File (nodes.ini)
#-----
#INCLUDE NODE:    + H=Vancouver/N=10/ALIAS=Finance
#EXCLUDE NODE:    - H=Toronto/N=20
#NODE FOR MAIL:   + H=Montreal/N=30/S=unison/G=unison/OU1=CS&T/OU2=R&D
```

```
#ABSOLUTE RULE: all:2
#RELATIVE RULE: Vancouver->Montreal:+1
```

(In an Oracle Collaboration Suite installation, `all` is set to 3.)

4. Use a text editor to add the nodes to be connected and the rules governing the connections to the `nodes.ini` file. See ["Syntax"](#) and ["Connections and Rules"](#) later in this chapter for a discussion of the `nodes.ini` syntax, connections, and rules. Once you exit the text editor, `uninode` will prompt for confirmation of changes to be done to the network and automatically apply them.

Run `uninode -edit` and use a text editor to add the nodes and the rules governing their connections to the `nodes.ini` file. See ["Syntax"](#) and ["Connections and Rules"](#) later in this chapter for a discussion of the `nodes.ini` syntax, connections, and rules.

```
+ H=clio:5730/N=24
+ H=clio:5730/N=25
included:2
~
no errors detected
2 node(s) to ADD
edit the temporary node file again? (y/n) n
LAST CHANCE TO ABORT, process changes? (y/n) y

checking if all nodes are up
connected to clio, node 24
connected to clio, node 25

Processing node 24
connected to clio, node 24
connected to clio, node 25
added 24->25, TCP/IP connection

Processing node 25
connected to clio, node 25
connected to clio, node 24
added 25->24, TCP/IP connection
Do you want to update the directory of items (Actual = 0/Expected = 7)? (y/n) y
placed a request in the CWS queue to get node 24 user directory
0 connection error(s), 0 processing error(s)
Applying connection configuration: Successful
```

Syntax

The `$ORACLE_HOME/ocal/misc/nodes.ini` file contains the list of nodes and the list of rules that describe the network configuration. Any lines in the file that begin with the symbol `"#"` are considered comments and are ignored.

The minimal syntax for a node is:

```
+ H=<HOSTNAME>:<ENG_PORT>/N=<NODE-ID>
```

or

```
- H=<HOSTNAME>:<ENG_PORT>/N=<NODE-ID>
```

The `<HOSTNAME>` can be either a fully qualified domain name, or a numeric IP address. Do not, however, mix these in the same `nodes.ini` file. If you choose to use fully qualified domain names, you must continue to use fully qualified domain names throughout the file to avoid problems.

A node can either be included (+) in the network or excluded (-) from the network.

Table 12–1 lists the fields that can be used to specify a node

Table 12–1 Node Specification

Field	Description	Mandatory or Optional
H	Host name:eng_port	mandatory
N	Node-ID	mandatory
ALIAS	Alias for Node-ID	optional
GR	Group name	optional

If an alias is specified, it will be easier for users on all nodes of the network to identify where remote users are located, as this information will be displayed by the Calendar client.

The group name is given by the administrator and is used to refer to a group of nodes. The interaction between the nodes of a specific group should be greater than with nodes of other groups. In most cases, a group name will represent a geographical area or a company subdivision.

Three predefined groups can be used:

- "all" refers to all included (+) and all excluded (-) nodes
- "included" refers to all included (+) nodes
- "excluded" refers to all excluded (-) nodes

Connections and Rules

Two kinds of rules can be used. The first is used to specify the default number of connections between all nodes or between nodes within a group.

For example, say we have the following nodes in our `nodes.ini` file:

```
+H=mis-can1:5730/N=1
+H=mis-usa1:5730/N=2
+H=mis-eur1:5730/N=3
+H=mis-eur2:5730/N=4
```

To specify that two connections be established from each node to each of the other nodes, we use the predefined group "included" and add the following line:

```
included:2
```

The second kind of rule specifies the number of connections, from one node or group to another node or group.

```
N1->N2:X
```

N1 and N2 may either be host names, node-IDs, or group names. X may either be an absolute number of connections (0, 1, 2, 3...), or a relative number of connections (+1, -1, +2, ...). Rules are interpreted from the first to the last rule of the file. Consequently, the rules should be arranged from the most general to the most specific.

For example, to apply a more specific rule to this set of nodes, the group (GR) field can be useful in selecting these nodes.

```
+H=mis-can1:5730/N=1/GR=Canada
+H=mis-usa1:5730/N=2/GR=USA
```

```
+H=mis-eur1:5730/N=3/GR=Europe
+H=mis-eur2:5730/N=4/GR=Europe
included:2
Europe:+1
```

In the preceding example, we are able to add an additional connection (for a total of 3) to each of the European nodes relative to the absolute value defined on the preceding line.

Had we not wanted to use groups, we could also have said:

```
+H=mis-can1:5730/N=1
+H=mis-usa1:5730/N=2
+H=mis-eur1:5730/N=3
+H=mis-eur2:5730/N=4
included:2
mis-eur1 ->mis-eur2:3
mis-eur2 ->mis-eur1:3
```

Note that in this case we must specify the number of connections in each direction as SNC connections are unidirectional.

Note: When applying absolute and relative rules in the `nodes.ini` file, absolute rules must always be specified before relative rules. As in the preceding example, we see that the absolute rule (`included:2`) precedes the relative rules (`mis-eur1 ->mis-eur2:3` and `mis-eur2 ->mis-eur1:3`).

Adding a node to the network

Replace the exclusion sign (-) of the host with the inclusion sign (+).

Deleting a node from the network

Replace the inclusion sign (+) of the host with the exclusion sign (-).

Warning: Deleting a node from the node network, even temporarily, will result in the loss of all remote attendees in existing events created on this node.

Increasing or decreasing the number of connections between nodes

To modify the number of connections between nodes, make the necessary changes to the rule entry. It is possible to add, delete, or modify a rule entry.

Example: To increase the number of connections from Los Angeles to Cupertino by 2, add the following rule to the end of the file:

```
angeles->cupertino:+2
```

Setting Up a Master Node

You can set up a master node for your node network to control network management and ease the finding of user accounts on installations spanning multiple nodes and hosts. Use of a master node is optional. When deployed with Oracle Collaboration Suite, a master node is automatically configured at the time of installation.

Note: Your node network **may not** at any time contain more than one master node.

To set up a master node:

1. Stop all calendar servers that host the nodes in your network.
2. Edit the `unison.ini` file on the calendar server host that contains the node you want to configure.
3. Set the value of the `[CLUSTER] masternode` parameter to the node-ID of the desired node.
4. Restart your calendar servers.

Coexistence of Nodes With and Without Oracle Mobile Collaboration

If a master node is present in your node network, clients will query that master node for available server functionality such as wireless capabilities. If your master node server is set up with Oracle Mobile Collaboration but the other nodes in your network are not, then clients of users whose accounts reside on those other nodes will behave as if wireless capabilities are enabled, but users will encounter errors trying to use those capabilities. Likewise, if your master node is not set up with Oracle Mobile Collaboration but the other nodes in your network are, then all users' clients will hide or disable wireless capabilities (because the master node tells them no wireless capabilities are enabled on the server).

It is therefore recommended that you ensure that your master node has the same wireless capabilities as the other nodes in your network.

Moving a Node

Entire nodes can be moved from one host to another. The following must be taken into account when moving a node:

- [Big-Endian Versus Little-Endian Hosts](#)
- [Node Network](#)
- [Moving from and Internal Directory to an External Directory](#)

Big-Endian Versus Little-Endian Hosts

Moving a node between a big-endian host and a little-endian host (or vice versa) requires a database conversion. Contact Oracle support for more information about the conversion utilities `unib2lendian` (big-endian to little-endian), and `unil2bendian` (little-endian to big-endian) utilities.

[Table 12–2](#) displays which platforms are big-endian, and which platforms are little-endian.

Table 12–2 Oracle Calendar Server Platforms

Big-endian	Little-endian (Intel processors)
Solaris	Linux
HP-UX	Windows

Table 12–2 (Cont.) Oracle Calendar Server Platforms

Big-endian	Little-endian (Intel processors)
IBM-AIX	Compaq Tru64

Node Network

The procedure for moving a node between node networks differs from that for moving a node within a node network. This difference is in the utilities the procedure uses to update the node network information.

While most node network management is performed using `uninode` or the Calendar administrator, removing a node from a node network using either of these tools results in data loss. Namely, any calendar data created by a user in the node that is removed is deleted from all other nodes in the network. This is fine when moving a node between node networks. However, when you move a node within a node network, you want all nodes in the network to preserve all data related to the node. In this case you prevent the data loss by using the `unidbfix` utility to update the node network configuration. See [Performing the Move](#) later in this chapter for the exact procedure to follow in each case.

Note: If you are running a directory server, all nodes in a node network must point to the same directory server.

Moving from and Internal Directory to an External Directory

If you are moving a node from a calendar server that uses an internal directory to one that uses an LDAP directory server (or vice versa), you should consult Oracle Support for assistance.

Performing the Move

The following procedures describe moving a node between hosts that are:

- both either big-endian or little-endian
- both running the same version of the calendar server
- both using the internal directory or both using a directory server

The first procedure describes moving a node within a node network. The second procedure describes moving a node from one network to another. Although both procedures describe moving a single node, each can be adapted to moving several nodes.

To move a node within a node network:

1. Stop both calendar servers. Do not restart either until instructed to do so later in this procedure.
2. Run `unidbfix -c` on the node you want to move to ensure that the database is not corrupted. For more information about the `unidbfix` utility, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.
3. Make an archive file of the `$ORACLE_HOME/ocal/db/nodes/<Nx>` directory, where `<Nx>` is the value of the name parameter that appears in the section of the `unison.ini` file configuring the node you want to move.

Caution: To avoid overwriting an existing node, be certain that the name of the node you are moving does not already exist on the new host.

4. Copy the archive file to the new host and, using the same archiving tool, restore the directory. Verify that the `$ORACLE_HOME/ocal/db/nodes/<Nx>` directory now exists on the new host.

If a node with the `<Nx>` name already exists on the target server, you may choose to rename the node you are moving. Use the lowest unused letter-number combination. For example, if the last node on the target server is named N6, rename the new node N7.

5. Remove the section configuring the node from the `$ORACLE_HOME/ocal/misc/unison.ini` file on the old host and add it to the `$ORACLE_HOME/ocal/misc/unison.ini` file on the new host.

Remember that if you chose to rename the node in Step 4, you must also rename the section configuring the node. Use the same letter-number combination you selected in Step 4.

Steps 6 to 11 update the node network information

6. Stop all other calendar servers in the node network. Do not restart any of these until instructed to do so later in this procedure.
7. Run `unidbfix -export -n all` on each of the hosts in the node network. This creates a `remotenode.ini` file in each of the node database directories (i.e. in each `$ORACLE_HOME/ocal/db/nodes/<node>/perm` directory). This file contains information about all nodes remote to node `<node>`. For more information about the `unidbfix` utility, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.
8. Edit the node entry for the moved node in the `remotenode.ini` file of each node in the node network, replacing the old host name with the new host name.
9. Run `unidbfix -import -n all` on each host in the node network. This updates the node database for each node in the node network. For more information about the `unidbfix` utility, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.
10. Run `unidbfix -k` on the newly moved node to create the key files. For more information about the `unidbfix` utility, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.
11. Edit the `$ORACLE_HOME/ocal/misc/nodes.ini` file for the node network to reflect the host name change.
12. If you are running a directory server, update the directory server using the `ldapmodify` tool, changing the old host name to the new host name on the moved node. This attribute exists for each SYSOP special user.
13. Remove the `$ORACLE_HOME/ocal/db/nodes/<Nx>` directory on the old host.
14. Start all calendar servers stopped during this procedure.

To move a node between node networks:

1. Remove the node from its current network. Run `uninode -edit` to edit the `nodes.ini` file and apply the change. For more information about the `uninode`

utility, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

2. Stop both calendar servers. Do not restart either until instructed to do so later in this procedure.
3. Run `unidbfix -c` on the node you want to move to ensure that the database is not corrupted.
4. Make an archive file of the `$ORACLE_HOME/ocal/db/nodes/<Nx>` directory where `<Nx>` is the name of the node you are moving.

Caution: To avoid overwriting an existing node, be certain that the name of the node you are moving does not already exist on the new host.

5. Copy the archive file to the new host and, using the same archiving tool, restore the directory. Verify that the `$ORACLE_HOME/ocal/db/nodes/<Nx>` directory now exists on the new host.
6. Remove the section configuring the node from the `$ORACLE_HOME/ocal/misc/unison.ini` file on the old host and add it to the `$ORACLE_HOME/ocal/misc/unison.ini` file on the new host.
7. If you are running a directory server, update the directory server using the `ldapmodify` tool, changing the old host name to the new host name on the moved node. This attribute exists for each SYSOP special user.
8. Remove the `$ORACLE_HOME/ocal/db/nodes/<Nx>` directory on the machine that originally contained the node.
9. Start all calendar servers stopped during this procedure.
10. Add the node to the node network. Run `uninode -edit` to edit the `nodes.ini` file and apply the change. For more information about the `uninode` utility, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

Connecting LDAP and Non-LDAP Nodes

Note: This procedure applies to Oracle Calendar servers installed in standalone mode only.

For nodes with and without LDAP connections to coexist in a network, the most recent version of the calendar server in the node network must manage that network. Furthermore, if there is more than one of the most recent version of the Calendar Server, and any use a directory server, one of them must manage the node network. Recall that all nodes in a node network must point at the same directory server.

The following procedure outlines the steps you must execute when you have a node network where all nodes currently connect to an external directory, and you want to introduce internal-directory nodes into the network. All calendar servers are assumed to be the most recent version.

To integrate the new internal-directory nodes into the node network, execute the following steps:

1. Back up all nodes in the existing node network. See [Server Backup and Restore](#) in [Chapter 14, "Calendar Server Maintenance and Monitoring"](#), for more instructions.
2. Shut down all servers hosting nodes that use a directory server (where the `unison.ini` parameter `[DAS] enable=TRUE`).
3. Edit the parameter `[ENG] dir_internal_nodes` in the `unison.ini` file, on all calendar servers in the node network which use a directory server, to include all non-LDAP nodes.

Example:

With four nodes in your network, nodes 10000 and 10001 on the calendar server using a directory server, and nodes 10002 and 10003 on calendar servers using internal directories, the `unison.ini` file on the calendar server using a directory server would contain the following parameter:

```
[ENG]
dir_internal_nodes = {10002, 10003}
```

Warning: Incorrect use of the `[ENG] dir_internal_nodes` parameter can have serious consequences.

4. Bring up all servers once the changes are complete.
5. Run `unidssync` to synchronize the LDAP nodes with the directory server.
6. Run `uninode` to add the non-LDAP nodes to the node network.
7. Run `unidssync` on a regular basis (at least once a week for most installations) to keep the LDAP nodes synchronized with the directory server.

Caveat: LDIF Differences Between UNIX and Windows

You must understand the Slight differences in the UNIX and Windows LDIF file formats in order to successfully transfer data from an Windows to a UNIX server. Before importing Windows-generated LDIF files to UNIX, ensure that any control characters are removed (must change CR/LF to NL).

Managing Calendar Alerts

Oracle Calendar offers two kinds of alerts: reminders and notifications. This chapter contains general considerations relating to the server-side implementation of reminders and notifications. See also the documentation for Oracle Mobile Collaboration, which provides reminders and notifications through a number of channels including voice notifications, fax, and Short Message Service (SMS).

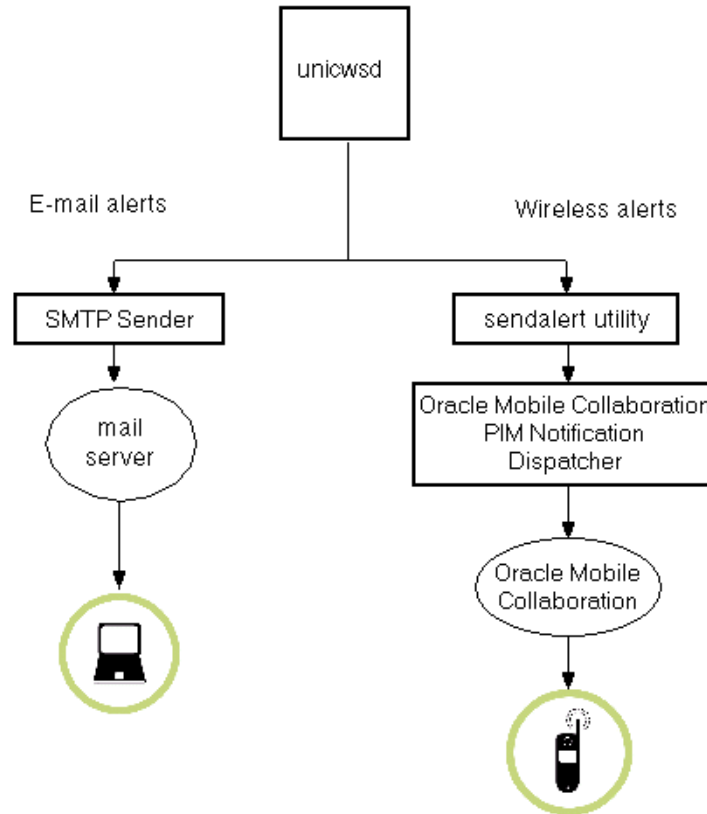
This chapter contains the following sections.

- [About Calendar Alerts](#)
- [About Reminders](#)
- [About Notifications](#)
- [Setting Up Wireless Services](#)
- [Filtering E-mail Alerts](#)
- [Configuring the E-Mail Alerts Banner](#)

About Calendar Alerts

The Corporate-Wide Services daemon (`unicwsd`) is responsible for delivering reminders and notifications through e-mail and wireless services, shown in [Table 13–1](#). When it has an alert to deliver through e-mail, it sends the alert by SMTP to the mail server specified by the `unison.ini` `[CWS] smtpmail_url` parameter (if present), which delivers the message to its intended recipient. When it has an alert to deliver through SMS or any other technology supported by Oracle Mobile Collaboration, the CWS calls the `sendalert` program specified by the `unison.ini` `[CWS] smsnotifyprogram` and `[NOTIFY] alert_url` parameters (if present), which delivers the message to an instance of Oracle Mobile Collaboration.

For more information about these server parameters, see "Calendar Server Parameters" in Chapter 3 of *Oracle Calendar Reference Manual*.

Figure 13-1 CWS Alert Process

About Reminders

Reminders are messages sent a specified amount of time in advance of an event, to alert users to the upcoming events in their agendas.

Types of Reminders

Some Oracle clients offer reminders that pop up or appear in the user's agenda in advance of a meeting; these types of reminders are implemented on the client side. The calendar server is only involved if reminders are sent by e-mail or through Oracle Mobile Collaboration. Server side reminders (SSR) are messages used to remind the user of an upcoming meeting. They are usually sent a few minutes before the start of the meeting.

Configuring Reminders for Users

Server side reminders can be configured for a user. For example, a user can choose to receive reminders for normal events but not for daily notes by setting their preferences from a client application. These options can also be set for a user, using the `uniuser` utility. Example:

```
% uniuser -user -mod "S=Kundera/G=Milan" -m
"REMINDER-SERVERALERT=TRUE/REMINDERDAILYNOTE-SERVERALERT=FALSE" -n 23
```

For a complete list of the reminder attributes for users, see "Calendar User and Resource Parameters" in Chapter 1 of *Oracle Calendar Reference Manual*. For full information on use and syntax of `unuser`, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

Reminder attributes can also be set for all users using the user profile file `user.ini`. For more information on how to use a default user profile, see [Modifying User Defaults](#) in Chapter 7, "Managing Calendar User Accounts".

Specifying a Format for Reminders

The format of the reminder delivered by the calendar server is determined by template files installed in `$ORACLE_HOME/ocal/etc/reminder`, according to the delivery mechanism (e-mail or wireless) and language of the user (if set). These files may be customized, but if you plan to modify a reminder template file, note that the data in these files must be stored in the UTF-8 character set.

To convert a string to UTF-8, use the `unistrconv` utility or use a UTF-8 editor. For more information about the use and syntax of the `unistrconv` utility, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

Controlling the Behavior of Reminders

CWS operation

You can control the frequency with which the Corporate-Wide Services daemon/service checks for reminders using the `unison.ini` `[NOTIFY]` `checkreminderinterval` parameter, and the amount of time that the CWS will spend checking any given node for reminders using the `[NOTIFY]` `limitremindercheck` parameter.

Old reminders

Reminders will not be sent for any event if the time the event was created is past the beginning of the reminder period. For example, if a new meeting is created with a start time five minutes from now, and a reminder set to be delivered ten minutes before the start time of that meeting, that reminder will not be sent by the calendar server.

In any other case, if the CWS finds that the scheduled delivery time of a reminder is before the current time, that reminder will still be delivered up to 30 minutes after the intended delivery time. You can customize this value using the `unison.ini` `[NOTIFY]` `ignoreoldreminders` parameter. Moreover you can customize the priority of Server Side Reminders by adjusting the `[CWS]` `prioritizedjobs` parameter. For more information about these server parameter, see "Calendar Server Parameters" in Chapter 3 of *Oracle Calendar Reference Manual*.

Language of Reminders

When the Oracle Calendar server sends out a reminder, the language chosen is based on the user's Oracle Internet Directory language preference. For example, if a user's preferred language in Oracle Internet Directory is French, reminders for this user will arrive in French. See also, [Language of Notifications](#), in this chapter.

About Notifications

Notifications are messages sent when a meeting or event is created, modified or deleted, to let the attendees know of the change to their schedules.

Types of Notifications

E-mail and wireless notifications are handled differently.

When a user creates, modifies, or deletes an event using an Oracle Calendar Client, one may choose to notify the attendees by e-mail. This e-mail is passed from the client to the server which will queue the request in the CWS for delivery.

Wireless notification, however, is not decided by the user creating, modifying, or deleting the event. Instead, users can specify in their calendar clients (if their clients support the feature) whether they want to be notified through wireless services when meetings or events to which they are invited are created, modified, or deleted.

Configuring Notifications for Users

Alerts can be disabled on a per user basis. Alerts can be suspended for a configurable period of time in the day. Alerts that are sent during this period are either discarded or held until the suspension period ends. Users can also select which type of calendar entries should trigger an alert.

You can configure notifications for users using the Oracle Calendar administrator web GUI, or by using a command line utility.

Oracle Calendar Administrator

Use the Oracle Calendar administrator to set alert parameters for a user.

1. Click the **Calendar Management** tab.
2. Click on the **Users** secondary tab.
3. Search for the user you want to modify using the search box.
4. When the user is listed click the corresponding **Pencil** icon in the **Actions** column.
5. Click **Alerts** in the menu on the left.
6. Make the necessary modifications, and click **Apply**.

Command Line

To set alert parameters for a user, use the `uniuser` utility with the `-user` and `-mod` options. For example, to get notifications for changes made to meetings:

```
% uniuser -user -mod "S=Kundera/G=Milan" -n 23 -m  
"ALERT-NOTIFMEETING=TRUE/ALERT-SUSPENDRANGEACTION=HOLD/ALERT-SUSPENDRANGE=23:00-06:30"
```

For a complete list of the alert attributes for users, see "Calendar User and Resource Parameters" in Chapter 1 of *Oracle Calendar Reference Manual*. For more information about the use and syntax of the `uniuser` utility, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

Alert attributes can also be set for all users using the user profile file `user.ini`. For more information on how to use a default user profile, see [Modifying User Defaults](#) in [Chapter 7](#).

Specifying a Format for Notifications

E-mail notifications are passed to the SMTP server with the same text formatting used by the calendar clients.

Controlling the Behavior of Notifications

Disabling e-mail notification in some clients

You can disable e-mail notification entirely in the Oracle Calendar Desktop clients by setting the `unison.ini` `[LIMITS]` `mail` parameter to `FALSE`.

Limiting the number of recipients

To avoid strain on your mail server, you can limit the number of recipients for any given notification message using the `[LIMITS]` `maxmaildistr` parameter in the `$ORACLE_HOME/ocal/misc/unison.ini` configuration file.

Language of Notifications

When the Oracle Calendar server sends out a notification, the language chosen is based on the sending user's client software language. For example, if user A sends a notification to users B and C, and user A's client software language is French, then the notification will be sent to users B and C in French. See also, "[Language of Reminders](#)", in this chapter.

Setting Up Wireless Services

When deployed with Oracle Collaboration Suite, Oracle Calendar server is automatically configured for wireless services during installation. The wireless service is not a supported configuration with Oracle Calendar standalone deployments.

This procedure requires that you know the host name and port number of an instance of Oracle Mobile Collaboration. If you do not have this information, you can find out using the Wireless system management area of Oracle Enterprise Manager. For more details, consult the Oracle Mobile Collaboration documentation.

To manually set up wireless services:

1. Stop the CWS daemons on all Calendar servers running the `$ORACLE_HOME/ocal/bin/unistop` utility with the `-cws` option.
2. Edit the `$ORACLE_HOME/ocal/misc/unison.ini` file on each host.
3. Set the following parameter values:

```
[NOTIFY]
alert_sms = TRUE
alert_url = <alertURLstring>

[CWS]
smsnotifyprogram = $ORACLE_HOME/OCAL/sbin/sendalert
```

4. Restart the CWS daemons on all Calendar servers by the `$ORACLE_HOME/ocal/bin/unistart` utility.

Note: For more information about accepted values for the parameters listed above, see "Calendar Server Parameters" in Chapter 3 of *Oracle Calendar Reference Manual*

Filtering E-mail Alerts

The CWS includes MIME headers in all e-mail alerts to allow users to easily filter them, either to specific folders or to another application, such as a pager delivery system. All e-mail alerts include the following MIME header:

```
X-Oracle-Calendar: 1
```

All e-mail reminders include the following MIME header:

```
X-Oracle-Calendar-Reminder: 1
```

Configuring the E-Mail Alerts Banner

Oracle Calendar e-mail notifications and reminders are sent with a banner that appears at the end of every e-mail. By default in English, the banner reads:

```
--  
Powered by Oracle Collaboration Suite.
```

This banner can be removed, or configured with customized text.

Removing the E-mail Alerts Banner

To remove the e-mail alerts banner:

- Open the `$ORACLE_HOME/ocal/misc/unison.ini` configuration file with a text editor.
- Change the `[CWS] banner` parameter to `FALSE`:

```
[CWS]  
banner = FALSE
```
- Save the file.
- Restart the Oracle Calendar server so that this modification takes effect.

See Also: "Calendar Server Parameters" in Chapter 3 of *Oracle Calendar Reference Manual*, for more information about the `[CWS] banner` parameter,

Customizing the E-mail Alerts Banner

To customize the e-mail alerts banner:

- Open the `$ORACLE_HOME/ocal/etc/banner/banner.<language>.txt` file with a text editor. In this specification, `<language>` is the abbreviation of the desired language.
- Modify the file to reflect the desired text that you want to appear in the banner for e-mail notifications and reminders. The banner files must contain UTF-8 text. To convert strings into UTF-8 format, use the `unistrconv` utility.
- Save the file.

See Also: "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*, for more information about the `unistrconv` utility.

Calendar Server Maintenance and Monitoring

A regular schedule of Oracle Calendar maintenance is the best protection against unscheduled down time and loss of data. Following the procedures outlined later in this chapter will minimize problems and ensure that your Calendar server runs smoothly and without unexpected interruption.

This chapter outlines the following tasks:

- [Server Monitoring and Maintenance Procedures](#)
- [Server Backup and Restore](#)
- [User Backup and Restore](#)
- [Viewing Log Files](#)
- [Interpreting Log Files](#)
- [Managing Log File Rotation](#)

Server Monitoring and Maintenance Procedures

This section explains daily procedures that should be performed in order to monitor the Oracle Calendar server. Moreover, daily and monthly procedures are outlined to help you maintain the Oracle Calendar server.

Daily Monitoring Procedures

The following system monitoring procedures should be performed daily. Oracle recommends scripting these procedures:

- Check that all relevant daemons/services are operational using the `unistatus` and `uniping` utilities. You can also use Oracle Enterprise Manager to accomplish this task.
- Check that ample space is left in the `$ORACLE_HOME/ocal` directory or file system. For more information about calculating the storage requirements for your node, see [Appendix A, "Calendar Disk Space and Memory Requirements"](#). You can also use Oracle Enterprise Manager to accomplish this task.
- Verify that the previous night's backup has run.
- Search for unusual entries in the log files in the `$ORACLE_HOME/ocal/log` directory. This task can be automated by using `grep` or searching the log files for specific errors, and sending the results by email to the administrator.
- Check for recent writes to the `$ORACLE_HOME/ocal/log/dbv.log`. This file is created only if there is a problem and should be manually removed once the

problem is resolved. If the file is present and is not empty, you might analyze the contents and use the `unidbfix` utility, or consult Oracle Support for further assistance. For more information on the `unidbfix` utility, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

Oracle Calendar Administrator

Use the Oracle Calendar administrator to view the server status.

1. Click the **Server Administration** tab.
2. Click on the **Servers** secondary tab. From this page, you can already see which servers are up and which ones are down based on the icons in the **Actions** column.
3. Click the View icon in the **Actions** column for the server you want to view. The **Identification** section displays whether the server is running and the number of users currently logged on.

Other server settings (indicating whether user passwords can be changed, whether the server is connected to a Directory Server, and so on) are also displayed.

Command Line

The `unistatus` utility displays the current status of the calendar server. The `uniwho` utility can be used to display the list of users currently logged on to the calendar server. Use the `-nolist` if you only want to see the total number of signed-in calendar users. For more information about the use and syntax of these utilities, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

Special Monitoring Procedures

It is possible to turn on logging of specific calendar activities using server parameters. Most of these options should be only turned on for short periods of time as it increases the amount of data written to log files and can cause these files to grow rapidly. Statistical data can be compiled regarding user connections, activity information of the `unicwsd` daemon/service, directory server access, and so on.

To view elapsed time and CPU statistics for each client connection, set `[ENG] stats=TRUE` in `unison.ini`. When a client connection is closed, stats results are appended to the `$ORACLE_HOME/ocal/log/stats.log` file. Once the period being analyzed has passed, you must not forget to set the parameter `[ENG] stats` back to `FALSE` to disable logging, as the file grows quickly.

For more information about the `[CWS]log_activity`, `[CWS]log_modulesinclude`, `[ENG]stats`, `activity` and `dac_failederrlog` parameters, see "Calendar Server Parameters" in Chapter 3 of *Oracle Calendar Reference Manual*.

Daily Maintenance Procedures

A nightly backup of the calendar database (`$ORACLE_HOME/ocal/db`) and configuration files (`$ORACLE_HOME/ocal/misc`) is your best protection against database corruption that may occur as a result of a power failure or disk crashes. Use the `unidbbackup` to back up Oracle Calendar. While database corruption is rare, even under the aforementioned conditions, nightly backups serve as a safeguard if your database cannot be restored. For more information on back up and restore, see [Server Backup and Restore](#) later in this chapter.

Monthly Maintenance Procedures

The following system maintenance procedures should be done after peak volume hours on a monthly basis:

- The `unidbfix` utility should be run in check mode once a week with the calendar server running, and in fix mode once a month, which requires the calendar server to be down. If the weekly check discovers an error, it should be corrected as soon as possible using `unidbfix` in fix mode; if the weekly check produces a warning, maintenance can be delayed until the monthly fix.

It is possible to stop one node at a time. This allows you to run `unidbfix` on a single stopped node while the rest of the nodes are still active. Use the `-n` option to specify which nodes to fix. More than one instance of the `unidbfix` utility can be run at the same time on different nodes. For more information about the use and syntax of the `unidbfix` utility, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

- When starting the Oracle Calendar server, a clean up of unneeded data is preformed in the Calendar stores. Oracle recommends restarting the Oracle Calendar server once per month, either using the `unistop` and `unistart` utilities or the Oracle Process Management and Notification (OPMN) tool. For more information about stopping and starting Oracle Calendar server, see ["Starting and Stopping the Oracle Calendar Server"](#).
- If you have not enabled automatic log rotation for the Oracle Calendar server, the log files should be rotated manually. When the Oracle Calendar server has been stopped for regular `unidbfix` maintenance, archive the log files prior to restarting. Log files can also be automatically rotated using the Log Rotation feature. For more information about log rotation, see [Managing Log File Rotation](#) later in this chapter.
- To improve performance and minimize disk space requirements, the `unirmold` utility should be run monthly to remove all events and tasks older than 12-36 months, based on your organization's data retention policies. It is advisable to run `unirmold` during off-peak hours for the calendar server. For more information about the use and syntax of `unirmold`, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

WARNING: Oracle recommends running the `unirmold` utility only during off-peak hours.

Other Maintenance Procedures

- Verify the consistency of the server database using the `unidbfix` utility.
- When managing user accounts, often it is necessary to delete users from an Oracle Calendar server node or move Oracle Calendar users from one node to another. Use the `uniuser` utility with the `-del` option and the `unimvuser` utility respectively to accomplish these tasks. Use the `unimvuser` utility to keep users per node approximately the same across your node network. Moreover, Oracle recommends grouping users that have the most Calendar interaction with one another on the same node. This can reduce traffic between nodes in your node network. If you believe that a user has been provisioned to a node that is not a logical workgroup, use the `unimvuser` utility to move the user to a more logical node. Always use the most recent version of `unimvuser` in your node network. For full information about use and syntax of the `unimvuser` utility, including a

number of crucial warnings and considerations, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

WARNING: Oracle recommends running these utilities only during off-peak hours.

- If you are using a directory server, run `unidsdiff` to detect and resolve any discrepancies in the mapping between users and resources in the directory server with those in the calendar server node. For more information about the use and syntax of `unidsdiff`, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*. You should perform this synchronization procedure every two to four weeks or as required when making a batch of changes to the calendar node, particularly when deleting users. You may also synchronize your calendar and directory servers through the Oracle Calendar administrator.

When Oracle Calendar is deployed with Oracle Collaboration Suite, delete notifications sent by the Oracle Internet Directory may not delete user accounts on the Oracle Calendar server. Use the `unidsdiff` utility with the `-d` option, or the `uniuser` utility with the `-del` option to delete these users. For more information about delete notifications from Oracle Internet Directory, and calendar user deprovisioning, see "[Controlling Delete Notifications from Oracle Internet Directory](#)" in [Chapter 7](#).

- **Calendar Store Consistency Scan**

The Corporate-Wide Services daemon periodically scans the database for certain inconsistencies and fixes them. This scan is not a replacement for `unidbfix`. It fixes inconsistencies that cannot be fixed by `unidbfix`. The scan places an informational message in the `$ORACLE_HOME/ocal/log/eng.log` file, every time it fixes an inconsistency.

There are three types of scans, continuous, incremental and full. The continuous scan is done every few minutes (every 23 minutes by default) and only scans those events that have recently been modified. The continuous scan should not affect the performance and scalability of the server during normal hours, while it regularly scans the database for inconsistencies. Any events that may have been missed by the continuous scan should be found by the incremental scan.

The incremental scan is done only at specific times (once a day, by default). It scans events and address book entries that were modified during the previous day or so, thus it scans a larger range of data than the continuous scan. It may also look for more inconsistencies than the continuous scan. Since it scans more data, and may look for more types of inconsistencies, the incremental scan should be done during off-peak hours.

The full scan is done only on specific days (once a week, by default). It looks for inconsistencies in address book data. The full scan reads the entire contents of user address books, and checks for inconsistencies that cannot be detected by the other scans. The full scan should be scheduled for off peak hours.

The calendar store consistency scan can be configured using the following parameters in the [CWS] section of the `$ORACLE_HOME/ocal/misc/unison.ini` file:

- `cscs_continuousenable`
- `cscs_continuousfrequency`
- `cscs_fullenable`

- cscs_fulltime
- cscs_fulltrigger
- cscs_incrementalenable
- cscs_incrementalfrequency

For more information about the calendar store consistency scan parameters, see "Calendar Server Parameters" in Chapter 3 of *Oracle Calendar Reference Manual*.

Server Backup and Restore

To minimize the impact on your users, back up your calendar server only during periods of low user activity. If you use an external directory server, back up your directory server concurrently with your calendar server to minimize inconsistencies should it become necessary to restore a backup.

You have three options for backing up your calendar server:

- Using the `unidbbackup` utility
- Stopping the calendar server and running the `uniarch` utility
- Stopping the calendar server and copying or zipping the database files directly

Oracle recommends the `unidbbackup` utility, as it provides online or hot backups allowing users to logon during a backup. An online backup cannot be achieved by simply copying the database files while the server is still running, as the files on disk are not necessarily an accurate reflection of the state of the database at any given time. If you choose to copy the database files directly, you must stop your server to allow all database contents to be written to the disk first.

While `unidbbackup` is running, users can still log in and log out. They may view but not modify their agenda. If more than one node exists on a host, each node is locked and backed up in succession. The `-lockall` option can be used to lock all the specified nodes at the same time instead of one by one. This will improve the data consistency for connected nodes. The `unidbbackup` utility can be used to make a backup of a single node using the `-n` option.

`unidbrestore` is the complementary utility used for database restoration. For more information about the use and syntax of the `unidbbackup` and `unidbrestore` utilities, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

To back up a calendar host:

- Execute the `unidbbackup` utility through the command line. A backup will be made of all database and configuration files on your calendar server. If more than one node exists on the host, `unidbbackup` will back up each node in turn. To make backups of specific nodes only use the `-n` option. For more information about the `unidbbackup` utility, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

The destination of the backup is specified using the `-d` option. It is important to verify that there is sufficient space available in the destination directory.

To restore a calendar host:

Important: This operation restores only the database and configuration files. Calendar data stored in a directory server must be restored separately. If you have any reason to expect that inconsistencies may exist between the data in the calendar server and that in the directory server, use the `unidsdiff` and `unidssync` utilities to identify and resolve all discrepancies after you restore. For more information about the use and syntax of this utility, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

1. Shut down the server.
2. Run `unidbrestore` to restore the backup. Your calendar database and configuration files will be restored to the `$ORACLE_HOME/ocal` directory on the host.

Note: The `unidbrestore` utility will overwrite data currently in the Calendar server's `$ORACLE_HOME/ocal/db` and `misc` directories, replacing it with the specified backup.

Archived backups should be managed to ensure full data recovery capabilities without sacrificing large amounts of disk space. Remove backups that are no longer needed. For more information about the `unidbrestore` utility, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

User Backup and Restore

It is possible to restore a single user through the Oracle Calendar administrator or using the `unirestore` utility. The restore is done using the backup files made using the `unidbbackup` utility.

Oracle Calendar Administrator

Use the Calendar Administrator to restore a user account.

1. Click the **Server Administration** tab.
2. Click on the **Nodes** secondary tab.
3. Click the **Pencil** icon in the **Actions** column for the node where you will restore the calendar account.
4. Click **Restore Calendars**.
5. Enter the path to the backup file and select the type of calendar account you are restoring (user, resource or event calendar).
6. Click **Apply** to continue.
7. Search for the user, resource, or event calendar to be restored.
8. Select the user, and click **Apply**.

Command Line

Use `unirestore` to restore a calendar account. Use the `-path` option to specify the path to the directory containing the backup db directory. Use the `-u` option to specify the UID of the user to be restored.

For example:

```
% unirestore -u "smithj" -path "/backups/cserver/jan0799" -noAddAttendee -host
hubert3 -n 10
```

For more information about the use and syntax of the `unirestore` utility, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*.

Viewing Log Files

To view a log file, go to the `$ORACLE_HOME/ocal/log` directory and open the file using a text editor. Note that log files for utilities are created the first time the utility is has encountered an error. Table 14–1 shows a list of different log files, and provides a description of the information logged in each file.

Table 14–1 Calendar Server Log Files

Filename	Description
<code>act.log</code>	Tracks calendar usage and monitors possible security violations. To track all sign-ons and sign-offs, set the [ENG] <code>activity</code> parameter in <code>unison.ini</code> to <code>TRUE</code> . The size of the <code>act.log</code> file should be closely monitored, because it can increase quickly.
<code>csm.log</code>	For the Oracle Calendar Server Manager.
<code>cws.log</code>	For the Corporate-Wide Services. Set the [CWS] <code>trace</code> parameter in <code>unison.ini</code> to <code>TRUE</code> to log each transaction performed by the CWS. This will cause the size of the <code>cws.log</code> file to increase quickly, and should only be used for a short time for testing or debugging purposes.
<code>das.log</code>	For the Directory Access Server.
<code>dasstats.log</code>	For Directory Access Server statistics.
<code>dbi.log</code>	For node (database) initialization.
<code>dbv.log</code>	Database operation file. Created only if there is a problem.
<code>dsstats.log</code>	For directory server (LDAP) calls.
<code>eng.log</code>	For the Engine.
<code>lck.log</code>	For the Lock Manager.
<code>ocad.log</code> [†]	For the Oracle Calendar Administrator.
<code>script.log</code>	For all UNIX utilities.
<code>snc.log</code>	For the Synchronous Network Connections.
<code>stats.log</code>	Tracks CPU consumption, user wait times, and network traffic for calendar server user sessions. Session statistics are output once a client session is terminated normally. To enable this logging, set the [ENG] <code>stats</code> parameter in <code>unison.ini</code> to <code>TRUE</code> . The size of the <code>stats.log</code> file should be closely monitored because it can increase quickly.

Table 14–1 (Cont.) Calendar Server Log Files

Filename	Description
<utility>.log	For various utilities that create and update self-named log files when they are run.
[†] The ocal.log file is located in the \$ORACLE_HOME/ocal/bin directory.	

Interpreting Log Files

Much of the content of the calendar server log files is self-explanatory, namely the sections referring to the status of the various daemons/servers. For more information about error code categories, see "Calendar Server Error Codes" in Appendix A of *Oracle Calendar Reference Manual*. For more information about calendar server error codes, see "Calendar Server Error Codes" in Appendix B of *Oracle Calendar Reference Manual*.

Interpreting other sections may require the knowledge and resources of a qualified Oracle Support Analyst. If you are uncertain about the content of a log file, use Oracle MetaLink to search for log file information or to log a Technical Assistance Request (TAR) online.

Managing Log File Rotation

Log files in the \$ORACLE_HOME/ocal/log directory can grow rapidly over time. You can help manage the size and age of these logs using the log rotation feature. If this feature is not enabled on your Oracle Calendar server, you can turn it on by setting the value of the [LOG] rotation_enable parameter to TRUE in the \$ORACLE_HOME/ocal/misc/unison.ini file.

NOTE: Configurable parameters that control log rotation and attic maintenance can be found in the [LOG] section of the \$ORACLE_HOME/ocal/misc/unison.ini file. For more information about all the configurable parameters for this feature, see "Calendar Server Parameters" in Chapter 3 of *Oracle Calendar Reference Manual*.

The log rotation feature has two tasks:

- Periodically rotating log files from the \$ORACLE_HOME/ocal/log directory to the \$ORACLE_HOME/ocal/log/attic directory -- known as the attic.
- Periodically removing logs from the attic, by deleting stale log files from the \$ORACLE_HOME/ocal/log/attic directory

Configuring Log Rotation

Two criteria can trigger a log rotation: size and age. When a log file meets these criteria, it is moved to the \$ORACLE_HOME/ocal/log/attic directory. During the rotation process, the log file is renamed according to the following convention: <log name>.YYYYMMDDHHMMSS. In this convention, YYYYMMDDHHMMSS represents the year, month, day, and time the file was moved to the attic.

For example: If the \$ORACLE_HOME/ocal/log/eng.log exceeds the maximum allowable 10-megabyte default value, it will be moved to the attic directory, and will be renamed to:

eng.log.20050217050000

Configuring Attic Maintenance

As with the configurable log rotation, attic maintenance is also based on age and size. By default, log files older than 120 days will be deleted from the `$ORACLE_HOME/ocal/log/attic` directory. Moreover, if the attic directory exceeds the configurable default size of 200 Megabytes, log files will be deleted from the directory based on their age. The oldest log file being deleted first, based on the log file's time stamp.

Calendar Disk Space and Memory Requirements

This appendix describes the disk space and memory requirements of the calendar server. These requirements can be broken down into the following categories:

- [Database Disk Space Requirements](#)
- [Large Deployment Disk Storage Recommendation](#)
- [Memory Requirements](#)

Database Disk Space Requirements

Persistent Data

Local users, resources, and event calendars require disk space for calendar data. Disk space requirements for these local items can be estimated at approximately 2.5 megabytes (MB) per user per year, depending on usage. Note that yearly disk space requirements may be higher with heavy usage of attachments or if scheduling frequent meetings on a daily basis. The disk space requirements for remote users, resources and event calendars are therefore considerably less than those for local items, although the exact figure will depend on usage. For most deployments, where users schedule meetings with other users on the same node, this data is excluded from the preceding estimation.

Non-Persistent Data

Each active calendar user also has temporary data files located in the `$ORACLE_HOME/ocal/db/tmp` subdirectory, whose combined size should not exceed 2 MB total per configured user.

Large Deployment Disk Storage Recommendation

Calendar data can be broken down into two categories: persistent data and non-persistent data.

Persistent data is stored in the `db/nodes` directory. It is recommended to use a Redundant Array of Independent Disks (RAID) 0+1 disk storage, striped on a few disks using 8K stripe-sized blocks.

Non-persistent data is stored in the `db/tmp` directory. For this type of data, it is recommended to use RAID 0 disk storage, striped on a few disks. However, RAID 0+1 disk storage striped on a few disks can be used for failover. Note that a higher number

of writes can be expected for non-persistent data. It is therefore recommended to optimize the `db/tmp` directory for write access.

Memory Requirements

The following is recommended for any large deployment with a minimum of 500 configured users on a given calendar server.

Memory requirement formula

The following general formula is used to determine the memory required on your system to offer calendar services to your user population:

`Memory required = calendar sessions + calendar infrastructure + disk cache`

In this formula, a `calendar session` is defined as a connection to the calendar server. Each session uses 750K of memory, excluding Oracle Calendar Web client sessions.

The value `calendar infrastructure` is the memory used by the different calendar server processes such as CWS, DAS, and so on. which adds up to 250K per user.

The `disk cache` is the memory required by the OS to ensure sufficient cache exists for the disk virtual memory to enhance performance. The disk cache memory needed is 250K per user.

For more information about the deployment and installation of your calendar server, see [Chapter 4, "Planning a Calendar Deployment"](#).

[Table A-1](#) provides a list of variables with their respective definitions.

Table A-1 Variable Definitions

Variable	Definition
TOTAL_USERS	Total number of configured users hosted by the server on one or many nodes.
OCFO_USERS	Number of configured users using Oracle Connector for Outlook.
DESKTOP_USERS	Number of configured users using Oracle Calendar Desktop client.
WEB_USERS	Number of configured users using Oracle Calendar Web client.
FCGI_SESSIONS	Number of fastcgi required to serve WEB_USERS concurrently without having a large Fast-CGI wait time. Varies between 2.5% to 5% of configured users.

Using the values that you determine for these variables, the following formula determines memory requirements:

`(DESKTOP_USERS / 2) * 1 MB +`
`(OCFO_USERS * 1 MB) +`
`(FCGI_SESSIONS * 15 MB) +`
`(TOTAL_USERS * 0.25 MB)`

Assumptions

$(\text{DESKTOP_USERS} / 2) * 1 \text{ MB}$

This represents the memory used by the different processes (engines, DAS, and so on) for Oracle Calendar desktop client users. The assumption is that 50% of the configured users will be logged on at the same time.

$\text{OCFO_USERS} * 1 \text{ MB}$

This represents the memory used by the different processes (engines, DAS, and so on) for Oracle Connector for Outlook configured users. The assumption is that all configured users will remain connected throughout the day.

$\text{FCGI_SESSIONS} * 15 \text{ MB}$

For Oracle Calendar Web client sessions, the concurrency rate as well as the memory used by the different processes (engines, DAS, and so on) will be much higher than the other clients. The relationship between Web calendar users and calendar sessions is not one-to-one, one FCGI session serves many Oracle Calendar Web client users. Depending on the load and the desired peak usage, the number of FCGI sessions needed is between 2.5% and 5% of the total number of configured calendar users.

$\text{TOTAL_USERS} * 0.25 \text{ MB}$

This represents the memory required by the operating system to ensure sufficient cache, exists for the disk virtual memory. This is not required for disks with large cache such as EMC disks.

Note: Additional memory will be needed if Oracle Calendar synchronization clients are used.

Example

Let us calculate the memory requirements for an organization with 2500 configured calendar users. First, the number of users for each type of Oracle Calendar client must be determined:

1000 Oracle Calendar Web clients

800 Outlook clients with the Oracle Connector for Outlook

700 Oracle Calendar desktop clients

Based on this distribution, compute memory requirements using the defined formula.

Memory for desktop users:

$(\text{DESKTOP_USERS} / 2) * 1 \text{ MB} = (700 / 2) = 350 \text{ MB}$

Memory for Oracle Connector for Outlook users:

$(\text{OCFO_USERS} * 1 \text{ MB}) = 800 \text{ MB}$

Memory for Web client users:

$(\text{FCGI_SESSIONS} * 15 \text{ MB}) = (5\% \text{ of } 1000) * 15 = 50 * 15 = 750 \text{ MB}$

Disk cache memory for all users:

$(\text{TOTAL_USERS} * 0.25 \text{ MB}) = 2500 * 0.25 = 625 \text{ MB}$

Total memory requirements for all users:

2525 MB needed to serve this organization's 2500 calendar users.

Adjusting Kernel Parameters for Calendar

This appendix details the necessary modifications to certain kernel parameters and operating environments to ensure that sufficient resources are allocated to the Calendar server. It also details issues in server configuration that must be considered in order to support certain special operating environments such as Solaris clusters.

This appendix contains the following sections:

- [Adjusting Kernel Parameters](#)
- [Variables and Terminology](#)
- [Preliminary Calculations](#)
- [Adjusting the Solaris Kernel Parameters](#)
- [Adjusting the HP-UX Kernel Parameters](#)
- [Adjusting the Linux Kernel Parameters](#)
- [Adjusting the AIX Kernel Parameters](#)
- [Using Operating System Clusters](#)

Adjusting Kernel Parameters

The UNIX system parameters that need adjustment are used to control resource consumption on a user, process, or systemwide basis. For either a user or a process parameter, the new value for the parameter should be the existing value or the calendar server requirement, whichever is larger or smaller, depending on the parameter. For a systemwide parameter, the server requirement must be added to the existing value to calculate the new value.

Variables and Terminology

The formulas recommended for all platform-specific kernel parameter calculations in this appendix are based on the following variable definitions:

- **N** represents the number of configured Calendar nodes.
- **M** represents the value assigned to the `[ENG] maxsessions` parameter in the `$ORACLE_HOME/ocal/misc/unison.ini` file.
- **L** represents the number of LCK listeners. This value is determined in the [Preliminary Calculations](#) section.
- **S** represents the semaphore requirements. This value is determined in the [Preliminary Calculations](#) section.

- **B** represents the biggest shared memory segment. This value is determined in the [Preliminary Calculations](#) section.

Aside from variables, some terminology must also be defined and understood before beginning kernel calculations. The following terms are used in the [Preliminary Calculations](#) section of this appendix, as well as in the platform-specific calculations:

- **MAX:** Choose the highest number from the values listed.

For example:

```
MAX (2000, 18)
= 2000
```

- **ROUNDUP:** Round up to the nearest integer.

For example:

```
ROUNDUP (1.5 * 13)
= ROUNDUP (19.5)
= 20
```

- **TRUNC:** Truncate the decimal from the value calculated -- round the value computed down to the nearest integer.

For example:

```
TRUNC [(22 - 10)/15 + 28]
= TRUNC [0.8 + 28]
= TRUNC [28.8]
= 28
```

Preliminary Calculations

In order to simplify the calculation of platform specific kernel parameters in the tables later in this appendix, some preliminary calculation is required. The values that need to be calculated are the number of LCK listeners, denoted by "L"; the number of semaphores, denoted by "S"; and the biggest shared memory segment, denoted by "B". The formulas are followed by two examples.

Calculating LCK Listeners

The formula used to calculate the LCK listener requirements depends on the number of nodes that are configured for calendar (N). Use the formula in [Table B-1](#) applicable to your environment.

Table B-1 *Calculating L: LCK Listeners*

If N < 10	If N >= 10
L = N	L = TRUNC [(N - 10)/15 + 10]

Example 1:

When N = 5
L = 5

Example 2:

When N = 13
L = TRUNC {[(13) - 10] / 15 + 10}
L = TRUNC {3/15 + 10}
L = TRUNC {0.2 + 10}

```
L = TRUNC {10.2}
L = 10
```

Calculating the Number of Semaphores

The formula used to calculate number of semaphores depends on the number of nodes that are configured for calendar (N). Use the formula that is in [Table B-2](#) applicable to your environment in:

Table B-2 Calculating S: Number of Semaphores

If N < 10	If N >= 10
$S = N + 18$	$S = \text{TRUNC} [(N - 10)/15 + 28]$

Example 1:

```
When N = 5
S = (5) + 18
S= 23
```

Example 2:

```
When N = 13
S = TRUNC {[ (13) - 10]/15 + 28}
S = TRUNC {3/15 + 28}
S = TRUNC {0.2 + 28}
S = TRUNC {28.2}
S = 28
```

Calculating the Biggest Shared Memory Segment

The formula used to calculate the biggest shared memory segment depends on the value assigned to [ENG] maxsessions (M) in the \$ORACLE_HOME/ocal/misc/unison.ini file. Use the following formula to compute the biggest shared memory segment:

$$B = \text{MAX} [2000000, (8000 * M)]$$

Example 1:

```
When M = 200
B = MAX [2000000, (8000 * 200)]
B = MAX [2000000, 1600000]
B = 2000000
```

Example 2

```
When M = 3000
B = MAX [2000000, (8000 * 3000)]
B = MAX [2000000, 24000000]
B = 24000000
```

Adjusting the Solaris Kernel Parameters

Solaris provides tunable parameters for the kernel and kernel modules. Under Solaris, kernel parameters are modified by directly editing the /etc/system file with a standard text editor. All of the parameters are set using the following format:

```
set rlim_fd_cur=1024
set rlim_fd_max=4117
```

In addition, the message queue and semaphore parameters must include the name of the specific module to be modified. The format is as follows:

```
set msgsys:msginfo_msgmni=351
set semsys:seminfo_semmni=345
```

You must restart the system for the preceding changes to take effect.

To see the current values assigned to the kernel parameters, use the `sysdef` command located in the `/usr/sbin` directory. For example:

```
% sysdef
```

The following forceload directives must be specified in the `/etc/system` kernel configuration file:

```
forceload: sys/semsys
forceload: sys/shmsys
```

In [Table B-3](#), the X variable represents the current kernel parameter setting on your operating system, whereas the Y variable represents the value calculated in the Calendar server requirement column.

Table B-3 Solaris Kernel Parameters

Kernel Parameter	Parameter Description	Current Setting (X)	Calendar Server Requirement (Y)	New Setting
Limits				
rlim_fd_cur	file descriptors soft limit	X	1024	MAX (X,Y)
rlim_fd_max	file descriptors hard limit	X	(4 * N) + 4077	MAX (X,Y)
IPC Messages				
msgsys:msginfo_msgmni	max. message queue identifiers systemwide	X	ROUNDUP (1.1 * M)	X + Y
msgsys:msginfo_msgmax	max. message size	X	4096	MAX (X,Y)
msgsys:msginfo_msgmnb	max. bytes on queue	X	144 * M	MAX (X,Y)
msgsys:msginfo_msgtql	max. message headers	X	M	MAX (X,Y)
IPC Semaphores				
semsys:seminfo_semmni	max. semaphore sets systemwide	X	ROUNDUP (1.5 * S)	X + Y
semsys:seminfo_semmns	max. semaphores systemwide	X	6 * S	X + Y
semsys:seminfo_semmnu	max. undo structures systemwide	X	ROUNDUP (1.5 * S)	X + Y
semsys:seminfo_semmsl	max. semaphores per set	X	12	MAX (X,Y)
semsys:seminfo_semopm	max. operations per semop call	X	12	MAX (X,Y)
semsys:seminfo_semume	max. undo structures per process	X	ROUNDUP (1.5 * S)	MAX (X,Y)

Table B–3 (Cont.) Solaris Kernel Parameters

Kernel Parameter	Parameter Description	Current Setting (X)	Calendar Server Requirement (Y)	New Setting
semsys:seminfo_semvmx	max. value of a semaphore	X	32767	MAX (X,Y)
semsys:seminfo_semaem	max. adjust-on-exit value	X	16384	MAX (X,Y)
IPC Shared Memory				
shmsys:shminfo_shmmax	max. shared memory segment size	X	B	MAX (X,Y)
shmsys:shminfo_shmmin	min. shared memory segment size	X	1	1
shmsys:shminfo_shmmni	max. shm identifiers systemwide	X	18	X + Y
shmsys:shminfo_shmseg	max. shm segments per process	X	18	MAX (X,Y)

Example: Calculating Solaris Kernel Parameters for Calendar

The following is an example with 2500 concurrent users, and 10 configured nodes:

M = 2500

N = 10

In order to continue with the calculations based on the formulas in [Table B–3, "Solaris Kernel Parameters"](#), values for the number of semaphores (S), and the biggest shared memory segment (B) will have to be calculated. For information on how to calculate S and B, see ["Calculating the Number of Semaphores"](#) and ["Calculating the Biggest Shared Memory Segment"](#) earlier in this appendix.

As N = 10, use the following formula to calculate the number of semaphores:

$S = \text{TRUNC} [(N - 10) / 15 + 28]$

$S = \text{TRUNC} [(10 - 10) / 15 + 28]$

$S = \text{TRUNC} [0 / 15 + 28]$

$S = \text{TRUNC} [0 + 28]$

$S = \text{TRUNC} [28]$

S = 28

Use the following formula to calculate the biggest shared memory segment:

$B = \text{MAX} [2000000, (8000 * M)]$

$B = \text{MAX} [2000000, (8000 * 2500)]$

$B = \text{MAX} [2000000, (20000000)]$

B = 20000000

Using the formulas in [Table B–3, "Solaris Kernel Parameters"](#) with the calculated variables, the values in that the Oracle Calendar server requires can be found in the following table:

Table B–4 Solaris Kernel Parameters (Example)

Kernel Parameter	Parameter Description	Current Setting (X)	Calendar Server Requirement (Y)	New Setting
Limits				
rlim_fd_cur	file descriptors soft limit	X	1024	MAX (X,1024)
rlim_fd_max	file descriptors hard limit	X	4117	MAX (X,4117)
IPC Messages				
msgsys:msginfo_msgmni	max. message queue identifiers systemwide	X	2750	X + 2750
msgsys:msginfo_msgmax	max. message size	X	4096	MAX (X,4096)
msgsys:msginfo_msgmnb	max. bytes on queue	X	360000	MAX (X,360000)
msgsys:msginfo_msgtql	max. message headers	X	2500	MAX (X,2500)
IPC Semaphores				
semsys:seminfo_semmni	max. semaphore sets systemwide	X	42	X + 42
semsys:seminfo_semmns	max. semaphores systemwide	X	168	X + 168
semsys:seminfo_semmnu	max. undo structures systemwide	X	42	X + 42
semsys:seminfo_semmnl	max. semaphores per set	X	12	MAX (X,12)
semsys:seminfo_semopm	max. operations per semop call	X	12	MAX (X,12)
semsys:seminfo_sesume	max. undo structures per process	X	42	MAX (X,12)
semsys:seminfo_sevmnx	max. value of a semaphore	X	32767	MAX(X,32767)
semsys:seminfo_semaem	max. adjust-on-exit value	X	16384	MAX(X,16384)
IPC Shared Memory				
shmsys:shminfo_shmmax	max. shared memory segment size	X	20 000 000	MAX (X,20 000 000)
shmsys:shminfo_shmmin	min. shared memory segment size	X	1	1
shmsys:shminfo_shmmni	max. shm identifiers systemwide	X	18	X + 18
shmsys:shminfo_shmseg	max. shm segments per process	X	18	MAX (X,18)

Additional reading

Information on modifying the kernel parameters is available in the *Solaris Tunable Parameters Reference Manual* by Sun Microsystems, Inc.

For more information about modifying the kernel parameters under Solaris, refer to *Solaris Internals: Core Kernel Components* (ISBN: 0-13-022496-0)

Adjusting the HP-UX Kernel Parameters

The following section describes the kernel requirements, that should apply to most HP-UX installations. All parameters can be modified using SAM, a menu-based system administration manager.

The value of `semmsl` is set at 500 and is not configurable on HP-UX.

In [Table B-5](#), the X variable represents the current kernel parameter setting on your operating system, whereas the Y variable represents the value calculated in the Calendar server requirement column.

Table B-5 HP-UX Kernel Parameters

Kernel Parameter	Parameter Description	Current Setting (X)	Calendar Server Requirement (Y)	New Setting
Open Files				
<code>maxfiles</code>	file descriptors soft limit	X	1024	MAX (X,Y)
<code>maxfiles_lim</code> †	file descriptors hard limit	X	$(4 * N) + 3821$	MAX (X,Y)
<code>nfile</code>	max. file descriptors systemwide	X	$\text{MAX} \{100000, [417 + (7 * L) + (3821 * M)/25 + (4 * M * N)/25]\}$	X + Y
Process Management				
<code>max_thread_proc</code>	max. threads per process	X	210	MAX (X,Y)
<code>nkthread</code>	max. kernel thread systemwide	X	$\text{ROUNDUP} [100 + (1.1 * M)]$	X + Y
<code>maxuprc</code>	max. user processes	X	$\text{TRUNC} \{1.5 [(M/25) + L + 57]\}$	MAX (X,Y)
<code>nproc</code>	max. process systemwide	X	$\text{TRUNC} \{1.5 [(M/25) + L + 57]\}$	X + Y
IPC Messages				
<code>msg</code>	enable/disable IPC messages	X	1	1
<code>msgmap</code>	message free-space map size	X	$M + 2$	<code>msgtql</code> + 2
<code>msgmax</code>	max. message size	X	4096	MAX (X,Y)
<code>msgmnb</code>	max. bytes in message queue	X	65535	MAX (X,Y)
<code>msgmni</code>	max. msg queues systemwide	X	$\text{ROUNDUP} (1.1 * M)$	X + Y
<code>msgseg</code>	max. msg segments systemwide	X	2500	MAX (X,Y)
<code>msgssz</code>	message segment size	X	159	MAX (X,Y)
<code>msgtql</code>	max. messages systemwide	X	M	X + Y
IPC Semaphores				
<code>sema</code>	enable/disable semaphores	X	1	1
<code>semaem</code>	sem value-change limit	X	16384	MAX (X,Y)
<code>semmni</code>	max. sem sets systemwide	X	$\text{ROUNDUP} (1.5 * S)$	X + Y
<code>semmap</code>	size of free-sem resource map	X	$\text{ROUNDUP} [(1.5 * S) + 2]$	MAX (X,Y)
<code>semmns</code>	max. user sem systemwide	X	$\text{ROUNDUP} (6 * S)$	X + Y
<code>semmnu</code>	max. undo per semaphore	X	$\text{ROUNDUP} (1.5 * S)$	MAX (X,Y)

Table B–5 (Cont.) HP-UX Kernel Parameters

Kernel Parameter	Parameter Description	Current Setting (X)	Calendar Server Requirement (Y)	New Setting
semume	max. sem undo per process	X	ROUNDUP (1.5 * S)	MAX (X,Y)
semvmx	max. value of a semaphore	X	32767	MAX (X,Y)
IPC Shared Memory				
shmem	enable/disable shared memory	X	1	1
shmmax	max. shmem segment size	X	B	MAX (X,Y)
shmmni	max. segments systemwide	X	18	X + Y
shmseg	max. segments per process	X	18	MAX (X,Y)

[†] Refer to "Setting maxfiles/maxfiles_lim above 2048 on HP-UX 11.0"

Setting maxfiles/maxfiles_lim above 2048 on HP-UX 11.0

For information about how to set maxfiles/maxfiles_lim greater than 2048 on HP-UX 11.0, and other configurable kernel parameters, consult HP-UX documentation at <http://docs.hp.com/en/939/KCParms/KCparams.OverviewAll.html>

Example: Calculating HP-UX Kernel Parameters for Calendar

The following is an example with 2500 concurrent users, and 10 configured nodes:

M = 2500

N = 10

In order to continue with the calculations based on the formulas in [Table B–5, "HP-UX Kernel Parameters"](#), values for LCK listeners (L), the number of semaphores (S), and the biggest shared memory segment (B) will have to be calculated. For information on how to calculate L, S and B, see ["Calculating LCK Listeners"](#) and ["Calculating the Number of Semaphores"](#) and ["Calculating the Biggest Shared Memory Segment"](#) earlier in this appendix.

As N = 10, use the following formula to calculate the LCK listeners:

```
L = TRUNC [(N - 10)/15 + 10]
L = TRUNC [(10 - 10)/15 + 10]
L = TRUNC [0/15 + 10]
L = TRUNC [0 + 10]
L = TRUNC [10]
L = 10
```

As N = 10, use the following formula to calculate the number of semaphores:

```
S = TRUNC [(N - 10)/15 + 28]
S = TRUNC [(10 - 10)/15 + 28]
S = TRUNC [0/15 + 28]
S = TRUNC [0 + 28]
S = TRUNC [28]
S = 28
```

Use the following formula to calculate the biggest shared memory segment:

```
B = MAX [2000000, (8000 * M)]
B = MAX [2000000, (8000*2500)]
B = MAX [2000000, (20000000)]
```


B = 20000000

Using the formulas in [Table B-5, "HP-UX Kernel Parameters"](#) with the above calculated variables, the values in that the Calendar server requires can be found in the following table:

Table B-6 HP-UX Kernel Parameters (Example)

Kernel Parameter	Parameter Description	Current setting (X)	Calendar server requirement (Y)	New setting
Open Files				
maxfiles	file descriptors soft limit	X	1024	MAX (X,1024)
maxfiles_lim	file descriptors hard limit	X	3861	MAX (X,3861)
nfile	max. file descriptors systemwide	X	386587	X + 386587
Process Management				
max_thread_proc	max. threads per process	X	210	MAX (X,210)
nkthread	max. kernel thread systemwide	X	2850	X + 2850
maxuprc	max. user processes	X	217	MAX (X,217)
nproc	max. process systemwide	X	217	X + 217
IPC Messages				
mesg	enable/disable IPC messages	X	1	1
msgmap	message free-space map size	X	2502	msgtql + 2
msgmax	max. message size	X	4096	MAX (X,4096)
msgmnb	max. bytes in message queue	X	65535	MAX (X,65535)
msgmni	max. msg queues systemwide	X	2750	X + 2750
msgseg	max. msg segments systemwide	X	2500	MAX (X,2500)
msgssz	message segment size	X	159	MAX (X,159)
msgtql	max. messages systemwide	X	2500	X + 2500
IPC Semaphores				
sema	enable/disable semaphores	X	1	1
semaem	sem value-change limit	X	16384	MAX (X,16384)
semmni	max. sem sets systemwide	X	42	MAX (X,42)
semmap	size of free-sem resource map	X	44	X + 44
semmns	max. user sem systemwide	X	168	X + 168
semmnu	max. undo per semaphore	X	42	MAX (X,42)
semume	max. sem undo per process	X	42	MAX (X,42)
semvmx	max. value of a semaphore	X	32767	MAX (X,32767)
IPC Shared Memory				

Table B–6 (Cont.) HP-UX Kernel Parameters (Example)

Kernel Parameter	Parameter Description	Current setting (X)	Calendar server requirement (Y)	New setting
shmem	enable/disable shared memory	X	1	1
shmmax	max. shmem segment size	X	20000000	MAX (X,20000000)
shmmni	max. segments systemwide	X	18	X + 18
shmseg	max. segments per process	X	18	MAX (X,18)

Additional reading

For more information about modifying the kernel parameters under HP-UX, refer to:

<http://docs.hp.com/hpux/online/docs/939/KCParms/KCparams.OverviewAll.html>

Adjusting the Linux Kernel Parameters

Linux requires a change to the system kernel parameters in order to support the Oracle Calendar server's default configuration.

Note that the `kernel.sem` parameter is multivalued, and accepts values in the following format: `semmsl semmns semopm semmni`. For example:

```
100 256 100 100
```

To increase the file descriptor's soft and hard limits, edit the `/etc/security/limits.conf` file and add the following lines:

```
*soft nofile 1024
```

```
*hard nofile 65535
```

Note that you may need to log off and back on again before the changes take effect.

In [Table B–7](#), the X variable represents the current kernel parameter setting on your operating system, whereas the Y variable represents the value calculated in the Calendar server requirement column.

Table B–7 Kernel Tuning Requirements for Linux

Kernel Parameter	Parameter Description	Current Setting (X)	Calendar Server Requirement (Y)	New Setting
/etc/security/limits.conf				
* soft nofile	file descriptors soft limit	X	1024	MAX (X,Y)
* hard nofile	file descriptors hard limit	X	(4 * N) + 3821	MAX (X,Y)
/etc/sysctl.conf				
Files				
fs.file-max	max. file descriptors systemwide	X	MAX {100000, [417 + (7 * X + Y L) + (3821 * M)/25 + (4 * M * N)/25]}	
Process Management				
kernel.threads-max	max. threads per process	X	210	MAX (X,Y)
IPC Messages				

Table B–7 (Cont.) Kernel Tuning Requirements for Linux

Kernel Parameter	Parameter Description	Current Setting (X)	Calendar Server Requirement (Y)	New Setting
kernel.msgmni	max. message queue identifiers systemwide	X	ROUNDUP (1.1 * M)	MAX (X,Y)
kernel.msgmax	max. message size	X	4096	MAX (X,Y)
kernel.msgmnb	max. bytes on queue	X	65535	MAX (X,Y)
IPC Semaphores				
kernel.sem (1: semmsl)	max. semaphores per set	X	12	MAX (X,Y)
kernel.sem (2: semmns)	max. semaphores systemwide	X	ROUNDUP (1.5 * S)	X + Y
kernel.sem (3: semopm)	max. operations per semop call	X	12	MAX (X,Y)
kernel.sem (4: semmni)	max. semaphore sets systemwide	X	ROUNDUP (1.5 * S)	X + Y
IPC Shared Memory				
kernel.shmmax	max. shared memory segment size	X	B	MAX (X,Y)
kernel.shmmni	max. shm identifiers systemwide	X	18	X + Y
kernel.shmall	total shm pages available systemwide	X	ROUNDUP [(9 * B)/32768]	X + Y

Example: Calculating Linux Kernel Parameters for Calendar

The following is an example with 2500 concurrent users, and 10 configured nodes:

M = 2500

N = 10

In order to continue with the calculations based on the formulas in [Table B–7, "Kernel Tuning Requirements for Linux"](#), values for LCK listeners (L), the number of semaphores (S), and the biggest shared memory segment (B) will have to be calculated. For information on how to calculate L, S and B, see ["Calculating LCK Listeners"](#) and ["Calculating the Number of Semaphores"](#) and ["Calculating the Biggest Shared Memory Segment"](#) earlier in this appendix.

As N = 10, use the following formula to calculate the LCK listeners:

$$L = \text{TRUNC} [(N - 10)/15 + 10]$$

$$L = \text{TRUNC} [(10 - 10)/15 + 10]$$

$$L = \text{TRUNC} [0/15 + 10]$$

$$L = \text{TRUNC} [0 + 10]$$

$$L = \text{TRUNC} [10]$$

$$L = 10$$

As N = 10, use the following formula to calculate the number of semaphores:

$$S = \text{TRUNC} [(N - 10)/15 + 28]$$

$$S = \text{TRUNC} [(10 - 10)/15 + 28]$$

$$S = \text{TRUNC} [0/15 + 28]$$

$$S = \text{TRUNC} [0 + 28]$$

$$S = \text{TRUNC} [28]$$

S = 28

Use the following formula to calculate the biggest shared memory segment:

$$B = \text{MAX} [2000000, (8000 * M)]$$

$$B = \text{MAX} [2000000, (8000 * 2500)]$$

$$B = \text{MAX} [2000000, (20000000)]$$

$$B = 20000000$$

Using the formulas in [Table B-7, "Kernel Tuning Requirements for Linux"](#) with the above calculated variables, the values in that the Calendar server requires can be found in the following table:

Table B-8 Kernel Tuning Requirements for Linux (Example)

Kernel Parameter	Parameter Description	Current Setting (X)	Calendar Server Requirement	New Setting
/etc/security/limits.conf				
* soft nofile	file descriptors soft limit	X	1024	MAX (X,1024)
* hard nofile	file descriptors hard limit	X	3861	MAX (X,3861)
/etc/sysctl.conf				
Files				
fs.file-max	max. file descriptors systemwide	X	386587	X + 386587
Process Management				
kernel.threads-max	max. threads per process	X	210	MAX (X,210)
IPC Messages				
kernel.msgmni	max. message queue identifiers systemwide	X	2750	X + 2750
kernel.msgmax	max. message size	X	4096	MAX (X,4096)
kernel.msgmnb	max. bytes on queue	X	65535	MAX (X,65535)
IPC Semaphores				
kernel.sem (1: semmsl)	max. semaphores per set	X	12	MAX (X,12)
kernel.sem (2: semmns)	max. semaphores systemwide	X	42	X + 42
kernel.sem (3: semopm)	max. operations per semop call	X	12	MAX (X,12)
kernel.sem (4: semmni)	max. semaphore sets systemwide	X	42	X + 42
IPC Shared Memory				
kernel.shmmax	max. shared memory segment size	X	20000000	MAX (X,20000000)
kernel.shmmni	max. shm identifiers systemwide	X	18	X + 18
kernel.shmall	total shm pages available systemwide	X	5494	X + 5494

Adjusting the AIX Kernel Parameters

The AIX platform requires a change to the system kernel parameters to support the Oracle Calendar server default configuration.

In [Table B-9](#), the X variable represents the current kernel parameter setting on your operating system, whereas the Y variable represents the value calculated in the Calendar server requirement column.

Table B-9 Kernel Tuning Requirements for AIX

Kernel Parameter	Parameter Description	Current Setting (X)	Calendar Server Requirement (Y)	New Setting
/etc/security/limits				
nofiles	file descriptors soft limit	X	1024	MAX (X,Y)
nofiles_hard	file descriptors hard limit	X	(4 * N) + 158	MAX (X,Y)
Process Management				
sys0: maxuproc	max. processes per user	X	62 + M + L	MAX (X,Y)

Example: Calculating AIX Kernel Parameters for Calendar

The following is an example with 2500 concurrent users, and 10 configured nodes:

M = 2500

N = 10

In order to continue with the calculations based on the formulas in [Table B-9, "Kernel Tuning Requirements for AIX"](#), the value for LCK listeners (L) will have to be calculated. For information on how to calculate L, see ["Calculating LCK Listeners"](#) earlier in this appendix.

As N = 10, use the following formula to calculate the LCK listeners:

$L = \text{TRUNC} [(N - 10) / 15 + 10]$

$L = \text{TRUNC} [(10 - 10) / 15 + 10]$

$L = \text{TRUNC} [0 / 15 + 10]$

$L = \text{TRUNC} [0 + 10]$

$L = \text{TRUNC} [10]$

$L = 10$

Using the formulas in [Table B-9, "Kernel Tuning Requirements for AIX"](#) with the above calculated variable, the values in that the Calendar server requires can be found in the following table:

Table B-10 Kernel Tuning Requirements for AIX (Example)

Kernel Parameter	Parameter Description	Current Setting (X)	Calendar Server Requirement (Y)	New Setting
/etc/security/limits				
nofiles	file descriptors soft limit	X	1024	MAX (X,1024)
nofiles_hard	file descriptors hard limit	X	198	MAX (X,198)
Process Management				
sys0: maxuproc	max. processes per user	X	2572	MAX (X,2572)

Additional reading

For more information about modifying the kernel parameters under AIX, refer to *Performance Management Guide: Kernel Tunable Parameters*

http://publibn.boulder.ibm.com/doc_link/en_US/a_doc_lib/aixbman/prftungd/2365a82.htm#HDRI25144

Using Operating System Clusters

The term "cluster" does not refer to the same concept as a calendar server cluster — a calendar server cluster is a node network in which one node is designated a "master node" for the purposes of client sign-on, automated registration, etc., while an operating system cluster is considered to be a system in which two or more machines can be used to manage the same data, providing failover capabilities.

In these environments, it is important to differentiate between the *physical host name*, which is the actual host name of a given machine, and the *cluster host name*, which is the host name of the cluster containing that machine. If you intend to use your calendar server in a cluster environment, you should set all parameters in the `$ORACLE_HOME/ocal/misc/unison.ini` file that require the host name of the local host to the *cluster* host name. In addition, you must add the `[ENG] calendarhostname` parameter to `unison.ini`, and set its value to the cluster host name. Finally, if using an external LDAP directory server, you must ensure that the `[YOURHOSTNAME, unidas]` section specifies the cluster host name in place of `YOURHOSTNAME`. For more information about all of the `unison.ini` parameters listed above, see "Calendar Server Parameters" in Chapter 3 of *Oracle Calendar Reference Manual*.

If you have a node network, ensure also that your `$ORACLE_HOME/ocal/misc/nodes.ini` file uses only cluster host names instead of physical host names, and that all clients are using the cluster host name to sign on to the calendar server.

Note: When a machine containing a master node switches over to another machine in the cluster, Oracle Calendar Web clients can have difficulty signing on, because master nodes currently identify themselves to clients using physical host names.

Calendar Security

Security is a primary concern for any application used to manage sensitive and personal information. A number of options are available to an administrator seeking to enhance or customize the security of an Oracle Calendar server installation. In addition to increasing the security of the operating environment and implementing good maintenance and monitoring practices, Calendar server administrators have access to a configurable, extensible authentication, compression and encryption (ACE) framework.

Information including the structure of the ACE framework, additional security considerations for installations using a directory server, Kerberos 5 authentication, as well as a number of other measures that may be employed to further protect calendar data are discussed in *Oracle Collaboration Suite Security Guide*

See Also: For all information about Oracle Calendar security, see "Securing Oracle Calendar" in Part I, Chapter 2 of *Oracle Collaboration Suite Security Guide*

Calendar International Support

This appendix contains the following sections relating to international installations of the Oracle Calendar server:

- [UTF-8](#)
- [Character Set Identification](#)
- [Japanese Server Configuration](#)
- [Setting User Language Preferences](#)

UTF-8

The server uses UTF-8, an 8-bit encoding of 16-bit UNICODE, to achieve an international character representation. Data passed to the server must be converted from the source character set to UTF-8. When the data is read from the server, it once again passes through a conversion from UTF-8 to the character set defined on the display device. This functionality is crucial in heterogeneous environments where data may be entered in one character set and retrieved in another.

Configuration

The `utf8_autoconvert` parameter in the `$ORACLE_HOME/ocal/misc/unison.ini` file controls the conversion and storage of calendar data in the UTF-8 format. By default, this feature is enabled. For more information about the `utf8_autoconvert` parameter, see "Calendar Server Parameters" in Chapter 3 of *Oracle Calendar Reference Manual*.

Character Set Identification

In order to successfully complete the conversion to or from UTF-8, the server must know the source or destination character set. The character set used by the directory server is defined by the parameter `[LDAP] charset` in the `$ORACLE_HOME/ocal/misc/unison.ini` file. For more information about the `[LDAP] charset` parameter, see "Calendar Server Parameters" in Chapter 3 of *Oracle Calendar Reference Manual*. Client character sets are identified explicitly to the server by the client application itself.

Japanese Server Configuration

If the calendar server is installed on a Japanese operating system, the following parameters in the `$ORACLE_HOME/ocal/misc/unison.ini` file should be set as shown in the following example. In the `[ENG]` section, the parameter defines the

character set to use for data in log files. In the [CWS] section, parameter NLS_LANG mimecontentcharset determines the default character set to use to encode the content and subject portion of all MIME mail messages sent by the CWS daemon/service. Parameter mailhdrtoname determines whether or not to include names along with addresses in the **To:** field of the mail header. For more detailed explanations about the function of each parameter, see "Calendar Server Parameters" in Chapter 3 of *Oracle Calendar Reference Manual*.

For example:

```
[ENG]
NLS_LANG= MSCP932
[CWS]
mimecontentcharset=ISO2022-JP
mailhdrtoname=FALSE
```

If older Japanese clients are used (versions prior to 9.0.4), the definition of the client character set can be set manually by inserting the following parameters in the [LOCALE] section of the unison.ini file: the parameter charsetwindows which indicates the character set used by the older Japanese Windows client, and the parameter charsetCGI which indicates the character set used by the older Japanese Web client.

For example:

```
[LOCALE]
charsetwindows=MSCP932
charsetCGI=Shift_JIS
```

Setting User Language Preferences

The calendar server offers users e-mail and Alert reminders in the language of their choice.

Command-Line Utilities

Set a user's language through the uniuser utility with the "language" key. For more information on the use and syntax of the uniuser utility and keys that can be specified with the -m option parameter, see "Calendar Server Utilities" in Chapter 6 of *Oracle Calendar Reference Manual*. The following example sets Herman Hesse's language to German:

```
uniuser -mod "S=Hesse/G=Herman" -m "lang=de" -n 14
```

Alternately, you may use the default user profile file (user.ini) to set the [GEN] language parameter to specify a default language to apply to all new users to be created. Consult [Chapter 7, "Managing Calendar User Accounts"](#) of this guide and see "Calendar User and Resource Parameters" in Chapter 1 of *Oracle Calendar Reference Manual*.

Glossary

ACE

Authentication, Compression and Encryption framework for the calendar server.

agenda or calendar

The scheduling calendar of a user or resource.

base DN

The location in the directory server tree under which all calendar users and resources are located.

BindDN

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

Calendar daemons/ services

Six UNIX daemons or multithreaded Windows services:

- Oracle Calendar Lock Manager (unilckd)
- Oracle Calendar Engine (uniengd)
- Oracle Calendar Synchronous Network Connections (unisncd)
- Oracle Calendar Corporate-Wide Services (unicwsd)
- Oracle Calendar Server Manager (unicamd)
- Oracle Calendar Directory Access Server (unidasd) - external directory only

cluster

A cluster is a node network in which one node is designated the "master node".

designate

A user who has been given the right to modify the calendar of another user or resource.

directory server

A Lightweight Directory Access Protocol (LDAP) application designed to manage descriptive, attribute-based information about people and resources within an organization.

Distinguished Name (DN)

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

host

A computer running an installation of the calendar server or directory server.

LDAP

Lightweight Directory Access Protocol, a directory service protocol designed to run over TCP/IP and across multiple platforms.

LDIF

LDAP Data Interchange Format. Format used to represent Directory Server entries in text form.

local node

A calendar server node located on the host you are presently signed on to.

local resource

A resource whose calendar is maintained on the node you are presently signed on to.

local user

A user whose calendar is maintained on the node you are presently signed on to.

master node

A specially designated node in a cluster that finds user accounts on other nodes. The master node coordinates network management, and provides support for finding user accounts on installations spanning multiple nodes and hosts. When master node is in use, Oracle Calendar clients will connect to the master node upon the first login. The Oracle Calendar server will then resolve the node on which the requesting user resides. The Oracle Calendar client will then cache the appropriate node for that user account locally, and connect directly to the appropriate node upon the subsequent login. .

node

A calendar database containing all user and resource information and calendars.

node alias

A descriptive title that can be used in addition to the Node-ID to differentiate between multiple nodes.

Node-ID

A unique identification number assigned when a node is created. Node-IDs must be unique across the node network.

node network

A series of two or more connected nodes.

Object class

Defines an entry type in an LDAP directory by defining which attributes are contained in the entry.

Oracle Calendar administrator

A Web-based tool for online calendar administration.

Oracle Internet Directory

A database application that stores information about users, and makes this information available to various other services, such as e-mail or calendar applications.

Relative DN

A location in the LDAP directory relative to the calendar server base DN in which a domain's users and event calendars are stored.

remote node

A calendar server node that is part of a node network but is not located on the node you are signed in to.

remote resource

A resource whose calendar is maintained on another node.

remote user

A user whose calendar is maintained on another node.

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.

resource Relative DN

A location in the LDAP directory relative to the calendar server base DN in which all calendar server resources are stored.

schema definition

Describes the types of information that can be stored as entries in the LDAP directory.

SYSOP

The administrator of a calendar server node.

user

A person who uses a calendar client to connect to a node and manage his/her personal calendar.

Web GUI

See Oracle Calendar administrator

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