



# **Sun Java System Calendar Server 6 2005Q4 Administration Guide**



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# Preface

---

This guide explains how to administer Sun Java™ System Calendar Server 6 2005Q4 (Calendar Server).

Calendar Server provides a scalable, Web-based solution for centralized calendaring and scheduling for enterprises and service providers. Calendar Server supports personal calendars as well as group and resource scheduling.

Topics in this chapter include:

- “Who Should Use This Book” on page 29
- “Before You Read This Book” on page 29
- “How This Book Is Organized” on page 30
- “Related Books” on page 31
- “Related Third-Party Web Site References” on page 32
- “Documentation, Support, and Training” on page 32
- “Typographic Conventions” on page 33
- “Shell Prompts in Command Examples” on page 33

## Who Should Use This Book

This guide is intended for Calendar Server administrators and support specialists who are responsible for administering and configuring Calendar Server.

## Before You Read This Book

Before you install and administer Calendar Server, you must be familiar with the following concepts:

- Basic administrative procedures for your platform operating system.
- Lightweight Directory Access Protocol (LDAP), if you plan to use an LDAP directory server to store user information

# How This Book Is Organized

Chapter	Description
Preface (this chapter)	Describes the audience, requirements, organization, document conventions, and related information.
Part I	
Chapter 1, “Overview”	Provides a high-level overview of Calendar Server, including the components, architecture, interfaces, and protocols.
Part II	
Chapter 2, “Directory Preparation Script (comm_dssetup.pl)”	Provides instructions for running the Directory Preparation Script (comm_dssetup.pl).
Chapter 3, “Calendar Server Configuration Program (csconfigurator.sh)”	Provides instructions for running the csconfigurator.sh program.
Chapter 4, “Database Migration Utilities”	Provides instructions for using the two postinstallation database migration utilities, csmig and csvdmig.
Part III	
Chapter 5, “Customizing Calendar Server”	Provides instructions on customizing various aspects of Calendar Server.
Chapter 6, “Configuring Calendar Database Distribution Across Multiple Machines”	Describes the configuring CLD plug-in, which enables distribution of the calendar database over multiple servers.
Chapter 7, “Configuring for High Availability (Failover Service)”	Describes how to set up a High Availability environment.
Chapter 8, “Configuring SSL”	Describes how to set up and manage SSL.
Chapter 9, “Configuring Single Sign-on”	Describes how to configure single sign-on through either Access Manager authentication, or through Messaging Server (circle of trust).
Chapter 10, “Configuring Automatic Backups (csstored)”	Describes how to configure csstored to take automatic backups.
Chapter 11, “Setting Up Hosted Domains”	How to configure Calendar Server with hosted domains.
Part IV	
Chapter 12, “Administering Calendar Server”	Describes the general Calendar Server tasks such as starting and stopping services.
Chapter 13, “Administering Hosted Domains”	How to create, modify, delete and list domains for a hosted domain environment.
Chapter 14, “Administering Users and Resources”	Describes how to administer user and resource LDAP entries.

Chapter	Description
Chapter 15, “Administering Calendars”	Describes how to administer Calendars, including access control.
Chapter 16, “Administering Calendar Server Databases with csdb”	Describes how to administer and maintain the Calendar Server databases and data.
Chapter 17, “Backing Up and Restoring Calendar Server Data”	Describes how to back up and restore Calendar Server data.
Chapter 18, “Administering the Delete Log Database”	Describes how to manage the Delete Log database ( <code>ics50deletelog.db</code> ).
Chapter 19, “Administering Calendar Server Time Zones”	Describes how Calendar Server processes time zones and how to add a new time zone table or modify the time zone tables supplied.
Chapter 20, “Using Instant Messaging Pop-up Reminders”	Describes how to set up Instant Messaging Pop-up reminders for Calendar events.
Chapter 21, “Tuning Calendar Server Performance”	Describes how to tune Calendar Server for optimum performance, including using the LDAP data cache.
Chapter 22, “Troubleshooting”	Covers various ways to gather information and fix problems.
Part V	
Appendix A, “Directory Configuration Worksheet”	Worksheet for gathering Directory Preparation Script information.
Appendix B, “Calendar Server Configuration Worksheet”	Worksheets for gathering information for <code>csconfigurator.sh</code> .
Appendix C, “High Availability (HA) Configuration Worksheets”	Provides worksheets to plan a high availability (HA) configuration.
Appendix D, “Calendar Server Command-Line Utilities Reference”	Reference for the Calendar Server command-line utilities.
Appendix E, “Calendar Server Configuration Parameters”	Reference for <code>ics.conf</code> parameters

## Related Books

The following Calendar Server documents are available online in PDF and HTML formats:

- *Sun Java System Communications Services 2005Q4 Release Notes*
- *Sun Java System Communications Services 6 2005Q4 Documentation Center*
- *Sun Java System Communications Services 6 2005Q4 Deployment Planning Guide*
- *Sun Java System Calendar Server 6 2005Q4 Administration Guide*
- *Sun Java System Calendar Server 6 2005Q4 Developer’s Guide*
- *Sun Java System Communications Services 6 2005Q4 Event Notification Service Guide*
- *Sun Java System Communications Services 6 2005Q4 Schema Reference*

- *Sun Java System Communications Services 6 2005Q4 Schema Migration Guide*
- *Sun Java System Communications Services 6 2005Q4 Delegated Administrator Guide*
- *Sun Java System Communications Express 6 2005Q4 Administration Guide*
- *Sun Java System Communications Express 6 2005Q4 Customization Guide*
- *Sun Java System Communications Sync 2005Q4 Release Notes* (HTML only)
- *Sun Java Enterprise System Technical Note: Sun Java System Calendar Frequently Asked Questions*
- *Sun Java Enterprise System Glossary*

In addition, the graphical user interfaces, Communications Express and Delegated Administration Console, have online help.

## Related Third-Party Web Site References

Third-party URL's are referenced in this document and provide additional, related information.

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**Note** – Sun is not responsible for the availability of third-party web sites mentioned in this document. Sun does not endorse and is not responsible or liable for any content, advertising, products, or other materials that are available on or through such sites or resources. Sun will not be responsible or liable for any actual or alleged damage or loss caused or alleged to be caused by or in connection with use of or reliance on any such content, goods, or services that are available on or through such sites or resources.

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## Documentation, Support, and Training

Sun Function	URL	Description
Documentation	<a href="http://www.sun.com/documentation/">http://www.sun.com/documentation/</a>	Download PDF and HTML documents, and order printed documents
Training	<a href="http://www.sun.com/training/">http://www.sun.com/training/</a>	Learn about Sun courses
Support	<a href="http://www.sun.com/support/">http://www.sun.com/support/</a>	Obtain technical support and patch downloads.

---



## Typographic Conventions

The following table describes the typographic changes that are used in this book.

TABLE P-1 Typographic Conventions

Typeface or Symbol	Meaning	Example
AaBbCc123	The names of commands, files, and directories, and onscreen computer output	Edit your <code>.login</code> file. Use <code>ls -a</code> to list all files. <code>machine_name% you have mail.</code>
<b>AaBbCc123</b>	What you type, contrasted with onscreen computer output	<code>machine_name% su</code> Password:
<i>aabbcc123</i>	Placeholder: replace with a real name or value	The command to remove a file is <i>rm filename</i> .
<i>AaBbCc123</i>	Book titles, new terms, and terms to be emphasized	Read Chapter 6 in the <i>User's Guide</i> . Perform a <i>patch analysis</i> . Do <i>not</i> save the file. [Note that some emphasized items appear bold online.]

## Shell Prompts in Command Examples

The following table shows the default system prompt and superuser prompt for the C shell, Bourne shell, and Korn shell.

TABLE P-2 Shell Prompts

Shell	Prompt
C shell prompt	<code>machine_name%</code>
C shell superuser prompt	<code>machine_name#</code>
Bourne shell and Korn shell prompt	<code>\$</code>
Bourne shell and Korn shell superuser prompt	<code>#</code>





**PART I**

# Overview

This part contains only the Overview chapter.



◆ ◆ ◆      1  
CHAPTER 1

## Overview

---

Sun Java™ System Calendar Server 62005Q4 (Calendar Server) is a scalable, Web-based solution for centralized calendaring and scheduling for enterprises and service providers. Calendar Server supports personal and group calendars for both events and tasks as well as calendars for resources such as conference rooms and equipment.

For information about basic configuration scenarios, see the *Sun Java System Communications Services 6 2005Q4 Deployment Planning Guide*.

This chapter includes the following information:

- “Calendar Server Installation” on page 38
- “Post Installation Configuration” on page 39
- “Calendar Server Special Accounts” on page 39
- “Proxy Administrator Logins” on page 41
- “Calendar Server End User Administration” on page 41
- “Calendar Server Data” on page 44
- “LDAP Data Cache Option” on page 45
- “Calendar Access Control” on page 47
- “Calendar Server Internal Subsystems” on page 52
- “Calendar Server Services” on page 54
- “Calendar Server API's and SDK's” on page 56

---

**Note** – In this and subsequent chapters, when fully qualified directory paths are specified, they are for the Solaris platform. The default paths for Solaris are:

`/opt/SUNWics5/cal`

`/var/opt/SUNWics5`

`/etc/opt/SUNWics5`

The default paths for Linux® are:

`/opt/sun/calendar`

`/var/opt/sun/`

`/etc/opt/sun`

Linux users should substitute their default path in any command showing the Solaris default.

---

## Calendar Server Installation

The installation and configuration of Calendar Server has significantly changed from earlier Calendar Server releases (pre-2003Q4 versions). There is no longer a standalone installer for Calendar Server.

If you do not already have at minimum Calendar Server 2003Q4 (6.0) installed, you must use the Sun Java Enterprise System installer to get the 2005Q4 version. With this installer, you can also install other Sun component products and packages. For information about the Java Enterprise System installer, refer to the *Sun Java Enterprise System 2005Q4 Installation Guide for UNIX*.

If you want to upgrade from an earlier version of Sun Java Enterprise System, the upgrade process is described in the *Sun Java System 2005Q4 Upgrade and Migration Guide*.

For information about migrating from older versions of Calendar Server, refer to the information found in [Chapter 4, “Database Migration Utilities.”](#)

## Post Installation Configuration

After you install Calendar Server, you must configure it. The installer does not perform configuration as part of the installation process.

### ▼ High Level Task List

- 1 **Run the Directory Server Setup script, `comm_dssetup.pl`, to configure Sun Java System Directory Server 5 (if the script has not already been run).**

This script is located in the following directory: `/opt/SUNWcomds/sbin`.

For information about running it, see [Chapter 2, “Directory Preparation Script \(`comm\_dssetup.pl`\)”](#).

- 2 **Run the Calendar Server configuration program (`csconfigurator.sh`) to configure your site's specific requirements and to create a new `ics.conf` configuration file.**

For a description of the parameters in the `ics.conf` file, see [Appendix E, “Calendar Server Configuration Parameters.”](#)

The program is located in the following directory: `/opt/SUNWics5/sbin`

For information about running `csconfigurator.sh`, see [Chapter 3, “Calendar Server Configuration Program \(`csconfigurator.sh`\)”](#).

## Calendar Server Special Accounts

Calendar Server special accounts include the following:

- “Calendar Server Administrator (`calmaster`)” on page 39
- “Calendar Server User and Group” on page 40
- “Superuser (`root`)” on page 41

### Calendar Server Administrator (`calmaster`)

The Calendar Server administrator is a specific user name with its associated password that can manage Calendar Server. For example, a Calendar Server administrator can start and stop Calendar Server services, add and delete users, create and delete calendars, and so on. This user has administrator privileges for Calendar Server but not necessarily for the directory server.

The default user ID for the Calendar Server administrator is `calmaster`, but you can specify a different user during Calendar Server configuration, if you prefer. After installation you can also specify a different user in the `service.admin.calmaster.userid` parameter in the `ics.conf` file.

The user ID you specify for the Calendar Server administrator must be a valid user account in your directory server. If the Calendar Server administrator user account does not exist in the directory server during configuration, the configuration program can create it for you.

The following table describes the Calendar Server administrator configuration parameters in the `ics.conf` file.

TABLE 1-1 Calendar Server Administrator (calmaster) Configuration Parameters

Parameter	Description
<code>service.admin.calmaster.userid</code>	User ID of the person designated as the Calendar Server administrator. You must provide this required value during Calendar Server installation. The default is "calmaster".
<code>service.admin.calmaster.cred</code>	Password of the user ID specified as the Calendar Server administrator. You must provide this required value during installation.
<code>caldb.calmaster</code>	Email address of the Calendar Server administrator. The default is "root@localhost".
<code>service.admin.calmaster.overrides.accesscontrol</code>	Indicates whether the Calendar Server administrator can override access control. The default is "no".
<code>service.admin.calmaster.wcap.allowgetmodifyuserprefs</code>	Indicates whether the Calendar Server administrator can get and set user preferences using WCAP commands. The default is "no".
<code>service.admin.ldap.enable</code>	Enables the LDAP server for user authentication of the user specified in <code>service.admin.calmaster.userid</code> . The default is "yes".

## Calendar Server User and Group

These special accounts are the user ID and group ID under which Calendar Server runs. Unless there are overriding reasons not to, use the default values, `icsuser` and `icsgroup`, which are automatically created by the configuration program, if they do not exist.

If you prefer, however, you can specify values other than `icsuser` and `icsgroup` when you run the Calendar Server configuration program. These values are stored in the `local.serveruid` and `local.servergid` parameters, respectively, in the `ics.conf` file.



## Superuser (root)

You must log in as or become superuser (root) to install Calendar Server. You can also run as superuser to manage Calendar Server using the command-line utilities. For some tasks, however, you should run as `icsuser` and `icsgroup` (or the values you have selected) rather than superuser to avoid access problems for Calendar Server files.

## Proxy Administrator Logins

To allow administrators to administer user calendars, you need to set a parameter in the configuration file, `ics.conf`. The default is "no", which means this kind of proxy authentication is not allowed.

If you are using Communications Express, this parameter must be set to "yes".

For instructions on how to set this parameter and verify that proxy logins are working, see [“Configuring Logins and Authentication” on page 134](#).

## Calendar Server End User Administration

End users connect to Calendar Server from client machines using a Web graphical user interface (GUI), Sun Java System Communications Express. Users must have a unique entry in the LDAP directory. Each user can have one or more calendars and can belong to one or more groups.

Administrators, with the proper permissions, can add, delete or modify user LDAP entries, or resource LDAP entries, using the Delegated Administrator Utility (command-line) or Console (GUI).

For documentation on the Delegated Administrator Utility (`comadmin`), see *Sun Java System Communications Services 6 2005Q4 Delegated Administrator Guide*.

For documentation on the Delegated Administrator Console, see the Console's online help.

In addition, when necessary, you can use `ldapmodify` to modify LDAP entries directly. For information about `ldapmodify`, refer to the *Sun ONE Directory Server Resource Kit 5.2 Tools Reference*.



---

**Caution** – Utility programs used in pre-Java Enterprise System deployments, such as `csuser`, are still bundled with Calendar Server. If you are using Access Manager in your deployment, do not use these utilities for managing or creating user, domain or resource LDAP entries. There are some exceptions. Where these apply, this guide will direct you to the proper utility.

---

This section describes the following aspects of user and user calendar administration:

- “Creation of Calendar Server Users” on page 42
- “Authentication of Calendar Server Users” on page 43
- “Calendar Server User Preferences” on page 43
- “Calendar Groups” on page 43
- “Calendar Resources” on page 43

## Creation of Calendar Server Users

Calendar Server users are created either manually or automatically:

- **Manually** — If the Directory Server is configured for Schema 2, an administrator can add users to the directory server using Delegated Administrator and then create the users’ default calendars using the Calendar Server `csca1` utility.

If the Directory Server is configured for Schema 1, create both the user and the calendar at the same time using the Calendar Server `csuser` utility.

- **Automatically (autoprovisioning)** — If autoprovisioning is configured and if the user already exists in the LDAP directory, then the first time that user logs in, Calendar Server automatically creates a default calendar.

In non-hosted domain mode, Calendar Server creates the calendar ID (`calid`) of the default calendar from the user ID. For example, if John Doe has a user ID of `jdoe`, his default calendar `calid` would be `jdoe`.

In hosted domain mode, the `calid` is a combination of the user ID and the user’s domain. For example, if John Doe is in domain `example.com`, and his user ID is `jdoe`, then his `calid` in a hosted domain environment is `jdoe@example.com`.

For autoprovisioning to occur, the following criteria must be met:

- The `local.autoprovision` parameter must be set to “yes” (which is the default) in the `ics.conf` file.
- In hosted (virtual) domain mode, the domain must be calendar enabled. A domain is calendar enabled if its LDAP entry contains the `icsCalendarDomain` object class.

For example, suppose `tchang` exists in the directory server but is not yet enabled for calendaring (that is, does not have a default calendar). When `tchang` logs into Calendar Server for the first time, Calendar Server automatically enables `tchang` for calendaring and creates a default calendar with the `calid` `tchang`.

## Authentication of Calendar Server Users

Calendar Server requires a directory server such as Sun Java System Directory Server to authenticate users (and to store user preferences). However, to allow access for users defined in a non-LDAP directory server, Calendar Server includes the Calendar Server API (CSAPI), which you can use to write a plug-in to access a non-LDAP directory. For information about CSAPI, refer to the *Sun Java System Calendar Server 6 2005Q4 Developer's Guide*.

## Calendar Server User Preferences

Calendar Server allows users to customize their views of calendar data by setting user preferences attributes, which are stored in the directory server. User preferences (as opposed to Calendar Server configuration parameters) refer to the user interface representation of calendar data and include items such as user name, email address, and preferred colors to use when rendering calendar views.

For a list of preferences, refer to the `get_userprefs` and `set_userprefs` WCAP commands in the *Sun Java System Calendar Server 6 2005Q4 Developer's Guide*.

## Calendar Groups

A calendar group is a named list of individual subscribed calendars. Group calendars allow multiple calendars to be combined into a single calendar for viewing. A user creates the groups using the Communications Express graphical user interface.

For example, a user can have a calendar group consisting of a private calendar, department calendar, and company holidays calendar. Users can also use a calendar group to select a list of calendars and view them side-by-side or invite the calendar owners to an event.

These groups are not to be confused with LDAP groups. Groups created in the user interface are stored in the user's LDAP entry in `icsSet` attributes. Therefore, other users can't see them when searching for attendees in LDAP.

For more information about Calendar Server users, see [Chapter 14, "Administering Users and Resources."](#)

## Calendar Resources

A resource is anything that can be scheduled using a calendar, such as a conference room, or a projector. There is a separate resource LDAP entry for each such item. Create the LDAP entry and its associated calendar using the appropriate tools:

- For Schema 2 - Use Delegated Administrator to create the resource LDAP entry, and the Calendar Server utility resource to create the calendar.

- For Schema 1 - Use the `csresource create` command which creates both the resource LDAP entry and the calendar.

## Calendar Server Data

This section describes the following information about Calendar Server data:

- “Calendar Server Data Format” on page 44
- “Import and Export of Calendar Data” on page 44
- “Calendar Links for Data Exchange” on page 44
- “Calendar Server Alarms” on page 45

## Calendar Server Data Format

Calendar Server data format is modeled after RFC 2445, Internet Calendaring and Scheduling Core Object Specification (iCalendar). Calendar Server supports the following formats:

- XML (.xml) — The interface to Communications Express.
- iCalendar (.ical) — The default format.

You can use CSAPI to develop a translator DLL or shared library for the WCAP protocol. For information about WCAP and CSAPI, see the *Sun Java System Calendar Server 6 2005Q4 Developer's Guide*.

## Import and Export of Calendar Data

Calendar data can be imported and exported in either iCalendar (.ical) or XML (.xml) format. Calendar Server administrators can import and export calendar data using the Calendar Server `csimport` and `csexport` utilities. End users can import and export calendar data using the Communications Express user interface.

## Calendar Links for Data Exchange

Calendars can be referenced as links embedded in email messages and on Web pages. Users can then click a link to view a calendar without having to log into Calendar Server, as long as the calendar allows read access. For example, the following link specifies a resource room named Auditorium:

```
http://calendar.sesta.com:8080/?calid=Auditorium
```

## Calendar Server Alarms

Calendar Server supports server-side email alarms, which can be sent to a list of recipients. The format of the email message is configurable and is maintained as a server attribute, rather than as a user or calendar attribute. Calendar Server has limited support for the ITIP/IMIP standards (RFC 2446 and RFC 2447), including ITIP methods PUBLISH, REQUEST, REPLY, and CANCEL for events.

## LDAP Data Cache Option

The LDAP data cache option ensures that LDAP data is available immediately after it has been committed, even if the LDAP directory server is configured to include a delay in the availability of committed data.

For example, if your site has deployed a master/slave LDAP configuration where Calendar Server accesses the master LDAP directory through a slave LDAP directory server, which in turn introduces a delay in the availability of committed LDAP data, the LDAP data cache can ensure that your Calendar Server clients have accurate LDAP data.

This section covers the following topics:

- [“Considerations for Using the LDAP Data Cache” on page 45](#)
- [“Master/Slave LDAP Configuration” on page 45](#)
- [“LDAP Data Cache” on page 46](#)
- [“Limitations” on page 47](#)

## Considerations for Using the LDAP Data Cache

Use these guidelines to determine if your site should configure the LDAP data cache:

- If Calendar Server at your site accesses your master (or root) LDAP directory server directly with no delays in the availability of committed LDAP data, you don t need to configure the LDAP data cache. Make sure that the `local.ldap.cache.enable` parameter is set to "no" (which is the default).
- If you have deployed a [“Master/Slave LDAP Configuration” on page 45](#), where Calendar Server accesses the master LDAP directory through a slave LDAP directory server, there will be a delay in the availability of committed LDAP data. Configure the LDAP data cache to ensure that your end users have the most recent data.

## Master/Slave LDAP Configuration

A master/slave LDAP configuration includes a master (root) directory server and one or more slave (consumer or replica) directory servers. Calendar Server can access the master LDAP directory server either directly or through a slave directory server:

- If Calendar Server accesses the master LDAP directory server directly, the LDAP should be accurate, and you don't need to configure the LDAP data cache.
- If Calendar Server accesses the master LDAP directory server through a slave directory server, LDAP data changes are usually written transparently using an LDAP referral to the master directory server. The LDAP referral then replicates the data back to each slave directory server.

In this second type of configuration, problems with inaccurate LDAP data can occur because of the delay in the availability of committed LDAP data to the slave directory servers.

For example, Calendar Server commits an LDAP data change, but the new data is not available for a specific amount of time because of the delay in the master directory server updating each slave directory server. A subsequent Calendar Server client operation uses the old LDAP data and presents an out-of-date view.

If the delay in updating the slave directory servers is short (only a few seconds), clients might not experience a problem. However, if the delay is longer (minutes or hours), clients will display inaccurate LDAP data for the length of the delay.

The following table lists operations and the LDAP attributes affected by such a delay:

Operation	LDAP Attributes
Auto provisioning	icsCalendar, icsSubscribed, icsCalendarOwned, icsDWPHost
Calendar groups	icsSet
Calendar creation	icsCalendarOwned, icsSubscribed
Calendar subscription	icsSubscribed
User options	icsExtendedUserPrefs, icsFirstDay, icsTimeZone, icsFreeBusy
Calendar searches	icsCalendarOwned

## LDAP Data Cache

The LDAP data cache resolves the master/slave LDAP configuration problem by providing Calendar Server clients with the most recent LDAP data, even when the master directory server has not updated each slave directory server.

If the LDAP data cache is enabled, Calendar Server writes committed LDAP data to the cache database (ldapcache.db file). By default, the LDAP cache database is located in the ldap\_cache database directory, but you can configure a different location if you prefer.

When a client makes a change to the LDAP data for a single user, Calendar Server writes the revised data to the LDAP cache database (as well as to the slave directory server). A subsequent client operation retrieves the LDAP data from the cache database. This data retrieval applies to the following operations for a single user:

- User's attributes at login
- User's options (such as color scheme or time zone)
- User's calendar groups
- User's subscribed list of calendars

Thus, the LDAP data cache database provides for:

- Data consistency across processes on a single system The database is available to all Calendar Server processes on a multiprocessor system.
- Data persistence across user sessions The database is permanent and does not require refreshing.

## Limitations

The LDAP data cache does not provide for:

- Reading the cache for searches where a list of entries is expected. For example, searching for attendees for a meeting. This type of search is subject to any LDAP delay. For instance, a newly created calendar will not appear in a calendar search if the LDAP search option is active and the search is performed within the delay period following the creation of a new calendar.
- Reading and writing of the cache across multiple front-end servers. Each front-end server has its own cache, which is not aware of data in other caches.
- The capability to handle a user who doesn't always log into the same server. Such a user will generate different LDAP data in the cache on each server.

## Calendar Access Control

Calendar Server uses Access Control Lists (ACLs) to determine the access control for calendars, calendar properties, and calendar components such as events and todos (tasks).

This section covers these topics:

- “Secure Calendar Server Logins” on page 48
- “Access Control by Users” on page 48
- “Access Control Lists (ACLs)” on page 49

## Secure Calendar Server Logins

When users log in to Calendar Server through Communications Express, by default the authentication process does not encrypt the login information, including user names and passwords. If you want secure logins as your site, configure Calendar Server to use the Secure Sockets Layer (SSL) protocol to encrypt the login data. For more information, see [Chapter 8, “Configuring SSL,”](#) Configuring SSL.

## Access Control by Users

Calendar Server considers the following users when determining access to calendars, calendar properties, and calendar components:

- Primary calendar owners

Primary calendar owners have full access to their own calendars. Calendar Server does not perform any access control checks for primary owners accessing their own calendars.

- Administrators and superusers

An administrator such as `calmaster`, or a superuser such as `root`, is not subject to access control restrictions and can perform any operation on a calendar or calendar component. For more information, see [“Calendar Server Special Accounts”](#) on page 39.

- Other calendar owners

Primary calendar owners can designate other owners for their calendars. The other owner can then act on behalf of the primary owner to schedule, delete, modify, accept, or decline events or todos (tasks) for a calendar.

- anonymous user

The special calendar ID (`calid`) `anonymous` can access Calendar Server using any password, if `service.http.allowanonymouslogin` in the `ics.conf` file is set to “yes” (which is the default). The anonymous user is not associated with any particular domain. You can change the `calid` for the anonymous user by editing the `calstore.anonymous.calid` parameter.

You can also view a calendar anonymously if the calendar’s permissions allow read access for everybody. For example, the following link allows users to anonymously view the calendar with the `calid` `tchang:meetings` (if the calendar’s permissions allow read access for everybody):

```
http://calendar.sesta.com:8080/?calid=tchang:meetings
```

An anonymous user can view, print and search for public events and tasks on the calendar but cannot perform any other operations.

For information about viewing a resource calendar anonymously, see [“Linking to a Calendar”](#) on page 278.



## Access Control Lists (ACLs)

Calendar Server uses access control lists (ACLs) to determine access control for calendars, calendar properties, and calendar components such as events and todos (tasks). An ACL consists of one or more access control entries (ACE's), which are strings that collectively apply to the same calendar or component. Each ACE in an ACL must be separated by a semicolon.

---

**Note** – ACE strings are case insensitive.

---

For example:

- `jsmith^c^wd^g` consists of a single ACE.
- `@o^a^r^g;@o^c^wd^ic^g;@a^s^f^g` consists of three ACE's.

An ACE consists of the following elements, with each element separated by a caret (^):

- **“Who” on page 49** - The individual, user, domain, or type of user who the ACE applies to.
- **“What” on page 50** - The target being accessed, such as a calendar or a calendar component such as an event, todo (task), or calendar property.
- **“How” on page 50** - The type of access control rights permitted, such as read, write, or delete.
- **“Grant” on page 51** - A specific access control right that is either granted or denied.

For example, in the ACE `jsmith^c^wd^g`:

- `jsmith` is the Who element, indicating who the ACE applies to.
- `c` is the What element, indicating what is being accessed (only the calendar components).
- `wd` is the How element, indicating which access rights are to be granted or denied (write and delete).
- `g` is the Grant element, indicating that the specified access rights, write and delete, for the calendar components are granted to `jsmith`.

### Who

The Who element is the principal value for an ACE and indicates who the ACE applies to, such as an individual user, domain, or specific type of user.

Who is also called the Universal Principal Name (UPN). The UPN for a user is the user's login name combined with the user's domain. For example, user `bill` in domain `sesta.com` has the UPN `bill@sesta.com`.

TABLE 1-2 “Who” Formats for Access Control Entry (ACE) Strings

Format	Description
<i>user</i>	Refers to a specific user. For example: jsmith.
<i>user@domain</i>	Refers to a specific user at a specific domain. For example: jsmith@sesta.com.
<i>@domain</i>	Refers to any user at the specified domain.  For example: @sesta.com specifies jsmith@sesta.com, sally@sesta.com, and anyone else at sesta.com.  Use this format to grant or deny access to an entire domain of users.
@	Refers to all users.
@@{d p o n}	Refers to owners for the calendar: <ul style="list-style-type: none"> <li>■ @@d – domain of the primary owner</li> <li>■ @@p – primary owner only</li> <li>■ @@o – all owners, including the primary owner</li> <li>■ @@n – not an owner</li> </ul>

## What

The What element specifies the target being accessed, such as a calendar, calendar component (event or task), or calendar property.

TABLE 1-3 “What” Values for Access Control Entry (ACE) Strings

Value	Description
c	Specifies calendar components such as events and tasks
p	Specifies calendar properties such as name, description, owners, and so forth
a	Specifies an entire calendar (all), including both components and properties

## How

The How element specifies the type of access control rights permitted, such as read, write, or delete.

TABLE 1-4 “How” Types for Access Control Entry (ACE) Strings

Type	Description
r	Read access.
w	Write access, including adding new items and modifying existing items.

TABLE 1-4 “How” Types for Access Control Entry (ACE) Strings (Continued)

Type	Description
d	Delete access.
s	Schedule (invite) access. Requests can be made, replies will be accepted, and other ITIP scheduling interactions will be honored.
f	Free/busy (availability) access only. Free/busy access means that a user can see scheduled time on a calendar, but is not allowed to see the event details. Instead, only the words “Not Available” appear by a scheduled time block. Blocks of time without any scheduled events are listed with the word “Available” next to them.
l	Lookup access for a domain.
e	Act on behalf of for reply access. This type grants a user the right to accept or decline invitations on behalf of the calendar’s primary owner. This type of access does not need to be granted explicitly because it is implied when a user is designated as an owner (an owner other than the primary owner) of a calendar.
i	Act on behalf of for invite access. This type grants a user the right to create and modify components in which other attendees have been invited on behalf of the calendar’s primary owner. This type of access does not need to be granted explicitly because it is implied when a user is designated as an owner (an owner other than the primary owner) of a calendar.
c	Act on behalf of for cancel access. This type grants a user the right to cancel components to which attendees have been invited on behalf of the calendar’s primary owner. This type of access does not need to be granted explicitly because it is implied when a user is designated as an owner (an owner other than the primary owner) of a calendar.
z	Self-administrating access - the authenticated user is granted the ability to add or remove an Access Control Entry. Users with this privilege can add and remove privileges for themselves. For example, UserA may not have write access to UserB’s calendar, but UserA has been granted self-administrating access to UserB’s calendar. Therefore, UserA can add an Access Control Entry that grants himself write access to UserB’s calendar.  Note: This privilege does not allow UserA to grant other users access to UserB’s calendar. For example, the self-administrating privilege does not allow UserA to grant UserC access to UserB’s calendar.

## Grant

The Grant element specifies whether to grant or deny access for a specified access type, such as d (delete) or r (read).

TABLE 1-5 Grant Values for Access Control Entry (ACE) Strings

Value	Description
g	Grant the specific access control right.
d	Deny the specific access control right.

## Examples of ACE's

The following examples show the use of ACE's:

- Grant the user ID `jsmith` read access to the entire calendar, including both components and properties:  
`jsmith^a^r^g`
- Grant `jsmith` write and delete access to components only:  
`jsmith^c^wd^g`
- Grant all users in the `sesta.com` domain privileges to schedule, availability, and read access to components only:  
`@sesta.com^c^sfr^g`
- Grant all owners write and delete access to components only:  
`@o^c^wd^g`
- Deny `jsmith` all access to calendar data:  
`jsmith^a^sfdwr^d`
- Grant all owners read, schedule, and availability access to the entire calendar, including both components and properties:  
`@o^a^rsf^g`
- Grant read access to all users:  
`@a^r^g`

## Placing ACE's in an ACL

When the Calendar Server reads an ACL, it uses the first ACE it encounters that either grants or denies access to the target. Thus, the ordering of an ACL is significant, and ACE strings should be ordered such that the more specific ones appear before the more general ones.

For example, suppose the first ACE in an ACL for the calendar `jsmith:sports` grants read access to all users. Then, Calendar Server encounters a second ACE that denies `bjones` read access to this calendar. In this case, Calendar Server grants `bjones` read access to this calendar and ignores the second ACE because it is a conflict. Therefore, to ensure that an access right for a specific user such as `bjones` is honored, the ACE for `bjones` should be positioned in the ACL before more global entries such as an ACE that applies to all users of a calendar.

# Calendar Server Internal Subsystems

Sun Java System Calendar Server includes the following internal subsystems:

- [“Protocol Subsystem” on page 53](#)
- [“Core Subsystem” on page 53](#)
- [“Database Subsystem” on page 54](#)

The following graphic shows the logical flow through these subsystems.

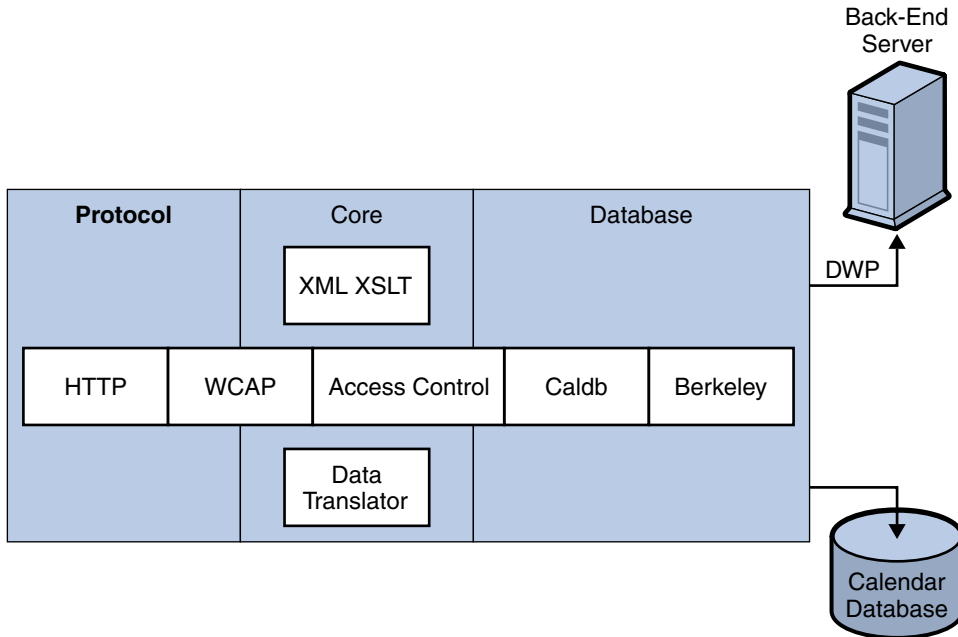


FIGURE 1-1 Calendar Server Internal Subsystems Logical Flow

## Protocol Subsystem

Clients retrieve calendar data by submitting requests using the HTTP protocol layer. This is a minimal HTTP server implementation, streamlined to support calendar requests. This is done by appending Web Calendar Access Protocol (WCAP) commands to the URL.

WCAP is an open protocol that allows you to write your own interface to Calendar Server. Using WCAP commands (.wcap extension), you can perform most server commands, except for certain administrative commands. You can use WCAP commands to request output as XML or iCalendar wrapped in HTML.

For information about WCAP commands, see the *Sun Java System Calendar Server 6 2005Q4 Developer's Guide*.

## Core Subsystem

The Core subsystem includes an access control component, WCAP using data translators to format data coming from the calendar database component, and any CSAPI plug-ins. The Core subsystem processes calendar requests and generates WCAP output. The Core subsystem also handles user authentication, including “[Calendar Server API \(CSAPI\)](#)” on page 57.

## Database Subsystem

The Database subsystem uses the Berkeley DB from Sleepycat Software (the database API is not public). The Database subsystem stores and retrieves calendar data to and from the database, including events, todos (tasks), and alarms. Calendar data is based on iCalendar format, and the schema used for Calendar Server data is a super set of the iCalendar standard.

The Database subsystem returns data in a low-level format, and the Core UI generator then translates the low-level data and sends it through WCAP.

For a distributed calendar database, Calendar Server uses the Distributed Wire Protocol (DWP) to provide a networking capability. For more information, see [“Distributed Database Service: csdwpd” on page 56](#).

For information about the calendar database, refer to [Chapter 16, “Administering Calendar Server Databases with csdb.”](#)

## Calendar Server Services

Calendar Server services run as daemons (or processes). These services include:

- [“Administration Service: csadmin” on page 54](#)
- [“HTTP Service: cshttpd” on page 54](#)
- [“Automatic Backup Service: csstored” on page 55](#)
- [“Event Notification Service \(ENS\): csnotifyd and enpd” on page 55](#)
- [“Distributed Database Service: csdwpd” on page 56](#)

### Administration Service: csadmin

The `csadmin` service provides a single point of authentication for administering Calendar Server. The `csadmin` service also manages alarm notifications, group scheduling requests.

### HTTP Service: cshttpd

Since Calendar Server uses HTTP as its primary transport, the `cshttpd` service listens for HTTP commands from Calendar Server end users, receives the user commands, and returns calendar data, depending on the format specified in the incoming WCAP command. Data can be formatted in standard RFC 2445 iCalendar format (`text/calendar`) or XML format (`text/xml`)

## Automatic Backup Service: `csstored`

When properly configured, the `csstored` service creates automatic backups of the calendar database. However, the service is installed in an unconfigured state. You can configure Calendar Server for automatic backups when the `csconfigurator.sh` configuration program runs, or you can do it at a later time, as described in this guide.

If the service is started in the unconfigured and disabled state, it will send a message to the administrator every 24 hours stating that automatic backups are not enabled.

For instructions on how to configure this service to perform backups, see [Chapter 10, “Configuring Automatic Backups \(`csstored`\)”](#).

When configured properly, the service has the following functionality:

- Upon system start up and at 24 hour (default interval) intervals thereafter, takes a snapshot of the live Calendar Server calendar database. The interval is configurable. (If the service has been stopped and restarted, it does not take another snapshot unless the configured interval has elapsed since the last snapshot.)
- Verifies the database by running `csdb verify` against the backup copy.

If the verify step fails (the database is corrupted), the service notifies the administrator. The administrator can put the live database in read-only mode, allowing you to troubleshoot the problem without having to shut down the databases. While in read-only mode, no modify or delete transactions are accepted (no logging). For more information about read-only mode, see [“Preventing Service Interruptions When Your Database is Corrupted \(Read-only Mode\)”](#) on page 339.

Administrator intervention is required when a corruption is sensed. A notification is sent to the administrator.

If the verify succeeds, `csstored` performs the following additional tasks:

- Creates an archival backup consisting of the database snapshot and all the transaction log files that were applied to it since the previous snapshot.
- Creates a hot backup consisting of the database snapshot with the transaction log files applied to it.

Should the live database become corrupted, a hot backup provides an immediate up to date backup of the database with a minimum of data loss and downtime.

For information on how to restore an automatic backup copy, see [“Restoring an Automatic Backup Copy”](#) on page 347.

## Event Notification Service (ENS): `csnotifyd` and `enpd`

The ENS service consists of these individual services:

- `csnotifyd`—The `csnotifyd` service sends notifications of events and todos (tasks). The `csnotifyd` service also subscribes to alarm events. When an alarm event occurs, `csnotifyd` sends an SMTP message reminder to each recipient.
- `enpd`—The `enpd` service acts as the broker for event alarms. The `enpd` service receives notifications of alarms from the `csadmin` service, checks for subscriptions to this event, and then notifies the event's subscribers by passing the subscribed-to alarm notifications to `csnotifyd`. The `enpd` service also receives and stores subscriptions and cancellations of subscriptions (`unsubscribe`) from `csnotifyd`.

---

**Note** – The `enpd` and `csnotifyd` services are not required to run on the same server as the `cshttpd`, `csdwpd`, or `csadmin` processes.

---

## Distributed Database Service: `csdwpd`

The `csdwpd` service is required to distribute calendar databases across multiple back-end servers. The `csdwpd` service allows you to spread the calendar database across multiple back-end servers within the same Calendar Server configuration to form a distributed calendar store.

The `csdwpd` service runs in the background on a back-end server and accepts requests that follow the Database Wire Protocol (DWP) for accessing the calendar database. DWP is an internal protocol used to provide networking capability for the Calendar Server database.

## Calendar Server API's and SDK's

Calendar Server includes the following API's and SDK's:

- “[Web Calendar Access Protocol \(WCAP\)](#)” on page 56
- “[Calendar Server API \(CSAPI\)](#)” on page 57
- “[Event Notification Service \(ENS\) API](#)” on page 57
- “[Proxy Authentication SDK \(authSDK\)](#)” on page 58

## Web Calendar Access Protocol (WCAP)

Calendar Server supports WCAP 3.0, a high-level, command-based protocol that allows communication with clients. WCAP commands, which use the `.wcap` extension, allow clients to get, modify, and delete calendar components, user preferences, calendar properties, and other calendar information such as time zones. WCAP elements such as times, strings, and parameters generally follow RFC 2445, RFC 2446, and RFC 2447 specifications.

WCAP returns output calendar data in an HTTP message in the following formats:

- Standard RFC 2445 iCalendar format (`text/calendar`)



- XML format (text/xml)

Using WCAP commands, a Calendar Server administrator who logs in using the `login.wcap` has the following capabilities:

- To override the access control of WCAP commands

The administrator can use WCAP commands to read (fetch), alter (store), or delete other user's calendars. For an administrator to have this privilege, the following parameter in the `ics.conf` file must be set to "yes":

```
service.admin.calmaster.overrides.accesscontrol="yes"
```

- To retrieve and modify user preferences for any user

The administrator can use `get_userprefs.wcap` and `set_userprefs.wcap` to retrieve and modify any user's preferences. For an administrator to have this privilege, the following parameter in the `ics.conf` file must be set to "yes":

```
service.admin.calmaster.wcap.allowmodifyuserprefs="yes"
```

For more information, see the *Sun Java System Calendar Server 6 2005Q4 Developer's Guide*.

## Calendar Server API (CSAPI)

The Calendar Server API (CSAPI) allows you to customize functional areas of Calendar Server such as user login authentication, access control, and calendar lookup. For example, by default Calendar Server uses entries in an LDAP directory server to authenticate users and to store user preferences. The CSAPI allows you to override the default Calendar Server authentication by implementing another authentication mechanism that is not based on an LDAP directory server.

For information about CSAPI, see the *Sun Java System Calendar Server 6 2005Q4 Developer's Guide*.

## Event Notification Service (ENS) API

The Event Notification Service (ENS) is an alarm dispatcher that detects events on an alarm queue and sends notifications of these events to its subscribers. The ENS API allows programmers to modify publish-and-subscribe functions used by Calendar Server to perform functions such as subscribe to events, unsubscribe to events, and notify a subscriber of events. The ENS API's consists of these specific API's: Published API, Subscriber API, and Publish and Subscribe Dispatcher API.

For information about the ENS API, see the *Sun Java System Communications Services 6 2005Q4 Event Notification Service Guide*.

## Proxy Authentication SDK (authSDK)

Calendar Server provides the authSDK for user authentication. With authSDK, you can integrate an existing portal service with Calendar Server, thus allowing users to access various applications without requiring re-authentication. The authSDK consists of the functions packaged in a DLL/shared-object library and a header file.

A connection established between Calendar Server and the authSDK forms a trusted relationship. If a user logs in and successfully authenticates to the authSDK, Calendar Server accepts the certificate generated by the proxy for its functions.

For information about authSDK, see the *Sun Java System Calendar Server 6 2005Q4 Developer's Guide*.

## PART II

# Postinstallation Configuration

The chapters in this part describe the configuration and migration steps you must perform, after installation, before you can use Calendar Server.

- Chapter 2, “Directory Preparation Script (comm\_dssetup.pl)”
- Chapter 3, “Calendar Server Configuration Program (csconfigurator.sh)”
- Chapter 4, “Database Migration Utilities”



## Directory Preparation Script (comm\_dssetup.pl)

---

After you install Calendar Server, and before starting Calendar Server services, you must configure it. It is important that you run the two configuration programs in the following order:

1. Directory Preparation Script (`comm_dssetup.pl`) Directory Preparation Script configures Directory Server for Calendar Server 6 and The Messaging Server 6. It prepares the Directory Server by setting up new LDAP schema, index, and configuration data.
2. Calendar Server Configuration Program (`csconfigurator.sh`) The Calendar Server Configuration Program configures Calendar Server. It is described in [Chapter 3, “Calendar Server Configuration Program \(csconfigurator.sh\)”](#)

This chapter covers the Directory Preparation Script and contains the following topics:

- “Installing the Directory Preparation Script” on page 62
- “Before You Run the Directory Preparation Script” on page 62
- “Running the Directory Preparation Script” on page 67
- “Manually Updating Schema Files” on page 76
- “Resolving Conflicting OID's in the LDAP Schema Directory” on page 77

---

**Note** – If you had an earlier version of Calendar Server or Messaging Server installed, you might need to migrate your LDAP directory entries from Schema 1 to Schema 2.

Do not run the configuration utility described in this chapter until you have read the *Sun Java System Communications Services 6 2005Q4 Schema Migration Guide*. It instructs you on the timing and options for running the configuration utilities.

---

## Installing the Directory Preparation Script

In earlier versions of Java Enterprise System, this utility was bundled with Messaging Server and Calendar Server and did not have to be separately installed. However, starting with Java Enterprise System 2005Q1, the script became a separately installable shared component.

To install the Directory Preparation Script, choose one of the following methods:

- Java Enterprise System installer—At the component selection panel, select the Directory Preparation Script. (Selecting Directory Server automatically selects the Directory Preparation Script, too.)
- If you are upgrading from an earlier version of Java Enterprise System and are not using the Java Enterprise System installation program, download the following patches:

Solaris SPARC	118245 and 118242
Solaris x86	118256 and 118243
Linux	118247 only

**Note** – Patches 118242 and 118243 are required only the first time you patch the utility. If you apply later versions of patches 118245 or 118246, you do not need to apply 118242 or 118243 again.

As installed, the Directory Preparation Script is found in the following directory:

Solaris:	/opt/SUNWcomds/sbin
Linux:	/opt/sun/comms/dssetup/sbin

## Before You Run the Directory Preparation Script

This section covers information you need to understand before running the Directory Preparation Script, and contains the following topics:

- [“What the Directory Preparation Script Does” on page 62](#)
- [“Directory Server Considerations” on page 63](#)
- [“Information You Need to Gather” on page 64](#)
- [“About the Schema Choices” on page 65](#)
- [“Access Manager Considerations” on page 65](#)
- [“Attribute Indexes” on page 66](#)

## What the Directory Preparation Script Does

The Directory Preparation Script proceeds through three steps, as follows:

## ▼ High Level Steps of the Directory Preparation Script

### 1 Collects your choices for utility options.

For a list of the specific information this step requests, see [“Information You Need to Gather” on page 64](#).

### 2 Generates a shell script and LDIF file from your options choices that will be used to modify the LDAP directory. If you are not using a Sun product for your directory server, or have customized your Directory Server, stop the process here without running the shell script. For further information, see [“Directory Server Considerations” on page 63](#) that follows.

### 3 Runs the shell script created from your options choices. Your LDAP is modified accordingly.

At the end of each step, the utility asks you if you want to continue. No changes are made to the LDAP directory until the third step.

## Directory Server Considerations

The following is a list of the considerations for your LDAP directory:

- A directory server must be installed, configured and running before you run the Directory Preparation Script.
- You must run the Directory Preparation Script on the same machine as your directory server.
- You must run the Directory Preparation Script on every machine on which a directory server resides.
- If you add an additional machine (such as a replica) at a future date, run the Directory Preparation Script against it, too.
- For a list of the LDAP directory servers supported by Calendar Server 62005Q4, refer to Chapter 1, “Sun Java System Calendar Server 6 2005Q4 Release Notes,” in *Sun Java System Communications Services 2005Q4 Release Notes*.
- If you have customized your LDAP directory, the following considerations may apply:
  - If you have indexed some attributes, you may have to reindex those attributes after the Directory Preparation Script runs.
  - If you have added other `.ldif` files (schema definitions), they should not be affected, so no action should be necessary. However, back up your custom schema definition files before running the Directory Preparation Script.
  - For all customizations, including the first two just listed, stop the Directory Preparation Script after it generates the script and before it actually updates the LDAP directory. Then inspect the script to evaluate how its proposed actions will affect your LDAP directory. Take whatever actions you think necessary to protect your customizations before running the script against your LDAP.

- If you are not using a Sun product for your directory server, the simplest solution for deploying the Calendar Server is to upgrade your directory server to the Sun Java System Directory Server.

For information about installing and configuring a Directory Server, see <http://docs.sun.com/coll/1316.1>.

Alternately, you can use the script generated by the Directory Preparation Script (without actually running the script) to understand the updates you need to make to your non-Sun LDAP directory.

## Information You Need to Gather

During the first step of the Directory Preparation Script, it requests information about your Directory Server. Prepare for this by gathering the information shown in The following table. (To help you keep track of this information, use [Appendix A, “Directory Configuration Worksheet.”](#))

Information Item Needed	Default Value
Directory Server root path name	/var/opt/mps/serverroot
Which instance of Directory Server to use? (If more than one.)	N/A
Directory Manager Distinguished Name (DN)	"cn=DirectoryManager"
Directory Manager's Password	N/A
Directory Server being used for user/group data? (yes), or configuration data only? (no)	yes
User and group root suffix (if yes to previous question)	"o=usergroup"
Schema version? (pick one of the following) 1 Schema 1 1.5 Schema 2 Compatibility Mode 2 Schema 2 Native Mode 1	1
Root suffix (if using Schema 1 or Schema 2 Compatibility Mode) <sup>2</sup>	o=internet
Update schema? <sup>3</sup>	yes

<sup>1</sup> For more information on how to choose a schema, see “About the Schema Choices” on page 65. If you have one version of the schema installed and want to upgrade to a higher level, refer to the *Sun Java System Communications Services 6 2005Q4 Schema Migration Guide* before running this utility.

<sup>2</sup> If you choose Schema 1 or 1.5, you will need a DC tree. If the DC tree does not yet exist, the Directory Preparation Script creates only the root suffix node, its does not create the rest of the DC tree. You must create the rest of your DC tree yourself.

<sup>3</sup> If this Directory Server is being used for user/group data, you must have a config directory containing the schema files.



Information Item Needed	Default Value
Add Directory Server indexes? (adds <code>icsCalendar</code> , <code>icsCalendarOwned</code> ) <sup>4</sup>	yes

<sup>4</sup> If you answer yes, the Directory Preparation Script does the indexing for Messaging Server, Calendar Server, and Communications Server, even if you are not using all of them.

## About the Schema Choices

Calendar Server supports the following schema choices:

- Sun LDAP Schema 1  
Corresponds to the Directory Preparation Script schema version choice 1.
- Sun LDAP Schema 2 compatibility mode  
Corresponds to schema version choice 1.5.
- Sun LDAP Schema 2 native mode  
Corresponds to schema version choice 2.

If you are still trying to decide which schema to use, for further explanation, see the *Sun Java Enterprise System Technical Overview*, the *Sun Java Enterprise System 2005Q4 Installation Guide for UNIX*, and the *Sun Java System Communications Services 6 2005Q4 Schema Migration Guide*.

The following table lists simplified guidelines which summarize why you might choose each of the schema versions for your installation.

Scenario	Use This Schema
You are installing Calendar Server for the first time and you did not have a previous version of Messaging Server installed.	Schema 2 Native Mode
You plan to integrate Calendar Server with other Java Enterprise System products such as Sun Java System Portal Server.	Schema 2 Native or Compatibility Mode
You plan to use Sun Java System Access Manager to provide Single sign-on (SSO) functionality.	Schema 2 Native or Compatibility Mode
You are upgrading from Calendar Server 5 and want to integrate with other Java Enterprise System products.	Schema 2 Native or Compatibility Mode
You want to retain your current two DIT system because you have other applications that depend on that LDAP structure and you do not need to use Access Manager for SSO (authentication).	Schema 1

## Access Manager Considerations

If you are using Schema 2, Access Manager must be installed and configured.

---

**Note** – Do not use the Access Manager console to administer users. For information on how to administer users, see [Chapter 14, “Administering Users and Resources.”](#)

---

## Attribute Indexes

Attribute indexes improve the performance of search algorithms. The script offers to index attributes. If you choose to do so, it will add indexes not only for Calendar Server, but also for Messaging Server and Communications Express. Therefore, once you have run the indexing for one product, you do not need to reindex for the other product. In deed, if you try to index the same attributes again, nothing happens. The script calls `db2index` for each attribute being indexed, but only if the index does not already exist.

The following table lists all the attributes the Directory Preparation Script indexes, grouped by suffix category. It also lists the type of indexes created for each attribute. For more information about Directory Server indexing, see <http://docs.sun.com/coll/1316.1>.

Suffix	Attributes Indexed	Type of Indexes Added
<b>User/Group</b>	<code>mail</code>	<code>pres,eq,approx,sub</code>
	<code>mailAlternateAddress</code>	<code>pres,eq,approx,sub</code>
	<code>mailEquivalentAddress</code>	<code>pres,eq,approx,sub</code>
	<code>member</code>	<code>eq</code>
	<code>cosspecifier</code>	<code>pres</code>
<b>User/Group</b> (for Access Manager – Schema 2)	<code>inetDomainBaseDN</code>	<code>pres,eq</code>
	<code>sunPreferredDomain</code>	<code>pres,eq</code>
	<code>associatedDomain</code>	<code>pres,eq</code>
	<code>o</code>	<code>pres,eq</code>
	<code>sunOrganizationAlias</code>	<code>pres,eq</code>
<b>DC Tree</b> (for Schema 1)	<code>inetDomainBaseDN</code>	<code>pres,eq</code>
	<code>inetCanonicalDomainName</code>	<code>pres,eq</code>

---

Suffix	Attributes Indexed	Type of Indexes Added
<b>Personal Address Book (PAB)</b>	memberOfManagedGroup	pres,eq
	memberOfPAB	pres,eq
	memberOfPABGroup	pres,eq
	un	eq
	icsCalendar	pres,eq,approx,sub
	icsCalendarOwned	pres,eq,approx,sub
<b>New PAB</b>	displayname	pres,eq,sub
	MemberOfPiBook	eq
	MemberofPiGroup	eq

Should you decide to add further indexes on your own, instructions for adding indexes can be found in the Directory Server documentation.

## Running the Directory Preparation Script

This section covers the following topics:

- [“To Run the Directory Preparation Script” on page 67](#)
- [“To Run in Silent Mode” on page 68](#)
- [“To Run in Interactive Mode” on page 70](#)

### ▼ To Run the Directory Preparation Script

- 1 On the server where Directory Server is installed, login as or become superuser (root).
- 2 Start Directory Server, if necessary.
- 3 Change to the `/opt/SUNWcomds/sbin` directory.

Or, if you need it, a .zip file is available at `/opt/SUNWcomds/lib`

- 4 **Run the Directory Preparation Script in either silent mode or in interactive mode. For further steps, see [“Running the Directory Preparation Script” on page 67](#) or [“Running the Directory Preparation Script” on page 67](#).**

To run this script, use the version of Perl included as a shared component automatically installed with the Java Enterprise System installer. After installation, it can be found at the following directory:

```
ds_svr_base/bin/slapd/admin/bin/perl
```

## To Run in Silent Mode

To run the Directory Preparation Script in silent mode, issue the Perl command followed by a string of options using the syntax shown in [“comm\\_dssetup.pl Syntax” on page 68](#). All of the option arguments are required. [Table 2–1](#) describes the options.

The utility creates the following LDIF file and shell script to update the LDAP directory indexes and schema:

```
/var/tmp/dssetup_timestamp.ldif  
/var/tmp/dssetup_timestamp.sh
```

Depending on the option values you pass in, the utility will either proceed to update the Directory Server by executing the new script, or not. If you have chosen not to proceed with the update, you can check the script and make any desired modifications before running the actual update at a later time.

## comm\_dssetup.pl Syntax

The following are all the options for running in the silent state:

```
perl comm_dssetup.pl  
  -i yes|no  
  -R yes|no  
  -c DirectoryServerRoot  
  -d DirectoryInstance  
  -r DCTreeSuffix  
  -u UserGroupSuffix  
  -s yes|no  
  -D DirectoryManagerDN  
  -w DirectoryManagerPassword  
  -b yes|no -t 1|1.5|2  
  -m yes|no  
  [-S PathtoSchemaFiles]
```

TABLE 2-1 Explanation of Options for Silent State

Option and Argument	Description
-i yes no	Answers the question: "Do you want to configure new indexes?" yes Add new Directory Server indexes. the Directory Preparation Script adds indexes for the <code>icsCalendar</code> and <code>icsCalendarOwned</code> attributes. no Do not add indexes.
-R yes no	Answers the question: "Do you want to reindex now?" The <code>-m</code> option must be yes also for this to take effect.
-c <i>DirectoryServerRoot</i>	Directory Server root path. For example: <code>/var/opt/mps/ldap</code>
-d <i>DirectoryInstance</i>	Directory Server instance subdirectory. For example: <code>slapd-varrius</code>
-r <i>DCTreeSuffix</i>	DC tree root suffix. (for Schema 1 and Schema 2 compatibility modes only) For example: <code>dc=varrius,dc=sesta,dc=com</code>
-u <i>UserGroupSuffix</i>	User and group root suffix. For example: <code>dc:west,dc=sesta,dc=com</code>
-s yes no	Answers the question: "Do you want to update the schema?" yes Update the schema. You must have a <code>config</code> directory with the schema files. no Do not update schema.
-D <i>DirectoryManagerDN</i>	Directory Manager Distinguished Name (DN). The value must be enclosed by double quotation marks ( " ") to allow the Directory Preparation Script to interpret a value with a space correctly. For example: <code>"cn=Directory Manager"</code>
-w <i>DirectoryManagerPassword</i>	Directory Manager DN password.
-b yes no	Answers the question: "Will this directory server be used for users and groups?" yes Use this directory to store both configuration and user group data. no Use this directory to store only configuration data.
-t 1 1.5 2	Schema version: <ul style="list-style-type: none"> <li>■ 1 Sun LDAP Schema 1</li> <li>■ 1.5 Sun LDAP Schema 2 Compatibility Mode</li> <li>■ 2 Sun LDAP Schema 2 Native Mode</li> </ul>
-m yes no	Answers the question: "Do you want to modify the directory server?" yes Modify the Directory Server without prompting the user. no Do not modify the Directory Server without prompting the user.
-S <i>PathtoSchemaFiles</i>	Path to the directory where the schema files are located. For example: <code>./schema</code>

## ▼ To Run in Interactive Mode

To run the Directory Preparation Script in interactive mode, run the script without any arguments and then enter your choices for the questions asked.

The following numbered list gives panel by panel instructions on how to use the interactive mode script.

### 1 Welcome and Introduction Panel

```
# cd /opt/SUNWcomds/sbin
# ./comm_dssetup.pl
```

```
Welcome to the Directory Server preparation tool for
Sun Java System Communications Services.
```

```
(Version 6.3 Revision 0.1)
```

```
This tool prepares your directory server for use by the
communications services which include Messaging,
Calendar and their components.
```

```
The logfile is /var/tmp/dssetup_YYYYMMDDHHSS
```

```
Do you want to continue [y]:
```

Press Enter to continue, or type no and then press Enter to exit.

### 2 Installation Root of Directory Server Panel

```
Please enter the full path to the directory where the
Sun Java System Directory Server was installed.
```

```
Directory server root [/var/opt/mps/serverroot]
```

Specify the location of the installation root of the Directory Server, or press Enter to accept the default.

### 3 Directory Server Instance Panel

If multiple instances of the Directory Server reside on this machine, the program lists them and asks you to choose one.

```
Please select a directory server instance from the following list:
```

```
[1] slapd-varrius
```

```
Which instance do you want [1]:
```

Enter the number corresponding to your choice, and then press Enter. Or, to accept the default, press Enter without entering a number.

#### 4 Directory Manager Distinguished Name (DN) Panel

This panel has two parts, entering the Directory Manager DN and the Directory Manager's password.

##### a. First the script asks you for the distinguished name (DN) of the Directory Manager:

Please enter the directory manager DN [cn=Directory Manager]:

The Directory Manager DN, which defaults to `cn=Directory Manager`, is the administrator responsible for the user and group data in the Organization Tree. Be sure that the Directory Manager DN you specify in this script is the same DN that you set up for your Directory Server installation as well for as your Calendar Server configuration.

Enter the Directory Manager DN, or press Enter to accept the default.

##### b. Then the script asks for the Directory Manager's password.

Password:

Enter the password for the Directory Manager and press Enter.

The program checks to see if the Directory Server is running and listening on port 389 (the default port).

If successful, it displays the detected version as shown in the example that follows:

```
Detected DS version 5.2
```

If unsuccessful, it tells you that it could not detect a Directory Server running, or listening on port 389. It directs you to fix this problem before allowing you to continue. The script exits. The example below shows this output:

```
Directory Server not running or not listening to port 389.
Detected DS version 0.0
Please correct the problem and re-run this script.
```

#### 5 User and Group Directory Server Panel

Will this directory server be used for users/groups [Yes]:

Enter No if this directory instance is used to store only configuration data, or press Enter to accept the default.

If you enter No, then you must also run this script against the directory instance that stores user and group data. (Do this before you run the configuration program `csconfigurator.sh`.)

If your answer is Yes, you must specify a user and group base suffix for your Organization Tree.

#### 6 User and Group Base Suffix Panel

Please enter the Users/Groups base suffix [o=usergroup]:

The user and group base suffix is the top entry in the LDAP Organization Tree. Be sure that the suffix you select here is the same suffix you specify for Directory Server, Calendar Server, and Access Manager.

## 7 Schema Type Panel

There are 3 possible schema types:

1-schema 1 for systems with Calendar or Messaging 5.x data

1.5-schema 2 compatibility for systems with Calendar or Messaging 5.x data that has been converted with the Schema Migration Utility  
commdirmig

2-schema 2 native for systems using Access Manager

Please enter the Schema Type (1, 1.5, 2) [1]:

Enter the schema type, or press Enter to accept the default.

---

**Note** – To use Schema 2 (options 1.5 or 2), Access Manager must be installed and configured. Otherwise, the Directory Preparation Script will terminate. You must install Access Manager before rerunning the Directory Preparation Script.

---

## 8 Domain Component (DC) Tree Base Suffix Panel

If you chose Schema 1 or Schema 2 Compatibility Mode, you will be asked to provide your DC tree base suffix. If you chose Schema 2 Native Mode, you will not be asked this question.

Please enter the DC Tree base suffix [o=internet]:

In the Schema Type Panel described earlier, if you chose Schema 1 or Schema 2 Compatibility Mode, you will be asked to provide your DC tree base suffix. If you chose Schema 2 Native Mode, you will not be asked this question.

The DC tree mirrors the local DNS structure and is used by the system as an index to the Organization tree that contains the user and group data entries. The DC tree base suffix is the name of the top entry on the DC tree.

Enter a suffix, or press Enter to accept the default.

## 9 Series of Questions Panel

This next panel asks a series of questions about updates to your LDAP.

### a. Updating Schema Files

At this point the program checks to see if your schema has the correct schema elements. If your schema is missing some elements, it prints the following message:

```
Detected bad schema elements in 99user.ldif.  
It is recommended that you update the schema.
```

Do you want to update the schema files [yes]:



Answer **Yes** to add required new elements to your schema. You need to update the directory with the new schema files each time you install a new version of Calendar Server or Messaging Server.

Answer **No** if you want to delay updating the schema files.

### b. Configuring New Indexes

If you chose to update the schema in the previous step, you will be asked if you want to configure new indexes. For more information about indexing attributes, see [“Attribute Indexes” on page 66](#).

Do you want to configure new indexes [yes]:

To approve indexing, press **Enter**.

If you have already performed this indexing step for the same attributes, answer **no**.

### c. Reindex Now

You can choose to do the indexing now, or you can do it at a later time. If you choose to defer the indexing, rerun the script with indexing turned on when it is convenient. Indexing can take a long time, but the Directory Server is still functional, that is, is not put into read only mode during indexing.

Reindex now [yes]?

If you want to do the indexing at a later time, answer **no**, otherwise, press **Enter** and accept the default.

## 10 Summary of Settings Panel

Before the Directory Preparation Script updates the Directory Server configuration, it displays a summary of your settings and then asks if you want to continue.

Here is a summary of the settings that you chose:

```
Server Root           : /var/opt/mps/serverroot/
Server Instance      : slapd-varrius
Users/Groups Directory : yes
Update Schema        : yes
Schema Type          : 1
DC Root              : o=internet
User/Group Root      : dc=red,dc=sesta,dc=com
Add New Indexes      : yes
Reindex New Indexes Now : yes
Directory Manager DN : cn=Directory Manager
```

Now ready to generate a shell script and ldif file to modify the Directory.

No changes to the Directory Server will be made this time.

Do you want to continue [Y]:

If you chose Schema 2 Native Mode in “[Running the Directory Preparation Script](#)” on page 67, the DC Root will be the same value that you entered for the User/Group Root.

To change any of your settings, enter no and rerun the script.

If you want to continue, press Enter. The Directory Preparation Script generates an LDIF file and a shell script. The names of the files it creates are as follows:

```
/var/tmp/dssetup_timestamp.ldif
/var/tmp/dssetup_timestamp.sh
```

If you chose to continue, you will see messages printed out as the program works. The following is an example of the output you will see:

```
Generating files...
```

```
Checking to see if Suffixes need to be added
```

```
Checking to see that uid uniqueness plugins are turned off
```

```
Adding indexes
```

```
  Adding Indexes for User/group Tree (backend:userRoot)
```

```
    Checking indexes for member
```

```
      No new indexes required
```

```
    Checking indexes for mailAlternateAddress
```

```
      No new indexes required
```

```
    Checking indexes for mail
```

```
      No new indexes required
```

```
    Checking indexes for mailEquivalentAddress
```

```
      No new indexes required
```

```
    Checking indexes for cosspecifier
```

```
      No new indexes required
```

```
  Adding Indexes for DC Tree (backend:internetdb2)
```

```
    Checking indexes for inetCanonicalDomainName
```

```
      No new indexes required
```

```
    Checking indexes for inetDomainBaseDN
```

```
      No new indexes required
```

```
  Adding Indexes for PAB Tree (backend:pabdb2)
```

```
    Checking indexes for memberOfPAB
```

```
      No new indexes required
```

```
    Checking indexes for icsCalendar
```

```
      No new indexes required
```

```
    Checking indexes for un
```

```
      No new indexes required
```

```
    Checking indexes for memberOfPABGroup
```

```
      No new indexes required
```

```
    Checking indexes for icsCalendarOwned
```

```
      No new indexes required
```

```
    Checking indexes for memberOfManagedGroup
```

```

    No new indexes required
Adding Indexes for New PAB Tree (backend:PiServerDbdb2)
    Checking indexes for MemberOfPiBook
    No new indexes required
    Checking indexes for MemberofPiGroup
    No new indexes required
    Checking indexes for displayname
    No new indexes required

Checking to see if DN needs to be created for suffixes
Generating ldif for installer metadata
    Generating ldif for Adding schema for installer metadata
    Generating ldif for updating DN for cn=CommServers,o=comms-config
The following files have been created:
    /var/tmp/dssetup_20041209114027.sh
    /var/tmp/dssetup_20041209114027.ldif

Running /var/tmp/dssetup_20041209114027.sh will make changes
    to the Directory. You can run this file now or at a later time
Ready to execute the script now.

```

## 11 Running the Script

Do you want to continue [yes]:

Press Enter to accept the default setting (yes). The `dssetup_timestamp.sh` script runs against your LDAP directory. If you do not want to run the script now, enter No to exit. If you exit, you can run the `/var/tmp/dssetup_timestamp.sh` script at a later time.

The following is an example of the text output generated while the script is running:

```

Running /var/tmp/dssetup_20041209114027.sh
    -D "cn=Directory Manager"
    -j /var/tmp/dssetup_20041209114027.pw
Stopping Directory Server
Updating Schema files...
Copying 20subscriber.ldif
Copying 50ns-delegated-admin.ldif
Copying 50ns-mail.ldif
Copying 50ns-mlm.ldif
Copying 50ns-msg.ldif
Copying 50ns-value.ldif
Copying 55ims-ical.ldif
Copying 56ims-schema.ldif
Copying 70sun-schema2.ldif
Copying 71sun-am.ldif
Copying 60iplanet-calendar.ldif
Copying 50ns-iabs.ldif
Copying 98ns-dummy-uwic.ldif

```

```
Copying 70delgated-admin.ldif
Copying /var/tmp/99user_20041209114027.ldif to
    /var/opt/mps/serverroot/slapd-varrius/config/schema/99user.ldif
Starting Directory Server
Applying ldif file /var/tmp/dssetup_20041209114027.ldif
modifying entry cn=schema

modifying entry cn=schema

modifying entry cn=CommServers,o=comms-config

Done Applying ldif file /var/tmp/dssetup_20041209114027.ldif
rejects to /var/tmp/dssetup_20041209114027.ldif.rej status = 0
Successful Completion.
Consult /var/tmp/dssetup_20041209114027.log for details
```

## Manually Updating Schema Files

If for any reason, you have decided not to run the Directory Preparation Script generated script, the following directions allow you to manually update your schema files for Sun Java System Directory Server.

---

**Note** – If you update your LDAP directory schema manually and then later upgrade Calendar Server, you must manually update the LDAP server schema again. Calendar Server cannot automatically update the schema after the it has previously been updated manually.

---

### ▼ To Update Your LDAP Directory Manually

- 1 **Install Calendar Server 62005Q4.**
- 2 **Stop Calendar Server, if it is running.**
- 3 **Stop Directory Server, if it is running.**
- 4 **Copy the 60iplanet-calendar.ldif file to the following directory on the machine where your directory server is running:**  
*dir\_svr\_base/slapd-hostname/config/schema*  
where *dir\_svr\_base* is the Directory Server installation directory and *hostname* identifies the machine.
- 5 **If you want to index attributes, as the configuration program does, do it at this point. For a list of the attributes the configuration program indexes, see [“Attribute Indexes” on page 66](#).**

- 6 **Restart the Directory Server.** If you receive object identifier (OID) errors, see [“Resolving Conflicting OID's in the LDAP Schema Directory” on page 77.](#)
- 7 **Configure Calendar Server by running the `csconfiguration.sh` program.**  
For instructions on configuring Calendar Server, see [Chapter 3, “Calendar Server Configuration Program \(`csconfigurator.sh`\)”](#)

## Resolving Conflicting OID's in the LDAP Schema Directory

If your LDAP schema directory contains conflicting OID's, the Directory Server does not know which OID to use and returns an error message. For example, the following message indicates a conflicting OID for the `icsCalendarUser` object class:

```
[24/Apr/2004:23:45:28 -0700] dse -
The entry cn=schema in file 99user.ldif is invalid,
error code 20 (Type or value exists) - object class icscalendaruser:
  The name does not match the OID.
  Another object class is already using the name or OID.
[24/Apr/2004:23:45:28 -0700] dse -
Please edit the file to correct the reported problems
and then restart the server.
```

This problem can occur when you install Calendar Server 62005Q4 and you also had an older Calendar Server release that dynamically updated your LDAP server schema `99user.ldif` file.

To resolve the conflicting OID's, perform the following two steps:

1. Edit the `99user.ldif` file and remove the older OID's. For Calendar Server 62005Q4, the following table lists the specific OID's that might cause problems.

Object Class	Old OID	New OID
<code>icsCalendarUser</code>	2.16.840.1.113730.3.2.141	1.3.6.1.4.1.42.2.27.9.2.44
<code>icsCalendarResource</code>	2.16.840.1.113730.3.2.143	1.3.6.1.4.1.42.2.27.9.2.45
<code>icsCalendarDomain</code>	2.16.840.1.113730.3.2.144	1.3.6.1.4.1.42.2.27.9.2.4

2. After you edit the `99user.ldif` file, restart the Directory Server.



## Calendar Server Configuration Program (csconfigurator.sh)

---

After you install Calendar Server, and before running it, you must configure it. It is important that you run the two configuration programs in the following order:

1. `comm_dssetup.pl`  
Configure the LDAP directory server as instructed in [Chapter 2, “Directory Preparation Script \(comm\\_dssetup.pl\)”](#).
2. `csconfigurator.sh`  
Configure Calendar Server as described in this chapter.

This chapter contains the following topics:

- “[Gathering Your Configuration Information](#)” on page 79
- “[Running csconfigurator.sh](#)” on page 83

---

**Note** – If you had an earlier version of Calendar Server or Messaging Server installed, you might need to migrate your LDAP directory entries from Schema 1 to Schema 2.

Do not run the configuration utility described in this chapter until you have read the *Sun Java System Communications Services 6 2005Q4 Schema Migration Guide*. It will instruct you on the timing and options for running the configuration utilities.

---

### Gathering Your Configuration Information

The Calendar Server configuration program `csconfigurator.sh`, creates a new `ics.conf` configuration file in the following directory:

For Solaris: `/etc/opt/SUNWics5/config`

For Linux: `/etc/opt/sun/calendar/config`

The configuration program will ask you many questions for which you must enter specific information about your installation.

Before running the configuration program, you should gather the following configuration information:

- “LDAP Server Options” on page 80
- “Directory Manager Options” on page 80
- “Calendar Server Administrator” on page 81
- “Email and Email Alarms Options” on page 81
- “Runtime Configuration Options” on page 81
- “Calendar Server Startup” on page 82
- “Database, Logs, and Temporary Files Directories” on page 82

To help you keep track of the configuration information, use the worksheets in [Appendix B](#), “[Calendar Server Configuration Worksheet](#).” (However, you should determine this information before you run the Java Enterprise System installer to avoid conflicts (such as port numbers) with other component products.)

## LDAP Server Options

Calendar Server requires a directory server for user authentication and for the storage and retrieval of user preferences. The following table lists the options used to gather host and port information for the LDAP server.

TABLE 3-1 User Preferences Directory Options

Option	Description
LDAP Server Host Name	Host name of the LDAP directory server you are using for user authentication and user preferences. The default is the current host.
LDAP Server Port	Port number that the LDAP directory server listens on. The default is 389.
Base DN	Entry in the LDAP directory used as the starting point from which searches will occur. The default is <code>o=currentdomain</code> .

## Directory Manager Options

The following table lists the options used to gather the name and password of the user that is designated the Directory Manager.



TABLE 3-2 Directory Manager Options

Option	Description
Directory Manager DN	User name that can make changes in the directory server schema. The default is <code>cn=Directory Manager</code> .
Directory Manager Password	Password of the Directory Manager DN. There is no default.

## Calendar Server Administrator

The Calendar Server Administrator is the user account that overrides any other Calendar Server ACLs. The Calendar Server Administrator user account must exist in your user authentication directory server. It is also used for proxy authentication. The following table lists the options used to gather the Calendar Server Administrator's user ID and password.

TABLE 3-3 Calendar Server Administrator Options

Option	Description
Administrator User ID	User ID of the Calendar Server Administrator; must be a user in the above LDAP directory server. The default is <code>calmaster</code> .
Administrator Password	Password of the Calendar Server Administrator. There is no default.

## Email and Email Alarms Options

You can configure Calendar Server to send an email alarm message to a Calendar Server Administrator in case a server problem occurs. The following table lists the options used to gather email information.

TABLE 3-4 Email and Email Alarms Options

Option	Description
Email Alarms	Enables or disables email alarms. The default is Enabled.
Administrator Email Address	Email address of the Calendar Server Administrator who will receive the email alarm messages.
SMTP Host Name	Host name of the SMTP server where Calendar Server sends the email alarm messages. The default is the current host.

## Runtime Configuration Options

You can configure the following Calendar Server runtime and system resource options.

TABLE 3-5 Runtime Configuration Options

Option	Description
Service Port	Port number that Calendar Server listens on to provide Web (HTTP) access to users. The default is <b>80</b> .
Maximum Sessions	Maximum number of Calendar Server sessions to allow concurrently. The default is <b>5000</b> .
Maximum Threads	Maximum number of Calendar Server threads to allow concurrently. The default is <b>20</b> .
Number of Server Processes	For Solaris: Maximum number of Calendar Server processes to run concurrently. The default is the number of CPU's on the server where you are installing Calendar Server.  <b>For Linux:</b> Only one process can run at a time.
Runtime User ID	UNIX user name under which Calendar Server will run. This user name should not be <b>root</b> . If the account does not exist, the configuration program will create it. The default is <b>icsuser</b> .
Runtime Group ID	UNIX group under which Calendar Server will run. If the group does not exist, the configuration program will create it. The default is <b>icsgroup</b> .

## Calendar Server Startup

You can configure the following options to automatically start Calendar Server.

TABLE 3-6 Calendar Server Startup Options

Option	Description
Start after successful installation	Whether to start Calendar Server automatically after a successful installation. The default is checked.
Start on system startup	Whether to start Calendar Server automatically after a system startup. The default is checked.

## Database, Logs, and Temporary Files Directories

Calendar Server creates and stores information in calendar database files, log files, and temporary files in specific directories.

TABLE 3-7 Database, Logs, and Temporary Files Directories Options

Option	Description
Database Directory	Directory where Calendar Server should create and store the calendar database (*.db) files. The default is:  <code>/var/opt/SUNWics5/csdb</code>
Logs Directory	Directory where Calendar Server writes log files. The default is:  <code>/var/opt/SUNWics5/logs</code>
Temporary Files Directory	Directory where the Calendar Server writes temporary files. The default is:  <code>/var/opt/SUNWics5/tmp</code>
Archive and hot backup Directories	Directory where the Calendar Server writes archive backups. User defined directory for storing the daily snapshot and transactions logs. If both types of backups are desired, then place them in different directories. If no directory is specified, backups are stored in the current directory.

---

**Note** – Do not change the location or names of the logs and temporary files directories.

---

## Running csconfigurator.sh

You can run the configuration program from a graphical user interface (GUI), or from the command line.

If you run the program remotely, you must set your DISPLAY environment variable properly and allow X-Windows connections from the server to display on your computer. For example, to use the xhost utility, execute the following command on your computer:

```
xhost +
```

This section contains the following topics:

- [“To Run the Configuration Program from the Command Line” on page 84](#)
- [“To Run the Configuration Program from the GUI” on page 84](#)

## ▼ To Run the Configuration Program from the Command Line

- 1 Login as or become superuser (root).
- 2 Change to the `/opt/SUNWics5/cal/sbin` directory.
- 3 Run the script using the options chosen from the following table:

Option	Description
<code>-nodisplay</code>	Run the configuration script in text-only mode (non-GUI).
<code>-noconsole</code>	Do not display text output. Use this with <code>-nodisplay</code> to run the configuration script in silent mode.
<code>-novalidate</code>	Do not validate input field text.
<code>-saveState [statefile]</code>	Save the answers that you input in response to configuration questions to a state file (text file). Unless you specify a fully qualified path for the state file, it will be saved in the default directory: <code>/opt/SUNWics5/cal/jconfigure</code> .
<code>-state [statefile]</code>	Use the state file for setting input values.

For example, to run the configuration script in command-line mode without saving the inputs to a state file.

```
./csconfigurator.sh -nodisplay
```

The command-line version asks for the same information and in the same order as the GUI. Default values are indicated in square brackets, `[ ]`. To accept a default value, press `Enter` on your keyboard.

---

**Note** – For the text of the information contained in the various questions presented by the script, see the text in the GUI panels shown in the sections that follow.

---

## ▼ To Run the Configuration Program from the GUI

- 1 Login as or become superuser (root).
- 2 Change to the `/opt/SUNWics5/cal/sbin` directory.

**3 Issue this command:**

```
./csconfigurator.sh
```

The configuration program displays the following series of panels:

- “Welcome Panel” on page 85
- “Administration, User Preferences and Authentication Panel” on page 87
- “Email and Email Alarms Panel” on page 89
- “Runtime Configuration Panel” on page 91
- “Select Directories Panel” on page 93
- “Archive and Hot Backup Configuration Panel” on page 95
- “Ready to Configure Panel” on page 97
- “Configuration Summary Panel” on page 99



**Caution** – The configuration program only configures a single domain. If you plan to use multiple domains (virtual domains, hosted domains), you need to add the domains using the Delegated Administrator command-line utility.

---

## Welcome Panel

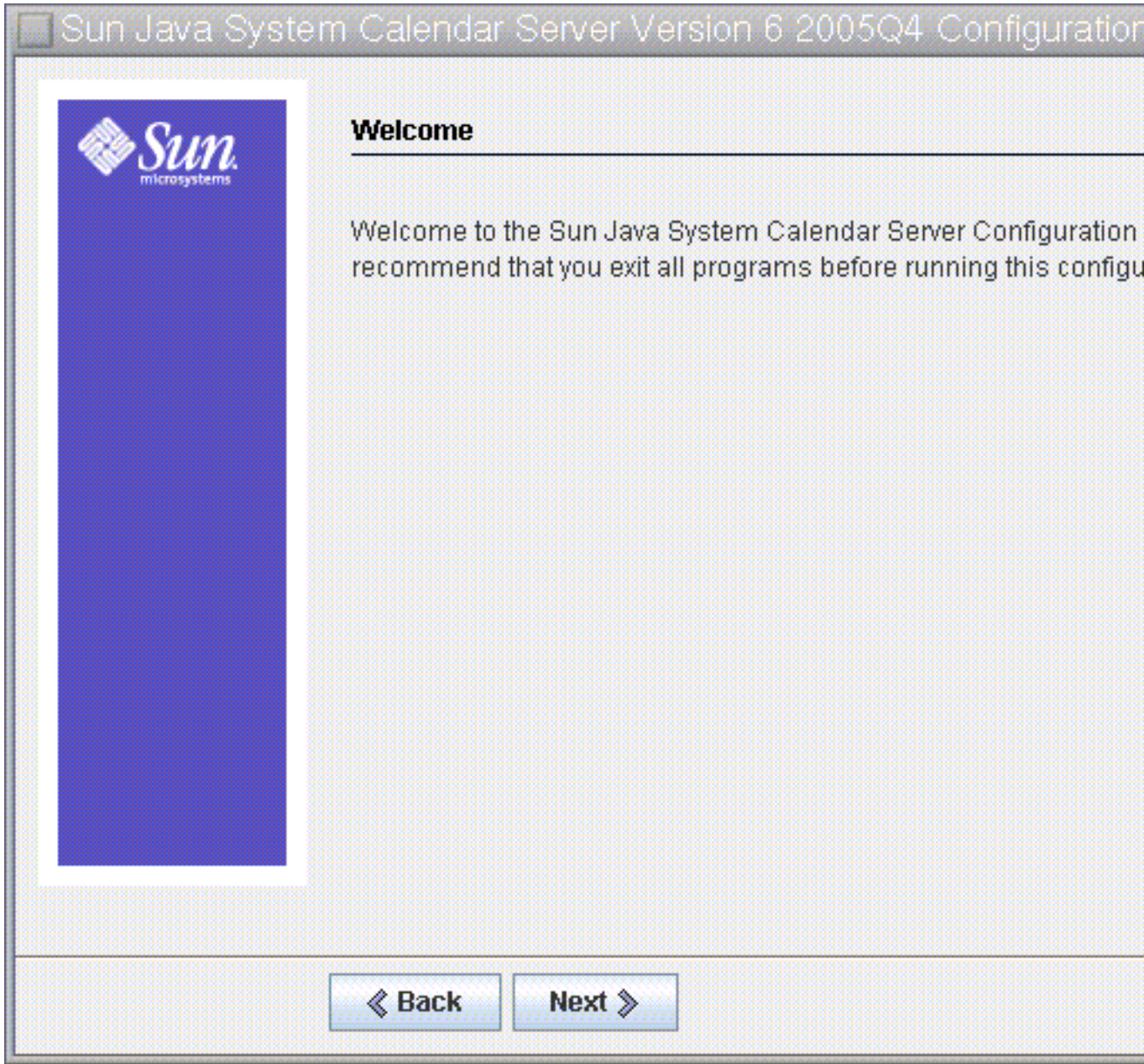


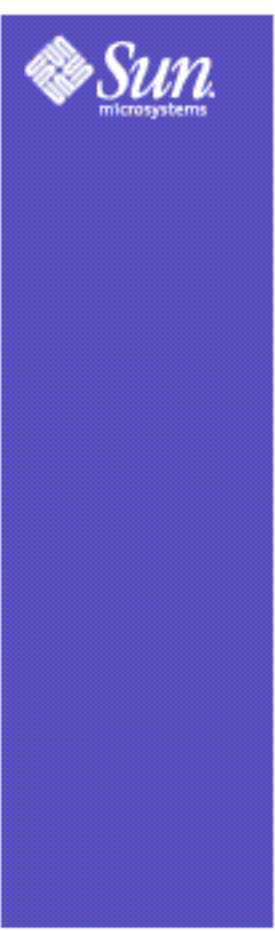
FIGURE 3-1 Calendar Server Configuration Program Welcome Panel

Click Next to continue or Cancel to exit.

# Administration, User Preferences and Authentication Panel



Sun Java System Calendar Server Version 6 2005Q4 Configuration



### Administration, User Preferences and Authentication

#### User Preferences Directory

LDAP Server Host Name:	<input type="text" value="ldap.server1.sesta.com"/>
LDAP Server Port:	<input type="text" value="389"/>
Directory Manager DN:	<input type="text" value="cn=Directory Manager"/>
Directory Manager Password:	<input type="password" value="*****"/>
Base DN:	<input type="text" value="o=server1.sesta.com, o=usergr"/>

#### Calendar Server Administrator

Administrator User ID	<input type="text" value="calmaster"/>
Administrator Password:	<input type="password" value="*****"/>

FIGURE 3-2 Administration, User Preferences and Authentication Configuration Panel



## User Preferences Directory Options

LDAP Server Host Name	Host name of the LDAP directory server you are using for user authentication. Default: current host
LDAP Server Port	Port number that the LDAP server listens on. Default: 389
Directory Manager DN	User name that can make changes in the directory server schema. Default: cn=Directory Manager
Directory Manager Password	Password of the Directory Manager. Default: None
Base DN	Entry in the LDAP directory used as the starting point from which searches will occur. Default: o=currentdomain.

This can be modified to fit your deployment needs. To retrieve the root suffix created by `comm_dssetup.pl`, click `Get`. The `baseDN` obtained this way is only a suggestion created from the current settings. Whatever you use for the `baseDN`, it must be consistent with the LDAP content.

---

**Note** – Before you click `Get`, you must enter the Directory Manager DN and password to authenticate to the directory server.

---

## Calendar Server Administrator Options

Administrator User ID	User ID of the Calendar Server Administrator; must be a user in the above LDAP directory server. Default: calmaster
Administrator Password	Password of the Calendar Server Administrator. Default: None

Click `Next` to continue, `Back` to return to the previous panel, or `Cancel` to exit.

## Email and Email Alarms Panel

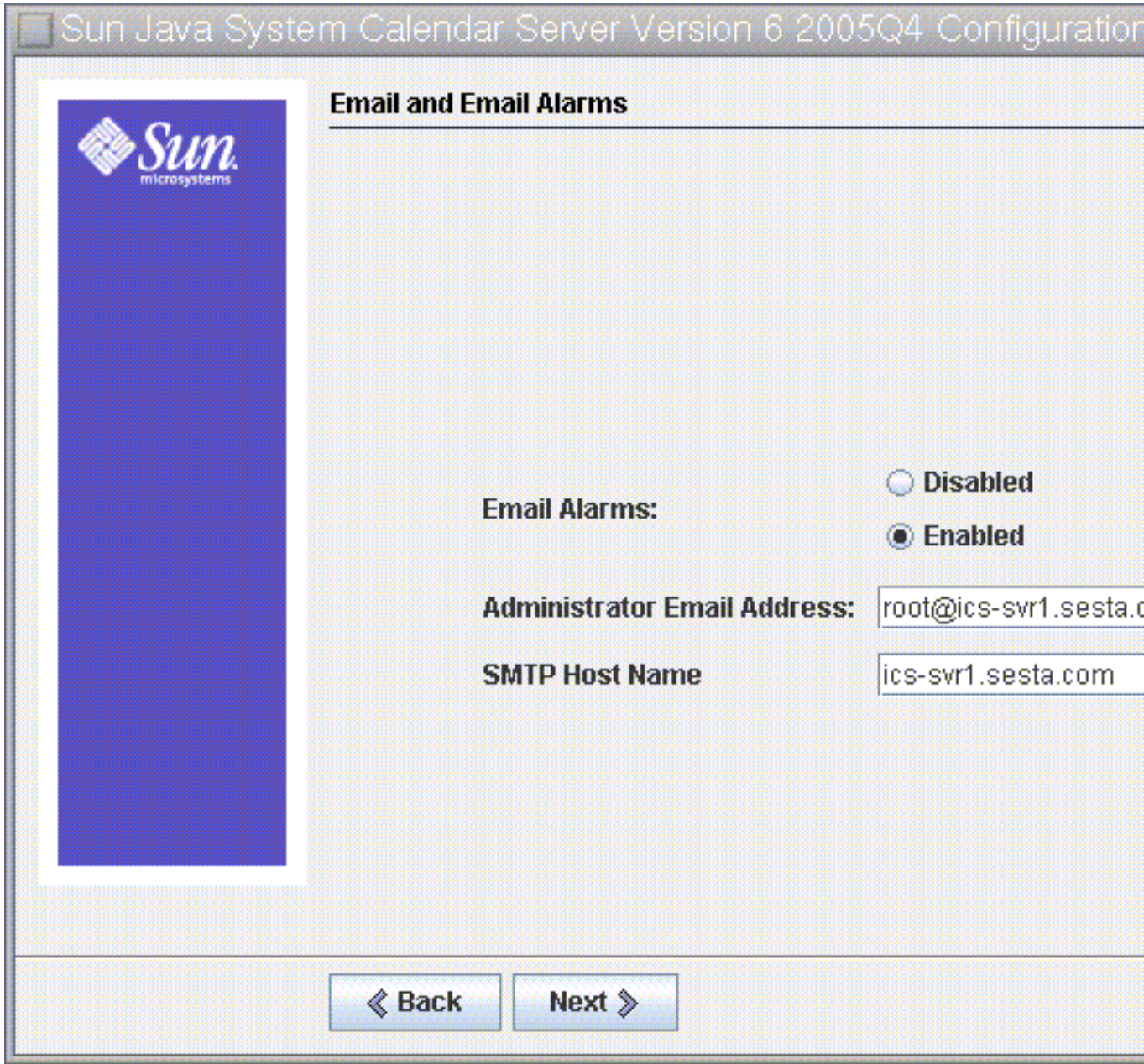


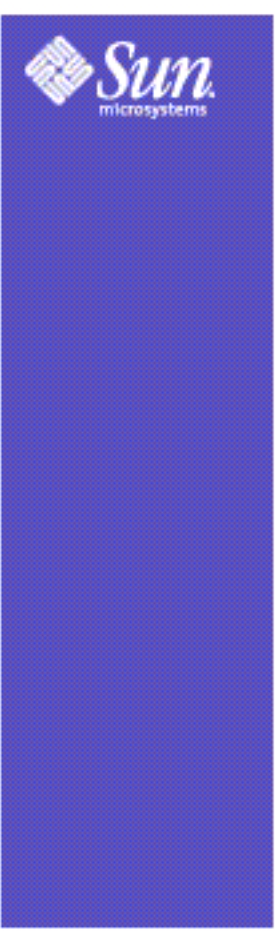
FIGURE 3-3 Email and Email Alarms Configuration Panel

Email Alarms	Specifies whether Calendar Server should send an email alarm message to a Calendar Server administrator in case a server problem occurs. Default: Enabled
Administrator Email Address	Email address of the Calendar Server Administrator who will receive the email alarm messages. Default: None
SMTP Host Name	Host name of the SMTP server where email alarm messages should be sent. Default: current host.

Click **Next** to continue, **Back** to return to the previous panel, or **Cancel** to exit.

## Runtime Configuration Panel

Sun Java System Calendar Server Version 6 2005Q4 Configuration



### Runtime configuration

<b>Service Port</b>	<input type="text" value="80"/>
<b>Maximum Sessions</b>	<input type="text" value="5000"/>
<b>Maximum Threads</b>	<input type="text" value="20"/>
<b>Number of server processes</b>	<input type="text" value="2"/>
<b>Runtime User ID</b>	<input type="text" value="icsuser"/>
<b>Runtime Group ID</b>	<input type="text" value="icsgroup"/>
<b>Calendar Server startup</b>	<input type="checkbox"/> <b>Start after successful configuration</b>
	<input type="checkbox"/> <b>Start on system startup</b>

FIGURE 3-4 Runtime Configuration Panel

Service Port	Port number that Calendar Server listens on to provide Web (HTTP) access to users. Default: 80.
Maximum Sessions	Maximum number of concurrent Calendar Server sessions. Default: 5000
Maximum Threads	Maximum number of concurrent Calendar Server threads. Default: 20
Number of Server Processes	Maximum number of Calendar Server processes to run on the server. Default: Number of CPU's on the server where you are installing Calendar Server.
Runtime User ID	UNIX user name under which Calendar Server will run. This name should not be root. If the account does not exist, the configuration program will create it. Default: icsuser
Runtime Group ID	UNIX group under which Calendar Server will run. If the group does not exist, the configuration program will create it. Default: icsgroup
Calendar Server Startup Options	<p>Select one or both options by clicking in the check box.</p> <ul style="list-style-type: none"> <li>▪ Start after successful installation <ul style="list-style-type: none"> <li>Specifies whether to start Calendar Server automatically after a successful installation. Default: checked</li> </ul> </li> <li>▪ Start on system startup <ul style="list-style-type: none"> <li>Specifies whether to start Calendar Server automatically after a system startup. Default: checked</li> </ul> </li> </ul>

Click **Next** to continue, **Back** to return to the previous panel, or **Cancel** to exit.

## Select Directories Panel

Accept the default directories on this panel. While you are allowed to choose the store configuration and data files directories, it is not advised.



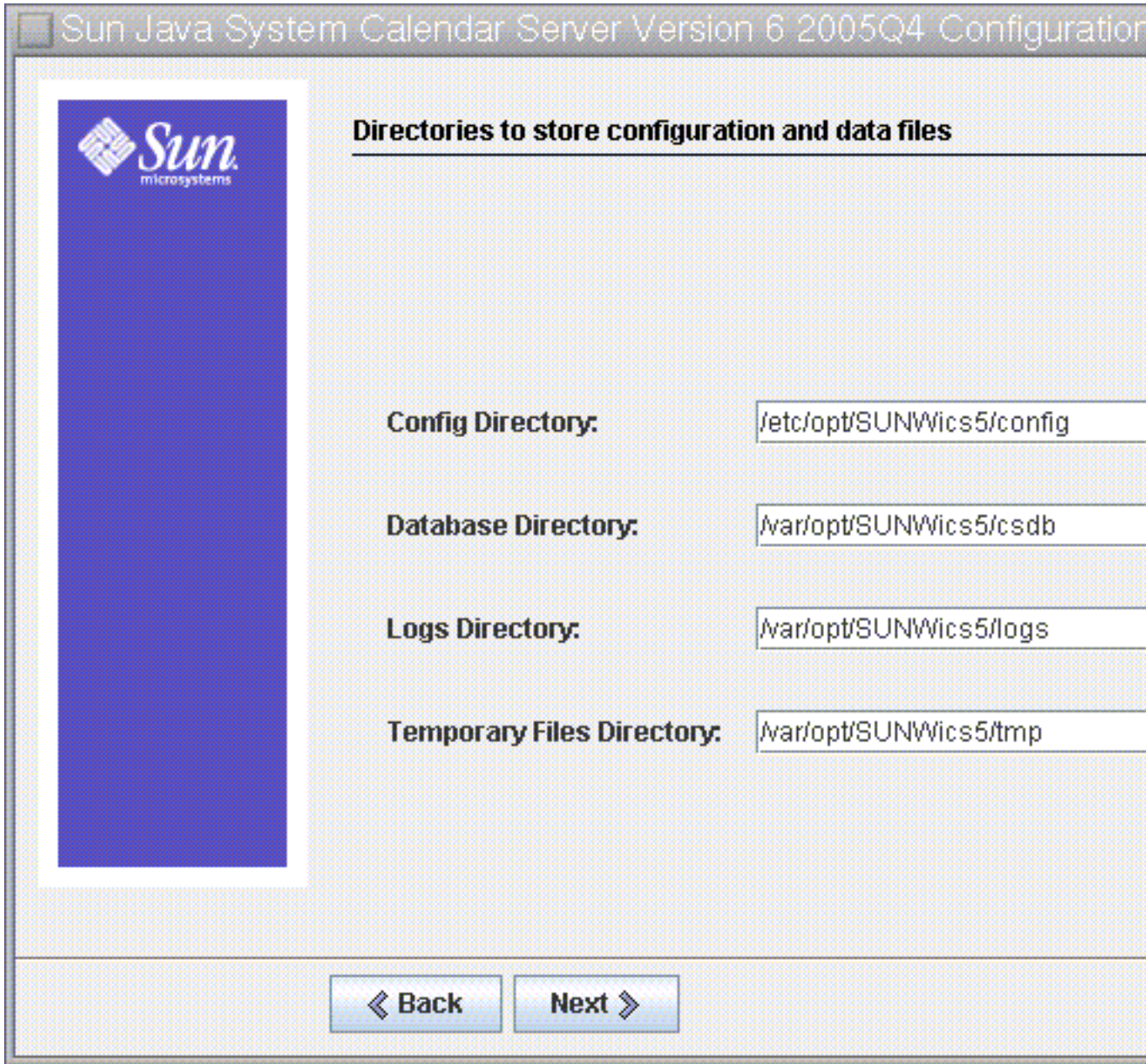


FIGURE 3-5 Select Directories Configuration Panel

Config Directory                      Directory where the configuration file (ics.conf) is stored.

Database Directory	Directory where Calendar Server should create and store the calendar database files. Default: /var/opt/SUNWics5/csdb
Logs Directory	Directory where Calendar Server writes log files. Default: /var/opt/SUNWics5/logs
Temporary Files Directory	Directory where the Calendar Server writes temporary files. Default: /var/opt/SUNWics5/tmp

Then, Click Next to continue, Back to return to the previous panel, or Cancel to exit.

## Archive and Hot Backup Configuration Panel

This panel allows you to select both automatic backup types, or either one of the two, or none. Select or deselect the boxes appropriately. Using both archive backups and hot backups is strongly recommended.

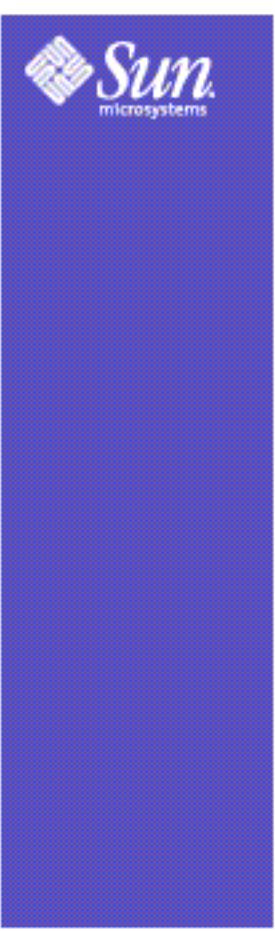
---

**Tip** – Prevent the catastrophic loss of all your database copies due to an equipment failure. Keep your automatic backup copies on a disk or disk system other than the one where your live databases reside.

---

For information on automatic backups, see [Chapter 10, “Configuring Automatic Backups \(csstored\)”](#).

Sun Java System Calendar Server Version 6 2005Q4 Configuration



### Archive and Hot Backup configuration

**Enable Archive**

Archive directory:

**Enable Hot Backup**

Hot Backup directory:

Keep archives for (in days):  
Minimum  Maximum

Keep hot backups for (in days):  
Minimum  Maximum   Same as archive

FIGURE 3-6 Archive and hot backup Configuration Panel



---

Enable Archive	When this box is checked (default), <code>csstored</code> will take a snapshot of your calendar databases every 24 hours. At the end of the day, it stores the transaction log files for that day with the snapshot in the archive backup directory.
Archive Directory	Choose the backup directory by clicking Browse, or accept the default.
Enable Hot Backup	When this box is checked (default), <code>csstored</code> takes a snapshot of your calendar databases every 24 hours, but applies the transaction logs to the snapshot at a set interval (default is two minutes), thus ensuring a nearly complete duplicate of your live database.
Hot Backup Directory	Choose the backup directory by clicking Browse, or accept the default.
Keep Archives for (in days)	Click the up or down arrows in the <code>Minimum</code> and <code>Maximum</code> fields to select range of days of archival backups to keep in the backup directory.
Keep Hot Backups for (in days)	Click the up or down arrows in the <code>Minimum</code> and <code>Maximum</code> fields to select the range of days of hot backups to keep in the directory.  The number of copies actually stored at any one time depends on the size of the files and the size of the directory. When either the size limits, set in the <code>ics.conf</code> file, or maximum number of copies exceeds the limit, the oldest copies are purged down to the minimum number specified on this configuration panel.

Click `Next` to continue, `Back` to return to the previous panel, or `Cancel` to quit the configuration program.

## Ready to Configure Panel

Up to now the panels have been gathering data needed for the configuration and performing some validity checking. You can go back and redo the configuration information at this point, or start the configuration.

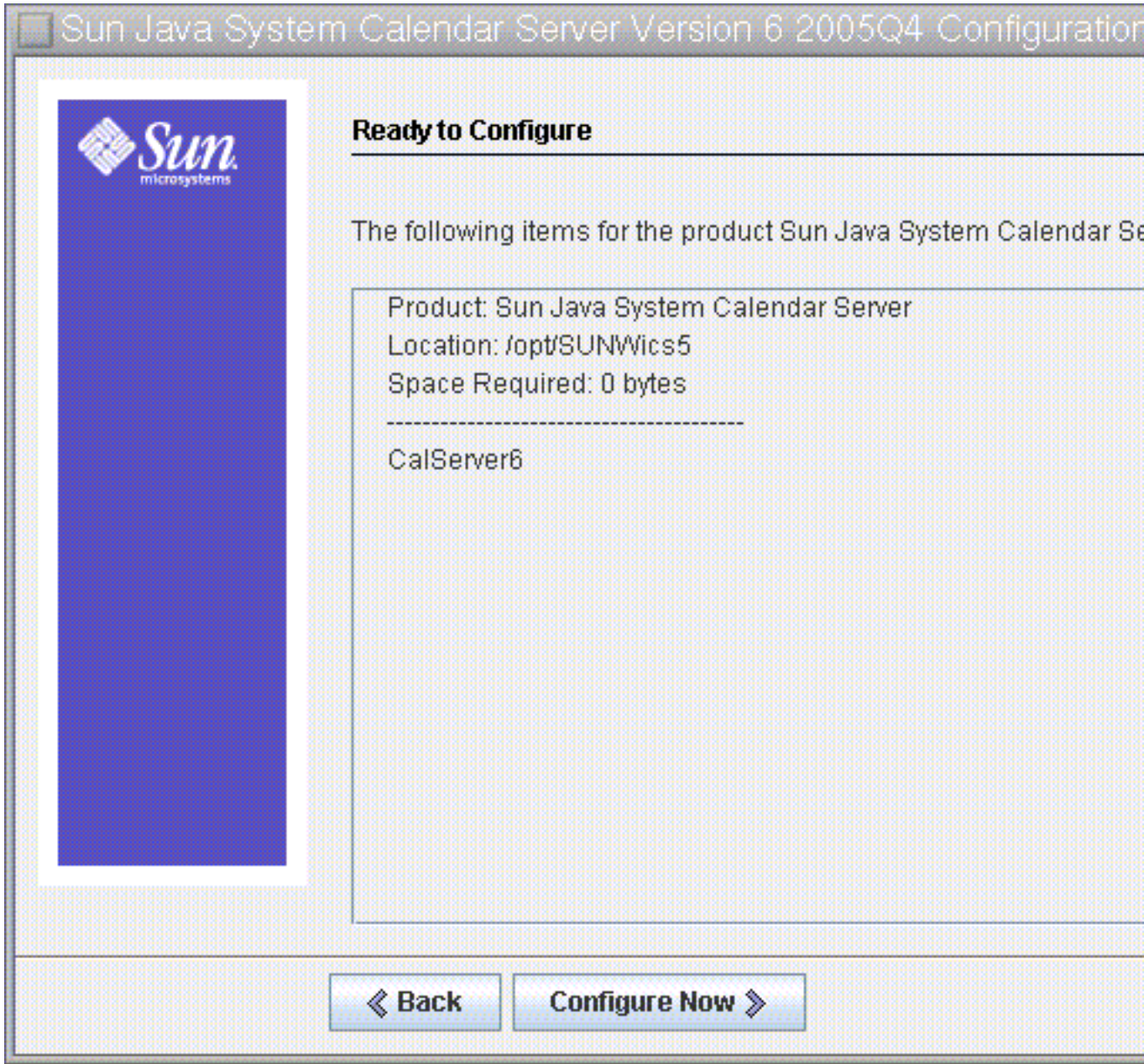


FIGURE 3-7 Ready to Configure Panel

Click `Configure Now` to configure Calendar Server, `Back` to return to the previous panel, or `Cancel` to exit.

## **Configuration Summary Panel**

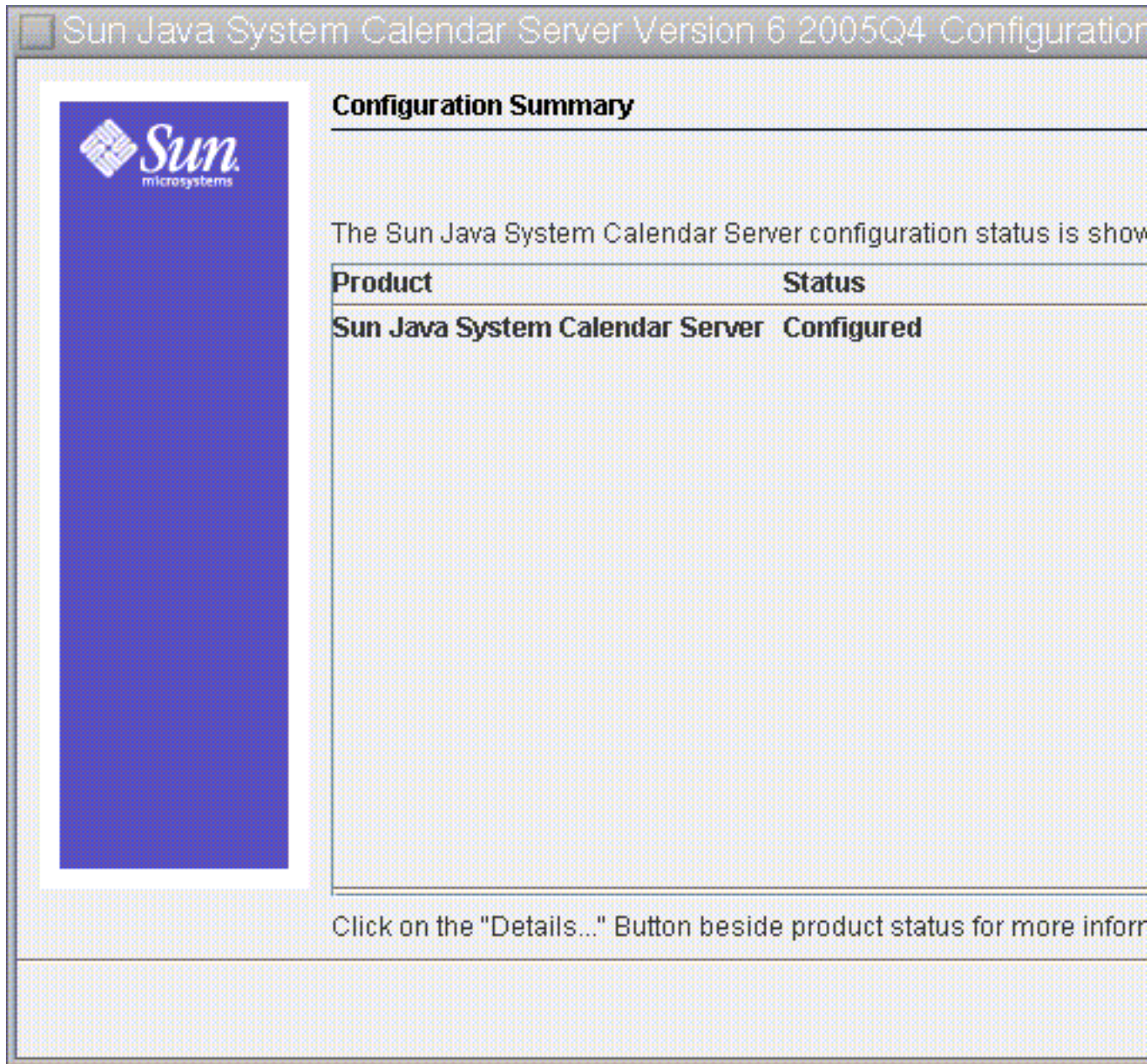


FIGURE 3-8 Configuration Summary Panel

Click **Details** to view the details of the configuration log or **Close** to exit the configuration program.



# Database Migration Utilities

---

If you had an earlier version of Calendar Server (5.11 and earlier), after you install Calendar Server, and perform the postinstallation configuration, you may need to migrate the component databases and the LDAP database.

A “[Choosing the Right Utilities](#)” on page 104 section is provided in this chapter to assist you in choosing the correct utilities to run.

This chapter contains the following sections:

- “[Postinstallation Database Migration Utilities](#)” on page 103
- “[Choosing the Right Utilities](#)” on page 104
- “[csmig](#)” on page 105
- “[csvdmig](#)” on page 114
- “[commdirmig](#)” on page 117

## Postinstallation Database Migration Utilities

After you have installed Sun Java System Calendar Server, if you have calendar databases and LDAP database entries from your old Calendar Server 5.1.1 installation, run the following utilities in the order given:

1. `cs5migrate`

Migrates your calendar databases from Calendar Server version 5 to version 6 format. These utilities are available for download from technical support.

If you plan to use the Connector for Microsoft Outlook and have recurring components, then use `cs5migrate_recurring`, which creates a master record and exceptions for each recurring series.

If you do not have recurring components in your existing database, or you do have them, but do not plan to use the Connector for Microsoft Outlook, use `cs5migrate`.



Both `cs5migrate` and `cs5migrate_recurring` are available only from technical support. They are not packaged with the product.

2. “`csmig`” on page 105

Assigns an owner to each calendar in the Calendar Server 6 database and maps each calendar ID (`calid`) to an owner, if needed, which allows support for hosted (virtual) domains and the LDAP Calendar Lookup Database (CLD) plug-in. This utility is packaged with Calendar Server. Run this utility after `cs5migrate` and before `csvdmig`.

3. “`csvdmig`” on page 114

Upgrades a Calendar Server 6 site to use hosted (virtual) domains by adding the calendar’s domain (`@domainname`) to each `calid`. For example, in the domain `sesta.com`, `jdoe`’s `calid` would now be `jdoe@sesta.com`. This utility is packaged with Calendar Server. Run this utility after `cs5migrate`, and `csmig`.

4. “`commdirmig`” on page 117

Migrates LDAP data from Schema 1 to Schema 2 in preparation for use with Access Manager 6.1 or higher. This utility is packaged with Access Manager.

## Choosing the Right Utilities

Since there are so many potential utility choices, use the graphic below to choose which of the utilities to run.

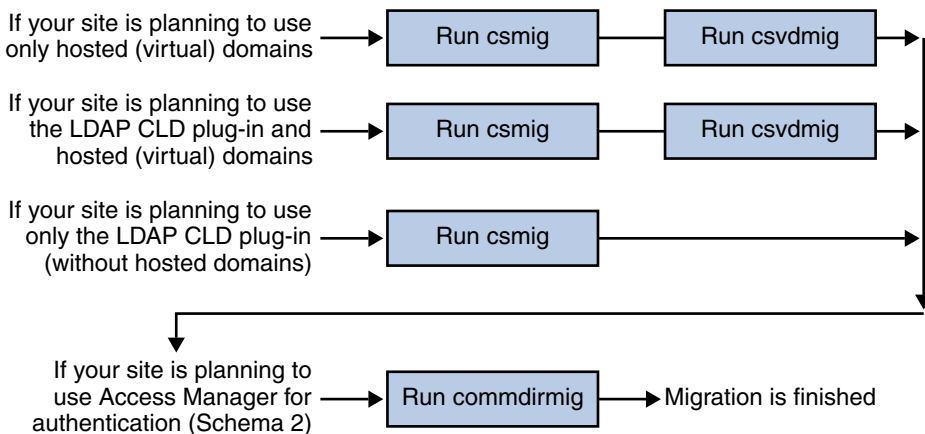


FIGURE 4-1 Choosing Migration Utilities to Run



# csmig

The csmig utility assigns an owner to each calendar in the calendar database and maps each calendar ID (`calid`) to an owner, if needed.

The csmig utility supports hosted (virtual) domains and the LDAP Calendar Lookup Database (CLD) plug-in. Calendars in the migrated database are accessible using the LDAP CLD plug-in. For information about the LDAP CLD plug-in, see [Chapter 6, “Configuring Calendar Database Distribution Across Multiple Machines.”](#)

This section describes the following topics:

- “csmig Functions” on page 105
- “csmig Requirements” on page 106
- “csmig Syntax” on page 106
- “csmig Migration Steps” on page 107
- “csmig Tips and Troubleshooting” on page 111

## csmig Functions

The csmig migration utility performs the following functions:

- “Migrates Calendars” on page 105
- “Assigns Owners to Calendars” on page 105
- “Updates LDAP Attributes” on page 106

### Migrates Calendars

csmig migrates both user and resource calendars in the current calendar database (`*.db` files) specified by the `caldb.berkeleydb.homedir.path` parameter. In the new destination target database, csmig updates entries required by the LDAP CLD plug-in in the calendar properties (`calprops`), events, todos (tasks), and group scheduling engine (GSE) database files.

csmig writes only to the destination target database; it does not update your existing calendar database.

### Assigns Owners to Calendars

csmig assigns an owner to each calendar in the calendar database and maps each calendar ID (`calid`) to an owner, if needed. All default `calids` are kept as is, and no changes are made. Other calendars are mapped as follows:

- User calendars that don’t have valid owners will be owned by the user passed to csmig by the `-c` option. For example, if calendar ID `jsmith` doesn’t have an owner, it will be converted to `orphan:jsmith`, where `orphan` is specified as the `-c` option.
- Resource calendars that don’t have an owner will be owned by the resource user passed to csmig by the `-r` option.

- If a resource calendar has any colons (:) in the name, the colons are converted to underscores, so that the migrated name has only one colon.  
For example, a calendar named football with owner bkamdar will be converted to bkamdar:football. A calendar named tchang:soccer with the owner bkamdar will be converted to bkamdar:tchang\_soccer. A resource calendar named auditorium:room1 with an owner admin1 will be converted to admin1:auditorium\_room1.

## Updates LDAP Attributes

csmig updates LDAP attributes for all relevant LDAP entries, including `icsSubscribed`, `icsCalendar`, `icsCalendarOwned`, `icsFreeBusy`, `icsSet`, and for resource calendars, `uid`. csmig creates the `icsDWPHost` attribute for each calendar in the LDAP directory server database. `icsDWPHost` specifies the host name of the back-end server where a calendar resides.

## csmig Requirements

The requirements for using csmig are:

- The calendar database must not be corrupted. Use the `csdb check` command to check your calendar database, and if necessary, run the `csdb rebuild` command to rebuild the database. For information about these commands, [Appendix D, “Calendar Server Command-Line Utilities Reference.”](#)
- You must have sufficient disk space for the new destination target database and if applicable, your backup database.
- To run csmig, log in as `icsuser` (or as the Calendar Server runtime user ID specified during configuration). If you run csmig as superuser (root), you might need to reset the permissions for the migrated files.

You must also have privileges to manage the attributes of calendar users in the LDAP directory server that stores user preferences.

- Calendar Server must be stopped.

## csmig Syntax

The csmig utility has the following syntax:

```
csmig [-t DestinationDB]  
      [-b Backend-DWPHost]  
      [-o OutputFile]  
      [-e ErrorFile]  
      [-m MappingFile]  
      [-c calendarOwner]  
      [-r resourceOwner]  
      { migrate|dryrun }
```

The following table lists the utility options, gives a description of each, and gives the default value.

csmig Options	Description and Default Value
-t <i>DestinationDB</i>	Specifies the destination target database that csmig generates. The default is <code>MigratedDB</code> .
-b <i>Backend-DWPHost</i>	Specifies the name of the DWP back-end host server. This name must match the DWP back-end host server name specified in the <code>ics.conf</code> file.
-o <i>OutputFile</i>	Specifies an output file that captures the csmig output to the screen as well as any errors that occur. The default is <code>MigrateOut</code> .
-e <i>ErrorFile</i>	The file where csmig writes any errors or database entries that cannot be resolved. If database entries cannot be resolved, they are not written to the destination database. The default is <code>MigrateError</code> .
-m <i>MappingFile</i>	Specifies an output mapping file generated in <code>dryrun</code> mode that lists entries in the LDAP schema that need to be changed. For example:  Old: <code>calid=jsmith</code>  New: <code>calid=jsmith:basketball</code>  The mapping file provides only a list of changes to make to the LDAP schema. csmig does not actually make the changes to the schema  The mapping file is not used in <code>migrate</code> mode.
-c <i>calendarOwner</i>	Specifies the owner for user calendars that don't have owners.
-r <i>resourceOwner</i>	Specifies the owner for resource calendars that don't have owners.
<code>migrate dryrun</code>	Specifies which mode the utility is running in. Use <code>migrate</code> mode to perform the migration. Use <code>dryrun</code> mode to generate the output mapping file before you actually migrate.

## csmig Migration Steps

After you have installed and configured Calendar Server 6, you must run csmig to migrate your existing Calendar Server and LDAP data. Migration of the LDAP data is required for the LDAP CLD plug-in to work properly. Use these steps to migrate calendar data using csmig:

### ▼ High Level Steps for Using csmig

#### 1 Configure your Directory Server using `comm_dssetup.pl`.

If you have not already indexed LDAP attributes using `comm_dssetup.pl`, do so at this time. This will greatly help performance of the LDAP data migration.

## 2 Using a staging server (not your production server), perform a test dry run.

A dry run reports what csmig would do during an actual migration but does not migrate any data. After the dry run, and before you actually migrate, correct any errors and determine a plan to handle any unresolved calendars.

For instructions on how to perform a test dry run, see [“csmig Migration Steps” on page 107](#).

## 3 Migrate Your Production Data

During a production run, csmig migrates the calendar database (.db files) and LDAP data (user and group preferences data), icsSubscribed, icsCalendar, icsCalendarOwned, icsFreeBusy, icsSet, and uid (for resource calendars). After the migration, all calendar resources will have an LDAP entry created.

For instructions on how to migrate your production data, see [“csmig Migration Steps” on page 107](#).

## ▼ To Perform a Test Dry Run

### 1 Install Calendar Server 6 (if necessary) on the staging server.

### 2 Copy a snapshot of your calendar database to the staging server.

### 3 Mimic your production LDAP environment on the staging server by performing the following tasks:

- Install Directory Server.
- Install a snapshot of the LDAP database on this server.

### 4 Run `comm_dssetup.pl` to configure the staging Directory Server.

### 5 Run `csconfigurator.sh` to configure the staging Calendar Server.

### 6 Log in as `icsuser` (or, if its different, log in as the Calendar Server runtime user ID specified during configuration). If you run `csmig` as superuser (`root`), you might need to reset the permissions for the migrated files.

### 7 Change to the `cal_svr_base/SUNwics5/cal/sbin` directory.

### 8 Run the `csdb check` command to check your database for corruption. If corruption is indicated, run `csdb rebuild` to rebuild the database.

### 9 Consider creating a catchall `calid` for user calendars that don't have an owner. For example, the following command creates a user with the `calid` of `orphan`:

```
./csuser -g orphan -s adminuser -y password -l en -c orphan create orphan
```

- 10 Stop the Calendar Server using the `stop-cal` command (if necessary).**

```
cal_svr_base/SUNWics5/cal/sbin/stop-cal
```

- 11 Run `csmig` with the `dryrun` option. For example, you might enter:**

```
./csmig -b sesta.com -o csmig.out -e csmig.errors
-m csmig.map -c orphan -r calmaster dryrun
```

This command assigns user calendars without an owner (orphan calendars) to the owner `orphan` and resource calendars without an owner to the owner `calmaster`.

- 12 Check the output mapping file (`csmig.map`). The mapping file lists entries that need to be updated in the LDAP schema.**
- 13 Check the output, mapping, and error files. Resolve any LDAP issues or errors that you find. Determine how you will handle any unresolved calendars before the actual migration. Several options are:**

- Delete any unneeded calendars before you migrate.
- Assign owners to any unresolved calendars.
- Allow `csmig` to assign owners to the calendars during migration using the `-c` and `-r` options.

- 14 Run `csmig` to migrate your staging calendar database.**

For example, the following command migrates the calendar database to the `/var/opt/SUNWics5/testcsdb/` directory:

```
./csmig -t /var/opt/SUNWics5/testcsdb/ -b sesta.com
-o csmig.out -e csmig.errors -m csmig.map -c orphan
-r calmaster migrate
```

- 15 After the test migration is finished, perform these steps to check out the newly migrated calendar database.**
- a. **Copy the migrated database to the `/csdb` directory specified by the `caldb.berkeleydb.homedir.path` parameter. Or, edit this parameter to point to the new location of the migrated database.**
  - b. **Run `csdb` check on the new calendar database. The number of events and todos in the migrated database should match the pre-migration totals.**
  - c. **Search for `icsCalendarOwned` entries and make sure that the entries match the pre-migration number of calendars.**

- d. **Log in to Communications Express and verify some of the calendars in the migrated database.**

If the test migration is successful, you are ready to migrate your production database.

## ▼ **To Migrate Your Production Data**

- 1 **Log in as `icsuser` (or as the Calendar Server runtime user ID specified during configuration). If you run `csmig` as superuser (`root`), you might need to reset the permissions for the migrated files.**

- 2 **Change to the `cal_svr_base/SUNWics5/cal/sbin` directory.**

- 3 **Stop the Calendar Server using the `stop-cal` command (if necessary).**

```
cal_svr_base/SUNWics5/cal/sbin/stop-cal
```

- 4 **Backup the following data:**

- Calendar database (`.db` files).
- LDAP data: `slapd` database directory and LDAP database.
- `ics.conf` file. This step is not actually required, but it can be useful if you need to revert to your original configuration.

- 5 **Run `csmig` with the `migrate` option.**

For example, the following command migrates the calendar database to the `/var/opt/SUNWics5/newcsdb/` directory:

```
./csmig -t /var/opt/SUNWics5/newcsdb/ -b sesta.com  
-o csmig.out -e csmig.errors -m csmig.log -c orphan  
-r calmaster migrate
```

- 6 **Check for any unresolved calendars in the error file (`csmig.errors`) and resolve them according to your plan from “[csmig Migration Steps](#)” on page 107 under “[csmig Migration Steps](#)” on page 107.**

- 7 **Run the `csdb check` command to check your migrated database. If any corruption is indicated, run `csdb rebuild` to rebuild the database.**

- 8 **Copy the new migrated database to the `/csdb` directory specified by the `caldb.berkeleydb.homedir.path` parameter. Or, edit this parameter to point to the new location of the migrated database.**

- 9 **Enable the LDAP CLD plug-in by making any necessary changes to the following configuration parameters in the `ics.conf` file:**

- `service.dwp.enable = "yes"`
- `service.dwp.port = "9779"`
- `csapi.plugin.calendarlookup = "y"`
- `csapi.plugin.calendarlookup.name = "*"`
- `caldb.cld.type = "directory"`
- `caldb.dwp.server.default = "default-server-name"`
- `caldb.dwp.server.server-hostname.ip = "server-hostname"` (for each back-end server including the local server)
- `caldb.cld.cache.enable = "yes"` (if you want to use the CLD cache option)
- `caldb.cld.cache.homedir.path` specifies the location of the CLD cache directory. The default is `/var/opt/SUNWics5/csdb/cld_cache`.

For information about setting configuration parameters for the LDAP CLD plug-in, see [Chapter 6, “Configuring Calendar Database Distribution Across Multiple Machines.”](#)

**10 Restart Calendar Server using the `start-cal` command.**

**11 Log in to Communications Express and verify that your configuration is working by checking several of the migrated calendars.**

To disable alarms while you are making your checks, set each of the following parameters in the `ics.conf` file to “no”:

- `caldb.serveralarms = "no"`
- `caldb.serveralarms.dispatch = "no"`
- `service.ens.enable = "no"`
- `service.notify.enable = "no"`
- `ine.cancellation.enable = "no"`
- `ine.invitation.enable = "no"`
- `service.admin.alarm = "no"`

## csmig Tips and Troubleshooting

The section describes the following tips and trouble shooting examples:

- “The csmig dry run calendar shows the wrong owner for a calendar.” on page 112
- “The LDAP calendar search doesn’t work correctly.” on page 112
- “The csmig dry run indicates duplicate calendar names.” on page 112
- “How do I assign orphan calendars to different owners?” on page 113
- “How do I move calendar users to another back-end server?” on page 113

## The csmig dry run calendar shows the wrong owner for a calendar.

### Example Problem

A calendar named `tchang:myCalendar` has the owner `jsmith` in the calendar database, and the `csmig` dry run shows the mapping as `jsmith:tchang_myCalendar`. However, you would like to name this calendar `tchang:myCalendar` and assign the owner as `tchang`.

### Example Solution

Before the migration, use the `cscal` utility to change the owner of the calendar `tchang:myCalendar` to `tchang`. Once this is done, the migration will map this calendar to `tchang:myCalendar` and add `icsCalendarowned` to the LDAP entry for user ID `tchang`.

## The LDAP calendar search doesn't work correctly.

### Example Problem

After migration, the LDAP calendar search is enabled, but the calendar search dialog does not return any results or returns only partial results.

### Example Solution

Enabling the LDAP calendar search allows Calendar Server to search `(&(objectclass=icscalendaruser)(icscalendarowned=*substr*))`.

Manually run two different searches on the LDAP data with the following filters and compare the output:

- LDAP search with filter `(&(objectclass=icscalendaruser)(icscalendarowned=*substr*))`
- LDAP search with filter `(icscalendarowned=*substr*)`

Since the server uses the filter that includes `icsCalendarUser` object class, the LDAP server might have been deployed with the schema check disabled, and some calendar entries may have been provisioned without the `icsCalendarUser` object class.

## The csmig dry run indicates duplicate calendar names.

### Example Problem

The `csmig` dry run mapping file and output file indicate that there is a duplicate calendar name. For example, in the original database, `jsmith` owns the following calendars:

- `basketball` with 5 events



- `jsmith:basketball` with 10 events

The dry run indicates that during a migration, the two calendars will be merged, and the resulting calendar will be `jsmith:basketball` with owner `jsmith` and 15 total events

The output file will include the following warning message:

```
Error modifying calendar properties, error=2
```

## Example Solution

If you don't want the two calendars to be merged, change the owner of `basketball` to a user other than `jsmith` before the migration. This will preserve the data integrity of the two separate calendars.

## How do I assign orphan calendars to different owners?

### Example Problem

By default `csmig` assigns all orphan calendars to a single owner, but I would like to assign different owners for some orphan calendars.

### Example Solution

`csmig` doesn't accept the mapping file in the command line. However, you can assign owners to the orphan calendars in the original database before the migration. Check the dry run mapping file for all orphan calendars. Then use the `cscal` utility to assign owners to the orphan calendars before the migration. Run `csmig` in dry run mode again to verify the new owners.

## How do I move calendar users to another back-end server?

### Example Problem

How do I move users from one back-end server to another?

### Example Solution

To move a calendar user, you export each of the user's calendars on the original server and then import the calendars on the second server. After the calendars are moved, you can delete the calendars on the original server. For instructions on how to move calendars, see [“Managing User Calendars” on page 270](#).

## csvdmig

The `csvdmig` utility modifies the Calendar Server database and LDAP directory server database for sites that want to use hosted (virtual) domains.

---

**Note** – Be sure to run `csmig` before using this utility if you are moving from a non-hosted environment.

---

This sections contains the following topics:

- [“csvdmig Functions” on page 114](#)
- [“csvdmig Syntax” on page 114](#)
- [“csvdmig Examples” on page 116](#)

## csvdmig Functions

The `csvdmig` utility adds the domain name to the user ID as follows:

- The format of calendar ID's (calids) is changed:  
From: `userid[:calendar-name]`  
To: `userid@domain[:calendar-name]`
- Access Control List (ACL) access rules are changed:  
From: `userid`  
To: `userid@domain`
- The LDAP directory server user entries for the Calendar Server attributes are modified as:  
`userid[:calendar-name]` to `userid@domain[:calendar-name]`.
- Updates the owner and attendee fields in events and tasks in the calendar database.  
For example: if `jsmith` in the domain `sesta.com` is the owner of an event, the new owner field would contain `jsmith@sesta.com`.



**Caution** – The `csvdmig` utility updates the databases and LDAP directory in place. That is, it does not create a separate migrated database, but alters the database you are converting. Therefore, to be safe, run `csvdmig` against snapshots of your databases and LDAP directory.

---

## csvdmig Syntax

The `csvdmig` utility has the following syntax:

```

csvdmig [-t DestinationDB]
        [-c ConfigFile]
        [-e ErrorFile]
        [-m MappingFile]
migrate [DB|LDAP]

```

The following table lists the options used by `csvdmig`, and gives a description of each.

Option	Description and Default Value
<code>-m <i>MappingFile</i></code>	Input parameter specifying a mapping file. For more information on the mapping file, see “ <a href="#">Mapping File</a> ” on page 116. The default is <code>MigrateMapping</code> .
<code>-c <i>ConfigFile</i></code>	Input parameter that specifies a Calendar Server configuration file. The default is the <code>ics.conf</code> file.
<code>-t <i>DestinationDB</i></code>	Output parameter that specifies the location of the database. The default is <code>MigratedDB</code> .  <b>Tip</b> – Always use the <code>-t</code> option. Attempting to migrate the databases in the working directory produces unpredictable results. See “ <a href="#">Destination DB</a> ” on page 116.
<code>-e <i>ErrorFile</i></code>	output parameter that specifies the name of the error file for errors that cannot be resolved. The default is <code>MigrateError</code> .
<code>DB   LDAP</code>	Specifies which database to modify:  DB – the calendar database  LDAP – the LDAP directory  The default is the calendar database (DB).

TABLE 4-1 Options for `csvdmig`

Option	Description and Default Value
<code>-m <i>MappingFile</i></code>	Input parameter specifying a mapping file. For more information on the mapping file, see “ <a href="#">Mapping File</a> ” on page 116. The default is <code>MigrateMapping</code> .
<code>-c <i>ConfigFile</i></code>	Input parameter that specifies a Calendar Server configuration file. The default is the <code>ics.conf</code> file.
<code>-t <i>DestinationDB</i></code>	Output parameter that specifies the location of the database. The default is <code>MigratedDB</code> . See “ <a href="#">Destination DB</a> ” on page 116.
<code>-e <i>ErrorFile</i></code>	output parameter that specifies the name of the error file for errors that cannot be resolved. The default is <code>MigrateError</code> .

TABLE 4-1 Options for csvdmig (Continued)

Option	Description and Default Value
DB   LDAP	Specifies which database to modify: DB – the Calendar Server database LDAP – the LDAP directory The default is the calendar database (DB).

## Mapping File

The mapping file is an input text file that maps existing users to their respective domains. You must create the mapping file before you run `csvdmig`. Specify one entry per line with a space between the old and new values. For example:

```
user1 user1@sesta.com
user2 user2@siroe.com
user3 user3@sesta.com
...
usern usern@siroe.com
```

## Destination DB

This utility does not move the migrated files into a new `DestinationDB`. If you specify the `-t` option, you must copy the database files to be migrated into that directory before running `csvdmig`.

If you do not use the `-t` option, the utility will migrate the files in the working directory, with unpredictable results.

## csvdmig Examples

- Migrate the LDAP directory server data using default values:

```
csvdmig migrate LDAP
```

- Migrate the Calendar Server database:

```
csvdmig -t targetDB -e errorFile -m mappingFile migrate
```

---

## commdirmig

The `commdirmig` utility migrates your LDAP data from Sun LDAP Schema 1 to Schema 2 in preparation for using Access Manager for authentication services.

This section contains the following topics:

- [“Who Should Run the Utility” on page 117](#)
- [“When to Run the Utility” on page 117](#)
- [“Where to Find Documentation” on page 117](#)
- [“Where to Find the Utility” on page 118](#)

### Who Should Run the Utility

If you previously used a version of Messaging Server 5 or Calendar Server 5, your LDAP entries were formatted Schema 1. In your new Calendar Server 6 2005Q4 environment, if you are going to use Access Manager for authentication, you must convert your LDAP entries to Schema 2 format by running this utility.

If you are not using Access Manager, you should still consider migrating your LDAP data, since Schema 2 is the preferred LDAP mode for all Java Enterprise System products that use LDAP. In the future it is possible that newer versions of the communications products (Calendar, Messaging and Instant Messaging) may not support Schema 1. However, the migration can be deferred until a later, more convenient time if you are not going to be using Access Manager at this time.

---

**Note** – If you have a separate LDAP directory for preferences, you must run `commdirmig` on that LDAP as well as the one used for authentication.

---

### When to Run the Utility

If you are migrating from a pre-Java Enterprise System version of Calendar Server, run this utility after you run `cs5migrate`, `csmig` and `csvdmig`.

### Where to Find Documentation

The `commdirmig` migration utility requires special preparation and planning. It is documented in a separate guide, see *Sun Java System Communications Services 6 2005Q4 Schema Migration Guide*.

## Where to Find the Utility

The `commdirmig` utility comes bundled with Delegated Administrator that you install from the Java Enterprise System installer.

A patch is also available from technical support for the utility.

## PART III

# Customizing Your Calendar Server Configuration

- Chapter 5, “Customizing Calendar Server”
- Chapter 6, “Configuring Calendar Database Distribution Across Multiple Machines”
- Chapter 7, “Configuring for High Availability (Failover Service)”
- Chapter 8, “Configuring SSL”
- Chapter 9, “Configuring Single Sign-on”
- Chapter 10, “Configuring Automatic Backups (csstored)”
- Chapter 11, “Setting Up Hosted Domains”





## Customizing Calendar Server

---

After installation and postinstallation configuration, Calendar Server can be run as is. However, you can customize, or reconfigure, your system by editing the configuration file, `ics.conf`.

This chapter, and the chapters that follow in [Part III](#), contain instructions and information you can use to reconfigure Calendar Server.

You can find `ics.conf` in the following directory:

For Solaris: `/etc/opt/SUNWics5/cal/config`

For Linux: `/etc/opt/sun/calendar/config`

---

**Note** – Do not attempt to edit the configuration file until you have completed the following tasks:

- Install or upgrade to Calendar Server 6 2005Q4.
  - Run the postinstallation configuration programs `comm_dssetup.pl` and `csconfigurator.sh`.
  - Run `csmig`, `csvmig` and `commdirmig` as needed against your existing calendar databases. See [Chapter 4](#), “Database Migration Utilities.”
- 

This chapter describes the following topics:

- “Configuring for Communications Express” on page 122
- “Configuring Calendars” on page 124
- “Configuring Calendar Users” on page 128
- “Configuring Calendar Server” on page 130
- “Configuring Logins and Authentication” on page 134
- “Configuring Calendar Services” on page 138
- “Configuring Periodic Deadlock Checking for the Berkeley Databases” on page 143
- “Configuring Calendar Server for LDAP” on page 144

---

**Note** – Additional configuration topics are covered in other, separate chapters. They include the following topics:

- Chapter 6, “Configuring Calendar Database Distribution Across Multiple Machines”
  - Chapter 7, “Configuring for High Availability (Failover Service)”
  - Chapter 8, “Configuring SSL”
  - Chapter 9, “Configuring Single Sign-on”
  - Chapter 10, “Configuring Automatic Backups (csstored)”
  - Chapter 11, “Setting Up Hosted Domains”
- 

## Configuring for Communications Express

Communications Express requires the following things to be configured in the Calendar Server:

- “To Configure Proxy Authentication” on page 122
- “To Enable Anonymous Access” on page 123

### ▼ To Configure Proxy Authentication

- 1 Log in as an administrator with permission to change the configuration.
- 2 Change to the `/etc/opt/SUNWics5/cal/config` directory.
- 3 Save your old `ics.conf` file by copying and renaming it.
- 4 Edit the `ics.conf` parameters as shown in the following table:

Parameters	Description and Default Value
<code>service.http.allowadminproxy</code>	Enables administrator proxy authentication when set to “yes”. The default is “no”.
<code>service.http.admins</code>	Lists the user ID's with administration rights to Calendar Server. The default is “calmaster”. This can be a space-separated list with multiple values. One of the values must be the value as specified in the <code>uwconfig.properties</code> file for <code>calendar.wcap.adminid</code> .
<code>service.admin.calmaster.userid</code>	User ID of the calmaster. This should be the same as the user ID found in the <code>calendar.wcap.adminid</code> parameter of the <code>uwconfig.properties</code> file.

Parameters	Description and Default Value
<code>service.admin.calmaster.cred</code>	Password for the calmaster. This should be the same as the user ID found in the <code>calendar.wcap.passwd</code> parameter of the <code>uwconfig.properties</code> file.

---

**Note** – The `uwconfig.properties` file is located in the `comms_express_svr_base/WEB-INF/config` directory, where `comms_express_svr_base` is the directory where Communications Express was installed.

---

**5 Save the file as `ics.conf`.**

**6 Restart Calendar Server.**

`cal_svr_base/SUNWics5/cal/sbin/start-cal`

**See Also** For instructions on configuring Communications Express, see the.

## ▼ To Enable Anonymous Access

**1 Log in as an administrator with permission to change the configuration.**

**2 Change to the `/etc/opt/SUNWics5/cal/config` directory.**

**3 Save your old `ics.conf` file by copying and renaming it.**

**4 Edit the following parameters in the `ics.conf` to enable anonymous access:**

Parameters	Description and Default Value
<code>service.wcap.anonymous.allowpubliccalendarwrite</code>	Enables or disables allowing anonymous access users to write to public calendars. Enable access by setting the value to "yes", which is the default.
<code>service.wcap.allowpublicwritablecalendars</code>	Enables users to have publicly writable calendars. This is enabled by default (set to "yes").
<code>service.http.allowanonymouslogin</code>	Enable anonymous access (login) by setting this parameter to "yes", if necessary. The default value is "yes".

Parameters	Description and Default Value
<code>service.calendarsearch.ldap</code>	For security purposes with anonymous logins enabled, you might want to disable searching through the LDAP first when doing calendar searches, by setting this parameter to "no", which is the default.

---

**Note** – Communications Express expects the value of the `service.calendarsearch.ldap` parameter to be "no". This conflicts with instructions given for tuning your system for best performance in a DWP environment, (in which your database is distributed across multiple back-ends.) See [“Improving Calendar Search Performance in a DWP Environment” on page 316.](#)

---

**5 Save the file as `ics.conf`.**

**6 Restart Calendar Server.**

```
cal_svr_base/SUNWics5/cal/sbin/start-cal
```

For instructions on configuring Communications Express, see the *Sun Java System Communications Express 6 2005Q4 Administration Guide*.

## Configuring Calendars

- “To Configure User Calendars” on page 124
- “To Configure Resource Calendars” on page 126
- “To Disable Autoprovisioning of User Calendars at Login” on page 127
- “To Configure Free-Busy Lookup” on page 127

### ▼ To Configure User Calendars

- 1 Log in as an administrator with permission to change the configuration.**
- 2 Change to the `/etc/opt/SUNWics5/cal/config` directory.**
- 3 Save your old `ics.conf` file by copying and renaming it.**
- 4 Edit one or more of the parameters as shown in the following table:**

Parameter	Description and Default Value
<code>calstore.calendar.default.acl</code>	<p>Specifies the default access control permissions used when a user creates a calendar. The format is specified by a semicolon-separated list of access control entry (ACE) argument strings. The default is:</p> <pre>"@o^a^r^g;@o^c^wdeic^g; @a^fs^g;@^c^g;@p^r^g"</pre> <p>For more information on the ACE format, see <a href="#">“Calendar Access Control” on page 264</a> Calendar Server utilities, see <a href="#">“cscal” on page 373</a>.</p>
<code>calstore.calendar.owner.acl</code>	<p>Specifies the default access control settings for owners of a calendar. The default is: <code>"@o^a^rsf^g;@o^c^wdeic^g"</code></p>
<code>calstore.freebusy.include.defaultcalendar</code>	<p>Specifies whether a user's default calendar is included in user's free/busy calendar list. The default is “yes”.</p>
<code>calstore.freebusy.remove.defaultcalendar</code>	<p>Specifies whether a user's default calendar can be removed from user's free/busy calendar list. The default is “no”.</p>
<code>service.wcap.freebusy.redirecturl</code>	<p>Specifies a URL to use to search for a calendar in a different database. This is only used while migrating calendar databases. During the time that calendars are split between two different databases, you can specify a URL other than the current Calendar Server database. The system searches the Calendar Server calendar database first and if it can't find the user, checks to see if the redirect URL is available. This feature can be turned off by passing in the <code>redirect</code> parameter set to 1 with the <code>get_freebusy</code> command.</p>
<code>calstore.subscribed.include.defaultcalendar</code>	<p>Specifies whether a user's default calendar is included in the user's subscribed calendar list. The default is “yes”.</p>
<code>service.wcap.login.calendar.publicread</code>	<p>If “yes”, default user calendars are initially set to public read/private write. If no, default user calendars are initially set to private read/private write. The default is “no”.</p>
<code>user.allow.doublebook</code>	<p>Determines if a user calendar can have more than one event scheduled for the same time period:</p> <ul style="list-style-type: none"> <li>■ “no” prevents double booking.</li> <li>■ “yes” allows double booking, and is the default. This parameter is used only when a user calendar is created. Thereafter, Calendar Server checks the calendar properties file (<code>ics50calprops.db</code>) to determine if double booking is allowed. To change the value of the double booking calendar property, use <code>cscal</code> with the <code>-k</code> option.</li> </ul>

5 Save the file as `ics.conf`.

6 Restart Calendar Server.

```
cal_svr_base/SUNWics5/cal/sbin/start-cal
```

## ▼ To Configure Resource Calendars

1 Log in as an administrator with permission to change the configuration.

2 Edit one or more of the parameters as shown in the following table:

Parameter	Description and Default Value
<code>resource.allow.doublebook</code>	<p>Determines if a calendar that belongs to a resource (such as a conference room or audio visual equipment) can have more than one event scheduled for the same time slot when the calendar is created:</p> <ul style="list-style-type: none"> <li>■ "no" prevents double booking.</li> <li>■ "yes" allows double booking.</li> <li>■ This parameter is used only when a resource calendar is created.</li> </ul> <p>After a resource calendar is created, Calendar Server checks the calendar properties (<code>ics50calprops.db</code>) to determine if double booking is allowed.</p> <p>If you need to change the calendar properties for a resource calendar to allow or disallow double booking, use <code>csresource</code> with the <code>-k</code> option.</p>
<code>resource.default.acl</code>	<p>Specifies the default access control permissions used when a resource calendar is created. The default is:</p> <pre>"@o^a^r^g;@o^c^wdeic^g; @a^rsf^g"</pre>

3 Save the file as `ics.conf`.

4 Restart Calendar Server.

```
cal_svr_base/SUNWics5/cal/sbin/start-cal
```

## ▼ To Disable Autoprovisioning of User Calendars at Login

Autoprovisioning of user calendars is enabled by default.

- 1 **Log in as an administrator with permission to change the configuration.**
- 2 **Change to the `/etc/opt/SUNWics5/cal/config` directory.**
- 3 **Save your old `ics.conf` file by copying and renaming it.**
- 4 **Disable autoprovisioning of user calendars upon first login editing the following parameter:**

Parameter	Description and Default Value
<code>local.autoprovision</code>	Specifies whether autoprovisioning of user calendars is enabled ("yes"), or disabled ("no"). The default is "yes".

- 5 **Save the file as `ics.conf`.**
- 6 **Restart Calendar Server.**  
`cal_svr_base/SUNWics5/cal/sbin/start-cal`

## ▼ To Configure Free-Busy Lookup

The free-busy view is used for several purposes. There are a number of `ics.conf` parameters that can be set to customize how the free-busy view is generated.

- 1 **Log in as an administrator with permission to change the configuration.**
- 2 **Change to the `/etc/opt/SUNWics5/cal/config` directory.**
- 3 **Save your old `ics.conf` file by copying and renaming it.**
- 4 **Disable autoprovisioning of user calendars upon first login editing the parameter shown in the following table:**

Parameter	Description and Default Value
<code>service.wcap.freebusybegin</code>	Specifies the offset from the current time in days for <code>get_freebusy</code> for beginning of the range. The default is "30".

Parameter	Description and Default Value
<code>service.wcap.freebusyend</code>	Specifies the offset from the current time in days for <code>get_freebusy</code> for end of the range. The default is "30".
<code>calstore.freebusy.include.defaultcalendar</code>	Specifies whether a user's default calendar is included in user's free/busy calendar list. The default is "yes".
<code>calstore.freebusy.remove.defaultcalendar</code>	Specifies whether a user's default calendar can be removed from user's free/busy calendar list. The default is "no".

**5 Save the file as `ics.conf`.**

**6 Restart Calendar Server.**

```
cal_svr_base/SUNWics5/cal/sbin/start-cal
```

## Configuring Calendar Users

This section contains instructions on configuring calendar users and includes the following topics:

- [“To Configure Users” on page 128](#)
- [“To Set User Preferences” on page 129](#)

### ▼ To Configure Users

- 1 Log in as an administrator with permission to change the configuration.**
- 2 Change to the `/etc/opt/SUNWics5/cal/config` directory.**
- 3 Save your old `ics.conf` file by copying and renaming it.**
- 4 Edit one or more of the following `ics.conf` parameters shown in the following table:**

Parameters	Description and Default Value
<code>service.wcap.allowchangepassword</code>	If "yes", allow users to change their passwords. The default is "no".
<code>service.wcap.allowpublicwritablecalendars</code>	If "yes", allow users to have publicly writable calendars. The default is "yes".



Parameters	Description and Default Value
<code>calstore.subscribed.remove.defaultcalendar</code>	Specifies whether a user's default calendar can be removed from the user's subscribed calendar list. The default is "no".
<code>service.wcap.allowcreatecalendars</code>	If "yes", allow calendars to be created by users who do not have administrative privileges. The default is "yes".
<code>service.wcap.allowdeletecalendars</code>	If "yes", allow calendars to be deleted by users who do not have administrative privileges, but do have delete permission for that calendar. The default is "yes".

**5 Save the file as `ics.conf`.**

**6 Restart Calendar Server.**

```
cal_svr_base/SUNWics5/cal/sbin/start-cal
```

## ▼ To Set User Preferences

**1 Log in as an administrator with permission to change the configuration.**

**2 Change to the `/etc/opt/SUNWics5/cal/config` directory.**

**3 Save your old `ics.conf` file by copying and renaming it.**

**4 Edit one or more of the following `ics.conf` parameters shown in the following table:**

Parameters	Description and Default Value
<code>service.wcap.allowsetprefs.cn</code>	If "yes", allow <code>set_userprefs</code> to modify the user preference "cn" (LDAP user's common name). The default is "no".
<code>service.wcap.allowsetprefs.givenname</code>	If "yes", allow <code>set_userprefs</code> to modify the user preference "givenname" (LDAP user's given name). The default is "no".
<code>service.wcap.allowsetprefs.icsCalendar</code>	If "yes", allow <code>set_userprefs</code> to modify the user preference "icsCalendar" (a user's default calendar identifier). The default is "no".
<code>service.wcap.allowsetprefs.mail</code>	If "yes", allow <code>set_userprefs</code> to modify the user preference "mail" (user's email address). The default is "no".
<code>service.wcap.allowsetprefs.preferredlanguage</code>	If "yes", allow <code>set_userprefs</code> to modify the user preference "preferredlanguage" (LDAP user's preferred language). The default is "no".

Parameters	Description and Default Value
<code>service.wcap.allowsetprefs.sn</code>	If "yes", allow <code>set_userprefs</code> to modify the user preference "sn" (LDAP user's surname). The default is "no".
<code>service.wcap.userprefs.ldaproxyauth</code>	If "yes", enables LDAP proxy authorization for <code>get_userprefs</code> . If "no", anonymous LDAP search is performed. The default is "no".

**5 Save the file as `ics.conf`.**

**6 Restart Calendar Server.**

```
cal_svr_base/SUNWics5/cal/sbin/start-cal
```

## Configuring Calendar Server

This section contains procedures for customizing server-side configuration by editing the `ics.conf` file, and contains the following topics:

- [“To Configure Server Behavior” on page 130](#)
- [“To Configure Calendar Logging” on page 132](#)
- [“To Configure WCAP Commands” on page 134](#)

### ▼ To Configure Server Behavior

The calendar store is configured by default as shown in The following table. If you wish to reconfigure the store, perform the following steps:

- 1 Log in as an administrator with permission to change the configuration.**
- 2 Change to the `/etc/opt/SUNWics5/cal/config` directory.**
- 3 Save your old `ics.conf` file by copying and renaming it.**
- 4 Edit one or more of the parameters in the following table:**

Parameter	Description and Default Value
<code>calstore.calendar.create.lowercase</code>	Specifies whether Calendar Server should convert a calendar ID ( <code>calid</code> ) to lowercase when creating a new calendar or when looking up a calendar using the LDAP CLD plug-in. The default is "no".

Parameter	Description and Default Value
<code>calstore.default.timezoneID</code>	<p>Time zone ID to be used when importing files, and no other time zone ID's can be found for any of the following: an event, a calendar, a user.</p> <p>The default is "America/New_York"</p> <p>An invalid value causes the server to use the GMT (Greenwich Mean Time) time zone.</p>
<code>calstore.filterprivateevents</code>	<p>Specifies whether Calendar Server filters (recognizes) Private and Confidential (Time-and-Date-Only) events and tasks. If "no", Calendar Server treats them the same as Public events and tasks. The default is "yes".</p>
<code>calstore.group.attendee.maxsize</code>	<p>Maximum number of attendees allowed in an LDAP group when expanding an event. Value of "0" (the default value) means to expand the group entirely.</p>
<code>calstore.recurrence.bound</code>	<p>Maximum number of events that can be created by a recurrence expansion. The default is "60".</p>
<code>calstore.userlookup.maxsize</code>	<p>Maximum number of results returned from LDAP lookup from user search. Value of "0" means no limit. The default is "200".</p>
<code>calstore.unqualifiedattendee.fmt1.type</code>	<p>Specifies how Calendar Server treats strings, such as <code>jdoe</code> or <code>jdoe:tv</code>, when performing a directory lookup for attendees of an event. Allowable values are: <code>uid</code>, <code>cn</code>, <code>gid</code>, <code>res</code>, <code>mailto</code>, <code>cap</code>. The default is "uid".</p>
<code>calstore.unqualifiedattendee.fmt2.type</code>	<p>Specifies how Calendar Server treats strings with an at sign (@), such as <code>jdoe@sesta.com</code>, when performing a directory lookup for attendees of an event. Allowable values are: <code>uid</code>, <code>cn</code>, <code>gid</code>, <code>res</code>, <code>mailto</code>, <code>cap</code>. The default is "mailto".</p>
<code>calstore.unqualifiedattendee.fmt3.type</code>	<p>Specifies how Calendar Server treats strings with a space, such as <code>john doe</code>, when performing a directory lookup for attendees of an event. Allowable values are: <code>uid</code>, <code>cn</code>, <code>gid</code>, <code>res</code>, <code>cap</code>. The default is "cn".</p>
<code>service.wcap.validateowners</code>	<p>If "yes", the server must validate that each owner of a calendar exists in the directory (through LDAP or a CSAPI compatible user directory mechanism). The default is "no".</p>
<code>service.wcap.freebusy.redirecturl</code>	<p>If the requested calendar can't be found in the local calendar database, alternately, a URL found in this parameter can be used to redirect the search to another database. This is specifically used for scripts created when migrating between two databases and both are still being used. Then the <code>get_freebusy.wcap</code> command can be used to specify whether to look in the other database. See the <code>get_freebusy</code> command description in the <i>Sun Java System Calendar Server 6 2005Q4 Developer's Guide</i>.</p>

Parameter	Description and Default Value
store.partition.primary.path	Location of primary disk partition where calendar information is stored. The default is <code>"/var/opt/SUNWics5/csdb"</code> .

**5 Save the file as `ics.conf`.**

**6 Restart Calendar Server.**

`cal_svr_base/SUNWics5/cal/sbin/start-cal`

## ▼ To Configure Calendar Logging

**1 Log in as an administrator with permission to change the configuration.**

**2 Change to the `/etc/opt/SUNWics5/cal/config` directory.**

**3 Save your old `ics.conf` file by copying and renaming it.**

**4 Edit one or more of the parameters shown in the following table:**

Parameter	Description and Default Value
logfile.admin.logname	This log file contains history of the administrative tool commands issued. The default is <code>"admin.log"</code> .
logfile.buffersize	Size in bytes for log buffers. The default is <code>"0"</code> . Specify the size of each entry in the log files. If your buffers fill up too fast, consider making them larger.
logfile.dwp.logname	Name of the log file for logging Database Wire Protocol related administrative tools. The default is <code>"dwp.log"</code> . Specify one per front-end server.
logfile.expirytime	Number of seconds before the log files expire. The default is <code>"604800"</code> . After this time, a cleanup routine will purge the log. If you want to archive the log, you must write your own routine.
logfile.flushinterval	Number of seconds between the flushing of buffers to log files. the default is <code>"60"</code> .  If your system experiences a high volume of log information and your buffers fill up before 60 seconds, you will lose information. In that case consider decreasing this time interval. Note that decreasing the time interval increases system overhead.

Parameter	Description and Default Value
<code>logfile.http.logname</code>	Name of the current log file for the <code>cshttpd</code> service. The default is <code>"http.log"</code> .
<code>logfile.http.access.logname</code>	Name of the current HTTP access log file.
<code>logfile.logdir</code>	Directory location of the log files. The default is <code>"/var/opt/SUNWics5/logs"</code> .
<code>logfile.loglevel</code>	<p>Determines the level of detail the server will log. Each log entry is assigned one of these levels (starting with the most severe): CRITICAL, ALERT, ERROR, WARNING, NOTICE, INFORMATION, and DEBUG. The default is <code>"NOTICE"</code>.</p> <p>If you set to CRITICAL, Calendar Server logs the least amount of detail. If you want the server to log the most amount of detail, specify DEBUG.</p> <p>Each succeeding log level also gives you all the more severe log levels before it. For example, if set to WARNING, only CRITICAL, ERROR, and WARNING level log entries are logged. If set to DEBUG, all levels are logged.</p>
<code>logfile.maxlogfiles</code>	Maximum number of log files in the log directory. The default is <code>"10"</code> . Before the system tries to create the 11th log, it runs the clean up routine to purge old log files.
<code>logfile.maxlogfilesize</code>	Maximum disk space in bytes for all log files. The default is <code>"2097152"</code> . When creating the next log file will violate this limit, the system tries to free disk space by deleting the oldest logs.
<code>logfile.minfreediskspace</code>	Minimum free disk space (in bytes) that must be available for logging. When this value is reached, Calendar Server attempts to free disk space by expiring old log files. Logging is paused if space cannot be freed up. The default is <code>"5242880"</code> .
<code>logfile.notify.logname</code>	Name of the log file for the <code>csnotifyd</code> service. The default is <code>"notify.log"</code> .
<code>logfile.rollovertime</code>	Number of seconds before the log files are rotated. That is, the time interval between creation opening of new log files. The default is <code>"86400"</code> .
<code>logfile.store.logname</code>	Name of the log file for the calendar store. The default is <code>"store.log"</code> .

## 5 Save the file as `ics.conf`.

## 6 Restart Calendar Server.

```
cal_svr_base/SUNWics5/cal/sbin/start-cal
```

**See Also** To configure transaction logging for the calendar database, see [Chapter 10, “Configuring Automatic Backups \(csstored\)”](#).

You do not have to configure the delete log (for deleted events and tasks). See [Chapter 18, “Administering the Delete Log Database.”](#)

## ▼ To Configure WCAP Commands

- 1 **Log in as an administrator with permission to change the configuration.**
- 2 **Change to the `/etc/opt/SUNWics5/cal/config` directory.**
- 3 **Save your old `ics.conf` file by copying and renaming it.**
- 4 **Edit one or more of the following `ics.conf` parameters as shown in following table:**

Parameter	Description and Default Value
<code>service.wcap.format</code>	Specifies the default output format for commands. The default is “text/calendar”. (text/js is supported for backward compatibility.)  If you are using the Connector for Microsoft Outlook, you must use text/calendar.
<code>service.wcap.version</code>	WCAP version.

- 5 **Save the file as `ics.conf`.**
- 6 **Restart Calendar Server.**  
`cal_svr_base/SUNWics5/cal/sbin/start-cal`

## Configuring Logins and Authentication

- [“To Configure Proxy Administrator Logins” on page 134](#)
- [“To Configure Authentication” on page 135](#)
- [“To Configure the Authentication Cache” on page 137](#)
- [“To Enable Checking the Client IP Address at Login” on page 137](#)

## ▼ To Configure Proxy Administrator Logins

Proxy logins must be configured for Communications Express. For instructions on how to configure proxy logins for Communications Express, see [“Configuring for Communications Express” on page 122.](#)

To allow administrator proxy logins for Calendar Server outside Communications Express, perform these steps:

- 1 **Log in as an administrator with permission to change the configuration.**
- 2 **Change to the `/etc/opt/SUNWics5/cal/config` directory.**
- 3 **Save your old `ics.conf` file by copying and renaming it.**
- 4 **Edit the parameter that follows:**

Parameter	Description/Default
<code>service.http.allowadminproxy</code>	Specifies whether administrators are allowed to perform proxy logins to administer user calendars. If “yes”, proxy logins are allowed. If “no” proxy logins are not allowed. The default value is “no”.

- 5 **Restart Calendar Server for the new value to take effect.**
- 6 **Verify that administrator proxy logins are working by using the following WCAP command:**

```
http://server[:port]/login.wcap?
  user=admin-user&password=admin-password
  &proxyauth=calendar-user
```

where:

- *server* is the name of the server where Calendar Server is running.
- *port* is the Calendar Server port number. The default port is 80.
- *admin-user* is the Calendar Server administrator. For example, *calmaster*.
- *admin-password* is the password for *admin-user*.
- *calendar-user* is the *calid* of the Calendar Server user.

If the command is successful, Calendar Server displays the calendar for *calendar-user*. If problems occur, Calendar Server displays “Unauthorized”. Causes might be:

- The *admin-user* does not have Calendar Server administrator privileges.
- The *admin-password* is incorrect.
- The *calendar-user* is not a valid Calendar Server user.

## ▼ To Configure Authentication

- 1 **Log in as an administrator with permission to change the configuration.**
- 2 **Change to the `/etc/opt/SUNWics5/cal/config` directory.**

**3 Save your old `ics.conf` file by copying and renaming it.**

**4 Edit one or more of the parameters shown in the following table:**

Parameter	Description/Default
<code>local.authldapbasedn</code>	Base DN for LDAP authentication. If not specified, <code>local.ugldapbasedn</code> is used. If not specified, the server uses the value of <code>local.ugldaphost</code> .
<code>local.authldaphost</code>	Host for LDAP authentication. If not specified, uses the value of <code>local.ugldaphost</code> . The default is "localhost".
<code>local.authldapbindcred</code>	Bind credentials (password) for user specified in <code>local.authldapbinddn</code> .
<code>local.authldapbinddn</code>	DN used to bind to LDAP authentication host to search for user's dn. If not specified or blank (" "), its assumed to be an anonymous bind.
<code>local.authldapport</code>	Port for LDAP authentication. If not specified, uses the value of <code>local.ugldapport</code> . The default is "389".
<code>local.authldappoolsize</code>	Minimum number of LDAP client connections that are maintained for LDAP authentication. If not specified, uses the value of <code>local.ugldappoolsize</code> . The default is "1".
<code>local.authldapmaxpool</code>	Maximum number of LDAP client connections that are maintained for LDAP authentication. If not specified, uses the value of <code>local.ugldapmaxpool</code> . The default is "1024".
<code>local.user.authfilter</code>	<p>Specifies the authentication filter used for user lookup. The default is "(uid=%U)"</p> <p>This value is stored in the <code>inetDomainSearchFilter</code> attribute in the domain entry.</p> <p>It is possible to filter on a different attribute. For example, you could set this parameter to "(mail=%U)"</p> <p>The <code>uid</code> of the authenticated user is passed on to all other functions as the identity for that user, regardless of the attribute used for authentication.</p>
<code>service.plaintextloginpause</code>	Number of seconds to delay after successfully authenticating a user with plain text passwords. The default is "0".



## ▼ To Configure the Authentication Cache

- 1 Log in as an administrator with permission to change the configuration.
- 2 Change to the `/etc/opt/SUNWics5/cal/config` directory.
- 3 Save your old `ics.conf` file by copying and renaming it.
- 4 Edit one or more of the parameters as shown in The following table:

Parameter	Description and Default Value
<code>service.authcachesize</code>	Maximum number of authenticated user ID's (uids) and passwords that Calendar Server will maintain in the cache. The default is "10000".
<code>service.authcachettl</code>	Number of seconds since the last access before a uid and password are removed from the cache. The default is "900".

- 5 Save the file as `ics.conf`.
- 6 Restart Calendar Server.  
`cal_svr_base/SUNWics5/cal/sbin/start-cal`

## ▼ To Enable Checking the Client IP Address at Login

- 1 Log in as an administrator with permission to change the configuration.
- 2 Change to the `/etc/opt/SUNWics5/cal/config` directory.
- 3 Save your old `ics.conf` file by copying and renaming it.
- 4 Edit the following parameter as shown in the following table:

Parameter	Description and Default Value
<code>service.dnsresolveclient</code>	If "yes", when HTTP access is allowed, checks the client IP address against DNS. The default is "no".

- 5 Save the file as `ics.conf`.
- 6 Restart Calendar Server.  
`cal_svr_base/SUNWics5/cal/sbin/start-cal`

# Configuring Calendar Services

- “To Configure Administrative Services (csadmin)” on page 138
- “To Configure HTTP Services (cshttpd)” on page 139
- “To Configure Alarm Notification” on page 142

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**Tip** – See also, Chapter 10, “Configuring Automatic Backups (csstored).”

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## ▼ To Configure Administrative Services (csadmin)

- 1 Log in as an administrator with permission to change the configuration.
- 2 Change to the `/etc/opt/SUNWics5/cal/config` directory.
- 3 Save your old `ics.conf` file by copying and renaming it.
- 4 Edit one or more of the parameters as shown in the following table:

Parameter	Description and Default Value
<code>service.admin.checkpoint</code>	If "yes", start the <code>csadmin</code> database checkpoint thread. If "no", no checkpoint log files created. The default is "yes".
<code>service.admin.dbcachesize</code>	Maximum cache size (in bytes) for Berkeley Database for administration sessions. The default is "8388608".
<code>service.admin.deadlock</code>	If "yes", start the <code>csadmin</code> database deadlock detection thread. The default is "yes".
<code>service.admin.diskusage</code>	If "yes", start the <code>csadmin</code> low disk space monitor thread. The default is "no". Disk usage is not monitored by default.
<code>service.admin.enable</code>	If "yes", start the <code>csadmin</code> service when starting all services and stop <code>csadmin</code> when stopping all services. The default is "yes".
<code>service.admin.idletimeout</code>	Number of seconds before timing out an HTTP connection in <code>csadmin</code> . The default is "120".
<code>service.admin.maxsessions</code>	Maximum number of administration sessions allowed. The default is "100".
<code>service.admin.maxthreads</code>	Maximum number of running threads per administration session. The default is "10".
<code>service.admin.numprocesses</code>	Maximum number of a concurrent administration processes allowed.

Parameter	Description and Default Value
<code>service.admin.port</code>	No default. This parameter is set by the system. <b>Caution</b> – Do NOT set this parameter yourself. It is set by the system. You can not do remote administration in Calendar Server. If you change this port number, <code>csadmin</code> may not start.
<code>service.admin.resourcetimeout</code>	Number of seconds before timing out an administration connection. The default is “900”.
<code>service.admin.serverresponse</code>	If “yes”, start the <code>csadmin</code> service response thread. The default is “no”.
<code>service.admin.sessiondir.path</code>	Temporary directory for administration session requests. No default.
<code>service.admin.sessiontimeout</code>	Number of seconds before timing out an HTTP session in <code>csadmin</code> . The default is “1800”.
<code>service.admin.sleeptime</code>	Number of seconds to wait between checking for started, stopped, or ready calendar service. The default is “2”.
<code>service.admin.starttime</code>	Number of seconds to wait for any calendar service to start. The default is “300”.
<code>service.admin.stoptime</code>	Number of seconds to wait for any calendar service to stop. The default is “300”.
<code>service.admin.stoptime.next</code>	Number of seconds to wait between sending stop commands to any calendar service. The default is “60”.

5 Save the file as `ics.conf`.

6 Restart Calendar Server.

```
cal_svr_base/SUNWics5/cal/sbin/start-cal
```

## ▼ To Configure HTTP Services (cshttpd)

1 Log in as an administrator with permission to change the configuration.

2 Change to the `/etc/opt/SUNWics5/cal/config` directory.

3 Save your old `ics.conf` file by copying and renaming it.

4 Edit one or more of the parameters as shown in the following table:

Parameter	Description and Default Value
service.http.admins	Space separated list of user ID's with administration rights to this Calendar Server. The default is "calmaster".
service.http.allowadminproxy	If "yes", allow login via proxy. The default is "no".
service.http.allowanonymouslogin	If "yes", allow anonymous (no authentication) access. This is a special type of login that is allowed only specified, restricted access (usually read only access to public calendars). The default is "yes".
service.http.calendarhostname	HTTP host for retrieving HTML documents. To enable users to use a fully qualified host name to access calendar data, this value must be the fully qualified host name (including the machine name, DNS domain and suffix) of the machine on which Calendar Server is running, such as mycal@sesta.com.  If not specified, the local HTTP host is used.
service.http.cookies	Tells the server to whether or to support cookies (yes/no). It must be set to "yes" to enable single sign-on. The default is "yes".
service.http.dbcachesize	Maximum cache size of Berkeley DB for HTTP sessions. The default is "8388308".
service.http.domainallowed	If specified and not " ", filter to allow access based on TCP domains. For example, "ALL: LOCAL.sesta.com" would allow local HTTP access to anyone in the sesta.com domain. Multiple filters are separated by CR-LF (line feed). The default is " ".
service.http.domainnotallowed	If specified and not blank ( " " ), filter to not allow access based on TCP domains. For example, "ALL: LOCAL.sesta.com" would deny HTTP access to anyone in the sesta.com domain. Multiple filters must be separated by CR-LF (line-feed). The default is " "(blank).
service.http.attachdir.path	Directory location relative to local.queuedir (or an absolute path if specified) where imported files are temporarily stored. The default is the current directory ( " . " ).
service.http.ipsecurity	If "yes", all requests that reference an existing session are verified as originating from the same IP address. The default is "yes".
service.http.enable	If "yes", start the cshttpd service when starting all services and stop cshttpd when stopping all services. The default is "yes".  <b>Caution</b> – Disabling the HTTP service with this parameter will also disable HTTPS.
service.http.idletimeout	Number of seconds before timing out an HTTP connection. The default is "120".
service.http.listenaddr	Specifies the TCP address that HTTP services will listen on for client requests. The default is "INADDR_ANY", which indicates any address.

Parameter	Description and Default Value
<code>service.http.logaccess</code>	If "yes", HTTP connections to server are fully logged. The default is "no".
<code>service.http.maxsessions</code>	Maximum number of HTTP sessions in <code>cshttpd</code> service. The default is "5000".
<code>service.http.maxthreads</code>	Maximum number of threads to service HTTP requests in <code>cshttpd</code> service. The default is "20".
<code>service.http.numprocesses</code>	Maximum number of concurrently running HTTP service ( <code>cshttpd</code> ) processes that should run on a server. The default is "1".  For a server that has multiple CPU's, see <a href="#">"Using Load Balancing Across Multiple CPU's"</a> on page 321.
<code>service.http.port</code>	Port for HTTP requests from Calendar Server users. The default is "80".
<code>service.http.proxydomainallowed</code>	If specified and not "", filter for allowing proxy login based on TCP domains. Same syntax as <code>service.http.domainallowed</code> . The default is "".
<code>service.http.resourcetimeout</code>	Number of seconds before timing out an HTTP session. The default is "900".
<code>service.http.sessiondir.path</code>	Directory for the HTTP session database. The default is "http".
<code>service.http.sessiontimeout</code>	Number of seconds before timing out an HTTP session in <code>cshttpd</code> service. The default is "1800".
<code>service.http.sourceurl</code>	Directory relative to executable where all URL references to files are stored. The default is "" (null).
<code>service.http.tmpdir</code>	Temporary directory for HTTP sessions. The default is <code>"/var/opt/SUNWics5/tmp"</code> .
<code>service.http.uidir.path</code>	Directory that contains the default calendar client. If allowing only WCAP access, set to "html".

**5 Save the file as `ics.conf`.**

**6 Restart Calendar Server.**

```
cal_svr_base/SUNWics5/cal/sbin/start-cal
```

## ▼ To Configure Alarm Notification

- 1 Log in as an administrator with permission to change the configuration.
- 2 Change to the `/etc/opt/SUNWics5/cal/config` directory.
- 3 Save your old `ics.conf` file by copying and renaming it.
- 4 Edit one or more of the following `ics.conf` parameters as shown in the following table:

Parameter	Description and Default Value
<code>alarm.diskstat.msgalarmdescription</code>	Description sent with insufficient disk space messages. The default description is: "percentage calendar partition disk space available".
<code>alarm.diskstat.msgalarmstatinterval</code>	Number of seconds between monitoring disk space. The default is "3600".
<code>alarm.diskstat.msgalarmthreshold</code>	Percentage of available disk space that triggers sending a warning message. The default is "10".
<code>alarm.diskstat.msgalarmthresholddirection</code>	Whether <code>alarm.diskstat.msgalarmthreshold</code> is above or below percentage. -1 is below and 1 is above. The default is "-1".
<code>alarm.diskstat.msgalarmwarninginterval</code>	Number of hours between sending warning messages about insufficient disk space. The default is "24".
<code>alarm.msgalarmnoticehost</code>	The host name of the SMTP server used to send server alarms. The default is "localhost".
<code>alarm.msgalarmnoticeport</code>	The SMTP port used to send server alarms. The default is "25".
<code>alarm.msgalarmnoticercpt</code>	The email address to whom server alarms sent. "Postmaster@localhost"
<code>alarm.msgalarmnoticesender</code>	The email address used as the sender when the server sends alarms. The default is "Postmaster@localhost"
<code>alarm.msgalarmnoticetemplate</code>	The default format used to send email alarms: "From: %s\nTo: %s\nSubject: ALARM: %s of \"%s\" is\n\n%s\n"
<code>alarm.responsestat.msgalarmdescription</code>	Description sent with no service response messages. The default is "calendar service not responding".
<code>alarm.responsestat.msgalarmstatinterval</code>	Number of seconds between monitoring services. The default is "3600".

Parameter	Description and Default Value
<code>alarm.responsestat.msgalarmthreshold</code>	The default is "100" (only trigger sending a warning message if no service response.)
<code>alarm.responsestat.msgalarmthresholddirection</code>	Specifies whether <code>alarm.responsestat.msgalarmthreshold</code> is above or below percentage. -1 is below and 1 is above. The default is "-1"
<code>alarm.responsestat.msgalarmwarninginterval</code>	Number of hours between sending warning messages about no service response sent out. The default is "24".
<code>local.rfc822header.allow8bit</code>	Allow ("y") or not allow ("n") 8 bit headers in email messages sent by this server.
<code>service.admin.alarm</code>	Enable ("yes") or disable ("no") alarm notifications for administration tools. The default is "yes".

5 Save the file as `ics.conf`.

6 Restart Calendar Server.

```
cal_svr_base/SUNWics5/cal/sbin/start-cal
```

## Configuring Periodic Deadlock Checking for the Berkeley Databases

You can configure the Calendar Server to periodically check for deadlocks in the Berkeley databases.

It is possible for the Berkeley databases to get into a deadlocked state, thus preventing access to them. To detect this state as early as possible, enable periodic checking for deadlocks.

### ▼ To Enable Periodic Checking of Berkeley Databases for Deadlocks

- 1 Log in as an administrator with permission to change the configuration.
- 2 Change to the `/etc/opt/SUNWics5/cal/config` directory.
- 3 Save your old `ics.conf` file by copying and renaming it.
- 4 Edit the parameter shown in the following table:

Parameter	Description/Default
<code>local.caldb.deadlock.autodetect</code>	Periodically checks if the Berkeley database is in a deadlock state and, if so, instructs the database to reset. The default value is “no” (not enabled).

**5 Save the file as `ics.conf`.**

**6 Restart Calendar Server.**

```
cal_svr_base/SUNWics5/cal/sbin/start-cal
```

**Troubleshooting** For information about how to reset Berkeley databases once deadlocked, see [“Detecting Database Corruption” on page 337](#) “List of Available Tools” on page 336 in the Troubleshooting chapter.

## Configuring Calendar Server for LDAP

- [“To Configure Anonymous Access to LDAP” on page 144](#)
- [“To Configure LDAP Attendee Lookup” on page 145](#)
- [“To Configure Search Filters for LDAP Attendee Lookup” on page 147](#)
- [“To Configure LDAP Resource Lookup” on page 150](#)
- [“To Configure LDAP Mail-to-Calid Lookup” on page 151](#)
- [“To Configure Calendar Server to Use the User Preferences LDAP Directory” on page 152](#)
- [“To Configure User Preferences” on page 152](#)
- [“To Enable and Configure the LDAP Data Cache” on page 153](#)
- [“To Enable and Configure the LDAP SDK Cache” on page 155](#)
- [“To Set the Date Range for Free Busy Searches” on page 156](#)
- [“To Enable Wildcard LDAP Searches of Calendar Properties” on page 156](#)
- [“To Set the LDAP Root Suffix” on page 157](#)

### ▼ To Configure Anonymous Access to LDAP

In general, anonymous access is allowed by default. If you want to restrict anonymous access, change the appropriate parameters.

- 1 Log in as an administrator with permission to change the configuration.**
- 2 Change to the `/etc/opt/SUNWics5/cal/config` directory.**
- 3 Save your old `ics.conf` file by copying and renaming it.**
- 4 Edit one or more of the parameters in the following:**



Parameter	Description/Default
<code>calstore.anonymous.calid</code>	Specifies the anonymous login calendar identifier ( <code>calid</code> ). The default is “anonymous”.
<code>service.http.allowanonymouslogin</code>	Specifies whether or not anonymous access is allowed without a login. The default is “yes”. (Allows recipient of emailed calendar URL to access a free-busy version of the calendar without login in.)
<code>service.wcap.anonymous.allowpubliccalendarwrite</code>	Specifies whether or not to allow anonymous users to write to a publicly writable calendar. The default is “yes”.
<code>service.wcap.userprefs.ldaproxyauth</code>	Enables anonymous search of the LDAP used for user preferences. The default is “no”, which allows anonymous access. Specifying “yes” means using proxy authentication to do the search.

**5 Save the file as `ics.conf`.**

**6 Restart Calendar Server.**

```
cal_svr_base/SUNWics5/cal/sbin/start-cal
```

## ▼ To Configure LDAP Attendee Lookup

**1 Log in as an administrator with permission to change the configuration.**

**2 Change to the `/etc/opt/SUNWics5/cal/config` directory.**

**3 Save your old `ics.conf` file by copying and renaming it.**

**4 Edit one or more of the parameters in the following table:**

Parameter	Description/Default
<code>local.lookupldap.search.minwildcardsize</code>	Specifies the minimum string size for wildcard searches in an attendee lookup search. Zero (0) means always do a wildcard search.
<code>local.lookupldap.user.authfilter</code>	Specifies the authentication filter for user lookup. The default is: “(uid=%s)”
<code>local.lookupldapbasedn</code>	Specifies the DN for LDAP attendee lookup. If not specified, uses <code>local.ugldapbasedn</code> . No default value.

Parameter	Description/Default
<code>local.lookupldapbinddn</code>	Specifies the DN to bind to the host used for LDAP attendee lookup. If not specified (default is ""), anonymous bind assumed.
<code>local.lookupldapbindcred</code>	Credentials (password) for user identified in <code>local.lookupldapbinddn</code> . No default value.
<code>local.lookupldaphost</code>	The host name for LDAP attendee lookup. If not specified, uses <code>local.ugldaphost</code> .
<code>local.lookupldapmaxpool</code>	Specifies the number of LDAP client connections maintained for LDAP attendee lookup. If not specified, uses <code>local.ugldapmaxpool</code> . The default is "1024".
<code>local.lookupldappoolsize</code>	Specifies the minimum number of LDAP client connections maintained for LDAP attendee lookup. If not specified, uses <code>local.ugldappoolsize</code> . The default is "1".
<code>local.lookupldapport</code>	Specifies the port to use for LDAP attendee lookup. If not specified, uses <code>local.ugldapport</code> .
<code>local.lookupldapsearchattr.calid</code>	Specifies the calid attribute for attendee lookup. The default is <code>icsCalendar</code> .
<code>local.lookupldapsearchattr.mail</code>	Specifies the mail attribute for attendee lookup. The default is <code>mail</code> .
<code>local.lookupldapsearchattr.mailalternateaddress</code>	Specifies the alternate mail address attribute for attendee lookup. The default is <code>mailalternateaddress</code> .
<code>local.lookupldapsearchattr.mailequivalentaddress</code>	Specifies the equivalent address mail attribute for attendee lookup. The default is <code>mailequivalentaddress</code> .
<code>local.lookupldapsearchattr.calendar</code>	Specifies the calendar attribute for attendee lookup. The default is <code>icsCalendar</code> .
<code>local.lookupldapsearchattr.cn</code>	Specifies the common name attribute for attendee lookup. The default is <code>icsCalendar</code> .
<code>local.lookupldapsearchattr.objectclass</code>	Specifies the object class attribute for attendee lookup. The default is <code>objectclass</code> .
<code>local.lookupldapsearchattr.objectclass.caluser</code>	Specifies the object class for calendar users. The default is <code>icsCalendarUser</code> .
<code>local.lookupldapsearchattr.objectclass.calresource</code>	Specifies the object class for calendar resources. The default is <code>icsCalendarResource</code> .
<code>local.lookupldapsearchattr.objectclass.group</code>	Specifies the object class for groups. The default is <code>groupofuniquenames</code> .

Parameter	Description/Default
<code>local.lookupldapsearchattr. objectclass.person</code>	Specifies the object class for persons. The default is <code>person</code> .
<code>local.lookupldapsearchattr. memberurl</code>	Specifies the member URL attribute for attendee lookup. The default is <code>memberurl</code> .
<code>local.lookupldapsearchattr. uniquemember</code>	Specifies the unique member attribute for attendee lookup. The default is <code>uniquemember</code> .
<code>local.lookupldapsearchattr. givenname</code>	Specifies the given name attribute for attendee lookup. The default is <code>givenname</code> .
<code>local.lookupldapsearchattr.sn</code>	Specifies the screen name attribute for attendee lookup. The default is <code>sn</code> .
<code>local.smtp.defaultdomain</code>	Name of the default domain used to lookup an attendee's calendar ID that corresponds to an email address. For example, <code>jsmith</code> resolves to <code>jsmith@sesta.com</code> if the value for this setting is <code>"sesta.com"</code> .

**5 Save the file as `ics.conf`.**

**6 Restart Calendar Server.**

```
cal_svr_base/SUNWics5/cal/sbin/start-cal
```

## ▼ To Configure Search Filters for LDAP Attendee Lookup

**1 Log in as an administrator with permission to change the configuration.**

**2 Change to the `/etc/opt/SUNWics5/cal/config` directory.**

**3 Save your old `ics.conf` file by copying and renaming it.**

**4 Edit one or more of the parameters in the following table:**

---

**Tip** – In all the parameter descriptions that follow, `%s` allows only a single attendee.

---

Parameter	Description/Default
<code>local.lookupldap.calid.direct</code>	The search filter for calid-search-type using direct lookup. The default is: "(icsCalendar=%s) %s—The attendee string.
<code>local.lookupldap.cn.direct</code>	The search filter for cn-search-type in direct lookup. The default is: " (&(cn=%s) ( (objectclass=groupofuniquenames) (objectclass=icsCalendarResource) (objectclass=person)))" %s – The attendee string.
<code>local.lookupldap.cn.search</code>	The search filter for cn-search-type in search dialog lookup. The default is for a single attendee string (%s): " (&(cn=%s) ( (objectclass=groupofuniquenames) (objectclass=icsCalendarResource) (objectclass=person)))" For a wild card search (multiple search strings): " (&(cn=%w) ( (objectclass=groupofuniquenames) (objectclass=icsCalendarResource) (objectclass=person)))" %w – Causes expansion to a list of attendee strings. For example: %w="Mary Ann Smith" expands to: (&(cn=*Mary*)(cn="*Ann") (cn=*Smith*))
<code>local.lookupldap.gid</code>	The search filter for gid search type. The default is: " (&(cn=%s) (objectclass=groupofuniquenames))" %s — A single attendee string.

Parameter	Description/Default
<code>local.lookupldap.mailto.indomain</code>	<p>The search filter for mailto-search-type in the domain specified by <code>local.smtp.defaultdomain</code>. The default is:</p> <pre>"( (mail=%s)(mail=%h)(mail=*&lt;%s\&gt;*) (uid=%o))"</pre> <p><code>%s</code> – The attendee string.  <code>%o</code> – The attendeeuid.  <code>%h</code> – The query string without the domain part.</p> <p>For example: if <code>%s=jdoe@sesta.com</code>, <code>%o=jdoe@sesta.com</code> and <code>%h=jdoe</code>, then the value is:</p> <pre>( (mail=jdoe@varrius.com) (mail=jdoe) (mail=*&lt;jdoe@varrius.com\&gt;*) (uid=jdoe@varrius.com))"</pre>
<code>local.lookupldap.mailto.outdomain</code>	<p>The search filter for mailto-search-type where the domain is not the one specified by <code>local.smtp.defaultdomain</code>. The default is:</p> <pre>"( (mail=%s)(uid=%s))"</pre> <p><code>%s</code> – The attendee string.</p>
<code>local.lookupldap.res</code>	<p>The search filter for res search type (resource search). The default is:</p> <pre>"(&amp;(cn=%s) (objectclass=icsCalendarResource))"</pre> <p><code>%s</code> – The attendee string.</p>
<code>local.lookupldap.res.ugldap</code>	<p>The search filter for res search type (resource search) only on the User/Group LDAP server. This is only set when <code>local.lookupldap.resource.use.ugldap</code> is set to "yes". The default is:</p> <pre>"(&amp;(cn=%s) (objectclass=icsCalendarResource))"</pre> <p><code>%s</code> – The attendee string.</p>
<code>local.lookupldap.uid.direct</code>	<p>The search filter for uid search type using direct lookup. The default is:</p> <pre>"( (uid=%s)(&amp;(cn=%s) ( (objectclass=groupofuniquenames) (objectclass=icsCalendarResource) (objectclass=person))))"</pre> <p><code>%s</code> – The attendee string.</p>

Parameter	Description/Default
<code>local.lookupldap.uid.search</code>	<p>The search filter for uid search type lookup using a search dialog. The default is:</p> <pre>"( (uid=%o)(&amp;(cn=%w)   ( (objectclass=groupofuniquenames)   (objectclass=icsCalendarResource)   (objectclass=person))))"</pre> <p><code>%s</code> – The attendee string.</p> <p><code>%w</code> – The attendee string with wildcards.</p> <p><code>%o</code> – The attendee string without wildcards.</p>

**5 Save the file as `ics.conf`.**

**6 Restart Calendar Server.**

`cal_svr_base/SUNWics5/cal/sbin/start-cal`

## ▼ To Configure LDAP Resource Lookup

**1 Log in as an administrator with permission to change the configuration.**

**2 Change to the `/etc/opt/SUNWics5/cal/config` directory.**

**3 Save your old `ics.conf` file by copying and renaming it.**

**4 Edit the parameter shown in the following table:**

Parameter	Description/Default
<code>local.lookupldap.resource.use.ugldap</code>	<p>Whether to use the User/Group LDAP server for resource lookup, or the Lookup server.</p> <p><code>"yes"</code> – Use the User/Group LDAP server.</p> <p><code>"no"</code> – Use the Lookup server. The default is <code>"no"</code>.</p>

**5 Save the file as `ics.conf`.**

**6 Restart Calendar Server.**

`cal_svr_base/SUNWics5/cal/sbin/start-cal`

## ▼ To Configure LDAP Mail-to-Calid Lookup

These parameters are used only for a non-hosted domain environment. If you have deployed a hosted domain environment, the mail lookup parameters are ignored and the user and group LDAP values (ugldap) are used.

- 1 **Log in as an administrator with permission to change the configuration.**
- 2 **Change to the `/etc/opt/SUNWics5/cal/config` directory.**
- 3 **Save your old `ics.conf` file by copying and renaming it.**
- 4 **Edit one or more of the parameters in the following table:**

Parameter	Description/Default
<code>local.lookupldap.mailtovalid.search</code>	Specifies the mail attributes to use for mail-to-calid lookup. The default is " <code>( (mail=%s)(mailalternateaddress=%s))</code> "  You can substitute the attribute <code>mailequivalentaddress</code> in place of <code>mailalternateaddress</code> .
<code>local.maillookupldapbasedn</code>	Specifies the base DN for mail-to-calid lookup. If not specified, uses <code>local.ugldapbasedn</code> .
<code>local.maillookupldapbinddn</code>	Specifies the DN to bind to the host used for mail-to-calid lookup. If not specified (default is ""), anonymous bind assumed.
<code>local.maillookupldapbindcred</code>	Specifies the password for the DN specified in <code>local.maillookupldapbinddn</code> . No default.
<code>local.maillookupldaphost</code>	Specifies the LDAP host used for mail-to-calid lookup. If not specified, uses <code>local.ugldaphost</code> .
<code>local.maillookupldapmaxpool</code>	Specifies the maximum number of client connections maintained for mail-to-calid lookup. If not specified, uses <code>local.ugldapmaxpool</code> . The default is "1024".
<code>local.maillookupldappoolsize</code>	Specifies the minimum number of client connections to maintain for mail-to-calid lookup. If not specified, uses <code>local.ugldappoolsize</code> . The default is "1".
<code>local.maillookupldapport</code>	Specifies the port for the LDAP mail-to-calid lookup. If not specified, uses <code>local.ugldapport</code> . No default.

- 5 **Save the file as `ics.conf`.**

- 6 **Restart Calendar Server.**

```
cal_svr_base/SUNWics5/cal/sbin/start-cal
```

## ▼ To Configure Calendar Server to Use the User Preferences LDAP Directory

- 1 Log in as an administrator with permission to change the configuration.
- 2 Change to the `/etc/opt/SUNWics5/cal/config` directory.
- 3 Save your old `ics.conf` file by copying and renaming it.
- 4 Edit one or more of the parameters in the following table:

Parameter	Description/Default
<code>local.enduseradmincred</code>	Bind credentials (password) for LDAP user preferences authentication. No default.
<code>local.enduseradmindn</code>	DN used to bind to LDAP user preferences host. Must be specified. If blank (" ") or not specified, assumes an anonymous bind.
<code>local.ugldappoolsize</code>	Minimum number of LDAP client connections that are maintained for LDAP user preferences. The default is "1".
<code>local.ugldapmaxpool</code>	Maximum number of LDAP client connections that are maintained for LDAP user preferences. The default is "1024".
<code>service.wcap.userprefs.ldaproxyauth</code>	Enables anonymous search of the LDAP used for user preferences. The default is "no", which allows anonymous access. Specifying "yes" means using proxy authentication to do the search.

- 5 Save the file as `ics.conf`.
- 6 Restart Calendar Server.  
`cal_svr_base/SUNWics5/cal/sbin/start-cal`

## ▼ To Configure User Preferences

You can restrict the preferences users are allowed to set by removing them from the default list.

- 1 Log in as an administrator with permission to change the configuration.
- 2 Change to the `/etc/opt/SUNWics5/cal/config` directory.
- 3 Save your old `ics.conf` file by copying and renaming it.



**4 Edit the list of user preferences in the parameter shown in the following table:**

Parameter	Default List of User Preferences	Description
local. ugldapicsextendeduserprefs	"ceColorSet, ceFontFace, ceFontSizeDelta, ceDateOrder, ceDateSeparator, ceClock, ceDayHead, ceDayTail, ceInterval, ceToolText, ceToolImage, ceDefaultAlarmStart, ceSingleCalendarTZID, ceAllCalendarTZIDs, ceDefaultAlarmEmail, ceNotifyEmail, ceNotifyEnable, ceDefaultView, ceExcludeSatSun, ceGroupInviteAll"	User preference values are kept in LDAP. This parameter defines which user preferences are kept in LDAP in the <code>icsExtendedUserPrefs</code> attribute.

**5 Save the file as `ics.conf`.**

**6 Restart Calendar Server.**

```
cal_svr_base/SUNWics5/cal/sbin/start-cal
```

## ▼ To Enable and Configure the LDAP Data Cache

**Before You Begin** For overview information about the LDAP Data Cache, see [“LDAP Data Cache Option” on page 45](#).

- 1 **Log in as an administrator with permission to change the configuration.**
- 2 **Change to the `/etc/opt/SUNWics5/cal/config` directory.**
- 3 **Save your old `ics.conf` file by copying and renaming it.**
- 4 **Enable the LDAP data cache by editing the parameter as shown in the following table:**

Parameter	Description and Default Value
<code>local.ldap.cache.enable</code>	Enable or disable the LDAP cache. If "yes", the cache is enabled. If "no" the cache is disabled. The default is "no".
<code>local.ldap.cache.checkpointinterval</code>	Specifies the number of seconds for the checkpoint thread to sleep. The default time is 60 seconds.
<code>local.ldap.cache.circularlogging</code>	Specifies whether or not to remove the database log files after they have been processed. The default is "yes" .
<code>local.ldap.cache.homedir.path</code>	Specifies the physical location of LDAP data cache database. The default is:  <code>cal_svr_base/var/opt/SUNWics5/cldb/ldap_cache</code>
<code>local.ldap.cache.logfilesizeb</code>	Specifies the maximum size in megabytes of the checkpoint file. The default is 10 megabytes.
<code>local.ldap.cache.maxthreads</code>	Specifies the maximum number of threads for the LDAP data cache database. The default is "1000" .
<code>local.ldap.cache.mempoolsizemb</code>	Specifies the number of megabytes of shared memory. The default is "4" megabytes.
<code>local.ldap.cache.entryttl</code>	Not currently implemented.  Specifies the time to live (TTL) in seconds for an LDAP data cache entry. The default is "3600" seconds (1 hour).
<code>local.ldap.cache.stat.enable</code>	Specifies whether or not to log the access to the LDAP data cache and to print statistics in the log file. The default is no .  <b>Note</b> – This parameter applies only to debug mode.
<code>local.ldap.cache.stat.interval</code>	Specifies the interval in seconds when each statistics report is written to the log file. The default is "1800" seconds (30 minutes).
<code>local.ldap.cache.cleanup.interval</code>	Specifies the interval in seconds between each database cleanup. The default is "1800" seconds (30 minutes).

- 5 **Save the file as `ics.conf`.**

**6 Restart Calendar Server.**

```
cal_svr_base/SUNWics5/cal/sbin/start-cal
```

**See Also** For information about tuning the LDAP data cache, see [“Improving Performance of the LDAP Data Cache”](#) on page 318.



**Caution** – If Calendar Server or the server where Calendar Server is running is not properly shut down, manually delete all files in the `ldap_cache` directory to avoid any database corruption that might cause problems during a subsequent restart.

## ▼ To Enable and Configure the LDAP SDK Cache

The LDAP SDK cache is disabled by default.

- 1 **Log in as an administrator with permission to change the configuration.**
- 2 **Change to the `/etc/opt/SUNWics5/cal/config` directory.**
- 3 **Save your old `ics.conf` file by copying and renaming it.**
- 4 **Editing one or more of the parameters as shown in the following table:**

Parameter	Description and Default Value
<code>service.ldapmemcache</code>	If "yes", enables LDAP SDK cache. The default is "no".
<code>service.ldapmemcachettl</code>	If <code>service.ldapmemcache</code> is "yes", this parameter is used to set the maximum number of seconds that an item can be cached. If "0", there is no limit to the amount of time that an item can be cached. The default is "30".
<code>service.ldapmemcachesize</code>	If <code>service.ldapmemcache</code> is "yes", this parameter is used to set the maximum amount of memory in bytes that the cache will consume. If "0", the cache has no size limit. The default is "131072".

- 5 **Save the file as `ics.conf`.**

**6 Restart Calendar Server.**

```
cal_svr_base/SUNWics5/cal/sbin/start-cal
```

## ▼ To Set the Date Range for Free Busy Searches

- 1 Log in as an administrator with permission to change the configuration.
- 2 Change to the `/etc/opt/SUNWics5/cal/config` directory.
- 3 Save your old `ics.conf` file by copying and renaming it.
- 4 Edit one or more of the following parameters as shown in the following table:

Parameter	Description and Default Value
<code>service.wcap.freebusybegin</code>	Specifies the offset from the current time in days for <code>get_freebusy</code> for beginning of the range. The default is "30".
<code>service.wcap.freebusyend</code>	Specifies the offset from the current time in days for <code>get_freebusy</code> for end of the range. The default is "30".

- 5 Save the file as `ics.conf`.
- 6 Restart Calendar Server.  
`cal_svr_base/SUNWics5/cal/sbin/start-cal`

## ▼ To Enable Wildcard LDAP Searches of Calendar Properties

- 1 Log in as an administrator with permission to change the configuration.
- 2 Change to the `/etc/opt/SUNWics5/cal/config` directory.
- 3 Save your old `ics.conf` file by copying and renaming it.
- 4 Edit the parameter as shown in the following table:

Parameter	Description and Default Value
service.calendarsearch.ldap. primaryownersearchfilter	<p>The default search filter used for search_calprops searches for exact matches to the search string. To allow wildcard searches such that matches are found when the search string is merely contained within the property value, uncomment this parameter. This enables the system to use the following search filter:</p> <pre>" (&amp;( (uid=%s*)(cn=%s*)) (objectclass=icsCalendarUser))"</pre> <p>Enabling this search filter can negatively impact performance.</p>

**5 Save the file as `ics.conf`.**

**6 Restart Calendar Server.**

```
cal_svr_base/SUNWics5/cal/sbin/start-cal
```

## ▼ To Set the LDAP Root Suffix

While it is possible to reset the root suffix for your LDAP organization tree (Schema 2), or domain component tree (Schema 1), this should be done with great care. It would be better to rerun the configuration program to do this.

**1 Log in as an administrator with permission to change the configuration.**

**2 Change to the `/etc/opt/SUNWics5/cal/config` directory.**

**3 Save your old `ics.conf` file by copying and renaming it.**

**4 Edit one of the parameters as shown in the following table:**

Parameter	Description and Default Value
service.dcreoot	<p>Root suffix of the DC tree in the directory. Required for hosted (virtual) domain mode support using Schema 1. The default is "o=internet".</p> <p>See also <a href="#">“Setting up a Hosted Domain Environment” on page 214</a>.</p>
service.schema2root	<p>Root suffix of the DIT (Organization Tree) for Schema 2. No default value.</p>

**5 Save the file as `ics.conf`.**

**6 Restart Calendar Server:**

```
cal_svr_base/SUNWics5/cal/sbin/start-cal
```

# Configuring Calendar Database Distribution Across Multiple Machines

---

This chapter describes how to use the Calendar Lookup Database (CLD) plug-in to enable the calendar database to be distributed over multiple back-end servers. You must both enable and configure the CLD plug-in.



---

**Caution** – For Calendar Server installations that separate functionality across front-end and back-end machines, the hardware platforms must be the same on each end.

More specifically, due to big-endian versus small-endian incompatibility, you can't use both an x86 platform machine and a SPARC platform machine in the same Calendar Server deployment containing front-end and back-end machines.

---

This chapter contains the following topics:

- “Background Information” on page 159
- “Configuring Calendar Servers for CLD and DWP” on page 165
- “Maintaining Security Between Front-End and Back-End Servers” on page 171

---

**Tip** – For information on how to improve the performance of the CLD plug-in, see [Chapter 21, “Tuning Calendar Server Performance.”](#)

---

## Background Information

This section covers valuable overview and background information that you might want to understand before actually enabling and configuring the CLD plug-in. It contains the following topics:

- “CLD Plug-in Overview” on page 160
- “How the CLD Plug-in Works” on page 160
- “Configurations Supported by the CLD Plug-in” on page 160

- [“Simple Sizing Exercise” on page 163](#)

## CLD Plug-in Overview

The Calendar Lookup Database (CLD) plug-in provides horizontal scalability of the calendar database by allowing user and resource calendars to be distributed over a number of back-end servers for a single calendar instance. When the calendar database is distributed over several back-end servers, Calendar Server uses the CLD plug-in to determine the actual server where a calendar is stored.

Calendar Server accesses the calendar data on the back-end server using the Database Wire Protocol (DWP). DWP is an internal protocol that runs as the `csdwpd` service and provides the networking capability for the calendar database.

## How the CLD Plug-in Works

Calendar Server accesses calendar data on a back-end server as follows:

1. When an end user accesses a calendar through Communications Express, the CLD plug-in extracts the `userid` from the calendar's `calid` and then looks up the calendar owner in the LDAP directory database, or the CLD data cache (if enabled). For information and instructions on configuring a front-end machine, see [“To Configure a Front-End Server for CLD” on page 165](#).
2. After finding the calendar owner, the plug-in uses the value in the `icsDWPHost` LDAP attribute to determine the host name of the back-end server where the calendar resides. This host name must be resolvable by your Domain Name Service (DNS) into a valid IP address.
3. Using the host name, Calendar Server accesses the calendar data on the back-end server using the Database Wire Protocol (DWP).
4. Using DWP, Calendar Server sends the calendar data to the server where the user is logged in, so it can be rendered in one of the user interfaces.

---

**Tip** – If your site is using the CLD plug-in, all calendars created for the same user must reside on the same back-end server, as indicated by the LDAP user entry's `icsDWPHost` LDAP attribute. If you try to create a calendar on a different back-end server, Calendar Server returns an error.

---

## Configurations Supported by the CLD Plug-in

The CLD plug-in supports the following Calendar Server configurations:

- [“Multiple Front-end Servers with Multiple Back-end Servers” on page 161](#)
- [“Multiple Machines Functioning as Both Front-end and Back-end Servers” on page 162](#)



**Tip** – In all configurations, each front-end and back-end server must:

- Be on the same hardware platform.
  - Be running the same operating system.
  - Be running the same Calendar Server release, including patches.
  - Use the same port number for the DWP port (`service.dwp.port` parameter). The default port number is “59779”.
- 

## Multiple Front-end Servers with Multiple Back-end Servers

[Figure 6–1](#) shows two front-end servers and two back-end servers running a single Calendar Server instance. You can also configure more than two front-end or back-end servers, if you wish.

This configuration allows the servers to be protected by a firewall to restrict access to the LDAP and calendar databases. The calendar database is distributed across the two back-end servers.

The front-end servers are CPU intensive, with most CPU time spent rendering calendar data for end-users. The back-end servers are disk intensive, with most CPU time spent accessing the calendar database.

For configuration instructions, see [“Configuring Calendar Servers for CLD and DWP”](#) on [page 165](#).

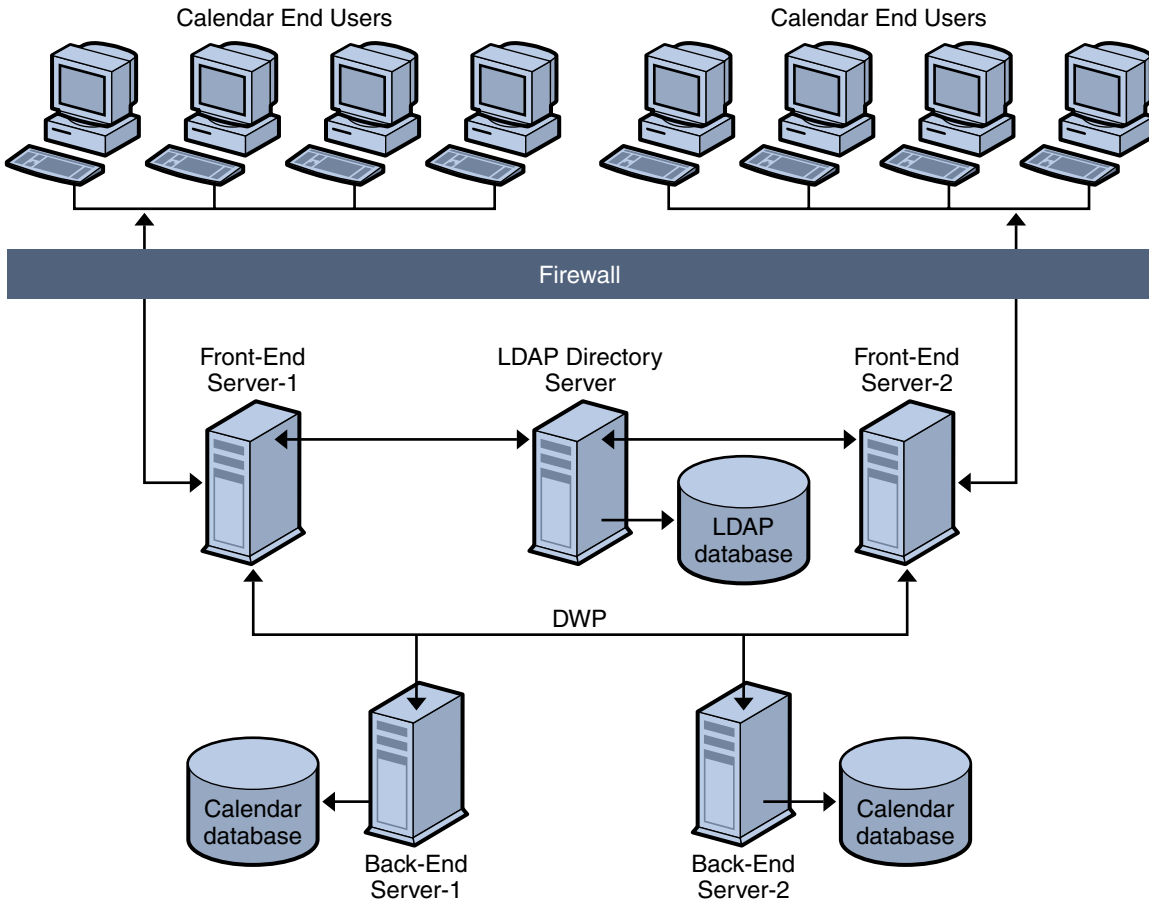


FIGURE 6-1 Multiple Front-End Servers with Multiple Back-End Servers

## Multiple Machines Functioning as Both Front-end and Back-end Servers

Figure 6-2 shows three machines functioning as both front-end and back-end servers. Each machine is connected to a calendar database. This configuration allows calendars to be geographically distributed. Calendar owners (end users) log into the machine where their calendars reside. For configuration instructions, see [“To Configure a Server as Both a Front-end and a Back-end”](#) on page 169.

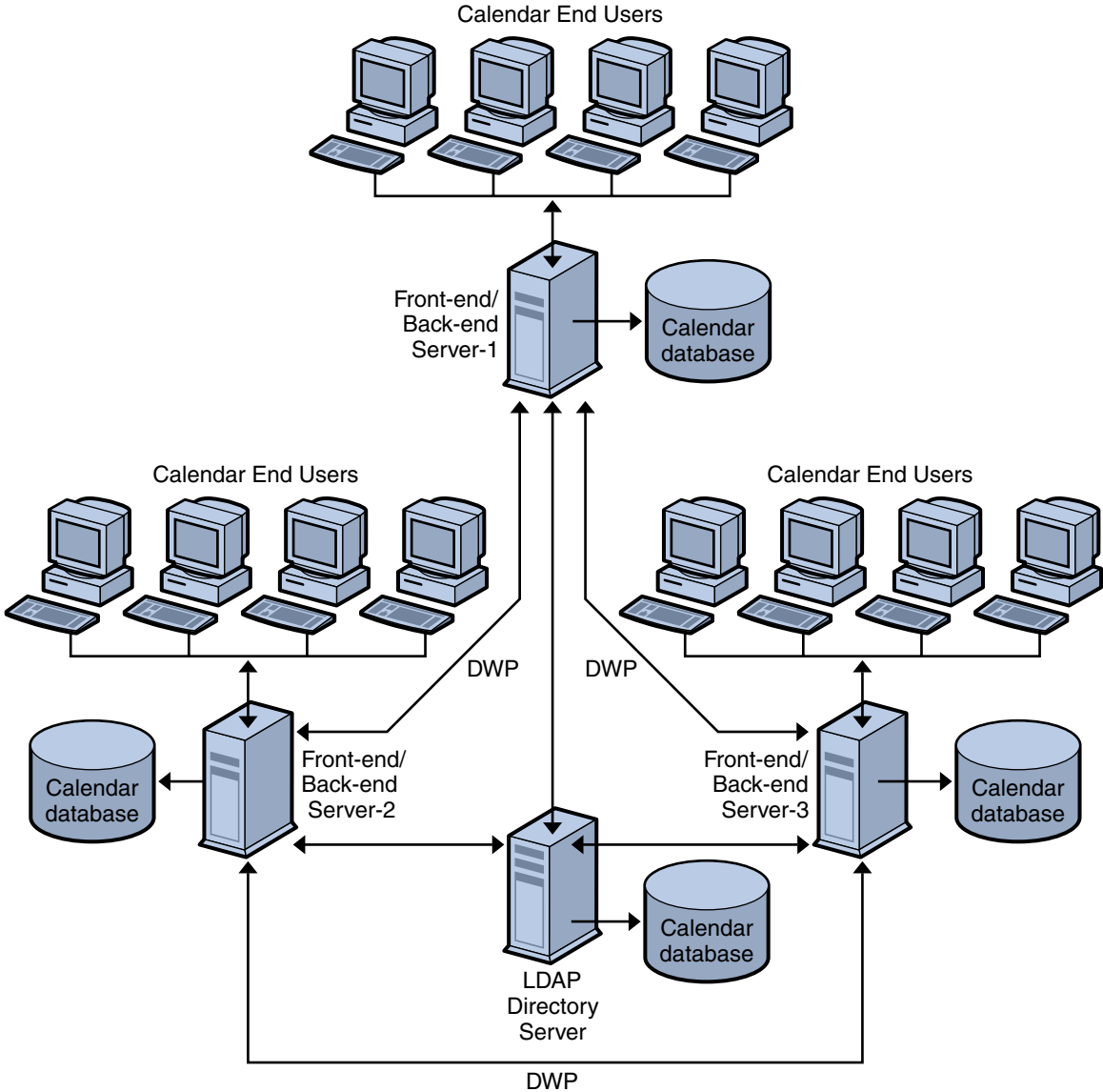


FIGURE 6-2 Multiple Servers as Functioning as Both Front-end and Back-end

### Simple Sizing Exercise

The following are a few rough formulas based on a medium usage profile for figuring how many back-end and front-end servers you need, and how much storage:

- “Definition of Medium Usage Profile” on page 164

- “Number of Front-End CPU's” on page 164
- “Number of Back-End CPU's” on page 164
- “Amount of Storage Needed” on page 164

## Definition of Medium Usage Profile

For our rough estimates, we are assuming the following:

- All clients are Web clients.  
Therefore, the only inputs to be used are: total number of users, and percent concurrency.
- The average size calendar event size is 2K.
- Each person creates five events or todos per week.
- 80% CPU utilization.
- 900 MHz CPU's
- 1 GB RAM per CPU
- Two years' worth of calendar data stored on system.

## Number of Front-End CPU's

The formula is:

Number of CPU's = Number of Concurrent Users divided by 4800

## Number of Back-End CPU's

The formula is:

Number of CPU's = 4 CPU's per 500,000 configured users

## Amount of Storage Needed

The formula is:

Amount of Storage = 5 emails per week times 52 weeks a year times 2K per email (5\*52\*2K)  
= 520KB per user per year

For the assumed two years of calendar data, 1 MB per user.

# Configuring Calendar Servers for CLD and DWP

This sections contains instructions for configuring servers and contains the following topics:

- “To Configure a Front-End Server for CLD” on page 165
- “To Configure a Back-end Server for CLD and DWP” on page 167
- “To Configure a Server as Both a Front-end and a Back-end” on page 169

## ▼ To Configure a Front-End Server for CLD

- 1 On every front-end server, log in as an administrator with permission to change the configuration.
- 2 Change to the `/etc/opt/SUNWics5/cal/config` directory.
- 3 Save your old `ics.conf` file by copying and renaming it.
- 4 Edit the `ics.conf` parameters as shown in the following table:

Parameters	Description
<code>csapi.plugin.loadall</code>	For every front-end server, set the value to “y” if you want all plug-ins starting with <code>cs_</code> to be loaded into the <code>cal_svr_base/SUNWics5/cal/bin/plugins</code> directory.  Set to “n”, to load only a specific plug-in, the name of which is found in <code>csapi.plugin.calendarlookup.name</code> .
<code>csapi.plugin.calendarlookup</code>	Set this parameter to “yes”.
<code>csapi.plugin.calendarlookup.name</code>	Set this parameter to the name of the plug-in, “calendarlookup”. Or, to load all plug-ins, set the parameter to “*”.
<code>caldb.cld.type</code>	This parameter specifies whether calendars are to be distributed across multiple back-ends (set value to “directory”), or calendars are to be stored on the same server on which Calendar Server is installed (set value to, “local”, which is the default value).
<code>service.dwp.enable</code>	Disable DWP service for the front-end, unless it is also serving as a back-end machine. For example: <code>service.dwp.enable="no"</code>
<code>service.dwp.port</code>	The default port is “59979”. This port number must be the same for all front-end and back-end servers.

<code>service.store.enable</code>	<p>Since <code>csstored</code> is meant to back up calendar databases, you do not need it on a front-end machine. However, disabling the process is not required.</p> <p>You can choose to disable the <code>csstored</code> process on a front-end machine by setting this parameter to "no". This will stop the process from reporting on a daily basis that it is not configured.</p>
<code>caldb.dwp.server.backend-server-n.ip</code>	<p>This is a multi-valued parameter. Create one <code>ics.conf</code> parameter for each back-end server in your Calendar Server deployment. The value of this parameter is the back-end server hostname. The server name must be fully qualified and be resolvable by your Domain Name Service (DNS) into a valid IP address. The server name must be identical and fully qualified in both the parameter name and the value.</p> <p>For example:</p> <pre>caldb.dwp.server.calendar1.sesta.com= "calendar1.sesta.com" caldb.dwp.server.calendar2.sesta.com= "calendar2.sesta.com"</pre>
<code>caldb.dwp.server.default</code>	<p>Set the default DWP server name used by the system if the user or resource LDAP entry does not have an <code>icsDWPHost</code> attribute. The server name must be fully qualified and be resolvable by your DNS.</p> <p>For example:</p> <pre>caldb.dwp.sever.default= "calendar1.sesta.com"</pre>
<code>local.authldaphost</code>	<p>The hostname where the Directory Server is installed. The default is "localhost".</p>
<code>local.ugldaphost</code>	<p>The hostname where the LDAP user preferences are stored. If you do not keep the user preferences in a separate LDAP host, then it should be set to the same value as <code>local.authldaphost</code>.</p>
<code>service.ens.enable</code>	<p>Disable ENS (<code>enpd</code>) for this front-end server, set this parameter to "no". ENS must be enabled only on the back-end servers.</p>
<code>caldb.serveralarms</code>	<p>To disable server alarms for the front-end by setting this to "0". Server alarms must be enabled ("1") only on the back-end servers.</p>
<code>caldb.serveralarms.dispatch</code>	<p>To disable the alarm dispatcher, set this parameter to "no". The alarm dispatcher should be enabled ("yes") only on the back-end servers.</p>
<code>service.notify.enable</code>	<p>To disable the notify service, set this parameter to "no". The notify service should be enabled ("yes") only on back-end servers.</p>

<code>caldb.berkeleydb.archive.enable</code>	To disable the automatic archive backup service, set this parameter to "no". There is no need to have archiving configured on a front-end machine.
<code>caldb.berkeleydb.hotbackup.enable</code>	The automatic hot backup service should be disabled (value set to "no"). There is no need for hot backups on a front-end machine.

5 Save the file as `ics.conf`.

6 Restart Calendar Server.

```
cal_svr_base/SUNWics5/cal/sbin/start-cal
```

## ▼ To Configure a Back-end Server for CLD and DWP

- 1 On every back-end server, log in as an administrator with permission to change the configuration.
- 2 Change to the `/etc/opt/SUNWics5/cal/config` directory.
- 3 Save your old `ics.conf` file by copying and renaming it.
- 4 Edit the `ics.conf` parameters as shown in the following table:

Parameters	Description
<code>service.http.enable</code>	Set this parameter to "no". There is no need for HTTP on a back-end server.
<code>service.admin.enable</code>	Enable the administration service ( <code>csadmin</code> ) by setting the parameter to "yes", which is the default.
<code>caldb.cld.type</code>	This parameter specifies whether calendars are to be distributed across multiple back-ends (set value to "directory"), or calendars are to be stored on the same server on which Calendar Server is installed (set value to "local", which is the default value).  For CLD and DWP this must be set to "directory" on every front-end and back-end server.
<code>csapi.plugin.calendarlookup</code>	Set this parameter to "no". There is no need for a plug-in on a back-end server.
<code>service.dwp.enable</code>	Enable DWP by setting this parameter to "yes"

<code>service.dwp.port</code>	The default port is "59979". This port number must be the same for all front-end and back-end servers.
<code>caldb.dwp.server.backend-server-n.ip</code>	This is a multi-valued parameter. Create one <code>ics.conf</code> parameter for each back-end server in your Calendar Server deployment. The value of this parameter is the back-end server hostname. The server name must be fully qualified and be resolvable by your Domain Name Service (DNS) into a valid IP address. The server name must be identical and fully qualified in both the parameter name and the value.  For example:  <code>caldb.dwp.server.calendar1.sesta.com="calendar1.sesta.com"</code>  <code>caldb.dwp.server.calendar2.sesta.com="calendar2.sesta.com"</code>
<code>caldb.dwp.server.default</code>	Set the default DWP server name used by the system if the user or resource LDAP entry does not have an <code>icsDWPHost</code> attribute. The server name must be fully qualified and be resolvable by your DNS.  For example:  <code>caldb.dwp.server.default="calendar1.sesta.com"</code>
<code>local.authldaphost</code>	The hostname where the Directory Server is installed. The default is "localhost".
<code>local.ugldaphost</code>	The hostname where the LDAP user preferences are stored. If you do not keep the user preferences in a separate LDAP host, then it should be set to the same value as <code>local.authldaphost</code> .
<code>service.ens.enable</code>	To enable ENS ( <code>enpd</code> ) for this back-end server, set this parameter to "yes".
<code>caldb.serveralarms</code>	Server alarms must be enabled ("1") on the back-end servers.

**5 Save the file as `ics.conf`.**

**6 Restart Calendar Server.**

`cal_svr_base/SUNWics5/cal/sbin/start-cal`



## ▼ To Configure a Server as Both a Front-end and a Back-end

- 1 On every server, log in as an administrator with permission to change the configuration.
- 2 Change to the `/etc/opt/SUNWics5/cal/config` directory.
- 3 Save your old `ics.conf` file by copying and renaming it.
- 4 Edit the `ics.conf` parameters as shown in the following table:

Parameters	Description
<code>csapi.plugin.loadall</code>	For every front-end server, set the value to "y" if you want all plug-ins starting with <code>cs_</code> to be loaded into the <code>cal_svr_base/SUNWics5/cal/bin/plugins</code> directory.  Set to "n", to load only the CLD plug-in, the name of which is found in <code>csapi.plugin.calendarlookup.name</code> .
<code>csapi.plugin.calendarlookup</code>	Set this parameter to "yes".
<code>csapi.plugin.calendarlookup.name</code>	To load all plug-ins, set the parameter to "*".  If you want to load only the CLD plug-in, set this parameter to the name of the plug-in, "calendarlookup".
<code>caldb.cld.type</code>	This parameter specifies whether calendars are to be distributed across multiple back-ends (set value to "di rectory"), or calendars are to be stored on the same server on which Calendar Server is installed (set value to, "local", which is the default value).
<code>service.dwp.enable</code>	Enable DWP by setting this parameter to "yes"
<code>service.dwp.port</code>	The default port is "59979". This port number must be the same for all front-end and back-end servers.

<code>caldb.dwp.server.backend-server-n.ip</code>	<p>This is a multi-valued parameter. Create one <code>ics.conf</code> parameter for each back-end server in your Calendar Server deployment. The value of this parameter is the back-end server hostname. The server name must be fully qualified and be resolvable by your Domain Name Service (DNS) into a valid IP address. The server name must be identical and fully qualified in both the parameter name and the value.</p> <p>For example:</p> <pre>caldb.dwp.server.calendar1.sesta.com="calendar1.sesta.com" caldb.dwp.server.calendar2.sesta.com="calendar2.sesta.com"</pre>
<code>caldb.dwp.server.default</code>	<p>Set the default DWP server name used by the system if the user or resource LDAP entry does not have an <code>icsDWPHost</code> attribute. The server name must be fully qualified and be resolvable by your DNS.</p> <p>For example:</p> <pre>aldb.dwp.sever.default="calendar1.sesta.com"</pre>
<code>local.authldaphost</code>	<p>The hostname where the Directory Server is installed. The default is "localhost" (on the same server as the front-end).</p>
<code>local.ugldaphost</code>	<p>The hostname where the LDAP user preferences are stored. If you do not keep the user preferences in a separate LDAP host, then it should be set to the same value as <code>local.authldaphost</code>.</p>
<code>service.ens.enable</code>	<p>Enable ENS by setting this parameter value to "yes".</p>
<code>caldb.serveralarms</code>	<p>Server alarms must be enabled ("1") on the back-end servers.</p>
<code>caldb.serveralarms.dispatch</code>	<p>The alarm dispatcher should be enabled ("yes") on the back-end servers.</p>
<code>service.notify.enable</code>	<p>The notify service should be enabled ("yes") on back-end servers.</p>
<code>caldb.berkeleydb.archive.enable</code>	<p>The automatic archive backup service should be enabled (value set to "yes" on the back-end systems).</p>
<code>caldb.berkeleydb.hotbackup.enable</code>	<p>The automatic hot backup service should be enabled (value set to "yes" on the back-end systems).</p>

**5 Save the file as `ics.conf`.**

**6 Restart Calendar Server.**

```
cal_svr_base/SUNWics5/cal/sbin/start-cal
```

# Maintaining Security Between Front-End and Back-End Servers

You can configure password authentication between front-end and back-end servers. This section explains how secure communication between the two can be set up and how it works. The following topics are covered:

- “How Authentication is Accomplished” on page 171
- “To Set Up Authentication for DWP Connections for a Front-end Server” on page 171
- “To Set up Authentication for DWP Connections for a Back-end Server” on page 172

## How Authentication is Accomplished

A front-end server uses the Database Wire Protocol (DWP) to communicate with a back-end server. Because DWP uses HTTP as the transport mechanism, Calendar Server provides authentication for DWP connections between front-end and back-end servers using configuration parameters.

When the front-end server first connects to the back-end server, it sends the user ID and password specified in the `ics.conf` file. The back-end server checks the parameters in its `ics.conf` file, and if both parameters match, the authentication is successful. The back-end server then sends a session ID back to the front-end server. The front-end server uses the session ID in subsequent DWP commands to the back-end server.

Subsequent connections from the same front-end server do not need to be authenticated again, unless the back-end server is restarted or the session expires because of no activity between the two servers.

If you have multiple front-end and back-end servers, you can use the same user ID and password for each one.

If a back-end server does not specify a user ID and password, no authentication is performed.

## ▼ To Set Up Authentication for DWP Connections for a Front-end Server

### Before You Begin



**Caution** – These parameters are not included in the installed version of the `ics.conf` file. To use authentication for DWP connections, you must add the required parameters to the `ics.conf` file on each front-end server.

- 1 **On every front-end server, log in as an administrator with permission to change the configuration.**

- 2 **Change to the `/etc/opt/SUNWics5/cal/config` directory.**
- 3 **Save your old `ics.conf` file by copying and renaming it.**
- 4 **Add the `ics.conf` parameters as shown in the following table:**

Parameter	Description
<code>caldb.dwp.server.back-end-server.admin</code>	On a front-end server, specifies the administrator's user ID that is used for authentication for a DWP connection to a back-end server, where <i>back-end-server</i> is the name of the server.
<code>caldb.dwp.server.back-end-server.cred</code>	On a front-end server, specifies the password that is used for authentication for a DWP connection to a back-end server, where <i>back-end-server</i> is the name of the server.

- 5 **Save the file as `ics.conf`.**
- 6 **Restart Calendar Server.**  
`cal_svr_base/SUNWics5/cal/sbin/start-cal`

## ▼ To Set up Authentication for DWP Connections for a Back-end Server

### Before You Begin



**Caution** – These parameters are not included in the installed version of the `ics.conf` file. To use authentication for DWP connections, you must add the required parameters to the `ics.conf` file on each back-end server.

- 1 **On every back-end server, log in as an administrator with permission to change the configuration.**
- 2 **Change to the `/etc/opt/SUNWics5/cal/config` directory.**
- 3 **Save your old `ics.conf` file by copying and renaming it.**
- 4 **Add the `ics.conf` parameters as shown in the following table:**

Parameter	Description
-----------	-------------

---

<code>service.dwp.admin.userid</code>	On a back-end server, specifies the user ID that is used to authenticate a DWP connection. If a back-end server does not specify a user ID, no authentication is performed.
<code>service.dwp.admin.cred</code>	On a back-end server, specifies the password that is used to authenticate a DWP connection. If a back-end server does not specify a password, no authentication is performed.

---

**5 Save the file as `ics.conf`.**

**6 Restart Calendar Server.**

```
cal_svr_base/SUNWics5/cal/sbin/start-cal
```



# Configuring for High Availability (Failover Service)

---

Configuring Calendar Server for high availability (HA) provides for monitoring of and recovery from software and hardware failures. The Calendar Server high availability feature is implemented as a failover service. This chapter describes a Calendar Server HA configuration using Sun Cluster software.

This chapter describes how to install and configure a Calendar Server HA service, including:

- [“Requirements for an HA Configuration” on page 175](#)
- [“Installation and Configuration” on page 176](#)
- [“Starting and Stopping Calendar Server HA Service” on page 185](#)
- [“Related Documentation” on page 186](#)

Find a set of worksheets to help you plan a Calendar Server High Availability configuration in an appendix, [Appendix C, “High Availability \(HA\) Configuration Worksheets.”](#)

## Requirements for an HA Configuration

A Calendar Server HA configuration requires the software shown in the following table:

Software and Version	Notes and Patches
Solaris 9 OS SPARC Platform only	All versions of Solaris 9 OS are supported. Solaris 9 OS requires Sun Cluster 3.0 U3 or later. Solaris 9 OS includes Solaris Logical Volume Manager (LVM).
Solaris 8 OS SPARC Platform only	Solaris 8 Maintenance Update 7 (MU7) OS or later plus required patches.

Software and Version	Notes and Patches
Sun Cluster 3.0 U3 or 3.1	<p>Sun Cluster software must be installed and configured on all nodes in the cluster.</p> <p>To install Sun Cluster 3.1, use the Java Enterprise System installer by following the installation process in the <i>Sun Java Enterprise System 2005Q4 Installation Guide for UNIX</i>.</p> <p>After you install the Sun Cluster software, you must configure the cluster. For information, refer to the <i>Sun Cluster System Administration Guide for Solaris OS</i>. For related documentation, see <a href="#">“Related Documentation” on page 186</a>.</p> <p><b>Sun Cluster Patches</b></p> <p>For the Solaris 9 OS, see the Sun Cluster InfoDoc 49704.</p> <p>For the Solaris 8 OS, see the Sun Cluster InfoDoc 49705.</p>
Solstice DiskSuite 4	<p>Solstice DiskSuite is available for Solaris 8 OS only.</p> <p>Solstice DiskSuite is not required for Solaris 9 OS, which includes the Logical Volume Manager (LVM).</p>
Veritas Volume Manager (VxVM) 3.x	<p>Solaris 8 OS requires version 3.2 or later plus required patches.</p> <p>Solaris 9 OS requires version 3.5 or later plus required patches.</p>
Veritas File System (VxFS) 3.x	<p>Solaris 8 OS requires version 3.4 or later plus required patches.</p> <p>Solaris 9 OS requires version 3.5 or later plus required patches.</p> <p>HASStoragePlus requires patch 110435-08 or later.</p>

## Installation and Configuration

The Calendar Server HA configuration examples in this section use the following names:

Name in Example	Description
/global/cal/	Global file system mount point
cal-logical-host	Logical host name
cal-logical-host-ip	Logical host IP numeric address
cs-admin@cal-logical-host	Email address for the Calendar Server administrator
cal-node-1	Node 1
cal-node-2	Node 2
cal-resource-group	Calendar resource group



Name in Example	Description
<i>cal-resource-group-store</i>	Calendar Server storage resource
<i>cal-resource</i>	Calendar Server resource

## ▼ To Install and Configure a Calendar Server HA Configuration

This is a high level list of the steps necessary to install and configure a Calendar Server HA configuration.

- 1 [“Log in as Superuser” on page 177](#)
- 2 [“Prepare Each Node in the Cluster” on page 177](#)
- 3 [“Install Sun Java Enterprise System Products and Packages” on page 178](#)
- 4 [“Configure the Logical Host” on page 180](#)
- 5 [“Activate the Storage Resource” on page 180](#)
- 6 [“Run Postinstallation Configuration Programs” on page 180](#)
- 7 [“Locate Automatic Backup Directories on Shared Storage” on page 181](#)
- 8 [“Relocate the Calendar Server config Directory” on page 181](#)
- 9 [“Edit the Calendar Server ics.conf File” on page 184](#)
- 10 [“Start the HA Calendar Server” on page 184](#)
- 11 [“Verify the HA Configuration” on page 185](#)

### Log in as Superuser

To install and configure a Calendar Server HA configuration, log in as or become superuser (root) and specify a console or window for viewing messages sent to `/dev/console`.

### Prepare Each Node in the Cluster

On each node in the cluster, perform these steps:

1. Create the Calendar Server runtime user and group under which Calendar Server will run as follows:
  - a. Add `icsgroup` (or the value you selected) to the `/etc/group` file.
  - b. Add `icsuser` (or the value you selected) to the `/etc/passwd` file.

---

**Tip** – The default names are `icsuser` and `icsgroup`. You can use other names if you prefer, but the `uid` and `gid` numbers **must** be the same on all nodes in the cluster. The user name should **not** be root.

You must provide the user and group names when you “[Run Postinstallation Configuration Programs](#)” on page 180.

---

2. Add or set the following fields in the `/etc/vfstab` file:
  - mountpoint to `/global/cal/` (Or, the file system mount point you selected in “[Selecting the Calendar Server Installation Directory](#)” on page 179.)
    - mount at boot option to `no`
    - mount options to logging for FFS or `global`, logging for GFS

## Install Sun Java Enterprise System Products and Packages

The installation of Sun Java Enterprise System products, including Calendar Server, has significantly changed from earlier Sun branded products (for example, Sun ONE, and iPlanet). To install Sun Java Enterprise System products, you must use the Sun Java Enterprise System installer.

For information about the installer, refer to the *Sun Java Enterprise System 2005Q4 Installation Guide for UNIX*.

The following table describes the Sun products and packages required for a Calendar Server HA configuration.

Product or Package	Node 1	Node 2
Sun Cluster Software	yes	yes
Calendar Server (6.0 and later)	yes	no
Sun Cluster Agent for Calendar Server (SUNWscics package)	yes	yes
Shared components (SUNWicu, SUNWldk, SUNWpr, SUNWssl, and SUNWt1s packages)	yes	yes

## Node 1

On node 1, install all selected products and packages using the Java Enterprise System installer. When you install Calendar Server, you must specify a directory other than the default directory. See [“Selecting the Calendar Server Installation Directory”](#) on page 179.

## Node 2

On node 2, follow these steps:

1. Install Sun Cluster and the Sun Cluster Agent for Calendar Server (SUNWscics package) using the Java Enterprise System installer.
2. **Note** You cannot install only the Sun Cluster Agent for Calendar Server. When you choose the Sun Java System Agents for Sun Cluster, the Java Enterprise System installer installs all agents.
3. Install shared components (SUNWicu, SUNWldk, SUNWpr, SUNWsas1, and SUNWt1s packages) using the pkgadd command. See [“Installing Shared Components”](#) on page 179.

## Selecting the Calendar Server Installation Directory

For Calendar Server, the Java Enterprise System installer uses the following default installation directory: /opt

However, for an HA configuration, you must specify a global installation directory. For example: */global/cal/opt/*

## Installing Shared Components

To make the required shared components available on node 2, you must install the following packages:

- SUNWicu – International Components for Unicode User Files
- SUNWldk – LDAP C SDK
- SUNWpr – Netscape Portable Runtime Interface
- SUNWsas1 – Simple Authentication and Security Layer (SASL)
- SUNWt1s – Network Security Services

These packages are available in the following directories:

```
.../Solaris_sparc/Product/shared_components/Packages/SUNWldk
.../Solaris_sparc/Product/shared_components/Solaris_8/Packages
.../Solaris_sparc/Product/shared_components/Solaris_9/Packages
```

To install these packages, change to one of the directories shown above and use the pkgadd command. For example:

```
# pkgadd -d . SUNWicu SUNWpr SUNWsas1 SUNWt1s
```

## Configure the Logical Host

To configure the logical host:

1. Create a Calendar Server failover resource group named *cal-resource-group*:

```
# scrgadm -a -g cal-resource-group -h cal-node-2,cal-node-1
```

2. Add the logical host name named *cal-logical-host* to the resource group. Calendar Server will listen on this host name.

```
# scrgadm -a -L -g cal-resource-group -l cal-logical-host
```

3. Bring the resource group online:

```
# scswitch -Z -g cal-resource-group
```

## Activate the Storage Resource

To activate the storage resource:

1. Register the storage resource specifying the mount point as the ServicePaths property:

```
# scrgadm -a
  -j cal-resource-group-store
  -g cal-resource-group
  -t SUNW.HASStorage
  -x ServicePaths=/global/cal
  -x AffinityOn=True
```

2. Enable the storage resource:

```
# scswitch -e -j cal-resource-group-store
```

If SUNW.HASStoragePlus has also chosen to setup a global file system (GFS), the `FileSystemMountPoints` property must be set instead of `ServicePaths`.

## Run Postinstallation Configuration Programs

After you install Calendar Server, run the Directory Server Setup script (`comm_dssetup.pl`) and the Calendar Server configuration program (`csconfigurator.sh`) as described in [Chapter 2](#), “[Directory Preparation Script \(comm\\_dssetup.pl\)](#).”

The following table describes the specific configuration information that you must provide for an HA configuration.

TABLE 7-1 Calendar Server Configuration Options for an HA Configuration

Configuration Panel	Description
Runtime Configuration	<p><b>Runtime User ID and Group ID</b></p> <ul style="list-style-type: none"> <li>▪ Runtime user ID is the user name under which Calendar Server will run. This name should <b>not</b> be root. The default is icsuser.</li> <li>▪ Runtime Group ID is the group under which Calendar Server will run. The default is icsgroup. Although the configuration program can create these names for you, you should create them before you run the configuration program, as part of the preparation of each node as described earlier in this chapter. These names must be in the following files: <ul style="list-style-type: none"> <li>▪ icsuser (or the name you select) in <code>/etc/passwd</code> on all nodes in the cluster</li> <li>▪ icsgroup (or the name you select) in <code>/etc/group</code> on all nodes in the cluster</li> </ul> </li> </ul> <p><b>Calendar Server Startup</b></p> <p>Do <b>not</b> check either of these options.</p> <ul style="list-style-type: none"> <li>▪ Start after successful installation</li> <li>▪ Start on system startup</li> </ul>
Select Directories	<p>For the location of the database, temporary, and log files, select global partitions. For example:</p> <ul style="list-style-type: none"> <li>▪ Database: <code>/global/cal/var/csdb</code></li> <li>▪ Temporary Files: <code>/global/cal/var/tmp</code></li> <li>▪ Logs: <code>/global/cal/var/logs</code></li> <li>▪ Backups: <code>/global/cal/var/hotbackupdb</code>, and <code>/global/cal/var/archivedb</code></li> </ul>

## Locate Automatic Backup Directories on Shared Storage

When configuring automatic backups for HA, backup directories must reside on shared storage partitions to prevent incomplete copies on individual nodes of the cluster. Pay particular attention to the size of the partition, since backup directories are large.

Disk space calculations fail for symbolic links. Therefore, do not use symbolic links for automatic backup directories.

## Relocate the Calendar Server config Directory

The Calendar Server stores configuration files in the `config` directory. In an earlier release, the `config` directory was relocated. Its location is:

```
/etc/opt/SUNWics5/config/
```

Symbolic links to the old `config` directory are kept in the following directories:

- /opt/SUNWics5/cal
- /opt/SUNWics5/cal/lib
- /opt/SUNWics5/cal/sbin

After running the Calendar Server configuration program, `csconfigurator.sh`, remove the symbolic link in each of the old directories and replace it with a link to the new directory as described in the procedures that follows. Note that these procedures preserve the settings from the original configuration files found in `/etc/opt/SUNWics5/config`.

Before you start, make sure the contents of the `config` directory are owned by `icsuser` and `icsgroup` (or your choices you specified for the runtime User ID and Group ID):

```
# ls -ld config
... icsuser icsgroup ... config/
```

### **To Change the Symbolic Link Found in /opt/SUNWics5/cal:**

1. Change to the `/global/cal/opt/SUNWics5/cal` directory, For example:

```
# cd /global/cal/opt/SUNWics5/cal/
```

where `/global/cal/` is the file system mount point.

2. Check that `config` is a symbolic link to the new `config` directory. For example:

```
# ls -l config
... config -\> /etc/opt/SUNWics5/config/
```

3. In the `/opt/SUNWics5/cal/` directory, remove the `config` symbolic link:

```
# cd /opt/SUNWics5/cal
# rm config
```

4. Copy the contents of the `/etc/opt/SUNWics5/config` directory into the new HA directory, preserving the ownership and permissions:

```
# cd /global/cal/opt/SUNWics5/cal
# cp -pr /etc/opt/SUNWics5/config .
```

### **To Change the Symbolic Link Found in /opt/SUNWics5/lib:**

1. In the `/global/cal/opt/SUNWics5/cal/lib` directory, check that `config` is a symbolic link to `/etc/opt/SUNWics5/config`.

```
# cd /global/cal/opt/SUNWics5/cal/lib
# ls -l config
... config -\> /etc/opt/SUNWics5/config/
```

2. Remove the `config` symbolic link:

---

```
# rm config
```

3. Create a new symbolic link to the new config location:

```
# ln -s ../config config
```

4. Verify the new link:

```
# ls -l config
... config -\> ../config/
```

## To Change the Symbolic Link Found in /opt/SUNWics5/sbin:

1. In the /global/cal/opt/SUNWics5/cal/sbin directory, check that config is a symbolic link to /etc/opt/SUNWics5/config.

```
# cd /global/cal/opt/SUNWics5/cal/sbin
# ls -l config
... config -\> /etc/opt/SUNWics5/config/
```

2. Remove the config symbolic link:

```
# rm config
```

3. Create a new symbolic link to the new config location:

```
# ln -s ../config config
```

4. Verify the new link:

```
# ls -l config
... config -\> ../config/
```

---

**Note** – If you need to uninstall Calendar Server, use the Java Enterprise System uninstaller, which removes the SUNWics5 and SUNWica5 packages.

For a Calendar Server HA configuration, however, you must first remove the relocated config directory and all of its contents before you run the uninstaller. For example:

```
# cd /global/cal/opt/SUNWics5/cal/
# rm -rf config
```

If you do not remove the config directory, the uninstall operation fails for the SUNWics5 package.

---

## Edit the Calendar Server ics.conf File

In the `/opt/SUNWscs5/cal/config` directory, edit the `ics.conf` configuration file as follows:

1. Add the following parameters:

```
local.server.ha.enabled="yes"
local.server.ha.agent="SUNWscsics"
```

2. Rename the `service.listenaddr` parameter to `service.http.listenaddr` and then set the parameter to the IP address of the logical host. For example:

```
service.http.listenaddr = "cal-logical-host-ip"
```

where "`cal-logical-host-ip`" is the numeric IP address of the logical host. For example:  
123.321.12.2.

3. Change all parameters that refer to a local host name to the logical host name. For example:

```
local.hostname="cal-logical-host"
local.servername="cal-logical-host"
service.ens.host="cal-logical-host"
service.http.calendarhostname="cal-logical-host.sesta.com"
```

## Start the HA Calendar Server

Before you start the HA Calendar Server, register the calendar resource type `SUNWscsics` and create a calendar resource as follows:

1. Register the calendar resource type:

```
# scrgadm -a -t SUNW.scsics
```

2. Create the calendar resource:

```
# scrgadm -a
-j cal-resource
-g cal-resource-group
-t SUNW.scsics
-x Confdir_list=/global/cal/cal-resource-group
-y Resource_dependencies=cal-resource-group-store
-y Port_list=80/tcp
```

3. Enable the resource and start Calendar Server:

```
# scswitch -e -j cal-resource
```



## Verify the HA Configuration

After you start Calendar Server check that all required processes or daemons (`csadmin`, `enpd`, `csnotifyd`, and `cshttpd`) are running.

Additionally, conduct a switchover of the service to the backup node to ensure the high availability. For example, if the service is running on `cal-node-1`, issue the following command to switch the service to `cal-node-2`.

```
# scswitch -z -g cal-resource-group
                    -h cal-node-2
```

Then check that all processes are started on `cal-node-2`.

For troubleshooting, error messages are written to the console and `/var/adm/messages`.

The `/var/cluster/rgm/rt/SUNW.scics/loglevel` file contains the logging level. Use “9” for maximum verbosity.

For information about using the logging facility, refer to the [“Related Documentation” on page 186](#).

## Starting and Stopping Calendar Server HA Service

To start and stop the Calendar Server HA service, use the Sun Cluster `scswitch` command. Do not use the Calendar Server `start-cal`, `csstart`, `stop-cal`, or `csstop` utilities. For example:

To start the Calendar Server HA service:

```
# scswitch -e -j cal-resource
```

To stop the Calendar Server HA service:

```
# scswitch -n -j cal-resource
```

To restart the Calendar Server HA service:

```
# scswitch -R -j cal-resource
```

For information about the Sun Cluster `scswitch` command, refer to the *Sun Cluster Reference Manual for Solaris OS*.

## Related Documentation

- *Sun Cluster Concepts Guide for Solaris OS* provides a general background about Sun Cluster software, data services, and terminology resource types, resources, and resource groups.
- *Sun Cluster Data Services Planning and Administration Guide for Solaris OS* provides general information on planning and administration of data services.
- *Sun Cluster System Administration Guide for Solaris OS* provides the software procedures for administering a Sun Cluster configuration.
- *Sun Cluster Reference Manual for Solaris OS* describes the commands and utilities available with the Sun Cluster software, including commands found only in the SUNWscman and SUNWccon packages.

# Configuring SSL

---

Calendar Server supports the Secure Sockets Layer (SSL) protocol to encrypt data between calendar client end users and Calendar Server. To support SSL, Calendar Server uses SSL libraries from Netscape Security Services (NSS), which are also used by Sun Java System Messaging Server.

You can configure Calendar Server in the `ics.conf` file to encrypt only the Calendar Server login and password or an entire calendar session.

This chapter covers the three tasks necessary to configure SSL and troubleshooting:

- “Configuring SSL for Calendar Server” on page 187
  - “To Create a Certificate Database” on page 187
  - “To Request and Import a Certificate from a Root Certificate Authority” on page 190
  - “To Configure SSL Parameters in the `ics.conf` File” on page 191
- “Troubleshooting SSL” on page 193

---

**Note** – Calendar Server does not support client-based SSL authentication.

---

## Configuring SSL for Calendar Server

### ▼ To Create a Certificate Database

An SSL implementation for Calendar Server requires a certificate database. The certificate database must define a Certificate Authority (CA) and certificates for Calendar Server. This section contains conceptual and task information:

**Before You Begin** Before you create the certificate database, familiarize yourself with the following:

- **Mozilla Tools** — This release includes the following Mozilla tools:
  - Certificate Database Tool (`certutil`) to create and manage the certificate database. For information, refer to the following Web site:

```
http://mozilla.org/projects/security/pki/  
nss/tools/certutil.html
```

---

**Tip** – Familiarize yourself with the tool syntax before attempting to generate your certificate database.

---

- Security Module Database Tool (`modutil`) to display information about available security modules. For information, refer to the following Web site:

```
http://mozilla.org/projects/security/pki/  
nss/tools/modutil.html
```

These utilities are available in the following directory:

```
/opt/SUNWics5/cal/lib
```

or download the most recent version from the Web site.

- **Library Path Variable** — Before you use the Mozilla tools, set your `LD_LIBRARY_PATH` variable appropriately. For example:

```
setenv LD_LIBRARY_PATH /opt/SUNWics5/cal/lib
```

- **Example Files and Directories** — The examples in this chapter use these files and directories:

- `alias` is a directory that contains the certificate database. Create the `alias` directory in the following directory:

```
/var/opt/SUNWics5
```

Also, make sure you backup the `alias` directory regularly.

- `sslPasswordFile` is a text file that contains the certificate database password. This file is used by the `certutil` utility but not by Calendar Server. Create `sslPasswordFile` in the following directory:

```
/etc/opt/SUNWics5/config
```

- `/etc/passwd` introduces entropy for random number generation, that is, this directory is used to generate varied and unique seeds that help ensure truly random results from the random number generator.

## 1 Log in as or become superuser (root).

- 2 Specify the certificate database password for certutil in /etc/opt/SUNWics5/config/sslPasswordFile. For example:**

```
# echo "password"
    /etc/opt/SUNWics5/config/sslPasswordFile
```

where *password* is your specific password.

- 3 Create the certificate database alias directory. For example:**

```
# cd /var/opt/SUNWics5
# mkdir alias
```

- 4 Move to the bin directory and generate the certificate database (cert8.db) and key database (key3.db). For example:**

```
# cd /opt/SUNWics5/cal/bin
# ./certutil -N -d /var/opt/SUNWics5/alias
    -f /etc/opt/SUNWics5/config/sslPasswordFile
```

---

**Note** – For this and other times when you must run the certutil utility, follow the examples exactly, or consult the certutil help page to understand the syntax.

For example, in this case, do not run the utility with the -N option without also specifying the -d /file information.

---

- 5 Generate a default self-signed root Certificate Authority certificate. For example:**

```
# ./certutil -S -n SampleRootCA -x -t "CTu,CTu,CTu"
-s "CN=My Sample Root CA, O=sesta.com" -m 25000
-o /var/opt/SUNWics5/alias/SampleRootCA.crt
-d /var/opt/SUNWics5/alias
-f /etc/opt/SUNWics5/config/sslPasswordFile -z
/etc/passwd
```

- 6 Generate a certificate for the host. For example:**

```
# ./certutil -S -n SampleSSLServerCert -c SampleRootCA
-t "u,u,u"
-s "CN=hostname.sesta.com, O=sesta.com" -m 25001
-o /var/opt/SUNWics5/alias/SampleSSLServer.crt
-d /var/opt/SUNWics5/alias
-f /etc/opt/SUNWics5/config/sslPasswordFile
-z /etc/passwd
```

where *hostname.sesta.com* is the server host name.

- 7 Validate the certificates. For example:**

```
# ./certutil -V -u V -n SampleRootCA
    -d /var/opt/SUNWics5/alias
```

```
# ./certutil -V -u V -n SampleSSLServerCert
-d /var/opt/SUNWics5/alias
```

**8 List the certificates. For example:**

```
# ./certutil -L -d /var/opt/SUNWics5/alias
# ./certutil -L -n SampleSSLServerCert
-d /var/opt/SUNWics5/alias
```

**9 Use `modutil` to list the available security modules (`secmod.db`). For example:**

```
# ./modutil -list -dbdir /var/opt/SUNWics5/alias
```

**10 Change the owner of the alias file to `icsuser` and `icsgroup` (or the user and group identity under which Calendar Server will run). For example:**

```
# find /var/opt/SUNWics5/alias -exec chown icsuser {};
# find /var/opt/SUNWics5/alias -exec chgrp icsgroup {};
```

## ▼ To Request and Import a Certificate from a Root Certificate Authority

The following steps tell you how to generate a certificate request, submit it to the Public Key Infrastructure (PKI) Web site, and then import the certificate.

**1 Log in as or become superuser (`root`).**

**2 Move to the `bin` directory:**

```
# cd /opt/SUNWics5/cal/bin
```

**3 Use `certutil` to generate a Certificate Request based on the Certificate Authority or Public Key Infrastructure (PKI) Web site. For example:**

```
# ./certutil -R -s "CN=hostname.sesta.com,
OU=hostname/ SSL Web Server, O=Sesta,
C=US" -p "408-555-1234" -o hostnameCert.req
-g 1024 -d /var/opt/SUNWics5/alias
-f /etc/opt/SUNWics5/config/sslPasswordFile -z /etc/passwd -a
```

where “`hostname.sesta.com`” is the host name.

**4 Request an test certificate for an SSL web server from the Certificate Authority or Public Key Infrastructure (PKI) Web site. Copy and paste the contents from the `hostnameCert.req` file into the Certificate Request.**

You will be notified by when your certificate is signed and can be picked up.

**5 Copy the Certificate Authority Certificate Chain and SSL server certificate into text files.**

## 6 Import the Certificate Authority Certificate Chain into the certificate database to establish a Chain of Authority. For example:

```
# ./certutil -A -n "GTE CyberTrust Root"
-t "TCu,TCu,TCuw"
-d /var/opt/SUNWics5/alias
-a
-i /export/wspace/Certificates/CA_Certificate_1.txt
-f /etc/opt/SUNWics5/config/sslPasswordFile
# ./certutil -A -n "Sesta TEST Root CA"
-t "TCu,TCu,TCuw"
-d /var/opt/SUNWics5/alias
-a
-i /export/wspace/Certificates/CA_Certificate_2.txt
-f /etc/opt/SUNWics5/config/sslPasswordFile
```

## 7 Import the signed SSL server certificate:

```
# ./certutil -A -n "hostname SSL Server Test Cert"
-t "u,u,u" -d /var/opt/SUNWics5/alias
-a
-i /export/wspace/Certificates/SSL_Server_Certificate.txt
-f /etc/opt/SUNWics5/config/sslPasswordFile
```

## 8 List the certificates in the certificate database:

```
# ./certutil -L -d /var/opt/SUNWics5/alias
```

## 9 Configure the SSL Server Nickname in the `ics.conf` file to be the signed SSL server certificate, For example: "`hostname SSL Server Test Cert`".

**Note** The host name for the service.`http.calendarhostname` and `service.http.ssl.sourceurl` parameters in the `ics.conf` file should match the host name on the SSL certificate (in case your system has several aliases). For example: `calendar.sesta.com`

# ▼ To Configure SSL Parameters in the `ics.conf` File

To implement SSL with Calendar Server, you must set specific parameters in the `ics.conf` file. If any of the parameters listed in the following table are not in the `ics.conf` file, add them to the file with the value specified. Since the `ics.conf` is read only at system startup (when `start-cal` is issued), the new values will not take effect until the Calendar Server is restarted. For a description of these SSL parameters, see [“SSL Configuration” on page 434](#).

- 1 **Log in as an administrator with permission to change the configuration.**
- 2 **Change to the `/etc/opt/SUNWics5/cal/config` directory.**
- 3 **Save your old `ics.conf` file by copying and renaming it.**

#### 4 Edit one or more of the parameters as shown in the following table:

Parameter	Value
encryption.rsa.nssslactivation	"on"
encryption.rsa.nssslpersonalityssl	"SampleSSLServerCert"
encryption.rsa.nsssltoken	"internal"
service.http.tmpdir	"/var/opt/SUNWics5/tmp"
service.http.uidir.path	"html"
service.http.ssl.cachedir	."
service.http.ssl.cachesize	"10000"
service.http.ssl.certdb.password	" "(Supply an appropriate password)
service.http.ssl.certdb.path	"/var/opt/SUNWics5/alias"
service.http.ssl.port.enable	"yes"
service.http.ssl.port	"443" (Default SSL port) <b>Note</b> – Not on port "80", which is the HTTP default port.
service.http.securesession	"yes" (Entire session encrypted)
service.http.ssl.sourceurl	"https://localhost:port" (Supply the name of your local host, and the service.http.ssl.port value.)
service.http.ssl.ssl2.ciphers	""
service.http.ssl.ssl2.sessiontimeout	"0"
service.http.ssl.ssl3.ciphers	"rsa_red_40_md5, rsa_rc2_40_md5, rsa_des_sha, rsa_rc4_128_md5, rsa_3des_sha"
service.http.ssl.ssl3.sessiontimeout	"0"
service.http.sslusessl	"yes"

#### 5 Save the file as `ics.conf`.

#### 6 Restart Calendar Server for the changes to take effect.

`cal_svr_base/SUNWics5/cal/sbin/start-cal`



# Troubleshooting SSL

First, always backup your certificate database on a regular basis in case unrecoverable problems occur. If you have problems with SSL, here are some things to consider:

- [“Checking for the cshttpd Process” on page 193](#)
- [“Verifying Certificates” on page 193](#)
- [“Reviewing Calendar Server Log Files” on page 193](#)
- [“Connecting to the SSL Port” on page 193](#)
- [“Making cshttpd Stop Listening on the Regular HTTP Port” on page 194](#)

## Checking for the cshttpd Process

SSL requires the Calendar Server `cshttpd` process to be running. To determine if `cshttpd` is running, use this command:

```
# ps -ef | grep cshttpd
```

## Verifying Certificates

To list the certificates in the certificate database and checking their validity dates, use this command:

```
# ./certutil -L -d /var/opt/SUNWics5/alias
```

## Reviewing Calendar Server Log Files

Check the Calendar Server log files for any SSL errors. For more information see [“Using Calendar Server Log Files” on page 230](#).

## Connecting to the SSL Port

Connect to the SSL port using a browser and the following URL:

```
https://server-name:ssl-port-number
```

where:

*server-name* is the name of the server where Calendar Server is running.

*ssl-port-number* is the SSL port number as specified by the `service.http.ssl.port` parameter in the `ics.conf` file. The default is 443.

## Making cshttpd Stop Listening on the Regular HTTP Port

HTTP and HTTPS listen on different ports (443 for SSL, and 80 for HTTP), so you will never have both listening to the same port. Currently, there is no way to tell cshttpd to stop listening to the regular HTTP port. However, an administrator can change the `service.http.port` to an undisclosed number.



---

**Caution** – Do not set `service.http.enable="no"` in an attempt to prevent cshttpd from listening to HTTP. Doing so would cause HTTPS to fail also. Both `service.http.enable` and `service.http.ssl.port.enable` must be set to "yes" for SSL to be configured properly.

---

# Configuring Single Sign-on

---

This chapter describes how to configure single sign-on (SSO).

Single sign-on (SSO) allows a user to authenticate once and then use multiple trusted applications without having to authenticate again. Sun Java System communications servers, including Calendar Server and Messaging Server, can implement SSO as follows:

- [“Configuring SSO Through Access Manager” on page 195](#)
- [“Configuring SSO Through Communications Servers Trusted Circle Technology” on page 197](#)

## Configuring SSO Through Access Manager

Sun Java Enterprise System servers, including Calendar Server and Messaging Server, can implement SSO using Sun Java System Access Manager (release 6 2003Q4 or later)

Access Manager serves as the SSO gateway for Sun Java Enterprise System servers. That is, users log in to Access Manager and then can access other Sun Java Enterprise System servers, as long as the servers are configured properly for SSO.

### ▼ To use SSO with Calendar Server

- 1 **Make sure that Access Manager and Directory Server are installed and configured. For information about installing and configuring these products, refer to the *Sun Java Enterprise System 2005Q4 Installation Guide for UNIX*.**
- 2 **Configure SSO for Calendar Server by setting the parameters shown in [“Configuring SSO Through Access Manager” on page 195](#) and then restarting Calendar Server for the values to take effect. If necessary, remove the comment character (!) when you set each parameter.**

---

**Note** – When you set the `local.calendar.sso.amnamingurl` parameter, you must use a fully qualified name for Access Manager.

---

- 3 **To configure SSO for Messaging Server, refer to the *Sun Java System Messaging Server 6 2005Q4 Administration Guide*.**
- 4 **Users log into Access Manager using their Directory Server LDAP user name and password. (A user who logs in through another server such as Calendar Server or Messaging Server will not be able to use SSO to access the other Sun Java Enterprise System servers.)**
- 5 **After logging in, users can access Calendar Server through Communications Express using the appropriate URL. Users can also access other Sun Java Enterprise System servers such as Messaging Server, if the servers are configured properly for SSO.**

Parameter	Description
<code>local.calendar.sso.amnamingurl</code>	Specifies the URL of the Access Manager SSO naming service. Default is <code>"http://AccessManager:port/amserver/namingservice"</code> where <i>AccessManager</i> is the <i>fully qualified name</i> of Access Manager, and <i>port</i> is the Access Manager port number.
<code>local.calendar.sso.amcookieName</code>	Specifies the name of the Access Manager SSO cookie. Default is "iPlanetDirectoryPro".
<code>local.calendar.sso.amloglevel</code>	Specifies the log level for Access Manager SSO. Range is from 1 (quiet) to 5 (verbose). Default is "3".
<code>local.calendar.sso.logname</code>	Specifies the name of the Access Manager SSO API log file. Default is: "am_sso.log"
<code>local.calendar.sso.singlesignoff</code>	Enables ("yes") or disables ("no") single sign-off from Calendar Server to Access Manager.  If enabled, a user who logs out of Calendar Server is also logged out of Access Manager, and any other sessions the user had initiated through Access Manager (such as a Messaging Server Webmail session) are terminated.  Because Access Manager is the authentication gateway, single sign-off is always enabled from Access Manager to Calendar Server.  Default is "yes".

## Considerations for Using SSO With Access Manager

- A calendar session is valid only as long as the Access Manager session is valid. If a user logs out of Access Manager, the calendar session is automatically closed (single sign-off).
- SSO applications must be in the same domain.
- SSO applications must have access to the Access Manager verification URL (naming service).
- Browsers must support cookies.
- If you are using the Sun Java System Portal Server gateway, set the following Calendar Server parameters:
  - `service.http.ipsecurity="no"`
  - `render.xslonclient.enable="no"`

## Configuring SSO Through Communications Servers Trusted Circle Technology

When configuring SSO through Communications Servers trusted circle technology (that is, not through Access Manager), consider these points:

- Each trusted application must be configured for SSO.
- SSO does not work correctly if the `default.html` page is in your browser's cache. Before using SSO, be sure to reload the `default.html` page in your browser. For example, in Netscape Navigator, hold down the Shift key and then click Reload.
- SSO works only for bare URL's. For example, SSO works for: `http://servername`.

The following table describes the Calendar Server configuration parameters for SSO through Communications Servers trusted circle technology.

TABLE 9-1 Calendar Server SSO Parameters Through Communications Servers Trusted Circle Technology

Parameter	Description
<code>sso.enable</code>	This parameter must be set to "1" (the default) to enable SSO. "0" disables SSO.
<code>sso.appid</code>	This parameter specifies the unique application ID for the specific Calendar Server installation. Each trusted application must also have a unique application ID. The default is: "ics50"
<code>sso.appprefix</code>	This parameter specifies the prefix value to be used for formatting SSO cookies. The same value must be used by all trusted applications, because only SSO cookies with this prefix will be recognized by Calendar Server. The default is: "ssogrp1"

TABLE 9-1 Calendar Server SSO Parameters Through Communications Servers Trusted Circle Technology (Continued)

Parameter	Description
<code>sso.cookieDomain</code>	This parameter causes the browser to send a cookie only to servers in the specified domain. The value must begin with a period (.)
<code>sso.singleSignoff</code>	A value of "true" (the default) clears all SSO cookies on the client with prefix values matching the value configured in <code>sso.appPrefix</code> when the client logs out.
<code>sso.userDomain</code>	This parameter sets the domain used as part of the user's SSO authentication.
<code>sso.appid.url = "verifyurl"</code>	<p>This parameter sets the verify URL values for peer SSO hosts for the Calendar Server configuration. One parameter is required for each trusted peer SSO host. The parameter includes the:</p> <ul style="list-style-type: none"> <li>■ Application ID (<i>appid</i>) identifies each peer SSO host whose SSO cookies are to be honored</li> <li>■ Verify URL (<i>verifyurl</i>) includes the host URL, host port number, and <code>VerifySSO?</code> (including the ending question mark (?)). In this example, the Calendar Server application ID is <code>ics50</code>, the host URL is <code>sesta.com</code>, and the port is <code>8883</code>. The Messenger Express application ID is <code>msg50</code>, the host URL is <code>sesta.com</code>, and the port is <code>8882</code>.</li> </ul> <p>For example:</p> <pre>sso.ics50.url= "http://sesta.com:8883 /VerifySSO?"  sso.msg50.url= "http://sesta.com:8882 /VerifySSO?"</pre>

The following table describes the Messaging Server configuration parameters for SSO through Communications Servers trusted circle technology.

TABLE 9-2 Messaging Server SSO Parameters Through Communications Servers Trusted Circle Technology

Parameter	Description
<code>local.webmail.sso.enable</code>	This parameter must be set to a non-zero value to enable SSO.
<code>local.webmail.sso.prefix</code>	This parameter specifies a prefix used when formatting SSO cookies set by the HTTP server. For example: <code>ssogrpl</code>
<code>local.webmail.sso.id</code>	<p>This parameter specifies the unique application ID ( for example: <code>msg50</code>) for the Messaging Server.</p> <p>Each trusted application must also have a unique application ID.</p>

TABLE 9-2 Messaging Server SSO Parameters Through Communications Servers Trusted Circle Technology (Continued)

Parameter	Description
<code>local.webmail.sso.cookieDomain</code>	This parameter specifies the cookie domain value of all SSO cookies set by the HTTP server.
<code>local.webmail.sso.singleSignoff</code>	A non-zero value clears all SSO cookies on the client with prefix values matching the value configured in <code>local.webmail.sso.prefix</code> when the client logs out.
<code>local.sso.appid.url=verifyurl</code>	<p>This parameter sets the verify URL values for peer SSO hosts for the Messaging Server configuration. One parameter is required for each trusted peer SSO host. The parameter includes these items:</p> <ul style="list-style-type: none"> <li>■ Application ID (<i>appid</i>) identifies each peer SSO host whose SSO cookies are to be honored</li> <li>■ Verify URL (<i>verifyurl</i>) includes the host URL, host port number, and <code>VerifySSO?</code> (including the ending <code>?</code>).</li> </ul> <p>For example:</p> <pre>local.sso.ics50.verifyurl= http://sesta.com:8883/VerifySSO?</pre> <p>In this example, the Calendar Server application ID is <code>ics50</code>, the host URL is <code>sesta.com</code>, and the port is <code>8883</code>.</p> <pre>local.sso.msg50.verifyurl= http://sesta.com:8882/VerifySSO?</pre> <p>In this example, the Messaging Server application ID is <code>msg50</code>, the host URL is <code>sesta.com</code>, and the port is <code>8882</code>.</p>

For more information about configuring Messaging Server for SSO, see the *Sun Java System Messaging Server 6 2005Q4 Administration Guide*.





# Configuring Automatic Backups (csstored)

---

At configuration time you are given the opportunity to enable automatic backups. However, you can also enable or disable automatic backups at any time thereafter. A good backup system is essential to safeguard your data and minimize operational downtime.

Information in this chapter explains how to configure the Calendar Server service `csstored` to perform automatic backups. It contains the following sections:

- “Automatic Backups Overview” on page 201
- “Setting up Transaction Log Files” on page 203
- “Specifying the Administrator’s Email Address” on page 204
- “Enabling Hot Backups” on page 205
- “Enabling Archive Backups” on page 206
- “Disabling the Warning Message” on page 207

---

**Note** – If you choose not to use the automatic backup process discussed here, you must implement your own backup strategy to safeguard your data. For information on how to use other Calendar Server tools for protecting your data, see [Chapter 17, “Backing Up and Restoring Calendar Server Data.”](#)

---

For an overview of `csstored`, see the *Sun Java System Communications Services 6 2005Q4 Deployment Planning Guide*.

## Automatic Backups Overview

This section covers the following topics:

- “How Automatic Backups Work” on page 202
- “How `csstored` Works” on page 202
- “How Circular Backups Work” on page 202
- “High Level Steps for Enabling Automatic Backups” on page 203

## How Automatic Backups Work

The Calendar Server system records each transaction for the calendar database (additions, modifications or deletions to calendars and their properties) in a transaction log file. At some predetermined interval, the log file is closed for writing and another is created. The system then applies the transactions from the oldest closed transaction log to the live calendar databases as time permits. When all the transactions in the log have been applied to the database, the log is marked as “already applied”.

When hot backups are configured, a snapshot of the live databases is taken every 24 hours. The already applied logs are then applied to the hot backup copy of the databases. The hot backup databases are as current as the number of transactions still waiting to be applied.

## How csstored Works

One of the Calendar Server services launched at startup is `csstored`. When configured, this service performs automatic backups (either hot backups or archival backups, or both) of your calendar databases.

You can configure `csstored` for automatic backups when you run the configuration program, `csconfigurator.sh`. If you choose one or both of the automatic backups at that time, no further configuration steps are necessary.

If you did not choose automatic backups in the configuration program, they are disabled, but the `csstored` process still runs. However, until automatic backups are enabled, the only function `csstored` performs is to generate an informational administrator message every 24 hours saying `csstored` is not configured (meaning automatic backups have not been enabled).

---

**Note** – When automatic backups are disabled, the circular logging `ics.conf` parameter, `caldb.berkeley.circularlogging`, should be set to “yes”. This enables purging of old database transaction logs, which conserves disk space.

---

## How Circular Backups Work

With automatic backups enabled, `csstored` automatically manages the number of backup copies retained in your backup database files using a circular backup system.

`csstored` stores backups in your backup database directory until either the maximum number of backup copies have accumulated, or the maximum disk space allowed has been reached. At that point, it purges backup copies (oldest first) until it reaches the minimum number of copies to retain and it is under the disk space threshold.

There are a cluster of `ics.conf` parameters that control circular backups. These parameters have default values, and do not require further customization. If you wish to tune how backups work in your system, see [“Tuning Automatic Backups” on page 320](#).

## High Level Steps for Enabling Automatic Backups

The following is a high-level list of the tasks to perform to enable automatic backups:

- [“Setting up Transaction Log Files” on page 203](#)
- [“Specifying the Administrator’s Email Address” on page 204](#)
- [“Enabling Hot Backups” on page 205](#)
- [“Enabling Archive Backups” on page 206](#)

## Setting up Transaction Log Files

This section covers the following topics:

- [“Understanding Transaction Log Files” on page 203](#)
- [“To Set up Transaction Log Files” on page 204](#)

## Understanding Transaction Log Files

Transaction log files are used by Calendar Server to capture all of the additions, modifications and deletions made to the calendar database since the latest snapshot. The transactions are not actually applied to the live database until the log file is closed for writing. The interval parameter specifies how often the old log files are closed and new log files are created.

The log file names consist of a configurable name with a unique number appended to the end.

As the log files are closed, they are ready to be applied to the live database. This happens asynchronously, meaning the creation of log files and the writing of transactions into them is done in “real time”, whereas the program applying the transactions to the database is running independently, without regard to the writing of the transactions into the log files. If the system is very busy, the number of log files awaiting application to the database can rise. When the system has slow periods, the program applying the transactions has time to “catch up” and may actually sit idle, waiting for the next transaction log.

After the transactions have been applied to the live database, they are applied to the hot backup snapshot (if enabled). The log files are also written to the same archive directory where the snapshot resides.

## ▼ To Set up Transaction Log Files

- 1 **At a command line, change to the directory where the `ics.conf` is located:**

```
cd/etc/opt/SUNWics5/config
```

- 2 **Specify the transaction log name:**

```
logfile.store.logname=storename.log
```

- 3 **Specify the directory path for the transaction log directory:**

The default value is: `logfile.logdir="logs"`

- 4 **When you have completed editing the `ics.conf` file, restart Calendar Server:**

```
cal_svr_base/SUNWics5/cal/sbin/start-cal
```

Calendar services do not need to be stopped to edit the `ics.conf` file, but you must restart the services in order for the changes to take effect.

## Specifying the Administrator's Email Address

This section covers the following topics:

- [“Email Messages Sent to the Administrator” on page 204](#)
- [“To Set the Administrator's Email Address” on page 205](#)

### Email Messages Sent to the Administrator

When certain events or errors occur, the administrator is notified by email. The events causing an email message to be generated are:

- Automatic backups not enabled or not configured properly.  
Every 24 hours, when its time to take a snapshot, if automatic backups are not enabled, the `css` stored process reports that automatic backups are not properly configured.
- The disk space threshold has been exceeded.  
This message is sent out periodically until the condition has cleared.
- A service has stopped and can't be restarted.  
The notification email will explain what required action is needed before the service can be started.

## ▼ To Set the Administrator's Email Address

- 1 Log in as an administrator with permission to change the configuration.
- 2 Change to the `/etc/opt/SUNWics5/cal/config` directory.
- 3 Save your old `ics.conf` file by copying and renaming it.
- 4 Edit the `ics.conf` parameter that follows to specify the administrator's email address:  
`alarm.msgalarmnoticercpt="admin@email_address"`
- 5 Save the file as `ics.conf`.
- 6 Restart Calendar Server.

```
cal_svr_base/SUNWics5/cal/sbin/start-cal
```

The calendar services do not need to be stopped to edit the `ics.conf` file, but you must restart the services in order for the changes to take effect.

## Enabling Hot Backups

This section covers the following topics:

- [“What are Hot Backups?” on page 205](#)
- [“To Enable Hot Backups” on page 206](#)

## What are Hot Backups?

Ideally, hot backups consist of the latest snapshot with all of the transaction logs applied to the it, except the transaction log currently being written. The system can get behind in applying the transaction logs, depending on how busy the system is. It is possible that there might be several log files that have not yet been applied to either the database or the hot backup.

This “almost duplicate” of the live database is designed to minimize down time and data loss if something catastrophic happens, or if a corruption of the database is detected.

A new hot backup is started every 24 hours when a new snapshot is taken. The old hot backup is verified and kept until purged. For more information, see [“How Circular Backups Work” on page 202](#).

## ▼ To Enable Hot Backups

- 1 **At a command line, change to the directory where the `ics.conf` is located:**

```
cd /etc/opt/SUNWics5/config
```

- 2 **Enable hot backups by setting the following `ics.conf` parameter to “yes”:**

```
caldb.berkeleydb.hotbackup.enable="yes"
```

- 3 **Specify the directory path for the hot backup directory:**

```
caldb.berkeleydb.hotbackup.path=  
    /var/opt/SUNWics5/hotbackup_directory
```

You might choose to place hot backups on an alternate disk or disk subsystem in case of a hardware failure on the primary disk drive. Doing this might also reduce input-output contention on the primary drive or subsystem.

If you have a high availability (HA) configuration, specify the path as a subdirectory in shared storage (*/global/cal/*). See also, [Chapter 7, “Configuring for High Availability \(Failover Service\)”](#).

- 4 **When you have completed editing the `ics.conf` file, restart Calendar Server:**

```
cal_svr_base/SUNWics5/cal/sbin/start-cal
```

The calendar services do not need to be stopped to edit the `ics.conf` file, but you must restart the services in order for the changes to take effect.

## Enabling Archive Backups

This section covers the following topics:

- [“What are Archive Backups?” on page 206](#)
- [“To Enable Archive Backups” on page 207](#)

## What are Archive Backups?

Archive backups consist of a snapshot and the log files that were created for it. The log files are not applied to the snapshot. The archive databases remain on disk until purged. See [“How Circular Backups Work” on page 202](#).

## ▼ To Enable Archive Backups

- 1 **At a command line, change to the directory where the `ics.conf` is located:**

```
cd /etc/opt/SUNWics5/config
```

- 2 **Enable archive backups by setting the following `ics.conf` parameter to “yes”:**

```
caldb.berkeleydb.archive.enable="yes"
```

- 3 **Specify the directory path for the archive directory:**

```
caldb.berkeleydb.archive.path=
    /var/opt/SUNWics5/archive_backup_directory
```

You might choose to place the archive backups on an alternate disk or disk subsystem in case of a hardware failure on the primary disk drive. Doing this might also reduce I/O contention on the primary drive or subsystem.

If you have a high availability (HA) configuration, specify the path as a subdirectory in shared storage (`/global/cal/`). See also, [Chapter 7, “Configuring for High Availability \(Failover Service\)”](#).

- 4 **When you have completed editing the `ics.conf` file, restart Calendar Server:**

```
cal_svr_base/SUNWics5/cal/sbin/start-cal
```

The calendar services do not need to be stopped to edit the `ics.conf` file, but you must restart the services in order for the changes to take effect.

## Disabling the Warning Message

This section describes the daily warning message from an unconfigured `csstored` process and how to stop it. This section contains the following topics:

- [“Why is the Message Emitted?” on page 207](#)
- [“How to Disable `csstored` from Running” on page 208](#)

### Why is the Message Emitted?

The `start-cal` program starts the `csstored` process by default. If you have chosen not to configure `csstored` for your backups on a back-end machine, or you have a front-end machine that does not contain any databases that need to be backed up, you will still receive informational messages every 24 hours, from every machine not configured. If you do not want these messages to be emitted by `csstored`, you must disable `csstored` from running.

## ▼ How to Disable csstored from Running

- 1 Log in as an administrator with permission to change the configuration.
- 2 Change to the `/etc/opt/SUNWics5/cal/config` directory.
- 3 Save your old `ics.conf` file by copying and renaming it.
- 4 Add the parameter that follows to the `ics.conf` file to disable `csstored` from running:  
`service.store.enable="no"`
- 5 Save the file as `ics.conf`.
- 6 Restart Calendar Server.

`cal_svr_base/SUNWics5/cal/sbin/start-cal`

Calendar services do not need to be stopped to edit the `ics.conf` file, but you must restart the services in order for the changes to take effect.

---

**Note** – Be sure not to disable `csstored` on machines where you have `csstored` configured for automatic backups.

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## Setting Up Hosted Domains

---

Calendar Server supports hosted (or virtual) domains. In a hosted domain installation, each domain shares the same instance of Calendar Server, which allows multiple domains to exist on a single server. Each domain defines a name space within which all users, groups, and resources are unique. Each domain also has a set of attributes and preferences that you specifically set.

This chapter describes these topics:

- “Overview of Hosted Domains” on page 210
  - “Organization of the LDAP Directory” on page 210
  - “Calendar Server Logins” on page 212
  - “Cross Domain Searches” on page 213
  - “Support for a Non-Hosted Domains Environment” on page 213
- “Setting up a Hosted Domain Environment” on page 214
- “Using Domains Created by Messaging Server” on page 217

---

**Note** – The *Sun Java System Communications Services 6 2005Q4 Deployment Planning Guide* discusses all the steps necessary to prepare your installation to use hosted domains.

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**Caution** – If your site is currently configured for multiple instances of Calendar Server or for limited virtual domain mode, contact your Sun Microsystems sales account representative for an evaluation of your migration requirements.

---

## Overview of Hosted Domains

This section provides an overview of hosted domains, including:

- [“Organization of the LDAP Directory” on page 210](#)
- [“Calendar Server Logins” on page 212](#)
- [“Cross Domain Searches” on page 213](#)
- [“Support for a Non-Hosted Domains Environment” on page 213](#)

## Organization of the LDAP Directory

With a hosted domain installation, the LDAP directory is organized into distinct, non-intersecting sections, each of which represents a domain found in the Domain Name System (DNS). User, group and resource uids are unique within each domain. For example, there can be only one user in each domain with the uid of jdoe. A distinguished name (DN) describes the root of each domain.

Calendar Server supports both of these LDAP directory schema versions for hosted domains:

- [“Sun LDAP Schema 2” on page 210](#) (compatibility or native mode)
- [“Sun LDAP Schema 1” on page 211](#)

When you run the Directory Server Setup script (`comm_dssetup.pl`), you can choose either LDAP Schema 1 or LDAP Schema 2. Several considerations are:

- **New Installation** — If your site is installing Calendar Server 6 2005Q4 as a new installation, use LDAP Schema 2.
- **Upgrade** — If your site is upgrading from Calendar Server version 5, use the schema version as follows:
  - If you want to use Access Manager features such as single sign-on (SSO), or if you want to use Delegated Administrator, choose LDAP Schema 2.
  - If you do not have hosted domains, don't want to use Access Manager features, or don't want to provision users with Delegated Administrator, you can use either schema version. However, use LDAP Schema 2, if possible.

## Sun LDAP Schema 2

The following graphic shows an LDAP directory organization for a hosted domain installation that uses Sun LDAP Schema 2.

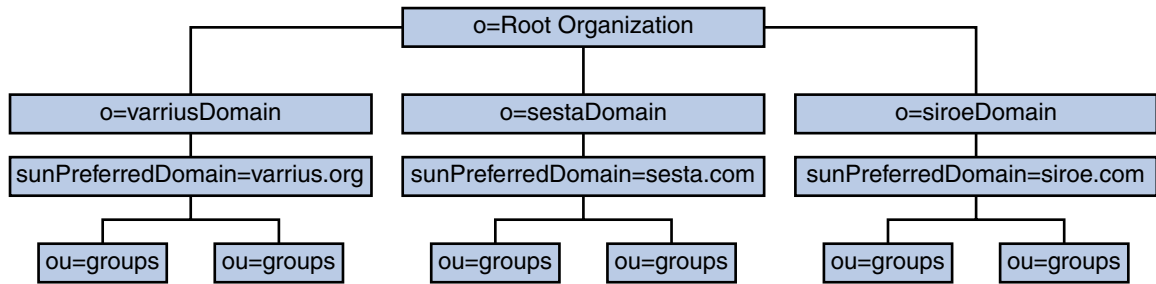


FIGURE 11-1 LDAP Directory Organization Using LDAP Schema 2

LDAP Schema 2 uses a flat LDAP directory organization, that is, the domains are all at the same level; they are not nested. For a hosted domain installation, the first level entries (as shown by `varriusDomain`, `sestaDomain`, and `siroeDomain` in the graphic) must be parallel in the directory organization. These entries cannot be nested.

If you want to use Access Manager features such as single sign-on (SSO), or use Delegated Administrator to provision users, Schema 2 is required. However, there is a hybrid variation, a two tree scheme that uses both the DC tree and the Organization tree, much like Schema 1, but it uses the Schema 2 object classes and attributes. This is Schema 2 compatibility mode, which is called Schema 1.5 in the configuration program (`csconfigurator.sh`).

## Sun LDAP Schema 1

The graphic that follows shows an example of an LDAP directory organization for a hosted domain installation that uses Sun LDAP Schema 1.

This organization includes two trees for domain management: a DC tree and an Organization tree (OSI)

- DC tree
- Organization (OSI) tree

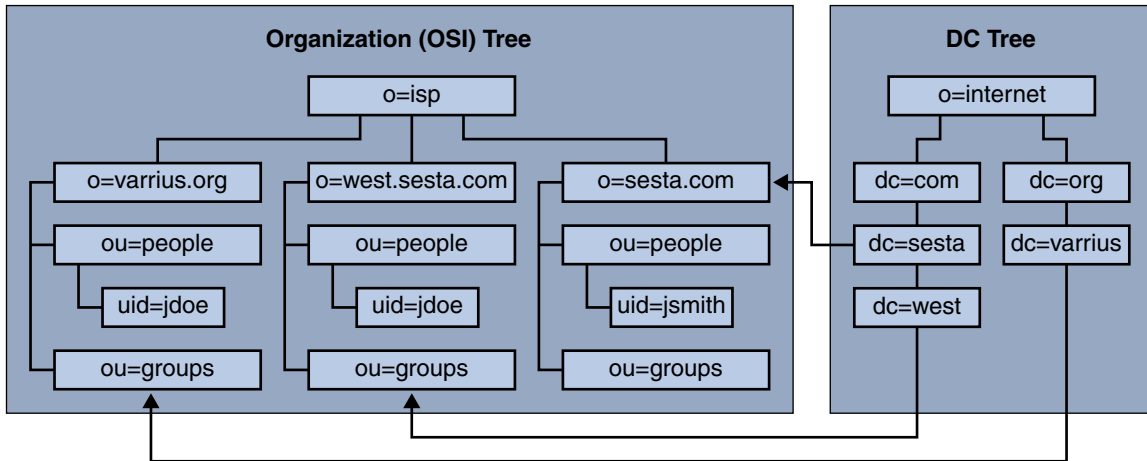


FIGURE 11-2 LDAP Directory Organization Using LDAP Schema 1

The DC tree (node) is similar to the DNS, which determines a domain entry given the domain name. The `inetDomainBasedn` LDAP attribute points to the base DN, which is the root of the domain's users, resources and groups in the organization tree (node). Within each domain, the identifiers for Calendar Server users, resources, and groups must be unique.

**Note** – If your earlier LDAP configuration did not contain a DC tree, in order to use Schema 1 mode or Schema 2 compatibility mode, you must create the DC tree nodes yourself as explained in [“Setting up a Hosted Domain Environment” on page 214](#).

In a hosted domain installation using LDAP Schema 1, a directory search requires these two steps to find an entry:

1. In the DC tree, the search operation locates the domain entry that contains the value of the DN pointing to the base DN (`inetDomainBasedn` attribute) of domain in the organization tree.
2. In the organization tree, the search operation locates the domain entry and then searches from that entry's base DN to find the user, resource, or group within the domain.

## Calendar Server Logins

For a hosted domain installation, each user must have a user ID (`uid`) that is unique within the domain. A login to Calendar Server uses the following format:

`userid[@domain-name]`

If *domain-name* is omitted, Calendar Server uses the default domain name specified by the `service.defaultdomain` parameter in the `ics.conf` file. Thus, if a user is logging into the default domain, only the *userid* is required.

For an installation with a non-hosted domain environment, *domain-name* is not required. If a domain name is specified, it will be ignored.

If auto-provisioning is enabled, the first time a user logs in, Calendar Server creates a default calendar for the user. For information about calendar creation, see [Chapter 15, “Administering Calendars.”](#)

Login permission is based on the `icsStatus` or `icsAllowedServiceAccess` attribute. For more information, see [“LDAP Attributes and Property Names” on page 386.](#)

## Cross Domain Searches

By default, users can search only within their domain for users and groups to invite to events. Cross domain searches, however, allow users in one domain to search for users and groups in other domains, as long as these requirements are met:

- Each domain can specify an access control list (ACL) in the `domainAccess` property of the `icsExtendedDomainPrefs` attribute that grants or denies cross domain searches from other domains. Thus, a domain can allow or disallow either specific domains, or all domains, from searching it.

For a description of `domainAccess`, see [“LDAP Attributes and Property Names” on page 386.](#) For general information about ACLs, see [“Access Control Lists \(ACLs\)” on page 49.](#)

- Each domain can specify the external domains its users can search. The `icsDomainNames` LDAP attribute specifies the external domains that a domain’s users can search when looking for users and groups (as long as the ACL for the external domain allows the search).

For example, if `icsDomainNames` for the `various.org` domain lists `sesta.com` and `siroe.com`, users in `various.org` can perform cross domain searches in `sesta.com` and `siroe.com`. For a description of `icsDomainNames`, see [“LDAP Attributes and Property Names” on page 386.](#)

For instructions on how to enable cross domain searches, see [“Enabling Cross Domain Searches” on page 239.](#)

## Support for a Non-Hosted Domains Environment

Calendar Server still supports operating in a non-hosted domains (that is, having a single domain) environment. For example, if you had an existing Calendar Server version 5 or earlier legacy installation, you can still operate in the single domain environment by setting the `ics.conf` parameter `service.virtualdomain.support` to `"no"`. See also, [“Enabling Hosted Domains” on page 242.](#)

You will, however, still need to migrate the legacy version components database to the current version. For migration information, see the [Chapter 4, “Database Migration Utilities.”](#)

## Setting up a Hosted Domain Environment

This section covers the basic tasks that you might need to perform before creating new hosted domain entries in your LDAP:

1. Run the database migration utilities.

If you are migrating from Calendar Server version 5, be sure that you have already run `cs5migrate`, `csmig`, and `csvdmig` before attempting to set up hosted domains. You can get the latest version of `cs5migrate` from Sun’s technical support. For more information on these migrations utilities, see [Chapter 4, “Database Migration Utilities.”](#)

2. Run `comm_dssetup.pl` if you have not already done so.

It updates the `ics.conf` file with the parameters needed to support hosted domains.

3. Edit the `ics.conf` file to enable hosted domains.

The following table lists and describes the configuration parameters in the `ics.conf` file used for hosted domain support. If any of the parameters listed in this table are not in the `ics.conf` file, add the parameter and its associated value to the file and then restart Calendar Server for the values to take effect.

Parameter	Description
<code>service.virtualdomain.support</code>	Enables ("yes") or disables ("no") support for hosted (virtual) domain mode. Default is "no".
<code>local.schemaversion</code>	Specifies the version of the LDAP schema: <ul style="list-style-type: none"> <li>■ "1" for “<a href="#">Sun LDAP Schema 1</a>” on page 211. See also <code>service.dcreport</code>.</li> <li>■ "2" for “<a href="#">Sun LDAP Schema 2</a>” on page 210. See also <code>service.schema2root</code>.</li> </ul> Default is "1".

Parameter	Description
<code>service.dcreot</code>	<p>Specifies the root suffix of the DC tree in the LDAP directory, if <code>local.schemaversion="1"</code>.</p> <p>For example: "o=internet".</p> <p>In hosted (virtual) domain mode, Calendar Server uses the <code>service.dcreot</code> parameter and not the <code>local.ugldapbasedn</code> and <code>local.authldapbasedn</code> parameters.</p> <p>Conversely, in non-hosted (virtual) domain mode, Calendar Server uses the <code>local.ugldapbasedn</code> and <code>local.authldapbasedn</code> parameters and not the <code>service.dcreot</code> parameter.</p>
<code>service.schema2root</code>	<p>Specifies the root suffix underneath which all domains are found, if <code>local.schemaversion="2"</code>.</p> <p>For example: "o=sesta.com".</p>
<code>service.defaultdomain</code>	<p>Specifies the default domain for this instance of Calendar Server. Used when a domain name is not supplied during a login.</p> <p>For example: "red.sesta.com".</p>
<code>service.loginseparator</code>	<p>Specifies a string of separators used for the <i>login-separator</i> when Calendar Server parses "userid[<i>login-separator</i>]domain". Calendar Server tries each separator in turn.</p> <p>Default is "@+".</p>
<code>service.siteadmin.userid</code>	<p>Specifies the user ID of the domain administrator.</p> <p>For example: DomainAdmin@sesta.com.</p>
<code>service.virtualdomain.scope</code>	<p>Controls cross domain searching:</p> <ul style="list-style-type: none"> <li>■ "primary" Search only within the domain where the user is logged in.</li> <li>■ "select" Search in any domain that allows the search.</li> </ul> <p>Default is "select".</p>
<code>local.domain.language</code>	<p>Specifies the language for the domain. Default is "en" (English).</p>

#### 4. Create a default domain entry.

For Schema 2, the default domain is created by the Delegated Administrator configuration program (`config-commda`).

For Schema 1, create a default domain (one of your hosted domains) one or more levels under your DC tree root suffix, depending on your DC tree structure. For example, if your root suffix is `o=internet`, then the next level down node could be `com`, as shown in [“Sun LDAP Schema 1” on page 211](#). However, your default domain would be one node lower, such as `sesta.com`. Use `csdomain` to create DC tree nodes, as illustrated in the example that follows:

```
csdomain -n o=com,dc=com,o=internet create comcsdomain
-n o=sesta.com,dc=sesta,dc=com,o=internet create sesta.com
```

5. Enable calendaring services for the default domain entry.

For Schema 1: Add the `icsCalendarDomain` object class to the `o=sesta.com` domain entry in LDAP using `csattribute`.

For Schema 2: After configuring Delegated Administrator, modify the default domain (created by the Delegated Administrator configuration program) to add Calendar (and Mail) services. In the following example, calendar and mail services are added to a hosted domain:

```
commadmin domain modify -D admin -w passwd -d defaultdomain -S cal,mail
```

6. Create the hosted domains you want on your system.

For instructions on how to add a hosted domain in Schema 2 mode, see [“Creating New Hosted Domains” on page 238](#).

To create a Schema 1 hosted domain, use `csdomain create`, as illustrated in the example that follows:

```
csdomain -n o=red.sesta.com,dc=red,dc=sesta,dc=com
create red.sesta.com
```

7. Enable calendaring services for the new hosted domains, as explained in [“Setting up a Hosted Domain Environment” on page 214](#).
8. Create the `calmaster` site administrator user if it does not already exist.

For Schema 2, create the `calmaster` user using the `commadmin user create` command as illustrated in the following example:

```
commadmin user create -D admin -w passwd -F Calendar
-L Administrator -l calmaster -W calmasterpasswd -d sesta.com -S cal
```

---

**Note** – To create the `calmaster` using the Delegated Administrator Console's Create New User wizard, see the Delegated Administrator online help.

---

For Schema 1, create the `calmaster` user on the organization tree with `csuser` as illustrated in the following example:



```
csuser o=sesta.com,o=rootsuffix -d sesta.com
-g Calendar -s Administrator -ycalmasterpasswordcreate calmaster
```

9. If the `calmaster` site administrator user already exists from an earlier non-hosted domain environment (Schema 1), move it to the default domain by performing the following steps:
  - a. Perform an LDAP dump of the existing `calmaster` LDAP entry and save it in a temporary file, such as `/tmp/calmaster.ldif`.
  - b. Delete the existing `calmaster` LDAP entry on the organization tree root suffix using `ldapdelete`, as follows:

```
#ldapdelete -D "cn=Directory Manager" -w password
uid=calmaster,ou=People,o=rootsuffix
```

- c. Modify the calendar administrator's group entry (update the `uniqueMember` attribute) to reflect the changes as shown in the LDIF example that follows:

```
dn:cn=Calendar Administrators,ou=Groups,o=rootsuffix
changetype:modifyreplace:uniqueMember
uniqueMember:uid=calmaster,ou=People,o=sesta.com,o=rootsuffix
```

It is not necessary to move the group entry to the hosted domain.

10. Update any administration scripts you have so that `calids` in the WCAP commands are fully qualified. That is, each `calid` must now include the domain name. For example: `jsmith@sesta.com`.

## Using Domains Created by Messaging Server

If Messaging Server has already created hosted domains, they can be calendar enabled for either Schema 1 or Schema 2. This section covers the following topics:

- [“Enabling Calendaring in Schema 1 Messaging Domains” on page 217](#)
- [“Enabling Calendaring in Schema 2 Messaging Domains” on page 218](#)

## Enabling Calendaring in Schema 1 Messaging Domains

To enable domains for calendaring, add the following object class and two attributes to the LDAP domain entry for each domain you want enabled for calendar:

- Object class: `icsCalendarDomain`.
- Attribute: `icsStatus`. Set the value to “active”.
- Attribute: `icsExtendedDomainPrefs`. Set the value of attribute option `domainAccess` to the ACL you want to use for access control.

You can do this in one of two ways: use `csattribute add` command or use `ldapmodify` as shown in the example that follows:

```
dn:dc=sesta,dc=com,o=internet
changetype:modify
add:objectclass
objectClass:icsCalendarDomain
add:icsStatus
icsStatus:active
add:icsExtendedDomainPrefs
icsExtendedDomainPrefs:domainAccess=@@^a^s^l^f^r^w^d^g;anonymous^a^r^g;@^a^s^g
```

## Enabling Calendaring in Schema 2 Messaging Domains

If you have already migrated your existing Messaging Server LDAP entries to Schema 2 (using `commdirmig`), or you originally created the Messaging Server LDAP entries in Schema 2 mode, perform the following two steps to enable calendaring:

1. Use the Delegated Administrator Utility command `comadmin domain modify` with the `-S` option to add calendar service to each domain.

Alternately, you can use the Delegated Administrator Console to allocate service packages containing calendar service to the affected domains. To do this, use the **Allocate Service Packages** button on the **Organization List** page.

2. Use the Delegated Administrator Utility command `comadmin user modify` with the `-S` option to add calendar service to each user in each domain you enabled for calendar.

Alternately, you can use the Delegated Administrator Console to assign a service package containing calendar service to each user in the affected domains. To do this, use the **Assign Service Package** button on the **User List** page in each affected organization.

For the `comadmin` commands, see the *Sun Java System Communications Services 6 2005Q4 Delegated Administrator Guide*.

For more information about Delegated Administrator Console, see its online help.

For `commdirmig` information, see the *Sun Java System Communications Services 6 2005Q4 Schema Migration Guide*



## PART IV

# Calendar Server Administration

- Chapter 12, “Administering Calendar Server”
- Chapter 13, “Administering Hosted Domains”
- Chapter 14, “Administering Users and Resources”
- Chapter 15, “Administering Calendars”
- Chapter 16, “Administering Calendar Server Databases with csdb”
- Chapter 17, “Backing Up and Restoring Calendar Server Data”
- Chapter 18, “Administering the Delete Log Database”
- Chapter 19, “Administering Calendar Server Time Zones”
- Chapter 20, “Using Instant Messaging Pop-up Reminders”
- Chapter 21, “Tuning Calendar Server Performance”
- Chapter 22, “Troubleshooting”



# Administering Calendar Server

---

This chapter and those that follow in [“Using Domains Created by Messaging Server”](#) on page 217 describe how to administer Calendar Server, and contains the following sections:

- [“Starting and Stopping Calendar Server”](#) on page 222
- [“Enabling or Disabling Automatic Backups”](#) on page 223
- [“Managing the Group Scheduling Engine Queue”](#) on page 226
- [“Monitoring Calendar Server”](#) on page 227
- [“Clearing the CLD Cache”](#) on page 231
- [“Changing a Server Name”](#) on page 232
- [“Configuring Anonymous Access”](#) on page 232
- [“Enabling Proxy Administrator Logins”](#) on page 233
- [“Refreshing the Calendar Server Configuration”](#) on page 235

You manage Calendar Server by running either the Delegated Administrator utility (formerly the User Management Utility) or the Calendar Server command-line utilities and by editing the `ics.conf` configuration file.

To run the command-line utilities, you must log in as a user who has administrative rights to the system where Calendar Server is running.

For more information, see [Appendix D, “Calendar Server Command-Line Utilities Reference.”](#)

---

**Note** – Additional administration topics are covered in other, separate chapters. They include the following topics:

- Chapter 13, “Administering Hosted Domains”
  - Chapter 14, “Administering Users and Resources.”
  - Chapter 15, “Administering Calendars”
  - Chapter 16, “Administering Calendar Server Databases with csdb”
  - Chapter 17, “Backing Up and Restoring Calendar Server Data”
  - Chapter 18, “Administering the Delete Log Database”
  - Chapter 19, “Administering Calendar Server Time Zones”
  - Chapter 20, “Using Instant Messaging Pop-up Reminders”
  - Chapter 21, “Tuning Calendar Server Performance”
  - Chapter 22, “Troubleshooting”
- 

## Starting and Stopping Calendar Server

This section covers how to use `start-cal` and `stop-cal` and contains the following topics:

- “About `start-cal` and `stop-cal`” on page 222
- “To Start Calendar Server with `start-cal`” on page 223
- “To Stop Calendar Server with `stop-cal`” on page 223

### About `start-cal` and `stop-cal`

You can start and stop Calendar Server using the `start-cal` and `stop-cal` commands. The `start-cal` and `stop-cal` utilities are located in the `cal_svr_base/SUNwics5/cal/sbin` directory. You must run these utilities on the local machine where Calendar Server is installed.

---

**Note** – Calendar Server provides the `csstart` and `csstop` utilities only for compatibility with earlier releases. If possible, use the `start-cal` and `stop-cal` utilities to start and stop Calendar Server.

---

The `start-cal` utility starts Calendar Server services in the following order:

1. `enpd`— Event Notification Service (ENS)
2. `csnotifyd`— Notification Service
3. `csadmin`— Administration Service
4. `csdwpd`— Database Wire Protocol (DWP) service, the distributed database service starts only if you have a remote Calendar Server database configuration
5. `cshttpd`— HTTP Service

## 6. `csstored`— Automatic Backup Service

For a description of these services, see “[Calendar Server Services](#)” on page 54

### ▼ To Start Calendar Server with `start-cal`

- 1 Log in as a user who has administrative rights to the system.
- 2 Change to the `cal_svr_base/SUNWics5/cal/sbin` directory.
- 3 Start Calendar Server:  

```
./start-cal
```

### ▼ To Stop Calendar Server with `stop-cal`

- 1 Log in as a user who has administrative rights to the system where Calendar Server is running.
- 2 Change to the `cal_svr_base/SUNWics5/cal/sbin` directory.
- 3 Stop Calendar Server:  

```
./stop-cal
```

## Enabling or Disabling Automatic Backups

Automatic backups are managed by the `csstored` process that starts up automatically when `start-cal` is issued. However, you can either enable or disable automatic backups at will. The default is for automatic backups to be disabled. The `csstored` process runs even if automatic backups are not enabled.

There are two kinds of automatic backups: hot backups and archival backups. You enable or disable them separately.

The `csstored` process must be configured before you issue `start-cal`, or you will receive an error message informing you that `csstored` is not configured. You will receive the same message every 24 hours thereafter until it is configured.

For information on automatic backups and instructions on configuring `csstored`, see [Chapter 10, “Configuring Automatic Backups \(csstored\)”](#)

The following is a list of tasks for enabling and disabling automatic backups:

- “[To Enable Hot Backups](#)” on page 224

- [“To Enable Archive Backups” on page 224](#)
- [“To Disable Hot Backups” on page 225](#)
- [“To Disable Archive Backups” on page 225](#)

## ▼ To Enable Hot Backups

- 1 **At a command line, change to the directory where the `ics.conf` is located:**

```
cd /etc/opt/SUNWics5/config
```

- 2 **Enable hot backups by setting the following `ics.conf` parameter to “yes”:**

```
caldb.berkeleydb.hotbackup.enable="yes"
```

- 3 **Specify the directory path for the hot backup directory:**

```
caldb.berkeleydb.hotbackup.path=  
    /var/opt/SUNWics5/hotbackup_directory
```

The default is the current directory.

- 4 **When you have completed editing the `ics.conf` file, restart Calendar Server:**

```
cal_svr_base/SUNWics5/cal/sbin/start-cal
```

The calendar services do not need to be stopped to edit the `ics.conf` file, but you must restart the services in order for the changes to take effect.

## ▼ To Enable Archive Backups

- 1 **At a command line, change to the directory where the `ics.conf` is located:**

```
cd /etc/opt/SUNWics5/config
```

- 2 **Enable archive backups by setting the following `ics.conf` parameter to “yes”:**

```
caldb.berkeleydb.archive.enable="yes"
```

- 3 **Specify the directory path for the archive directory:**

```
caldb.berkeleydb.archive.path=  
    /var/opt/SUNWics5/hotbackup_directory
```

The default is the current directory.

- 4 **When you have completed editing the `ics.conf` file, restart Calendar Server:**

```
cal_svr_base/SUNWics5/cal/sbin/start-cal
```



The calendar services do not need to be stopped to edit the `ics.conf` file, but you must restart the services in order for the changes to take effect.

## ▼ To Disable Hot Backups

Backups are disabled by default. If you have previously enabled them and want to disable them, perform the following steps:

- 1 At a command line, change to the directory where the `ics.conf` is located:**

```
cd /etc/opt/SUNWics5/config
```

- 2 Disable hot backups by setting the following `ics.conf` parameter to "no":**

```
caldb.berkeleydb.hotbackup.enable="no"
```

- 3 When you have completed editing the `ics.conf` file, restart Calendar Server:**

```
cal_svr_base/SUNWics5/cal/sbin/start-cal
```

The calendar services do not need to be stopped to edit the `ics.conf` file, but you must restart the services in order for the changes to take effect.

## ▼ To Disable Archive Backups

Backups are disabled by default. If you have previously enabled them and want to disable them, perform the following steps:

- 1 At a command line, change to the directory where the `ics.conf` is located:**

```
cd /etc/opt/SUNWics5/config
```

- 2 Disable archive backups by setting the following `ics.conf` parameter to "no":**

```
caldb.berkeleydb.archive.enable="no"
```

- 3 When you have completed editing the `ics.conf` file, restart Calendar Server:**

```
cal_svr_base/SUNWics5/cal/sbin/start-cal
```

The calendar services do not need to be stopped to edit the `ics.conf` file, but you must restart the services in order for the changes to take effect.

# Managing the Group Scheduling Engine Queue

The Group Scheduling Engine (GSE) keeps a queue of events that will be used to update the component database. An administrator can change the timeout value to adjust the time between Calendar Server scans of the queue. Events in the queue can also be listed and specific events deleted if necessary.

This section contains the following topics:

- “About GSE” on page 226
- “About the GSE Queue” on page 226
- “Listing Entries in the GSE Queue” on page 226
- “Deleting Entries in the GSE Queue” on page 227

## About GSE

The GSE allows a Calendar Server user to create events and invite other attendees. If an attendee is on the same Calendar Server, the event is scheduled in the attendee’s calendar. If an attendee is not on the same Calendar Server, the invitation is sent via email. The attendee can then accept or decline the invitation and the GSE will update the event with the reply.

## About the GSE Queue

The GSE queue is in reality a separate database managed by the GSE. Calendar Server scans the queue for updates that need to be made to the components database.

You can tune Calendar Server by adjusting the frequency of this scan. This is accomplished by changing the timeout value of `gse.belowthresholdtimeout` in the `ics.conf` file. See [Chapter 21, “Tuning Calendar Server Performance.”](#)

The GSE queue entries can be managed (listed and deleted) using `csschedule`. You must run `csschedule` on the local machine where Calendar Server is installed.

## Listing Entries in the GSE Queue

To list entries in the GSE queue, use the `csschedule` utility `list` command.

For example, to list all entries in the GSE queue:

```
csschedule list
```

To list the first ten entries stored in the GSE queue:

```
csschedule -c 10 list
```

To list all entries in the GSE queue for a calendar with the `calid` `Holiday_Schedule`:

```
csschedule -v list Holiday_Schedule
```

## Deleting Entries in the GSE Queue

To delete entries in the GSE queue, use the `csschedule` utility `delete` command.

For example, to delete all entries in the GSE queue:

```
csschedule -v delete
```

To delete the entry in the GSE queue for calendar `calA` with the first schedule time of 13:30:45 on 11/30/2001, an offset number of 1, the unique identifier 1111, the recurrence ID 0, and the sequence number 0:

```
csschedule -v -t 20011130T133045Z -o 1 -u 1111 -r 0 -n 0 delete calA
```

## Monitoring Calendar Server

You will want to monitor system activity as part of your daily tasks. There are several utility tools available to you for monitoring Calendar Server activity: `csmonitor`, `csstats`, `cstool`. In addition, you can set up many log files to help monitor system usage.

This section covers the following topics:

- “About `csmonitor`” on page 227
- “To Configure `csmonitor`” on page 228
- “Listing Counter Statistics” on page 229
- “Using `cstool` for Monitoring” on page 229
- “Using Calendar Server Log Files” on page 230

### About `csmonitor`

This Calendar Server utility is a shell script that requires `bash`. When invoked, this utility performs the following functions:

- Monitors and logs the following processes according to the log level specified in the `ics.conf` file: `csadmin`, `csnotifyd`, `cshttpd`, `enpd`.
- Checks to see if `cshttpd` is accepting commands.
- Checks to see if the system has LDAP connectivity.
- If circular logging is enabled, checks to see if more than one transaction file exists and if so, sends an email warning.

- Checks available disk space for the calendar database to make sure there is enough for proper operation.
- When errors occur the utility logs them and sends an email to the administrator specified by the `ics.conf` parameter `service.monitor.emailaddress.to`.

For debugging purposes, you can configure the monitor to run in a continuous loop with very short intervals, but this requires more system resources, so you don't want to keep it in that mode during normal production.

To use `csmonitor` under normal circumstances, set it to run with an interval that you choose.

For more information about the `csmonitor` utility, see [Appendix D, "Calendar Server Command-Line Utilities Reference."](#)

## ▼ To Configure `csmonitor`

- 1 Log in as an administrator with permission to change the configuration.
- 2 Change to the `/etc/opt/SUNWics5/cal/config` directory.
- 3 Save your old `ics.conf` file by copying and renaming it.
- 4 Edit one or more of the `ics.conf` parameters shown in the following table:

Parameter	Description and Default Value
<code>service.monitor.continuous</code>	Specifies whether <code>csmonitor</code> should loop continuously: "0" – Do not loop continuously (the default). "1" – Loop continuously.  Set this parameter to "1" to enable <code>csmonitor</code> to run automatically.
<code>service.monitor.loopsdelay</code>	Specifies the delay in seconds between two monitoring loops. The default is "60" seconds.  For debugging purposes, make the interval shorter and for production, make the interval much longer.
<code>service.monitor.emailaddress.from</code>	Specifies the email address <code>csmonitor</code> sends messages from. No default given.
<code>service.monitor.emailaddress.to</code>	Specifies the email address <code>csmonitor</code> should send messages to. No default given.

Parameter	Description and Default Value
service.monitor.csdb.logthreshold	Monitors the calendar database (csdb). Specifies a threshold value, as a percent of the total disk space, for maximum disk occupation. If the disk occupation for the csdb directory exceeds this value, it sends a warning email message. The default is "90".
logfile.monitor.logname	Specifies the csmonitor log file name. The default is "csmonitor.log".
logfile.monitor.maxlogfilesize	Specifies the maximum log file size. If the log file exceeds this size, csmonitor saves the log as csmonitor.log.timestamp and resets the current log. The default is "2097152"
service.monitor.dbglevel	Specifies the debug level. With a range of 0-5, the higher this value, the more precise and verbose messages sent by csmonitor. The default is "0", which specifies no logging. A value of "5" would indicate debug logging.

5 Save the file as `ics.conf`.

6 Restart Calendar Server.

```
cal_svr_base/SUNWics5/cal/sbin/start-cal
```

## Listing Counter Statistics

The “[csstats](#)” on page 411 utility displays statistical information from counter objects defined in the calendar configuration (`counter.conf`) files. Counter objects such as `httpstat`, `authstat`, `wcapstat`, or `dbstat` show information about Calendar Server including:

- Maximum number of concurrent connections and total number of connections
- Total number of successful and failed logins and connections
- Number of database reads, writes, and deletes

For information about Calendar Server counter statistics, see [Appendix E, “Calendar Server Configuration Parameters.”](#)

## Using `cstool` for Monitoring

You can ping the following services as well as the machine where Calendar Server is installed:

- `cshttpd`
- `csadmin`
- `enpd`

For information about using `cstool`, see [Appendix D, “Calendar Server Command-Line Utilities Reference.”](#)

## Using Calendar Server Log Files

Each Calendar Server service writes status information to its own log file. Each log file is named after its associated service name, as shown in the following table:

Service Name	Log File Name
Administration Service ( <code>csadmin</code> )	<code>admin.log</code>
Distributed Database Service ( <code>csdwpd</code> )	<code>dwp.log</code>
HTTP Service ( <code>cshttpd</code> )	<code>http.log</code>
Notification Service ( <code>csnotifyd</code> )	<code>notify.log</code>
Single Sign-on log	<code>am_sso.log</code>
Log of start commands	<code>start.log</code>
Log of stop commands	<code>stop.log</code>
Log of store commands	<code>store.log</code>

Calendar Server log files are stored in the following default directory:

```
/var/opt/SUNWics5/logs
```

Each log file is rolled-over to a new log file identified by a unique number. For example:

```
admin.log.8.1083013284 http.log.8.1083013284
```

Calendar Server provides six levels of severity for events reported to the log files as described in the following table. You can specify the level of severity of the events that Calendar Server reports to the log files by modifying the `ics.conf` parameter `logfile.loglevel`.

Severity Level	Meaning
CRITICAL	Critical condition.
ERROR	Error condition.
WARNING	Warning condition.

Severity Level	Meaning
NOTICE	Normal, but signification condition. This is the default reporting level for each calendar service.
INFORMATION	Informational.
DEBUG	Debug-level message.

A log event is represented by a single line that shows the associated timestamp, server host name, severity level, process name (process ID), type of event, priority, and description.

For information regarding the `ics.conf` log settings, see [Appendix E, “Calendar Server Configuration Parameters.”](#)

## Clearing the CLD Cache

If you have enabled the CLD Cache, you might need to clear the cache from time to time. This section covers the following topics:

- [“Why Clear the CLD Cache?” on page 231](#)
- [“To Clear the CLD Cache” on page 231](#)

## Why Clear the CLD Cache?

The CLD cache can become out of sync with your system configuration for various reason, for example:

- You add, delete or rename a server.
- You move a server from one function to another in your configuration.
- You move one or more calendars to different back-end servers.

If any of these things happen, in order to refresh the CLD cache, you must clear it.

### ▼ To Clear the CLD Cache

- 1 **Stop Calendar Server.**
- 2 **Remove all files in the `/var/opt/SUNWics5/csdb/cld_cache` directory, but do not remove the `cld_cache` directory itself.**
- 3 **Restart Calendar Server.**

## Changing a Server Name

If you add, delete or change a server name in your configuration, there are several “housekeeping” steps you should perform to avoid errors:

- Clear the CLD Cache
- If an old server is taken out, delete it from the `ics.conf` parameters where it appears.

## Configuring Anonymous Access

Anonymous access is a special login that does not require authentication. With anonymous login enabled, read and write access to public calendars is enabled by default. It is possible to deny write access to the public calendars. This section covers the following topics:

- [“To Enable Anonymous Access” on page 232](#)
- [“To Disable Anonymous Users to Write to Public Calendars” on page 233](#)

---

**Note** – Communications Express expects anonymous logins to be allowed for writing as well as reading. See [“Configuring for Communications Express” on page 122](#).

---

### ▼ To Enable Anonymous Access

- 1 Log in as an administrator with permission to change the configuration.
- 2 Change to the `/etc/opt/SUNWics5/cal/config` directory.
- 3 Save your old `ics.conf` file by copying and renaming it.
- 4 Edit the following parameters in the `ics.conf` to enable anonymous access:

Parameters	Description and Default Value
<code>service.http.allowanonymouslogin</code>	Enable anonymous access (login) by setting this parameter to “yes”, if necessary. The default value is “yes”.
<code>service.calendarsearch.ldap</code>	For security purposes with anonymous logins enabled, you might want to disable searching through the LDAP first when doing calendar searches, by setting this parameter to “no”, which is the default.



---

**Note** – Communications Express expects the value of the `service.calendarsearch.ldap` parameter to be “no”. This conflicts with instructions given for tuning your system for best performance in a DWP environment. (Your database is distributed across multiple back-ends.) See [“Improving Calendar Search Performance in a DWP Environment”](#) on page 316.

---

5 Save the file as `ics.conf`.

6 Restart Calendar Server.

```
cal_svr_base/SUNWics5/cal/sbin/start-cal
```

## ▼ To Disable Anonymous Users to Write to Public Calendars

1 Log in as an administrator with permission to change the configuration.

2 Change to the `/etc/opt/SUNWics5/cal/config` directory.

3 Save your old `ics.conf` file by copying and renaming it.

4 Edit the following `ics.conf` parameter as shown in the following table:

Parameter	Description and Default Value
<code>service.wcap.anonymous.allowpubliccalendarwrite</code>	Enables or disables allowing anonymous access users to write to public calendars. Enable access by setting the value to “yes”, which is the default.

5 Save the file as `ics.conf`.

6 Restart Calendar Server.

```
cal_svr_base/SUNWics5/cal/sbin/start-cal
```

## Enabling Proxy Administrator Logins

Proxy administrator logins (proxy authentication) must be enabled for Communications Express. For instructions on configuring proxy authentication for Communications Express, see [“Configuring for Communications Express”](#) on page 122.

However, proxy authentication can be enabled even if you are not using Communications Express. This section contains the procedure for enabling proxy authentication without Communications Express:

- “To Enable Proxy Authentication without Communications Express” on page 234
- “To Verify Proxy Authentication is Working” on page 234

## ▼ To Enable Proxy Authentication without Communications Express

- 1 Log in as an administrator with permission to change the configuration.
- 2 Change to the `/etc/opt/SUNWics5/cal/config` directory.
- 3 Save your old `ics.conf` file by copying and renaming it.
- 4 Edit the `ics.conf` file, setting the following parameter:  
`service.http.allowadminproxy = "yes"`
- 5 Save the file as `ics.conf`.
- 6 Restart Calendar Server for the new value to take effect.

## ▼ To Verify Proxy Authentication is Working

- Verify that administrator proxy logins are working by using the following WCAP command:

```
http://server[:port]
/login.wcap?user=admin-user&password=admin-password
&proxyauth=calendar-user
```

where:

- *server*– The name of the server where Calendar Server is running.
  - *port*– The Calendar Server port number. The default port is 80.
  - *admin-user* – The Calendar Server administrator. For example, `calmaster`.
  - *admin-password* – The password for *admin-user*.
  - *calendar-user* – The `calid` of the Calendar Server user.

If the command is successful, Calendar Server displays the calendar for *calendar-user*. If problems occur, Calendar Server displays “Unauthorized”. Causes might be:

- The *admin-user* does not have Calendar Server administrator privileges.

- The *admin-password* is incorrect.
- The *calendar-user* is not a valid Calendar Server user.

## Refreshing the Calendar Server Configuration

In the current release, do not use the `cstool refresh` command to refresh a configuration. Instead, use the `stop-cal` and `start-cal` commands. For more information, see [“Starting and Stopping Calendar Server”](#) on page 222.



# Administering Hosted Domains

---

This chapter contains the following sections about administering hosted domains:

- “Choosing the Correct User Management Tool” on page 237
- “Creating New Hosted Domains” on page 238
- “Enabling Cross Domain Searches” on page 239
- “Enabling Hosted Domains” on page 242

## Choosing the Correct User Management Tool

Once your calendar installation has been configured for hosted domains and the preparation work described in [Chapter 11](#), “Setting Up Hosted Domains” has been performed, you can add new hosted domains.

Each domain has a set of attributes and preferences that you can set. These attributes are part of the `icsCalendarDomain` object class. The attributes include preferences such as access rights, access control lists (ACLs), domain searches, access rights for domain searches, user status, and proxy logins.

To administer Calendar Server hosted (or virtual) domains use one of the two following set of tools:

- Delegated Administrator Console or Utility – For Schema 2 environments.  
Delegated Administrator is a separately installable component in the Java Enterprise System installer. For more information on the Utility, see the *Sun Java System Communications Services 6 2005Q4 Delegated Administrator Guide*. For more information on the Console, use the Delegated Administrator Console online help.
- Calendar Server Utility — (`csdomain` and `csattribute`) For Schema 1 environments.  
Installed with Calendar Server. You can add or delete attributes with `csdomain`, but you there is no `modify` command. Use `csattribute` to modify the value of an existing attribute. In addition, should the need arise, use `ldapmodify` to add or delete object classes in domains created with `csdomain`.

For information about `csdomain` and `csattribute`, see [Appendix D, “Calendar Server Command-Line Utilities Reference.”](#)

For information about particular object classes and attributes, see the *Sun Java System Communications Services 6 2005Q4 Schema Reference*.

For an overview of hosted domains and other introductory material, see [Chapter 11, “Setting Up Hosted Domains.”](#)



---

**Caution** – Calendar Server does not support using the Access Manager Console for domain administration.

---

## Creating New Hosted Domains

Create hosted domains for either Schema 2 or Schema 1:

- [“To Add a Hosted Domain \(Schema 2\)” on page 238](#)
- [“To Add a Hosted Domain \(Schema 1\)” on page 238](#)

### To Add a Hosted Domain (Schema 2)

You can use either the Delegated Administrator Console or Utility:

- Console — Use the Create New Organization wizard on the Organization List page. For more information, see the Delegated Administrator Console online help.
- Utility — Use the `commadmin domain create` command.

For example, to create the domain `sesta.com`, issue the following command:

```
commadmin domain create -D calmaster
-d sesta.com -w calmasterpassword -S cal
-B backend.sesta.com
```

For information about the Delegated Administrator Utility, see the *Sun Java System Communications Services 6 2005Q4 Delegated Administrator Guide*.

### To Add a Hosted Domain (Schema 1)

You must be in hosted domain mode to run `csdomain`. For instructions on how to enable hosted domains, see [Chapter 11, “Setting Up Hosted Domains.”](#)

Use `csdomain create` when creating a hosted domain in Schema 1. For example, to create `west.sesta.com`, use the following command:

```
csdomain create west.sesta.com
```

## Enabling Cross Domain Searches

This section covers the two tasks you must do to enable cross domain searches:

- “[Adding Names of Domains Allowed to Search This Domain](#)” on page 239 in the LDAP entry for each of the domains allowed to search this domain.
- “[Adding Names of Domains to be Searched by This Domain](#)” on page 241 when users in this domain send invitations to events.

This can be done using either of the following tools: `ldapmodify` (for either Schema mode), or Delegated Administrator Console or Utility (for Schema 2).

### Adding Names of Domains Allowed to Search This Domain

Each domain LDAP entry specifies access permissions in ACE's, which are defined in the `domainAccess` parameter of the `icsExtendedDomainPrefs` attribute. Two different ways to allow external domains to search this domain are:

- “[To Allow Specific Domains to Search This Domain](#)” on page 239
- “[To Allow All External Domains to Search This Domain](#)” on page 240

The construction of ACE's is explained more fully in “[Calendar Access Control](#)” on page 47.

#### To Allow Specific Domains to Search This Domain

This can be done three ways:

- Using `ldapmodify`, create the following ACE string in the `domainAccess` preference of the `icsExtendedDomainPrefs`:

```
@domain_being_allowed^a^lsfr^g
```

Form the ACE by specifying the domain allowed to search this domain, followed by sufficient permissions to allow the search.

- Using Delegated Administrator Utility command `commadmin domain modify`, add ACE strings specifying the `domainAccess` preference in `icsExtendedDomainPrefs` attribute.

For example, in a Schema 2 environment, `sesta.com` allows searches from `siroe.com`:

```
commadmin domain modify -D admin
-w adminpassword -X hostmachine_1 -d sesta.com
-A +icsextendeddomainprefs:"domainAccess=@d^a^slfrwd^g;
@siroe.com^a^lsfrwd^g;anonymous^a^r^g;@^a^s^g"
```

- Using Delegated Administrator Console, when creating or editing an organization's properties, you can add domains to the Allow Invitations From Users in These Organizations list.

This updates the `domainAccess` preference in the `icsExtendedDomainPrefs` attribute.

---

**Note** – While you can specify the exact permissions given to the domains in the first two methods just listed, the last one, using the Delegated Administrator Console, does not allow the administrator as much control. The list of permissions is preset. The permissions given are: free-busy access, and event scheduling access. The user can't see event details unless the owner of that calendar has set permissions to allow all users to read it.

---

## To Allow All External Domains to Search This Domain

There are three ways to allow all external domains to search this domain:

- Using `ldapmodify`, create the following ACE string in the `domainAccess` preference of the `icsExtendedDomainPrefs`:

```
@^a^slfr^g
```

Form the ACE by specifying that all domains have sufficient access to perform searches.

- Using Delegated Administrator Utility command `commadmin domain modify`, add ACE strings specifying the `domainAccess` preference in `icsExtendedDomainPrefs` attribute.

For example, in a Schema 2 environment, `sesta.com` allows searches by all domains:

```
commadmin domain modify -D admin
-w adminpassword -X hostmachine_1 -d sesta.com
-A +icsextendeddomainprefs:"domainAccess=@@^a^slfrwd^g;
anonymous^a^r^g;@^a^slfr^g"
```

---

**Note** – The characters `@@` refer to the domain of the primary owner.

---

- Using Delegated Administrator Console, when creating or editing an organization's properties, you can add domains to the Allow Invitations From Users in These Organizations list.

This updates the `domainAccess` preference in the `icsExtendedDomainPrefs` attribute.



---

**Note** – While you can specify the exact permissions given to the domains in the first two methods just listed, the last one, using the Delegated Administrator Console, does not allow the administrator as much control. The list of permissions is preset. The permissions given are: free-busy access, and event scheduling access. The user can't see event details unless the owner of that calendar has set permissions to allow all users to read it.

---

## Adding Names of Domains to be Searched by This Domain

There are three ways to do add external domains to be searched by this domain:

- Using `ldapmodify`, add one instance of `icsDomainNames` for each external domain that can be searched by users in this domain.

For example, `sesta.com` searches in both `siroe.com` and `example.com` when performing cross domain searches. Use `ldapmodify` (for either Schema 1 or Schema 2) to create the following LDIF:

```
dn: dc=sesta, dc=com, o=internet
changetype: modify
add: icsDomainNames
icsDomainNames:siroe.com
icsDomainNames:example.com
```

- Using Delegated Administrator Utility command `commadmin domain modify`, specify the option `-A` to add names of domains to be searched.

For example:

```
commadmin domain modify -D admin
-w adminpassword -X hostmachine_1 -d sesta.com
-A +icsDomainNames:siroe.com
-A +icsDomainNames:example.com
```

- Using Delegated Administrator Console, when creating or editing an organization's properties, you can add domains to the Invite Calendars in These Organizations list.

This adds `icsDomainNames` attributes to the domain LDAP entry. Add one attribute for each external domain to be searched when users in this domain send invitations to an event.

For more information, see the Delegated Administrator Console online help.

## Enabling Hosted Domains

Calendar Server defaults to non-hosted domains. If you are using Calendar Server and Messaging Server in your Java Enterprise System deployment, you should use hosted domains.

You can enable or disable hosted domains for your installation by editing the `ics.conf` file.

### ▼ To Enable Hosted Domains

- 1 **Edit the `ics.conf` file as follows:**

```
service.virtualdomain.support="yes" (the default is "no".)
```

- 2 **Restart Calendar Services.**

For a list of all the `ics.conf` parameters necessary to implement hosted domains, see [“Setting up a Hosted Domain Environment”](#) on page 214.

### ▼ To Disable Hosted Domains

- 1 **Edit the `ics.conf` file as follows:**

```
service.virtualdomain.support="no"
```

- 2 **Restart Calendar Services.**

# Administering Users and Resources

---

This chapter describes how to use the Calendar Server utilities to manage users and resources. This chapter contains the following sections:

- “User Management Tools” on page 243
- “Creating Users and Resources” on page 244
- “Administering Users” on page 247
- “Managing Resources” on page 253
- “Managing User and Resource LDAP Attributes” on page 255

## User Management Tools

Calendar users and resources can be administered using one of the following user management tools:

- Delegated Administrator Console  
Use this GUI to provision users and resources in LDAP for Calendar Server. For information on using the GUI, see the Delegated Administrator Console online help.
- Delegated Administrator Utility (`commadmin`)  
Use these tools to provision users and resources in LDAP for Calendar Server. For detailed instructions, see the *Sun Java System Communications Services 6 2005Q4 Delegated Administrator Guide*.

---

**Note** – Delegated Administrator does not manage calendars. To create calendars for users and resources, use the Calendar Server utilities.

---

- Calendar Server utilities (`csuser` and `csresource`)  
Use these utilities to manage calendars. In addition, use them for user and resource management if your configuration meets all of the following criteria:
  - You are not using Access Manager.

- You have an earlier version of Calendar Server or Messaging Server installed using Sun LDAP Schema 1
- You plan to continue using Schema 1.

See also the command-line utility reference in this guide, [Appendix D, “Calendar Server Command-Line Utilities Reference.”](#)

---

**Note** – In certain cases, even if you are using Schema 2 and Delegated Administrator, you will need to use some of the Calendar Server command-line utilities to perform special functions. When this is necessary, task oriented documentation in this guide will tell you which utility to use.

---

## Creating Users and Resources

This section provides the following information about managing new Calendar Server users and resources:

- [“To Create New Users in Schema 2” on page 244](#)
- [“To Create New Users For Schema 1” on page 245](#)
- [“To Create New Resources for Schema 2” on page 245](#)
- [“To Create New Resources for Schema 1” on page 245](#)
- [“To Add the Required mail Attribute” on page 245](#)

### To Create New Users in Schema 2

You can use either the Delegated Administrator Console or Utility:

- **Delegated Administrator Console**  
In the Delegated Administrator Console, use the Create New User wizard. (Click New in the User List page for the organization where the user is to reside.) For more information, see the Delegated Administrator Console online help.

- **Delegated Administrator Utility**

Use the `commadmin user create` command. For example, to add user `jdoe` in the `sesta.com` domain:

```
commadmin user create -D calmaster -F John -n sesta.com
-k hosted -l jdoe -w calmasterpassword -W jdoepassword -L Doe -S cal
-B red.sesta.com -E jdoe@sesta.com
```

For details on all the available options for the `commadmin` utility, refer to the *Sun Java System Communications Services 6 2005Q4 Delegated Administrator Guide*

## To Create New Users For Schema 1

Use the `csuser` utility. For example, to add user `jdoe` in the `sesta.com` domain:

```
csuser -m jdoe@sesta.com -d sesta.com create jdoe
```

## To Create New Resources for Schema 2

You can use either the Delegated Administrator Console or Utility:

- Delegated Administrator Console

In the Delegated Administrator Console, use the Create New Resource wizard. (Click New in the Calendar Resources tab for the organization where the resource is to reside.) For more information, see the Delegated Administrator Console online help.

- Delegated Administrator Utility

Use the `commadmin` utility `resource create` command to create an LDAP entry. For example, to add the conference room `Conference_Room_100`, use the following command:

```
commadmin resource create -D calmaster
-w calmasterpassword -n sesta.com -c room100
-N Conference_Room_100
```

You must then use `csresource` to create the actual resource calendar. For information on how to create a resource calendar, see [“Creating Calendars” on page 265](#)

For details on all the available options for the `commadmin` utility, refer to the *Sun Java System Communications Services 6 2005Q4 Delegated Administrator Guide*

## To Create New Resources for Schema 1

Use the `csresource` utility to create both the LDAP entry and the resource calendar. For example, to add a projector, `p101`, use the following command:

```
csresource -m p101@siroe.com -c p101 create Projector_101
```

For more information on `csresource`, see the [“csresource” on page 403](#).

## To Add the Required mail Attribute

Calendar Server requires users and resources to have the `mail` attribute, which contains the email address of the user or resource. This enables people to search for calendars and resources

using an email address or a `calid`. When you create new users with Delegated Administrator, it adds the `mail` attribute automatically. This happens even if the user has not been assigned mail service.

---

**Note** – Calendar Server does not support email notifications for resource calendars.

Adding the `mail` attribute does not enable email notifications for user calendars.

To enable email notification for user calendars, add the following two attributes to the user's LDAP entry:

```
icsExtendedUserPrefs:ceNotifyEnable=1
icsExtendedUserPrefs:ceNotifyEmail=jdoe@sesta.com
```

---

If your users and resources were added in an earlier version of Calendar Server (when the `mail` attribute was not required), you might have to add the `mail` attribute to your existing user and resource LDAP entries.

This section covers the following topics:

- [“To Check if the mail Attribute Has Been Set” on page 246](#)
- [“To Add the Mail Attribute to Existing Users and Resources” on page 246](#)

## To Check if the mail Attribute Has Been Set

To check if the attribute has been set, use the `csattribute list` command with the `-v` (verbose) option:

```
csattribute -v list Room100
```

The output tells if the `mail` attribute is present:

```
cn=Room 100,ou=conferenceRooms,dc=sesta,dc=com
has mail: Room100@sesta.com
```

## To Add the Mail Attribute to Existing Users and Resources

To add the `mail` attribute to existing users and resources, use one of the following methods:

- Use the Calendar Server [“csattribute” on page 369](#) utility.
  - The following example adds the LDAP `mail` attribute for an existing conference room named `Room100` on the `sesta.com` server:

```
csattribute -a mail=Room100@sesta.com add Room100
```

- Use `ldapmodify` to add the attribute directly to the LDAP entry.

# Administering Users

After your users are created, use the `csuser` utility to perform the following administrative tasks:

- “To Display User Information” on page 247
- “To Disable a User” on page 247
- “To Enable a User” on page 248
- “To Set Up Email Aliases” on page 249
- “To Check if a User is Enabled for Calendaring” on page 250
- “To Delete a User from LDAP” on page 250
- “To Reset a User’s Attributes” on page 252
- “To Rename a User” on page 252
- “To Disable Users from Having Publicly Writable Calendars” on page 253

## To Display User Information

To list all calendar users or to display the calendar attributes of a specified user, use the `csuser` utility `list` command.

For example, to display all users enabled for calendaring:

```
csuser list
```

To display all of the calendar attributes of a single user such as `jsmith`:

```
csuser -v list jsmith
```

## To Disable a User

The purpose of disabling a user is to prevent the user from logging into Calendar Server. This is handled differently depending on which user management tool you used to create the user. Users created in the Delegated Administrator Console should be administered using it also. Likewise, if you assigned calendar service to the user with Delegated Administrator Utility, use it to remove the service. And finally, users in a non-hosted domain environment should be administered using only the Calendar Server Utilities. Each handles the situation a bit differently.

This section contains the following topics:

- “Delegated Administrator Console” on page 248
- “Delegated Administrator Utility (`comadmin user delete`)” on page 248
- “Calendar Server Utilities (`csuser disable`)” on page 248 (Calendar Server utilities)

## Delegated Administrator Console

In the Delegated Administrator Console, select the user from the User List page. In the Properties for this user, delete the service package with calendar service in it. This disables the user for calendar, including setting the user's `icsStatus` to `inactive`.

---

**Note** – If the package also contains other services, you will have to reassign those services using another package that does not contain calendar.

---

## Delegated Administrator Utility (commadmin user delete)

To prevent a user from accessing calendar services, remove the service from the user's LDAP entry, as shown in the example that follows:

```
commadmin user delete jsmith -S cal
```

This disables the user for calendar without completely removing the LDAP entry. In addition, this command changes the user's `icsStatus` to `inactive`.

## Calendar Server Utilities (csuser disable)

The `disable` command prohibits a user from accessing calendar data, but it does not remove the user's information from the LDAP entry or the Calendar Server database. This command changes the `icsStatus` attribute from `active` to `inactive`. In non-hosted domain mode, there is no such thing as a calendar service.

For example, to disable `jsmith` from accessing Calendar Server:

```
csuser disable jsmith
```

If `jsmith` is currently logged into Calendar Server, `jsmith` retains access to calendar data until he logs off.

## To Enable a User

To enable a user, use one of the following tools:

- “Delegated Administrator Console” on page 248
- “Delegated Administrator (commadmin user create)” on page 249 (for Schema 2)
- “Calendar Server Utilities (csuser enable)” on page 249 (for Schema 1).

## Delegated Administrator Console

You can add enable both a new user and an existing user:

- New user — When the user is created, using the New User wizard, assign the user a service package that includes calendar service. The user is automatically enabled.



- Existing user — Select the user from the User List page and use the Assign Service Package wizard to select a service package with calendar service. The user is automatically enabled.

## Delegated Administrator (commadmin user create)

When creating a user, enable the user for calendar services, as illustrated in the example that follows:

```
commadmin user create jsmith -S cal
```

If you did not enable the user for calendar services when the user was created, you can add calendar services to the user later, using a modify command, as illustrated in the following example:

```
commadmin user modify jsmith -S cal
```

## Calendar Server Utilities (csuser enable)

If you used `csuser create` when you created the user entry, the user is automatically enabled.

If a user sends a request to another user who has not been enabled for calendaring (that is, the user does not have a default calendar), Calendar Server returns the “Calendar not found” error to the user sending the request.

## To Set Up Email Aliases

If you need to setup email aliases for a calendar user, add the `mailalternateaddress` attribute to the user’s LDAP entry. The `mail` attribute provides the primary mail address, and the `mailalternateaddress` attribute is used for email aliases. Both attributes map the mail addresses to the user’s calendar ID (`calid`).

You can add the attribute using the Calendar Server Utility `csattribute`, or by directly updating LDAP with `ldapmodify`. The following example uses `csattribute`.

---

**Note** – To enable these changes, you might also need to rebuild alias tables or configurations. Refer to the documentation for Messaging Server (or your email product) as well as your site’s own documentation and procedures regarding changes to mail services. Messaging Server documentation is available on this at: <http://docs.sun.com/coll/1312.1>.

---

**EXAMPLE 14-1** Adding an Email Alias with `csattribute`

For example, to add the `mailalternateaddress` attribute for a user named John Smith with these values:

- User ID (`uid`) and `calid`: johnsmith

EXAMPLE 14-1 Adding an Email Alias with `csattribute` (Continued)

- *password*: password for John Smith
- Email address: `john.smith@sesta.com`
- Email aliases: `johns@sesta.com` and `jsmith@sesta.com`

```
csattribute -a mailalternateaddress=johns@sesta.com add johnsmith
csattribute -a mailalternateaddress=jsmith@sesta.com add johnsmith
```

## To Check if a User is Enabled for Calendaring

To determine if a specific user exists in your directory server and is enabled to access Calendar Server data, use the `csuser` utility check command.

For example, to check if `jsmith` is enabled for calendaring:

```
csuser check jsmith
```

If the check command indicates that a user does not exist in your LDAP directory server, you must create a directory server entry for the user.

## To Delete a User from LDAP

Use different tools depending on whether you are deleting a user from a hosted domain or a non-hosted domain:

- [“Deleting Users in Schema 2 Using Delegated Administrator” on page 250](#)
- [“Deleting Users in a Schema 1 Environment” on page 251](#)
- [“For Non-Hosted Domains Only: Undeleting Users Marked for Deletion but Not Purged” on page 252](#)



**Caution** – There is no `undetele` command.

Once users in hosted domains are deleted using Delegated Administrator, they must be purged and re-added from scratch. The user name can not be reused until the purge happens.

For non-hosted domains, see [“For Non-Hosted Domains Only: Undeleting Users Marked for Deletion but Not Purged” on page 252](#).

---

### ▼ **Deleting Users in Schema 2 Using Delegated Administrator**

You can mark users for deletion with either Delegated Administrator interface. However you can not purge users from LDAP with Delegated Administrator Console. You must use the Delegated Administrator Utility for that. The following task lists the steps for deleting a user from LDAP. The user is not actually removed from LDAP until the last step is complete.

**1 Mark a user entry for deletion.**

For Delegated Administrator Console: Select the users to delete in the User List page and click Delete.

For Delegated Administrator Utility: Use the `commadmin user delete` command. For example:

```
commadmin user delete -D chris -n siroe.com
-w bolton -l jsmith
```

In both cases the `icsStatus` attribute in the user LDAP entry is changed from `active` to `deleted`.

**2 Use the Calendar Server Utility `csclean` to remove all calendars belonging to all deleted users in one or all domains, as shown in the following example:**

```
csclean clean "*"
```

Or to remove calendars belonging to all deleted users in one domain, specify the actual domain, as shown in the following example: `csclean clean sesta.com`

---

**Tip** – If you inadvertently purge the users from LDAP before deleting the users' calendars, you can remove them later using the `cscal` utility, as described in [“Managing User Calendars” on page 270](#).

---

**3 Purge the domain of all users marked for deletion, using Delegated Administrator Utility command `commadmin domain purge`.**

For example:

```
commadmin domain purge -D chris -d sesta.com -n siroe.com -w bolton
```

In this example, all users in `sesta.com` that are marked as deleted will be purged, that is, permanently removed.

---

**Tip** – Run this utility manually from time to time to clean up your LDAP directory. For more information about this command, see the *Sun Java System Communications Services 6 2005Q4 Delegated Administrator Guide*.

---

**Deleting Users in a Schema 1 Environment**

To remove the specified user's LDAP entry and the user's default calendar, use the Calendar Server utility `csuser` with the `delete` command.

For example, to delete the LDAP entry and the default calendar for user `jsmith` use the following command:

```
csuser delete jsmith
```

If you wish to remove the other calendars belonging to this user, you must use `cscal` as described in [“Managing User Calendars” on page 270](#).

## For Non-Hosted Domains Only: Undeleting Users Marked for Deletion but Not Purged

For a non-hosted domain, to undelete users marked for deletion but not yet purged, it is necessary to reset the users' `icsStatus` attributes to `active`. You can achieve this by directly changing the LDAP entries (using `ldapmodify`), or by using the Calendar Server Utility `csattribute`.

However, in a non-hosted domain, once the user is purged, you can only recover the LDAP server information by restoring it from a backup.

## To Reset a User's Attributes

To restore the default settings of all calendar LDAP attributes for a specific user, use the `csuser` utility `reset` command.

For example, to reset all calendar attributes of `jsmith` to the default configuration settings:

```
csuser reset jsmith
```

---

**Note** – After a calendar user has been reset, all of the calendar attributes are removed from the user's LDAP entry, including `icsCalendarUser` (object class), `icsSubscribed`, `icsCalendarOwned`, `icsCalendar`, and `icsDWPHost` (if in the LDAP CLD setup). A Calendar Server administrator will not be able to create calendars on the user's behalf.

These attributes are restored in the user's LDAP entry when:

- The user logs back into Calendar Server, or
  - The Calendar Server administrator issues a `csuser enable` command for the user (although in this case, the `icsDWPHost` attribute is not restored).
- 

## To Rename a User

If one or more user ID's need to be changed, run the `csrename` utility. This utility performs the following steps:

- Converts the user ID's in the Calendar Server LDAP attributes (the ones with the `ics` prefix). The LDAP directory is updated in place.
- Renames the users in events and tasks on the Calendar Server database files. It writes the new database to a destination directory. Existing database files are not modified.

---

**Note** – Be aware that changing even one user ID causes the whole database to be rewritten. So this is a “costly” utility to run.

For instructions on how to run the `cs rename` utility, see [Appendix D, “Calendar Server Command-Line Utilities Reference.”](#)

---

## ▼ To Disable Users from Having Publicly Writable Calendars

- 1 Log in as an administrator with permission to change the configuration.
- 2 Change to the `/etc/opt/SUNWics5/cal/config` directory.
- 3 Save your old `ics.conf` file by copying and renaming it.
- 4 Edit the following `ics.conf` parameter as shown in the following table:

Parameter	Description and Default Value
<code>service.wcap.allowpublicwritablecalendars</code>	Enables users to have publicly writable calendars. This is enabled by default (set to “yes”).

- 5 Save the file as `ics.conf`.
- 6 Restart Calendar Server.  
`cal_svr_base/SUNWics5/cal/sbin/start-cal`

## Managing Resources

After your resources are added, you can administer them using `cs resource`:

- “To List Resources” on page 254
- “To Enable Resources” on page 254
- “To Disable Resources” on page 254
- “To Delete Resources” on page 254
- “To Set Up a Bitbucket Channel for Resource Email” on page 254

## ▼ To List Resources

- 1 Change to the `sbin` directory.
- 2 Use the `csresource list` command to list one or all resources.

For example, list all the information about all the resources:

```
./csresource -v list
```

## ▼ To Enable Resources

- 1 Change to the `sbin` directory.
- 2 Use the `csresource enable` command to enable one or more resources.

For example, to enable the `ConfRm12` resource:

```
./csresource -v enable ConfRm12
```

## ▼ To Disable Resources

- 1 Change to the `sbin` directory.
- 2 Use the `csresource disable` command to disable one or more resources. For example, to disable the `ConfRm12` resource:

```
./csresource -v disable ConfRm12
```

## ▼ To Delete Resources

- 1 Change to the `sbin` directory.
- 2 Use the `csresource delete` command to delete one or more resources. For example, to delete the `ConfRm12` resource:

```
./csresource -v delete ConfRm12
```

## To Set Up a Bitbucket Channel for Resource Email

This section contains directions for setting up a bitbucket channel for both Messaging Server and Sendmail. The bitbucket channel is a way to discard the email generated for resource

calendars. These examples use a resource named `Room100` on the `sesta.com` server. If you don't set up the `bitbucket` channel (or equivalent), you will need to periodically delete the email messages sent to the resource calendar.

This section contains the following procedures:

- [“To Set up the Messaging Server Bitbucket Channel” on page 255](#)
- [“To Set up a Sendmail Bitbucket Channel” on page 255](#)

## ▼ To Set up the Messaging Server Bitbucket Channel

- 1 Ensure the `bitbucket` channel is defined in the `imta.cnf` file.
- 2 To direct messages to the `bitbucket` channel, create the email address for the resource using the `csattribute` utility:

```
csattribute -a mail=Room100@bitbucket.sesta.com add Room100
```

## ▼ To Set up a Sendmail Bitbucket Channel

- 1 In the `/etc/aliases` file on the appropriate host, add an entry such as:

```
Resource/Conference room aliases
Room100: /dev/null
```

- 2 Add the email address for the resource to the LDAP directory using the `csattribute` utility:

```
csattribute -a mail=Room100@sesta.com add Room100
```

# Managing User and Resource LDAP Attributes

Manage LDAP attributes used by Calendar Server, with the [“`csattribute`” on page 369](#) utility, or `ldapmodify`. Attributes can be listed, added, or deleted with `csattribute`. To modify an attribute, use `ldapmodify`. This section contains the following topics:

- [“To List LDAP Entry Attributes” on page 255](#)
- [“To Add an LDAP Entry Attribute” on page 256](#)
- [“To Delete an LDAP Entry Attribute” on page 256](#)
- [“To Modify an LDAP Entry Attribute” on page 256](#)

## ▼ To List LDAP Entry Attributes

- 1 Log in as the user or group under which Calendar Server is running (such as `icsuser` and `icsgroup`) that was specified during installation, or as `root`

- 2 **Change to the `sbin` directory.**
- 3 **Use the `csattribute list` command to list the attributes for a user or a resource. For example, to list the attributes for `tchang@sesta.com`; issue the following command:**

```
./csattribute -t user -d sesta.com list tchang
```

## ▼ To Add an LDAP Entry Attribute

- 1 **Log in as the user or group under which Calendar Server is running (such as `icsuser` and `icsgroup`) that was specified during installation, or as `root`**
- 2 **If you want this attribute change to be recognized immediately, stop Calendar Server. Otherwise, you do not have to stop Calendar Server.**
- 3 **Change to the `sbin` directory.**
- 4 **Use the `csattribute add` command to add an attribute to a user or a resource. For example, to add the LDAP attribute `icsCalendar` with the value `Conference_Schedule` to the user `tchang`:**

```
./csattribute -a icsCalendar=Conference_Schedule add tchang@sesta.com
```

## ▼ To Delete an LDAP Entry Attribute

- 1 **Log in as the user or group under which Calendar Server is running (such as `icsuser` and `icsgroup`) that was specified during installation, or as `root`**
- 2 **If you want this attribute change to be recognized immediately, stop Calendar Server. Otherwise, you do not have to stop Calendar Server.**
- 3 **Change to the `sbin` directory.**
- 4 **Use the `csattribute delete` command to delete an attribute from a user or a resource. For example, to delete the LDAP attribute `icsCalendar` with the value `Conference_Schedule` from the user `tchang`:**

```
./csattribute -a icsCalendar=Conference_Schedule -t user  
-d sesta.com delete tchang
```

## To Modify an LDAP Entry Attribute

To modify an LDAP entry attribute, use `ldapmodify`. For example, to change the status of user with `uid=tchang`, use `ldapmodify` as shown:



```
dn:uid=tchang,ou=people,o=sesta.com
changetype: modify
add: objectclass
objectClass: icsCalendarUser
add: icsStatus
icsStatus: active
```

---

**Note** – If your site is using the LDAP CLD plug-in, do not attempt to move a user’s calendars from one back-end host to another by changing the value of `icsDWPHost`, using `csattribute`. Modifying `icsDWPHost` does not cause the calendar to be moved to the new back-end host. For instruction on how to move a calendar from one back-end server to another, see [“Managing User Calendars” on page 270](#).

---



# Administering Calendars

---

This chapter contains the following topics, which describe how to use Calendar Server command-line utilities to create and manage calendars:

- “Calendar Administration Overview” on page 259
- “Creating Calendar Unique Identifiers (calid's)” on page 260
- “Automatic Creation of User Calendars” on page 261
- “Calendar Access Control” on page 264
- “Creating Calendars” on page 265
- “Managing User Calendars” on page 270
- “Managing Resource Calendars” on page 275
- “Linking to a Calendar” on page 278
- “Importing and Exporting Calendar Data” on page 279

## Calendar Administration Overview

The Delegated Administrator does not create or manage calendars. You must use the Calendar Server utilities described in [Appendix D, “Calendar Server Command-Line Utilities Reference.”](#)

Before creating calendars, you must know the following information:

- There are two types of calendars, user calendars and resource calendars.  
User calendars are for scheduling human activity. Resource calendars are for scheduling the use of inanimate objects, such as conference rooms, or video equipment.
- Both types of calendars are identified by a unique calendar identifier (calid).
- Create user calendars with `cs cal`. (Alternately, you can allow auto-provisioning at login time. See “[Automatic Creation of User Calendars](#)” on page 261.)
- Create resource calendars with `cs resource`. (There is no auto-provisioning of resource calendars.)

To run `cscal` or `csresource`, you must log in as a user who has administrative rights to the system where Calendar Server is running. You must run these commands from the `/opt/SUNWics5/cal/sbin` directory. That is, you must change to the `sbin` directory; you can not run them from another directory by specifying the path.

## Creating Calendar Unique Identifiers (calid's)

Each calendar in the Calendar Server database is identified by a unique calendar identifier (ID) or `calid`. When creating calendars, you are required to specify the `calid`.

This section contains the following topics:

- [“Calid Syntax” on page 260](#)
- [“Calendar ID Creation Rules” on page 261](#)
- [“Converting Non-Hosted calid's to Hosted Domain Format calid's” on page 261](#)

### Calid Syntax

Each calendar in the database is identified by a unique calendar ID (`calid`). The following `calid` syntax has three parts:

```
userid[@domain][:calendar-name]
```

The three parts are:

<code>userid</code>	A user ID that is unique for the domain in this Calendar Server instance.
<code>domain</code>	The name of the user's domain.

With no hosted domains, the domain part is optional since there is no ambiguity about which domain the user is in.

With hosted domains, if the domain part is not specified, then Calendar Server uses the value specified in the `ics.conf` parameter `service.defaultdomain` for the domain. If the user is not in the default domain, the domain part must be specified.

For more information about hosted domains (also called virtual domains), see [Chapter 11, “Setting Up Hosted Domains”](#) and [Chapter 13, “Administering Hosted Domains.”](#)

<code>calendar-name</code>	An optional calendar name that is unique to the specific user. Although an owner has only one default calendar, it is possible to have other calendars for various purposes. Each of these non-default calendars is distinguished by its calendar name. For example, if user John Doe has a <code>uid jdoe</code> , his
----------------------------	---

default calendar might be `jdoe@sesta.com`. An auxiliary calendar he uses to keep track of baseball games for the Little League team he coaches might be identified with the following `calid`: `jdoe@sesta.com:baseball`.

## Calendar ID Creation Rules

When creating a `calid`, keep in mind the following rules:

- Calendar ID's are case sensitive. For example, `JSMITH` is not equivalent to `jsmith`. (This differs from email addresses, which are not case sensitive. For example, `jsmith@sesta.com` is equivalent to `JSMITH@SESTA.COM`.)
- A calendar ID cannot contain spaces and is limited to the following characters:
  - Alphabetic (a-z, A-Z) and numeric (0-9) characters (non-ASCII characters are not allowed)
  - Special characters: period (`.`), underscore (`_`), hyphen or dash (`-`), at sign (`@`), apostrophe (`'`), percent sign (`%`), slash (`/`), or exclamation point (`!`)

Because the user ID is part of the `calid`, the user ID should not contain spaces (for example, `j smith`). While a user with a user ID that contains a space can log into Calendar Server, the space can cause subsequent problems.

Examples of proper calendar ID's are:

```
jsmithjsmith:private_calendar
jsmith@calendar.sesta.com:new-cal
```

## Converting Non-Hosted `calid`'s to Hosted Domain Format `calid`'s

If you have `calid`'s that were created before you had hosted domains, and you now want to convert the non-hosted domain `calid`'s to hosted domain `calid`'s, there is a utility, `csvdmig`, that can be used to add the domain part to your existing `calids`. See “[csvdmig](#)” on page 114 for instructions on how to use the utility.

## Automatic Creation of User Calendars

This section covers the following topics:

- “[Automatic Calendar Creation Feature](#)” on page 262
- “[To Enable Autoprovisioning](#)” on page 262
- “[To Disable Autoprovisioning](#)” on page 263

## Automatic Calendar Creation Feature

Calendar Server automatically creates a default calendar for a user the first time the user logs in. This feature is called auto-provisioning. Autoprovisioning is enabled by default. However, auto-provisioning is available for user calendars only; resource calendars must be explicitly created.

Calendar Server creates the calendar ID (`calid`) for this new default calendar from the user ID, unless a calendar by that name already exists.

For example, if John Smith, with a user ID of `jsmith`, logs into Calendar Server for the first time, Calendar Server automatically creates a default calendar with `jsmith` as the `calid`. Each subsequent calendar John Smith creates has a `calid` with `jsmith:` prepended to the calendar name. For example, if John Smith later creates a new calendar named `meetings`, the `calid` for the new calendar (in a non-hosted environment) is `jsmith:meetings`.

---

**Note** – Calendar Server returns the `Calendar not found` error when a user without a default calendar is specified as an attendee.

---

### ▼ To Enable Autoprovisioning

Autoprovisioning is enabled by default. However, if you need to turn it on again after disabling it, perform the steps that follow:

- 1 **Log in as an administrator with permission to change the configuration.**
- 2 **Change to the `/etc/opt/SUNWics5/cal/config` directory.**
- 3 **Save your old `ics.conf` file by copying and renaming it.**
- 4 **Edit one or more of the following parameters in the Calendar Server configuration file, `ics.conf`, as shown in the following table:**

Parameters	Description and Default Value
<code>local.autoprovision</code>	Set to “yes”, allows default calendar creation to occur automatically when the user logs in the first time. Autoprovisioning is enabled by default.  To turn this feature off, set the value to “no”.

**5 Verify that the user's LDAP entry is enabled for calendar.**

The entry must contain the `icsCalendarUser` object class. Add the class to the user's LDAP entry if it is not there.

**6 If your site is using hosted domains, the user's domain must also be calendar enabled before auto-provisioning will work. The domain entry must contain the `icsCalendarDomain` object class.****7 Save the file.****8 Restart Calendar Server.**

```
cal_svr_base/SUNWics5/cal/sbin/start-cal
```

**▼ To Disable Autoprovisioning****1 Log in as an administrator with permission to change the configuration.****2 Change to the `/etc/opt/SUNWics5/cal/config` directory.****3 Save your old `ics.conf` file by copying and renaming it.****4 Edit one or more of the following parameters in the Calendar Server configuration file, `ics.conf`, as shown in the following table:**

Parameters	Description and Default Value
<code>local.autoprovision</code>	Setting the parameter to no disables autoprovisioning of user calendars.

**5 Save the file.****6 Restart Calendar Server.**

```
cal_svr_base/SUNWics5/cal/sbin/start-cal
```

---

**Note** – If autoprovisioning is disabled, calendars must be explicitly created for users before they can successfully log in.

---

## Calendar Access Control

Calendar Server uses Access Control Lists (ACLs) to determine the access control for calendars, calendar properties, and calendar components such as events and todos (tasks).

This section covers the following topics:

- “Configuration Parameters for Access Control” on page 264
- “Public and Private Events and Tasks Filter” on page 264
- “Command-Line Utilities for Access Control” on page 265

## Configuration Parameters for Access Control

The following table describes the configuration parameters in the `ics.conf` file that Calendar Server uses for access control.

TABLE 15-1 Access Control Configuration Parameters

Parameter	Description
<code>calstore.calendar.default.acl</code>	Specifies the default access control settings used when a user creates a calendar. The default is:  <pre>"@@o^a^r^g;@o^c^wdeic^g; @a^fs^g;@c^^g;@p^r^g"</pre>
<code>calstore.calendar.owner.acl</code>	Specifies the default access control settings for owners of a calendar. The default is:  <pre>"@@o^a^rsf^g;@o^c^wdeic^g"</pre>
<code>resource.default.acl</code>	Specifies the default access control settings used when a resource calendar is created. The default is:  <pre>"@@o^a^r^g;@o^c^wdeic^g; @a^rsf^g"</pre>

## Public and Private Events and Tasks Filter

When creating a new event or task, a user can specify whether the event or task is Public, Private, or Time and Date Only (confidential):

**Public**                      Anyone with read permission to the user’s calendar can view the event or task.

**Private**                     Only owners of the calendar can view the event or task.



**Time and Date Only** These are confidential events and tasks. Owners of the calendar can view the event or task. Other users with read permission to the calendar can see only “Untitled Event” on the calendar, and the title is not an active link.

The `calstore.filterprivateevents` determines whether Calendar Server filters (recognizes) Private, and Time and Date Only (confidential) events and tasks. By default this parameter is set to “yes”. If you set `calstore.filterprivateevents` to “no”, Calendar Server treats Private and Time and Date Only events and tasks as if they are Public.

## Command-Line Utilities for Access Control

The following table describes the Calendar Server command-line utilities that allow you to set or modify ACLs for access control:

TABLE 15-2 Command-Line Utilities for Access Control

Utility	Description
<code>cscal</code>	Use the <code>create</code> and <code>modify</code> commands with the <code>-a</code> option to set ACLs for specific user or resource calendars.
<code>csresource</code>	If you are creating resource calendars with <code>csresource</code> (you are in Schema 1 mode), use the <code>csresource</code> utility with the <code>-a</code> option to set ACLs for resource calendars.
<code>commadmin user</code> <code>csuser</code>	Use the Schema 2 <code>commadmin</code> utility to change the default ACL used when a user creates a calendar. Use the Schema 1 <code>csuser</code> utility with the <code>-a</code> option to change the default ACL used when a user creates a calendar.

---

**Note** – To set access rights in the Delegated Administrator Console, from the `Organization Properties` page (also from the `Create New Organization` wizard), click the `Advanced Rights` button to see the list of access rights that can be administered from the console.

---

## Creating Calendars

This section contains the following topics:

- [“Creating a User Calendar Using `cscal`” on page 266](#)
- [“Preparing to Create Resource Calendars” on page 267](#)
- [“Creating a Resource Calendar” on page 268](#)

## Creating a User Calendar Using `cscald`

To create a new calendar, use the `cscald` utility `create` command. The user or resource entry must already exist in the LDAP directory. Refer to [Chapter 14, “Administering Users and Resources”](#) for information on adding users and resources to your LDAP directory.

If your site is using the LDAP Calendar Lookup Database (CLD) plug-in, you must create all of the calendars for a particular user or resource on the same back-end server, as indicated by the `icsDWPHost` LDAP attribute in the user or resource entry. If you try to create a calendar on a different back-end server, the `cscald` utility returns an error. For information about the LDAP CLD plug-in, see [Chapter 6, “Configuring Calendar Database Distribution Across Multiple Machines.”](#)

For example, to create a new calendar with the calendar ID (`calid`) `jsmith`:

```
cscald -o jsmith -n JohnSmithCalendar create jsmith
```

where:

- `-o jsmith` specifies the primary owner of the new calendar.
- `-n JohnSmithCalendar` specifies the viewable name for the new calendar.
- The default access control settings are defined by `calstore.calendar.default.acl` in the `ics.conf` file.

To create a calendar with the viewable name `Hobbies` that is owned by John Smith and uses the default access control settings for group scheduling:

```
cscald -n Hobbies -o jsmith create Personal
```

where:

- `-n Hobbies` specifies the viewable name of the calendar.
- `-o jsmith` specifies the user ID of the primary owner.
- `Personal` is used as the second part of the calendar ID (`calid`). For example:  
`jsmith:Personal`

The following example creates a new calendar similar to the previous example, but it also associates the calendar with the category named `sports`, enables double booking, and specifies Ron Jones as another owner:

```
cscald -n Hobbies -o jsmith -g sports -k yes -y rjones create Personal
```

where:

- `-g sports` associates the calendar with a category named `sports`.
- `-y rjones` specifies another owner of the calendar.
- `-k yes` enables double booking. (`-k no` would disable double booking.)

The following example creates a calendar similar to the previous example, but it also sets specific access control settings for group scheduling:

```
csca1 -n Hobbies -o jsmith -a "@o^a^sfr^g" create Personal
```

where `-a "@o^a^sfr^g"` grants other owners schedule, free/busy, and read access privileges to both the components and calendar properties of this calendar for group scheduling.

## Preparing to Create Resource Calendars

A resource calendar is associated with things that can be scheduled, such as meeting rooms, notebook computers, overhead projectors and other equipment. Resource calendars require access control lists.

As shown in table [Table 15-3](#), two configuration parameters in the `ics.conf` file apply to resource calendars:

- `resource.default.acl`– A default access control list.
- `resource.allow.doublebook`– A parameter that allows or disallows doublebooking. While doublebooking a user's calendar might be desirable, doublebooking of resources is probably not desirable, therefore, the default value is "no". However, you are allowed to change it to "yes", if desired.

To change the default values for these parameters (shown in table [Table 15-3](#)), edit the `ics.conf` file. Changes to the default values will apply only to new resource calendars; it will not change the values for existing resources.

For Schema 1, use the Calendar Server Utility `csca1` to change values for an existing resource calendar. The `csresource` utility does not have a `modify` command.

For Schema 2, use the Delegated Administrator Utility command `comadmin resource modify`. The Delegated Administrator Console does not allow you to change these values for calendar resources.

---

**Note** – The Calendar Server notification software is not programmed to send notifications to resources, only to users.

---

TABLE 15-3 Resource Calendar Configuration Parameters in the ics.conf file

Parameter	Description and Default Value
resource.default.acl	<p>This parameter determines the default access control permissions used when a resource calendar is created. The default permissions are specified by the following Access Control List (ACL):</p> <pre>"@@o^a^r^g;@o^c^wdeic^g;@a^rsf^g"</pre> <p>This ACL grants all calendar users read, schedule, and free/busy access to the calendar, including both components and properties.</p> <p>To change the permissions for a resource, use the -a option when you create the calendar using the <code>csresource</code> utility <code>create</code> command.</p>
resource.allow.doublebook	<p>This parameter determines if a resource calendar allows doublebooking. Doublebooking allows a resource calendar to have more than one event scheduled for the same time.</p> <p>The default is "no"— Do not allow doublebooking.</p> <p>To allow doublebooking for a resource calendar, use the -k option when you create the calendar using the <code>csresource</code> utility <code>create</code> command.</p>

## Creating a Resource Calendar

Calendar Server does not have autoprovisioning of resource calendars. For every resource required at your site, you must use one of the following methods:

- For Schema 1, use the Calendar Server Utility command `csresource create`.

This utility creates both the LDAP entry and the default calendar for the resource.

For example, to create a resource LDAP entry and calendar with the calendar ID `aud100`, viewable name `Auditorium` (LDAP `cn` attribute), with the default settings, use the following command:

```
csresource -m aud100@siroe.com -c aud100 create Auditorium
```
- For Schema 2, use a combination of the Delegated Administrator Utility command `commadmin resource create` to create the LDAP entry. Then use the Calendar Server Utility command `csresource create` to create the default calendar.
- For Schema 2, create the resource LDAP entry using the Delegated Administration Console. Then use the Calendar Server Utility command `csresource create` to create the default calendar.

To create the LDAP resource with the Console, select the organization where this resource will reside from the Organizations List. From the Calendar Resources page for this organization, click `New` to bring up the Create New Calendar Resource Wizard.

---

**Note** – If there is an existing LDAP entry for the resource, `csresource` creates only the calendar. It will not create a duplicate LDAP entry.

---

For more information about the Delegated Administrator Utility, see *Sun Java System Communications Services 6 2005Q4 Delegated Administrator Guide*.

For more information about the Delegated Administrator Console, see the online help.

For more information about `csresource`, see [Appendix D, “Calendar Server Command-Line Utilities Reference.”](#)

## Allowing Double Booking of Resource Calendars

By default, Calendar Server does not allow double booking for a resource calendar (`resource.allow.doublebook` parameter). This default prevents scheduling conflicts for resources such as rooms and equipment. However, if you want to allow double booking for a resource calendar, set the `csresource -k` option to “yes” when you create the calendar.

The following command creates a resource LDAP entry and calendar, but the `-k` option allows double booking on the calendar, the `-o` option specifies `bkamdar` as the owner of the calendar, and the `-y` option specifies `jsmith` as another owner:

```
csresource -m aud100@siroe.com -c aud100 -k yes  
-o bkamdar -y jsmith create Auditorium
```

## Limiting Access to Resource Calendars

To control who can schedule a specific resource, consider limiting the users who have write access to the resource calendar. For example, you might want to allow only certain users to schedule meeting rooms or reserve equipment.

If you do not specify an owner for a resource calendar, the value is taken from the `service.admin.calmaster.userid` parameter in the `ics.conf` file.

# Managing User Calendars

After your user calendars are created, use the “`cscal`” on page 373 utility to perform the following administrative tasks:

- “To Display Calendars” on page 270
- “To Delete a Calendar” on page 270
- “To Remove Calendars of Deleted Users” on page 271
- “To Remove All Calendars of a User Deleted with `csuser`” on page 272
- “To Remove All Calendars for Users Deleted by Delegated Administrator” on page 272
- “To Enable a Calendar” on page 272
- “To Disable a Calendar” on page 273
- “To Modify Calendar Properties” on page 273
- “To Remove Properties From a Calendar” on page 273
- “To Recover a “Lost” Default Calendar” on page 274
- “To Move a User Calendar to a Different Back-End Server” on page 274

## To Display Calendars

To display all calendars, all calendars owned by a user, or the properties of a specific calendar, use the `cscal` utility `list` command.

For example, to list all calendars in the calendar database:

```
cscal list
```

To list all calendars owned by `jsmith`:

```
cscal -o jsmith list
```

To list all the properties of a calendar with the calendar ID `jsmith:meetings`:

```
cscal -v list jsmith:meetings
```

## To Delete a Calendar

To delete one or more calendars from Calendar Server, use the `cscal` utility `delete` command. This utility deletes the calendar, but it does not delete the user from the directory server.



**Caution** – The `delete` command removes all of the calendar information from the calendar database and cannot be undone. After you delete a calendar, you can recover the calendar data only if it was backed up. For more information, see [Chapter 17, “Backing Up and Restoring Calendar Server Data.”](#)

The `cscal` utility lets you delete a single calendar or multiple calendars.

For example, to delete a specific calendar with the calendar ID `jsmith:meetings`:

```
cscal delete jsmith:meetings
```

To delete all calendars whose primary owner is `jsmith`:

```
cscal -o jsmith delete
```

## To Remove Calendars of Deleted Users

If you have deleted one or more users with the Calendar Server Utility command `csuser delete`, or with Delegated Administrator Console or Utility, calendars owned by that user might still be present in the database.

There are two ways to remove users' calendars. The method to use depends on the tool you used to delete the user:

**csuser**                      The `csuser` utility removes the user from the LDAP directory and removes the user's default calendar, but not any other calendars the user might own. For instructions on how to use `cscal` to remove these calendars, see [“To Remove All Calendars of a User Deleted with `csuser`” on page 272.](#)

**Delegated Administrator**      Delegated Administrator does not remove any calendars. Use Delegated Administrator to mark users for deletion and then use Calendar Server Utility `csclean` to remove calendars for user's marked for deletion.

For instructions on how to remove deleted users' calendars using `csclean`, see [“To Remove All Calendars for Users Deleted by Delegated Administrator” on page 272.](#)

For instructions on using Delegated Administrator Utility, see the *Sun Java System Communications Services 6 2005Q4 Delegated Administrator Guide*.

For instructions on using Delegated Administrator Console, see the online help.

## ▼ To Remove All Calendars of a User Deleted with `csuser`

- 1 Run `cscal list` to find all of the calendars for the deleted owner's uid.

```
cscal -o owner list
```

- 2 Use `cscal` to remove all the calendars for this owner.

```
cscal -o owner delete
```

- 3 Verify that all the calendars have been removed by running `csuser list` again.

---

**Note** – Use this procedure if you used `commadmin` to mark the user as deleted, and the user's LDAP entry has already been purged.

---

## ▼ To Remove All Calendars for Users Deleted by Delegated Administrator

Delegated Administrator does not remove calendars. Use the `csclean` utility to remove all calendars for any users marked as deleted with Delegated Administrator.

- 1 Use `csclean` to remove all calendar for user's marked as deleted but not yet purged.

For example, to remove all the calendars for user's marked as deleted in the `sesta.com` domain in the last 10 days, the command would be as follows:

```
csclean -g 10 clean sesta.com
```

- 2 If the user has already been purged from the LDAP, then you must use `cscal`.

For instructions, see [“To Remove All Calendars of a User Deleted with `csuser`”](#) on page 272.

## To Enable a Calendar

To enable a calendar to allow users to access the calendar, use the `cscal` utility `enable` command.

For example, to enable calendar `jsmith:meetings` using the default configuration settings:

```
cscal enable jsmith:meetings
```

To enable the calendar `jsmith:meetings` but not allow doublebooking:

```
cscal -k no enable jsmith:meetings
```



## To Disable a Calendar

To prevent users from accessing a calendar, use the `cscal` utility `disable` command. The `disable` command prohibits users from accessing the calendar, but it does not remove the information from the calendar database.

For example, to prevent users from accessing `jsmith:meetings`:

```
cscal disable jsmith:meetings
```

## To Modify Calendar Properties

To modify the properties of a calendar, use the `cscal` utility `modify` command.

For example, to change the group scheduling access control settings of `AllAdmins` and specify `RJones` as another owner:

```
cscal -a "@@o^c^wd^g" -y RJones modify AllAdmins
```

where:

- `-a "@@o^c^wd^g"` grants owners write and delete access to the components (events and tasks) of `AllAdmins`.
- `-y RJones` specifies this user ID as another owner.

## To Remove Properties From a Calendar

To remove a property value from a calendar, use the `cscal` utility `modify` command and specify the option with two double quotes ("" ) as the value for the option.

For example, to remove a description from `jsmith:meetings`:

```
cscal -d "" modify jsmith:meetings
```

To remove all categories from `jsmith:meetings`:

```
cscal -g "" modify jsmith:meetings
```

To remove “other owners” from `jsmith:meetings`:

```
cscal -y "" modify jsmith:meetings
```

## To Recover a “Lost” Default Calendar

If a user’s default calendar does not appear in the Communications Express Current Calendar drop down list, but still exists in the database, you can recover the calendar by updating the following attributes in the user’s LDAP entry:

- `icsCalendar:default_calid`
- `icsSubscribed:default_calid`

where `default_calid` is the user’s default calendar ID (`calid`).

For Schema 2, use one of the following methods to update the attributes:

- Use the `ldapmodify` Directory Server utility.
- Use the Calendar Server Utility command `csuser reset`.
- Use the Delegated Administrator Utility command `commadmin user modify`.
- Use the Delegated Administrator Console to add the default calendar name by editing the User Properties page.

For Schema 1, use the `csattribute add` command to update the attributes.

## ▼ To Move a User Calendar to a Different Back-End Server

To move a user calendar from one back-end server to another back-end server, follow these steps:

- 1 **On the original server, disable the calendar user using the “[csuser](#)” on page 415 utility. For example to disable the user with the user ID and `calid bkamdar`:**  

```
csuser disable bkamdar
```
- 2 **On the original server, export each of the user’s calendars from the calendar database to a file using the “[csexport](#)” on page 393 utility. For example:**  

```
csexport -c bkamdar calendar bkamdar.ics
```
- 3 **Copy the exported calendar (\*.ics) files from the original server to the new server.**
- 4 **On the new server, for each of the calendars exported, import the calendar from the file to the calendar database using the “[csimport](#)” on page 394 utility. For example:**  

```
csimport -c bkamdar calendar bkamdar.ics
```

- 5 **On the LDAP directory server, update the calendar owner's `icsDWPHost` LDAP attribute to point to the new back-end server using the “[csattribute](#)” on page 369 utility. To update an attribute, you must first delete the attribute and then add it with the new value. For example, to set the new server name to `sesta.com`:**

```
csattribute -a icsDWPHost delete bkamdar
csattribute -a icsDWPHost=sesta.com add bkamdar
```

- 6 **On the new server, enable the calendar user using the “[csuser](#)” on page 415 utility for a user calendar. For example:**

```
csuser enable bkamdar
```

- 7 **On the new server, use the following commands to verify that the attributes are correct and that each calendar has been moved correctly. For example:**

```
cscal -v -o bkamdar list bkamdar
...
csattribute -v list bkamdar
```

- 8 **On the original server, delete each calendar you just moved. For example:**

```
cscal -o bkamdar delete bkamdar
```

The `-o` option deletes all calendars whose primary owner is `bkamdar`.

---

**Note** – If you are using the CLD cache option, after moving a calendar to a different back-end server, you should clear the CLD cache to remove the server names. An out-of-date entry in the CLD cache can prevent a front-end server from finding a calendar after it has been moved. To clear the CLD cache, follow these steps:

- Stop Calendar Server.
  - Remove all files in the `/var/opt/SUNWics5/csdb/cld_cache` directory, but do not remove the `cld_cache` directory itself.
  - Restart Calendar Server.
- 

## Managing Resource Calendars

After a resource calendar is created, administer it using the `csresource` utility. The following are procedures for administering resource calendars:

- “[To Display Resource Calendars and Attributes](#)” on page 276
- “[To Modify a Resource Calendar](#)” on page 276
- “[To Disable or Enable a Resource Calendar](#)” on page 276
- “[To Delete a Resource Calendar](#)” on page 277
- “[To Move a Resource Calendar to a Different Back-End Server](#)” on page 277

## To Display Resource Calendars and Attributes

To display a resource calendar, use the `csresource list` command.

For example, to display a list of all Calendar Server resource calendars and their corresponding LDAP attributes:

```
csresource list
```

To display a list of all LDAP attributes for a specific resource calendar named `Auditorium`:

```
csresource -v list Auditorium
```

## To Modify a Resource Calendar

To modify a resource calendar, use the “[cscal](#)” on page 373 utility `modify` command (`csresource` does not have a `modify` command).

For example, to set the owner as `tchang` and add another owner named `mwong` to the resource calendar named `Auditorium`:

```
cscal -o tchang -y mwong modify aud100
```

In this example, the `cscal` utility requires the `calid` (`aud100`) rather than the calendar name (`Auditorium`).

## To Disable or Enable a Resource Calendar

You might need to disable a resource calendar to prevent users from scheduling events. For example, a conference room might be unavailable during remodeling, or an overhead project might be out for repair.

To disable or enable a resource calendar, use the `csresource` utility `enable` or `disable` command.

For example, to disable the resource calendar named `Auditorium`:

```
csresource disable Auditorium
```

Then, to enable the resource calendar later:

```
csresource enable Auditorium
```

## To Delete a Resource Calendar

To delete a resource calendar, use the `csresource` utility `delete` command.

For example, to delete the Auditorium resource calendar:

```
csresource delete Auditorium
```

Calendar Server displays the following message:

```
Do you really want to delete this resource (y/n)?
```

Enter “y” to delete the calendar or “n” to cancel the operation.

If you enter “y”, Calendar Server deletes the calendar and displays a message that it has been deleted.

## ▼ To Move a Resource Calendar to a Different Back-End Server

To move a user or resource calendar from one back-end server to another back-end server, follow these steps:

- 1 On the original server, disable the calendar resource using the “[csresource](#)” on page 403 utility. For example to disable the resource with the common name `Auditorium`:

```
csresource disable Auditorium
```

- 2 On the original server, export each of the resources calendars from the calendar database to a file using the “[csexport](#)” on page 393 utility. For example:

```
csexport -c aud100 calendar aud100.ics
```

- 3 Copy the exported calendar (`*.ics`) files from the original server to the new server.

- 4 On the new server, for each calendar exported, import the calendar from the file to the calendar database using the “[csimport](#)” on page 394 utility. For example:

```
csimport -c bkamdar calendar bkamdar.ics
```

- 5 On the LDAP directory server, update the calendar owner's `icsDWPHost` LDAP attribute to point to the new back-end server using the “[csattribute](#)” on page 369 utility. To update an attribute, you must first delete the attribute and then add it with the new value. For example, to set the new server name to `sesta.com`:

```
csattribute -a icsDWPHost delete bkamdar
csattribute -a icsDWPHost=sesta.com add bkamdar
```

- 6 On the new server, enable the calendar resource using the “[csresource](#)” on page 403 utility. For example:

```
csresource enable bkamdar
```

- 7 On the new server, use the following commands to verify that the attributes are correct and that each calendar has been moved correctly. For example:

```
cscal -v -o bkamdar list bkamdar
csattribute -v list bkamdar
```

- 8 On the original server, delete each calendar you just moved. For example:

```
cscal -o bkamdar delete bkamdar
```

The `-o` option deletes all calendars whose primary owner is `bkamdar`.

---

**Note** – If you are using the CLD cache option and you have moved a calendar to a different back-end server, you should clear the CLD cache to remove the server names. An out-of-date entry in the CLD cache can prevent a front-end server from finding a calendar after it has been moved. To clear the CLD cache, follow these steps:

- Stop Calendar Server.
  - Remove all files in the `/var/opt/SUNWics5/csdb/cld_cache` directory, but do not remove the `cld_cache` directory itself.
  - Restart Calendar Server.
- 

## Linking to a Calendar

You can create a link to one or more user or resource calendars, as long as each calendar has the permissions set to allow read access. For example, you can embed a calendar link in a web page or email message. Other users can then view the calendar anonymously without having to log into Calendar Server.

To create a link to one or more user calendars, use this syntax:

```
http://CommunicationsExpresshostname:
CommunicationsExpressport/uwc/
?calid=calid-1[; ... ;calid-n]
```

For multiple calendars, separate each calendar ID (`calid`) with a semicolon (;).

For example, to link to the default calendar for `jsmith@sesta.com`, and `jdoe@siroe.com`, enter:

```
http://calendar.sesta.com:8080/?calid=jsmith@sesta;jdoe@siroe.com
```

To link to a resource calendar for an overhead projector with the `calid` `overhead_projector10`:

```
http://calendar.sesta.com:8080/uwc/?calid=overhead_projector10
```

## Importing and Exporting Calendar Data

- [“Importing Calendar Data” on page 279](#)
- [“Exporting Calendar Data” on page 280](#)

To export and import calendar data to and from a file, use the `csexport` and `csimport` utilities. The calendar data can be in either iCalendar (`.ics`) or XML (`.xml`) format.

You must run `csexport` and `csimport` locally on the machine where your Calendar Server is installed. Calendar Server can be either running or stopped.

### Importing Calendar Data

To import calendar data from a file previously saved using the `csexport` utility, use `csimport`. The file name extension of the import file (`.ics` or `.xml`) indicates the format in which it was saved.

For example, to import calendar data to the calendar ID (`calid`) `jsmithcal` from the file `jsmith.ics` that was saved in iCalendar (text/calendar MIME) format:

```
csimport -c jsmithcal calendar jsmith.ics
```

To import data into the calendar `jsmithcal` from a file named `jsmith.xml` that was saved in XML (text/xml MIME) format:

```
csimport -c jsmithcal calendar jsmith.xml
```

## Exporting Calendar Data

To export calendar data to a file, use `csexport`. The file name extension (`.ics` or `.xml`) that you specify for the output file determines which format is used.

For example, to export the calendar with the calendar ID (`calid`) `jsmithcal` in iCalendar (text/calendar MIME) format to a file named `jsmith.ics`:

```
csexport -c jsmithcal calendar jsmith.ics
```

To export the calendar `jsmithcal` in XML (text/xml MIME) format to a file named `jsmith.xml`:

```
csexport -c jsmithcal calendar jsmith.xml
```



# Administering Calendar Server Databases with csdb

---

Calendar Server keeps many database files in multiple directories. You must protect your database files either by implementing the automatic back up process described in [Chapter 10, “Configuring Automatic Backups \(csstored\)”](#) or by implementing your own system of backups. You can administer the database files using the csdb utility.

This chapter describes how to manage Calendar Server databases using csdb, and includes the following sections:

- “Using csdb to Manage Calendar Databases” on page 281
- “csdb Administrative Tasks” on page 283

## Using csdb to Manage Calendar Databases

To administer database files, use the Calendar Server utility csdb. This section contains topics:

- “How csdb Groups Database Files” on page 281
- “csdb Can Target Specific Databases” on page 282

## How csdb Groups Database Files

The calendar database utility csdb treats the database files as three logical databases:

- “Calendar Database (caldb)” on page 281
- “Session Database (sessdb)” on page 282
- “Statistical Database (statdb)” on page 282

### Calendar Database (caldb)

The caldb consists of all the .db files and the \_db.\*files found in the database directory. The following is the default location for the calendar database files (as well as the cld\_cache and ldap\_cache subdirectories):

```
/var/opt/SUNWics5/csdb
```

If you prefer, you can specify a different directory when running the Calendar Server configuration program (`csconfigurator.sh`). For information about the configuration program, refer to [Chapter 3, “Calendar Server Configuration Program \(`csconfigurator.sh`\)”](#)

The following table describes the calendar database (`caldb`) files:

**TABLE 16-1** Calendar Server Database Files

File	Description
<code>ics50calprops.db</code>	Calendar properties for all calendars. Includes the calendar ID ( <code>calid</code> ), calendar name, Access Control List (ACL), and owner.
<code>ics50events.db</code>	Events for all calendars.
<code>ics50todos.db</code>	Todos (tasks) for all calendars.
<code>ics50alarms.db</code>	Alarms for all events and todos (tasks).
<code>ics50gse.db</code>	Queue of scheduling requests for the group scheduling engine (GSE).
<code>ics50journals.db</code>	Journals for calendars. Journals are not implemented in the current release.
<code>ics50caldb.conf</code>	Database version identifier.
<code>ics50recurring.db</code>	Recurring events.
<code>ics50deletelog.db</code>	Deleted events and todos (tasks). See also <a href="#">Chapter 18, “Administering the Delete Log Database”</a>

## Session Database (`sessdb`)

The session database consists of all files located in the following directories:  
`/opt/SUNWics5/cal/lib/admin/session/` and `/opt/SUNWics5/cal/lib/http/session/`

## Statistical Database (`statdb`)

The statistical database consists of all files found in the counter directory:

```
/opt/SUNWics5/cal/lib/counter/
```

## csdb Can Target Specific Databases

The `csdb` utility `-t` option allows you to specify a target database:

- `-t caldb` – calendar database
- `-t sessdb` – session database
- `-t statdb` – statistics database

If you do not include the `-t` option, `csdb` operates on all three databases, except for `check` and `rebuild` which operate only on the calendar database.

## csdb Administrative Tasks

This section describes how to use the “`csdb`” on page 380 utility to perform the following administrative tasks:

- “To List Status for a Database Group” on page 283
- “To Check for Calendar Database Corruption” on page 284
- “To Rebuild the Calendar Databases (caldb) - No GSE” on page 285
- “To Rebuild the Calendar Databases, Including the GSE Database” on page 287
- “To Delete a Database Group” on page 289

---

**Note** – To run the `csdb` utility, you must log in as a user who has administrative rights to the system where Calendar Server is running. For more information, see [Appendix D, “Calendar Server Command-Line Utilities Reference.”](#)

---

### ▼ To List Status for a Database Group

To view the status of a database group (`caldb`, `sessdb`, `statdb`), use the `csdb` utility `list` command.

To list database status:

- 1 **Log in as a user who has administration rights to the system where Calendar Server is installed.**
- 2 **Calendar Server can be either running or stopped; however, if possible, stop Calendar Server.**
- 3 **Change to the `/sbin` directory. For example, on Solaris Operating Systems, enter:**

```
cd /opt/SUNWics5/cal/sbin
```
- 4 **Run the `list` command against one or all of the database groups. For example, to list the status and statistics for all three database groups:**

```
./csdb list
```

The code that follows shows sample output:

```
Sleepycat Software: Berkeley DB 4.1.25: (December 19, 2002)
```

```
Calendar database version: 3.0.0 [BerkeleyDB]
```

```
Total database size in bytes: 57344
```

```
Session database version: 1.0.0 [BerkeleyDB]
Total database size in bytes: 0
```

```
Counter database version: 1.0.0 [Memory Mapped Files]
Total database size in bytes: 118792
```

Or, you can choose to use the verbose mode. For example:

```
./csdb -v list
```

The following sample code shows the verbose output:

```
Sleepycat Software: Berkeley DB 4.1.25: (December 19, 2002)
```

```
Calendar database version: 3.0.0 [BerkeleyDB]
Total database size in bytes: 57344
Total number of calendars:      2
Total number of events:         0
Total number of tasks:          0
Total number of alarms:         0
Total number of gse entries:    0
Total number of master component entries: 0
Total number of deletelog entries: 0
Total logfile size in bytes: 5779919
```

```
Session database version: 1.0.0 [BerkeleyDB]
Total database size in bytes: 0
Total logfile size in bytes: 0
```

```
Counter database version: 1.0.0 [Memory Mapped Files]
Total database size in bytes: 118792
```

Or, use the `-t` option to specify one target database group (`caldb`, `sessdb`, or `statdb`). For example, to view database status and statistics for only the calendar database:

```
csdb -t caldb list
```

## ▼ To Check for Calendar Database Corruption

Use the `check` command to scan for corruptions in the calendar database, including calendar properties (`calprops`) and events and todos (`tasks`). If the `check` command finds an inconsistency that cannot be resolved, it reports the situation in its output.

The `check` command does not check for corruption in the alarm or group scheduling engine (GSE) databases.

To check for database corruption:

- 1 **Log in as a user who has administration rights to the system where Calendar Server is installed.**
- 2 **Calendar Server can be either running or stopped; however, if possible, stop Calendar Server.**
- 3 **Make a copy of your calendar database, if you haven't already done so. Copy only the database (.db) files. You don't need to copy any share (\_\_db.\*) or log (log.\*) files.**
- 4 **Change to the `cal_svr_base/SUNWics5/cal/sbin` directory. For example, on Solaris Operating Systems, enter:**

```
cd /opt/SUNWics5/cal/sbin
```

- 5 **Run the check command on the copy of your calendar database:**

```
./csdb check dbdir \> /tmp/check.out 2\>&1
```

If you don't specify `dbdir`, check uses the database in the current directory.

The check command can generate a lot of information, so consider redirecting all output, including stdout and stderr, to a file (as shown in the example).

- 6 **When check has finished, review the output file.**

If your database is corrupted, you can choose to replace it with your hot backup copy. Alternately, you can choose to try to rebuild the corrupted one by running the `rebuild` command.

## ▼ To Rebuild the Calendar Databases (caldb) - No GSE

To recover a damaged calendar database (`caldb`), use the `csdb` utility `rebuild` command. The `rebuild` command scans all of the calendar databases for corruption. If the `rebuild` command finds an inconsistency, it generates a rebuilt calendar database (.db files) in the `cal_svr_base/SUNWics5/cal/sbin/rebuild_db` directory.

The `rebuild` command can generate a lot of information, so consider redirecting all output, including stdout and stderr, to a file.

In the instructions that follow, the `rebuild` command does not rebuild the group scheduling engine (GSE) database.

To rebuild the calendar databases without the GSE database:

- 1 **Log in as a user who has administration rights to the system where Calendar Server is installed.**
- 2 **Stop Calendar Server.**

- 3 Make a copy of your calendar database, if you haven't already done so. Copy the database (.db) files and the log (log.\*) files. You don't need to copy any share (\_\_db.\*) files.**

- 4 Change to the `cal_svr_base/SUNWics5/cal/sbin` directory. For example, on Solaris Operating Systems, enter:**

```
cd /opt/SUNWics5/cal/sbin
```

If disk space is a problem for the `sbin` directory, run the `rebuild` command in a different directory.

- 5 Run the `rebuild` command on the copy of your calendar database:**

```
./csdb rebuild /tmp/db /tmp/
```

If you don't specify a database directory, `rebuild` uses the database in the current directory. In the preceding example, the `/tmp/` parameter specifies the destination directory for the rebuilt database.

---

**Note** – Always rebuild your calendar database using the latest backup copy.

However, if you have experienced a significant loss of data and you have periodically backed up your database and have more than one copy available, rebuild from the latest copy to the oldest one. (The only drawback is that calendar components that were deleted will reappear in the rebuilt database.)

For example, if you have three sets of backup calendar database files in directories `db_0601`, `db_0615`, and `db_0629`, run the `rebuild` command in the following sequence:

- `./csdb rebuild db_0629`

Then check for corruption. If this backup copy is also corrupt, then run `rebuild` on the next backup copy.

- `./csdb rebuild db_0615`

Then check for corruption. If this backup copy is also corrupt, then run `rebuild` on the next backup copy.

- `./csdb rebuild db_0601`

... etc.

The `rebuild` command writes the rebuilt database to the `cal_svr_base/SUNWics5/cal/sbin/rebuild_db` directory.

---

- 6 When `rebuild` has finished, review the output in the `rebuild.out` file. If the rebuild was successful, the last line in the `rebuild.out` file should be:**

```
Calendar database has been rebuilt
```

- 7 **After you have verified that `rebuild` was successful, copy the rebuilt database (`.db`) files from the `rebuild_db` directory to your production database.**
- 8 **If you have any share (`__db.*`) files from the corrupted database, move them to another directory.**
- 9 **Restart Calendar Server.**

## ▼ To Rebuild the Calendar Databases, Including the GSE Database

If you have implemented group scheduling at your site, then you should include the GSE database in the rebuild.

To rebuild both the calendar databases and the GSE database:

- 1 **Determine if the GSE database has any entries by running the `csschedule -v list` command and then let the GSE finish processing the entries.**
- 2 **Log in as a user who has administration rights to the system where Calendar Server is installed.**
- 3 **Stop Calendar Server.**

- 4 **Make a copy of your calendar database, if you haven't already done so.**

Copy the database (`.db`) files and the log (`log.*`) files. You don't need to copy any share (`__db.*`) files.

- 5 **Change to the `cal_svr_base/SUNWics5/cal/sbin` directory.**

For example, on Solaris Operating Systems, enter:

```
cd /opt/SUNWics5/cal/sbin
```

If disk space is a problem for the `sbin` directory, run the `rebuild` command in a different directory.

- 6 **Run the `rebuild` command on the copy of your calendar database:**

```
./csdb -g rebuild /tmp/db /tmp/
```

If you don't specify a database directory, `rebuild` uses the database in the current directory. In the preceding example, the `/tmp/` parameter specifies the destination directory for the rebuilt database.

**Note** – Always rebuild your calendar database using the latest backup copy.

However, if you have experienced a significant loss of data and you have periodically backed up your database and have more than one copy available, rebuild from the latest copy to the oldest one. (The only drawback is that calendar components that were deleted will reappear in the rebuilt database.)

For example, if you have three sets of backup calendar database files in directories `db_0601`, `db_0615`, and `db_0629`, run the `rebuild` command in the following sequence:

```
./csdb rebuild db_0629 ./csdb rebuild db_0615 ./csdb rebuild db_0601
```

The `rebuild` command then writes the rebuilt database to the `cal_svr_base/SUNWics5/cal/sbin/rebuild_db` directory.

---

**7 When rebuild has finished, review the output in the `rebuild.out` file.**

If the rebuild was successful, the last line in the `rebuild.out` file should be:

```
Calendar database has been rebuilt
```

**8 After you have verified that rebuild was successful, copy the rebuilt database (`.db`) files from the `rebuild_db` directory to your production database.**

**9 If you have any share (`__db.*`) files from the corrupted database, move them to another directory.**

**10 Restart Calendar Server.**

### Example 16-1 Sample Rebuild Output

The sample output shows the events and the todos databases scanned twice each. This is not an error. It scans the first time to verify the information in the `calprops` database and then scans again to make sure `calprops` is accessible from the calendar database.

The following example shows the command and the output that it generated:

```
# ./csdb -g rebuild
Building calprops based on component information.
Please be patient, this may take a while...
Scanning events database...
512 events scanned
Scanning todos database...
34 todos scanned
Scanning events database...
512 events scanned
```



```
Scanning todos database...
34 todos scanned
Scanning deletelog database...
15 deletelog entries scanned
Scanning gse database...
21 gse entries scanned
Scanning recurring database...
12 recurring entries scanned
Successful components db scan
Calendar database has been rebuilt
Building components based on calprops information.
Please be patient, this may take a while...
Scanning calprops database to uncover events...
25 calendars scanned
Scanning calprops database to uncover todos...
25 calendars scanned
Successful calprops db scan
Calendar database has been rebuilt
```

## To Delete a Database Group

To delete a calendar database, use the `csdb` utility `delete` command. Calendar Server must be stopped.

Use the `-t` option to specify the target database (`caldb`, `sessdb`, or `statdb`); otherwise, `csdb` deletes all three databases.

For example, to delete the calendar database:

```
csdb -t caldb delete
```

The `csdb` utility issues a warning before deleting the database.



## Backing Up and Restoring Calendar Server Data

---

If you have chosen not to use the automatic backup facility provided by Calendar Server (using `csstored`), then you need to implement a backup procedure to protect your data. This chapter describes how to use Calendar Server and other Sun tools to perform a manual backup and restore of calendar database files.

To back up and restore Calendar Server data in the `/var/opt/SUNWics5/csdb` directory, use these command-line utilities:

- `csbackup` backs up the calendar database, a specific calendar, or a user's default calendar. The directories to be backed up must be owned by the runtime user (`icsuser`), or you will receive an error message when you attempt to restore the data.
- `csrestore` restores the calendar database, individual calendars, or a user's default calendar that was saved using `csbackup`.

---

**Note** – If you have an existing custom script that uses the Berkeley database tools (such as, `db_recover`), you might find that the tools do not work after upgrading to Calendar Server 6. Before Calendar Server 2004Q4, the tools were compiled with a static library. Since that release, they are compiled with a dynamic library.

To accommodate this change, alter your custom script to use the dynamic link library, as follows: Change the global variable `LD_LIBRARY_PATH` to the name of the dynamic library (`libdb-4.2.so`).

---

This chapter includes these sections:

- “Backing Up Calendar Server Data” on page 292
- “Restoring Calendar Server Data” on page 293
- “Using Sun StorEdge Enterprise Backup or Legato Networker” on page 295



**Caution** – Calendar Server 2 data is not compatible with the current product. Do not try to restore calendar data backed up by the Calendar Server 2 backup utility, because data loss can occur.

If you have 2 calendar data that you want to move to the current release, you must contact technical support for the appropriate migration utilities.

---

## Backing Up Calendar Server Data

The `csbackup` utility can back up the calendar database, a specified calendar, or a user's default calendar. This section describes:

- [“To Back Up the Calendar Database to a Directory” on page 292](#)
- [“To Back Up a Specific Calendar to a File” on page 293](#)
- [“To Back Up a User's Default Calendar to a File” on page 293](#)

### ▼ To Back Up the Calendar Database to a Directory

**1** Log in as the owner of the database files (such as `icsuser`).

**2** Use the `csbackup` utility database command.

For example, to back up the calendar database to a directory named `backupdir`:

```
csbackup -f database backupdir
```

**3** Verify the correct version of the database was backed up by checking the `ics50caldb.conf` version file in the backup directory.

---

**Note** – The `csbackup` utility fails if the target backup directory already exists and you do not specify the `-f` option. For example, the following command fails if `backupdir` exists, even if the directory is empty:

```
csbackup database backupdir
```

Therefore, if you specify a target backup directory that already exists, include the `-f` option when you run `csbackup`.

You can also specify a nonexistent target backup directory and let `csbackup` create the directory for you.

---

## ▼ To Back Up a Specific Calendar to a File

- 1 Login as the database owner (`icsuser`).
- 2 To backup a calendar to a file in iCalendar or XML format, use the `csbackup` utility `calendar` command.

The filename extension (`.ics` or `.xml`) of the backup file indicates the format.

For example, to backup the calendar `jsmithcal` in iCalendar format (text/calendar MIME) to the file `jsmith.ics` in the `backupdir` directory:

```
csbackup -c jsmithcal calendar backupdir/jsmith.ics
```

Or, to backup the calendar `jsmithcal` in XML format (text/XML) to the file `jsmith.xml` in the `backupdir` directory:

```
csbackup -c jsmithcal calendar backupdir/jsmith.xml
```

## ▼ To Back Up a User's Default Calendar to a File

- 1 Login as the database owner (`icsuser`).
- 2 To back up a user's default calendar to a text file in iCalendar or XML format, use the `csbackup` utility `defcal` command. The filename extension (`.ics` or `.xml`) that you specify for the output file determines which format is used.

For example, to back up calendar user `jsmith`'s default calendar in iCalendar (text/calendar MIME) format to a file named `jsmith.ics` in the backup directory:

```
csbackup -a jsmith defcal backupdir/jsmith.ics
```

Or, to back up calendar user `jsmith`'s default calendar in XML (text/xml MIME) format to a file named `jsmith.xml` in the backup directory:

```
csbackup -a jsmith defcal backupdir/jsmith.xml
```

## Restoring Calendar Server Data

The `csrestore` utility restores the calendar database, individual calendars, or a user's default calendar that was saved using `csbackup`. You must run the `csrestore` utility on the local machine where Calendar Server is installed, and you must first stop Calendar Server. (Calendar Server can be running, however, when you backup the database.)

This section describes:

- [“To Restore the Calendar Database” on page 294](#)

- [“To Restore a Calendar From a Backup Directory” on page 294](#)
- [“To Restore a Calendar From a File” on page 294](#)
- [“To Restore a User’s Default Calendar” on page 295](#)

## ▼ To Restore the Calendar Database

- 1 Log in as the database owner (`icsuser`).
- 2 To restore a calendar database that was saved to a backup directory using the `csbackup` utility, use the `csrestore` utility database command.

For example, to restore the calendar database that was saved to a backup directory named `backupdir`:

```
csrestore database backupdir
```

## ▼ To Restore a Calendar From a Backup Directory

- 1 Log in as the database owner (`icsuser`).
- 2 To restore a specific calendar from a database that was saved to a backup directory using the `csbackup` utility, use the `csrestore` utility database command with the `-c` option.

For example, to restore the calendar `jsmithcal` from the backup database directory `backupdir`:

```
csrestore -c jsmithcal calendar backupdir
```

## ▼ To Restore a Calendar From a File

- 1 Log in as the database owner (`icsuser`).
- 2 To restore a specific calendar that was saved to a backup file using the `csbackup` utility, use the `csrestore` utility calendar command with the `-c` option.

The filename extension (`.ics` or `.xml`) of the backup file indicates the format in which the calendar was saved.

For example, to restore the calendar `jsmithcal` that was saved in iCalendar (text/calendar MIME) format to the file `jsmith.ics` located in the `backupdir` directory:

```
csrestore -c jsmithcal calendar backupdir/jsmith.ics
```

Or, to restore the calendar `jsmithcal` that was saved in XML (text/calendar MIME) format to the file `jsmith.xml` located in the `backupdir` directory:

```
csrestore -c jsmithcal calendar backupdir/jsmith.xml
```

## ▼ To Restore a User’s Default Calendar

- 1 Log in as the database owner (`icsuser`).
- 2 To restore a user’s default calendar that was saved to a backup file using the `csbackup` utility, use the `csrestore` utility `defcal` command.

The filename extension (`.ics` or `.xml`) of the backup file indicates the format in which the calendar was saved.

For example, to restore calendar user `jsmith`’s default calendar that was saved in iCalendar (text/calendar MIME) format to a file named `jsmith.ics` located in the backup directory `backupdir`:

```
csrestore -a jsmith defcal backupdir/jsmith.ics
```

To restore calendar user `jsmith`’s default calendar that was saved in XML (text/xml MIME) format to a file named `jsmith.xml` located in the backup directory `backupdir`:

```
csrestore -a jsmith defcal backupdir/jsmith.xml
```

## Using Sun StorEdge Enterprise Backup™ or Legato Networker®

You can also use either Sun StorEdge Enterprise Backup software (formerly Solstice Backup) or Legato Networker to back up and restore Calendar Server data. The Sun StorEdge Enterprise Backup software and Legato Networker are similar, and the instructions in this section apply to both products.

Before attempting to backup Calendar Server, however, see the Sun StorEdge Enterprise Backup or Legato Networker documentation.

For the Sun StorEdge Enterprise Backup software documentation, see <http://docs.sun.com>.

This section describes:

- “StorEdge or Legato Tools” on page 295
- “To Back Up Calendar Data Using Sun StorEdge Enterprise Backup software or Legato Networker” on page 296
- “To Restore Calendar Data Using Sun StorEdge Enterprise Backup Software or Legato Software” on page 297

## StorEdge or Legato Tools

Calendar Server provides the following files in the `/opt/SUNWics5/cal/sbin` directory to use with the Sun StorEdge or Legato backup software:

<code>icsasm</code>	Calendar Server Application Specific Module (ASM). An ASM is a program that can be invoked by the Sun StorEdge or Legato backup software to back up and restore data.
<code>legbackup.sh</code>	Script that calls the <code>csbackup</code> utility.
<code>legrestore.sh</code>	–Script that calls the <code>csrestore</code> utility.

## ▼ To Back Up Calendar Data Using Sun StorEdge Enterprise Backup software or Legato Networker

To backup the calendar database using the Sun StorEdge or Legato backup software:

- 1 **Copy the Sun StorEdge or Legato `nsrfile` binary file to the `/usr/lib/nsr` directory.**
- 2 **Create these symbolic links in the `/usr/lib/nsr` directory:**

```
icsasm -\> /opt/SUNWics5/cal/sbin/icsasm nsrfile -\> /usr/lib/nsr/nsrfile
```

- 3 **Change to the `/opt/SUNWics5/cal/sbin` directory and run the `csbackup` utility with the `-l` option. For example:**

```
cd /opt/SUNWics5/cal/sbin ./csbackup -l
```

The `-l` option creates a backup directory image under the current directory. The files in this directory are empty and are used only to provide information to the backup program about how calendars will be stored on the backup media. If the backup directory already exists, it is synchronized with the current directory structure.

- 4 **Use the `save` command to back up calendar data. For example:**

```
/usr/bin/nsr/save -s /opt/SUNWics5/cal/sbin/budir
```

You can also use the Sun StorEdge or Legato backup GUI to schedule backups by setting up a client save set to periodically backup the database.

Notes Do not modify the `.nsr` files. These generated files contain directives that are interpreted by the `save` command and the `icsasm` command during the backup process.

Calendar Server does not support the incremental backup feature. Do not use this feature because the backup directory is only an image of the folder structure and contains no actual data.

You cannot backup a calendar with a name that contains non-ASCII characters or the forward slash (/).



## 5 Automate the backup procedure.

The preceding steps describe how to run a backup manually. Set up the backup program's backup command to run the Calendar Server `csbackup` command-line utility before the running the backup program's `save` command to achieve an automated backup process.

## ▼ To Restore Calendar Data Using Sun StorEdge Enterprise Backup Software or Legato Software

To restore calendar data:

### 1 Use the Sun StorEdge Enterprise Backup software `nwrestore` feature or the `recover` command to restore backed-up calendar information.

If you use `nwrestore`, you receive the message:

```
"File already exists. Do you want to overwrite, skip, backup, or rename?"
```

### 2 Choose `overwrite`.

This message appears because the backup tree is just the directory hierarchy. That is, it consists of empty files and stays that way permanently.



# Administering the Delete Log Database

---

Calendar Server includes the Delete Log database (`ics50deletelog.db`) to store deleted events and todos (tasks).

In early releases, Calendar Server did not maintain a database of deleted events and tasks. Users were forced to save the unique identifiers (`uid`) or recurrence identifiers (`rid`) of events or todos (tasks) to determine which components had been deleted. This limitation directly affected installations that used WCAP commands to develop a client user interface (UI). To solve this limitation, the delete log database was created.

This chapter describes:

- [“Creation of the Delete Log Database” on page 299](#)
- [“Querying the Delete Log Database” on page 300](#)
- [“Purging the Delete Log Database” on page 300](#)
- [“Using Calendar Server Utilities for the Delete Log Database” on page 302](#)

## Creation of the Delete Log Database

Calendar Server automatically creates the Delete Log database (`ics50deletelog.db`) in the `csdb` directory along with the other Calendar Server database files. Calendar Server writes events and todos to the Delete Log database as follows:

- **Non-Recurring Events and Todos**  
When a non-recurring event or todo is deleted, Calendar Server removes it from the Events database (`ics50events.db`) or Todos database (`ics50todos.db`) and then writes it to the Delete Log database (`ics50deletelog.db`).
- **Recurring Events and Todos**  
When individual instances of a recurring event or task are deleted, Calendar Server writes each deleted instance of the event or task to the Delete Log database (`ics50deletelog.db`).

When all instances of a recurring event or todo are deleted, Calendar Server deletes the master component from the event or todo database and then writes it to the Delete Log database. A master component in the Delete Log database will contain the `rrules`, `rdates`, `exrules`, and `exdates` recurrence parameters.

## Querying the Delete Log Database

To return entries from the Delete Log database, use the `fetch_deletedcomponents` WCAP command in either Expanded Mode or Compressed Mode:

- Expanded Mode (`recurring = 0`)

If the `recurring` parameter is `0`, `fetch_deletedcomponents` returns all instances of recurring events that match the criteria, but it does not return the master component for recurring events.

- Compressed Mode (`recurring = 1`)

If the `recurring` parameter is `1`, `fetch_deletedcomponents` returns non-recurring events and the master components for any recurring events, but it does not return individual recurring events.

If all instances in a recurring chain are deleted, the master component returns the `dtstart`, `dtend`, `rrules`, `rdates`, `exrules`, `exdates`, and `uid` parameters.

Also, `fetch_deletedcomponents` does not return master components associated with the deleted recurring instances that are still active. To return active master components, use the `fetchcomponents_by_lasmod` WCAP command. The `fetch_deletedcomponents` command should be used in conjunction with the `fetchcomponents_by_lasmod` command.

For more about WCAP commands, see the *Sun Java System Calendar Server 6 2005Q4 Developer's Guide*.

## Purging the Delete Log Database

Calendar Server provides both the [“Automatic Purge of the Delete Log Database”](#) on page 300 and the [“Manual Purge of the Delete Log Database”](#) on page 301.

### Automatic Purge of the Delete Log Database

If you wish, you can have Calendar Server automatically purge entries in the Delete Log database.

The following table describes the parameters in the `ics.conf` file that control the automatic purge.

TABLE 18-1 Configuration Parameters for Automatic Purge of the Delete Log Database

Parameter	Description
<code>service.admin.purge.deletelog</code>	Enables ("yes") or disables ("no") the automatic purge of Delete Log database ( <code>ics50deletelog.db</code> ) entries.  The default is "no".
<code>caldb.berkeleydb.purge.deletelog.interval</code>	Specifies the interval time in seconds to automatically purge entries in the Delete Log database ( <code>ics50deletelog.db</code> ).  The default is 60 seconds.
<code>caldb.berkeleydb.purge.deletelog.beforetime</code>	Specifies a time in seconds before which to purge entries in the Delete Log database ( <code>ics50deletelog.db</code> ).  The default is 86400 seconds (1 day).

For example, to have Calendar Server automatically purge Delete Log database entries every five minutes (600 seconds) that are more than 2 days old (172800 seconds), set parameters in [“Automatic Purge of the Delete Log Database” on page 300](#) as follows:

```
service.admin.purge.deletelog="yes"
caldb.berkeleydb.purge.deletelog.interval=600
caldb.berkeleydb.purge.deletelog.beforetime=172800
```

After you set these parameters, restart Calendar Server for the new values to take effect.

## Manual Purge of the Delete Log Database

To manually purge entries in the Delete Log database (`ics50deletelog.db`), use the `cspurge` utility:

```
cspurge -e endtime -s starttime
```

where *endtime* and *starttime* specify the ending and starting times in Zulu time (also referred to as GMT or UTC).

To run `cspurge`, you must be logged in as the user and group under which Calendar Server is running (defaults are `icsuser` and `icsgroup`) or as `root`.

For example, to purge entries from July 1, 2003 through July 31, 2003:

```
cspurge -e 20030731T235959Z -s 20030701T120000Z
```

For more information, see [“cspurge” on page 399](#).

## Using Calendar Server Utilities for the Delete Log Database

The following table lists the Calendar Server utilities that support the delete log database (`ics50deletelog.db`):

**TABLE 18–2** Utilities that Support the Delete Log Database

Utility	Description
<code>cspurge</code>	Allows the manual purge of entries in the Delete Log database.
<code>csbackup</code> and <code>csrestore</code>	Supports the backup and restore of the Delete Log database.
<code>csstats</code>	Reports Delete Log database statistics.
<code>csdb</code>	Supports the rebuild, recover, and check operations on the Delete Log database.
<code>cscomponents</code>	Lists (read-only) the number of entries in the Delete Log database.

For more information, including the syntax for these utilities, see [Appendix D, “Calendar Server Command-Line Utilities Reference.”](#)

# Administering Calendar Server Time Zones

---

This appendix describes how Calendar Server defines and processes time zones, including:

- “Overview of Calendar Server Time Zones” on page 303
- “Managing Calendar Server Time Zones” on page 305

For more information about time-zone properties and parameters, refer to the RFC 2445, Internet Calendaring and Scheduling Core Object Specification (iCalendar):

<http://www.ietf.org/rfc/rfc2445.txt>

## Overview of Calendar Server Time Zones

The `timezones.ics` file contains the representation of the time zones supported by Calendar Server. The file is located in the following directory:

```
cal_svr_base/SUNwics5/cal/data
```

At startup, Calendar Server reads the `timezones.ics` file, generates time-zone data, and then stores the data in memory. Thus, time-zone data is kept in memory while Calendar Server is running. Consequently, if you add a new time zone or modify an existing one, you must stop and restart Calendar Server for the change to take effect.

Time zones in the `timezones.ics` file are identified by the TZID parameter. For example, Calendar Server identifies the Pacific Standard Time (PST/PDT) zone using the `America/Los_Angeles` TZID, as shown in [Example 19–1](#). The TZNAME property is an abbreviated representation of the time zone, such as PST (Pacific Standard Time) for the `America/Los_Angeles` time zone.

Time zones such as `America/Los_Angeles` that recognize daylight savings time (DST) contain two subcomponents: STANDARD for standard time and DAYLIGHT for DST. The X-NSCP-TZCROSS list contains a series of dates that indicate when the time zone changes to and from DST (DAYLIGHT) and standard (STANDARD) time.

The RRULE property defines the pattern of the STANDARD and DAYLIGHT rules. The TZOFFSETFROM and TZOFFSETTO properties define the offset from GMT before and after the DST to standard or standard to DST change occurs. The Communications Express user interface uses the dates in X-NSCP-TZCROSS to determine when to display a change in the time zone.

A WCAP command that includes the time zone ID (tzid) parameter should refer to a valid time zone defined in the timezones.ics file. Calendar Server then returns data using that time zone. If a WCAP command specifies an unrecognized time zone, Calendar Server returns data in the GMT time zone by default. For more information about WCAP, refer to the *Sun Java System Calendar Server 6 2005Q4 Developer's Guide*.

**EXAMPLE 19-1** America/Los\_Angeles Time-Zone Representation in the timezones.ics File

The following example shows the America/Los\_Angeles time-zone representation in the timezones.ics file.

```
BEGIN:VTIMEZONE
TZID:America/Los_Angeles
BEGIN:STANDARD
DTSTART:19671025T020000
RRULE:FREQ=YEARLY;BYDAY=-1SU;BYMONTH=10
TZOFFSETFROM:-0700
TZOFFSETTO:-0800
TZNAME:PST
END:STANDARD
BEGIN:DAYLIGHT
DTSTART:19870405T020000
RRULE:FREQ=YEARLY;BYDAY=1SU;BYMONTH=4
TZOFFSETFROM:-0800
TZOFFSETTO:-0700
TZNAME:PDT
END:DAYLIGHT
X-NSCP-TZCROSS:
  19880403T100000Z;19881030T090000Z;19890402T100000Z;19891029T090000Z;
  19900401T100000Z;19901028T090000Z;19910407T100000Z;19911027T090000Z;
  19920405T100000Z;19921025T090000Z;19930404T100000Z;19931031T090000Z;
  19940403T100000Z;19941030T090000Z;19950402T100000Z;19951029T090000Z;
  19960407T100000Z;19961027T090000Z;19970406T100000Z;19971026T090000Z;
  19980405T100000Z;19981025T090000Z;19990404T100000Z;19991031T090000Z;
  20000402T100000Z;20001029T090000Z;20010401T100000Z;20011028T090000Z;
  20020407T100000Z;20021027T090000Z;20030406T100000Z;20031026T090000Z;
  20040404T100000Z;20041031T090000Z;20050403T100000Z;20051030T090000Z;
  20060402T100000Z;20061029T090000Z;20070401T100000Z;20071028T090000Z;
  20080406T100000Z;20081026T090000Z;20090405T100000Z;20091025T090000Z;
  20100404T100000Z;20101031T090000Z;20110403T100000Z;20111030T090000Z;
  20120401T100000Z;20121028T090000Z;20130407T100000Z;20131027T090000Z;
  20140406T100000Z;20141026T090000Z;20150405T100000Z;20151025T090000Z;
  20160403T100000Z;20161030T090000Z;20170402T100000Z;20171029T090000Z;
```



EXAMPLE 19-1 America/Los\_Angeles Time-Zone Representation in the timezones.ics File (Continued)

```
20180401T100000Z;20181028T090000Z;20190407T100000Z;20191027T090000Z;
20200405T100000Z;20201025T090000Z;20210404T100000Z;20211031T090000Z;
20220403T100000Z;20221030T090000Z;20230402T100000Z;20231029T090000Z;
20240407T100000Z;20241027T090000Z;20250406T100000Z;20251026T090000Z;
20260405T100000Z;20261025T090000Z;20270404T100000Z;20271031T090000Z;
20280402T100000Z;20281029T090000Z;20290401T100000Z;20291028T090000Z;
20300407T100000Z;20301027T090000Z;20310406T100000Z;20311026T090000Z;
20320404T100000Z;20321031T090000Z;20330403T100000Z;20331030T090000Z;
20340402T100000Z;20341029T090000Z;20350401T100000Z;20351028T090000Z;
20360406T100000Z;20361026T090000Z;20370405T100000Z;20371025T090000Z;
20360406T120000Z;20361026T110000Z;20370405T120000Z;20371025T110000Z
END:VTIMEZONE
```

## Managing Calendar Server Time Zones

This section describes these topics:

- “Adding a New Time Zone” on page 305
- “Modifying an Existing Time Zone” on page 307

### Adding a New Time Zone

This section describes how to add a new time zone to Calendar Server, so that it is available in the Communications Express user interface. For example, you might want to add a new time zone for America/Miami.

---

**Tip** – The simplest way to add a new time zone is to copy and edit time-zone entries that are similar to the time zone you want to add in each of the files described in the following steps. For example, if you want to add a time zone for America/Miami, copy and edit the time-zone entries in each file for America/New\_York.

---

#### ▼ To Add a New Time Zone

##### 1 Add a time-zone block for the new time zone in the following file:

```
cal_svr_base/SUNwics5/cal/data/timezones.ics
```

Again, the simplest way to add a new time-zone block is to copy an existing block that is similar, including any daylight savings time (DST) offsets, to the time zone you want to add. Then, edit the new time-zone block, making any changes for the new time zone. If your new time zone has Daylight Savings Time (DST), try to find a similar

**2 Modify the getDisplayNameofTZID template in the following file:**

*cal\_svr\_base/SUNWics5/cal/html/language/i18n.xsl* file

where *language* specifies the directory for the language your site is using. For example: en for English, or fr for French.

Add the new entry in the *i18n.xsl* file as:

```
<xsl:when test="$tzid='TimeZoneArea/
    TimeZoneName'"TimeZoneArea/
    TimeZoneName">
```

where:

*TimeZoneArea* is one of the geographic divisions: Africa, America, Asia, Atlantic, Australia, Europe, or Pacific.

*TimeZoneName* is the name of your new time zone.

For example:

```
<xsl:when test="$tzid='America/Miami'">America/Miami</xsl:when>
```

**3 Modify the following XML files:**

*cal\_svr\_base/SUNWics5/cal/html/change\_timezone.xml*  
*cal\_svr\_base/SUNWics5/cal/html/new\_cal.xml*  
*cal\_svr\_base/SUNWics5/cal/html/new\_group.xml*

In each of these files, add the following line:

```
<timezone type="TimeZoneType"
    tzid="TimeZoneArea/TimeZoneName" offset="offset">
```

where:

*TimeZoneType* is "americas", "europeAfrica", or "asiaPacific".

*TimeZoneArea* and *TimeZoneName* are defined in “Adding a New Time Zone” on page 305.

*offset* is the number of hours that your new time zone is ahead (+) or behind (-) GMT. For example, if your new time zone is four hours behind GMT, the offset would be "-04:00".

For example:

```
<timezone type="americas" tzid="America/Miami"
    offset="-05:00" daylightOffset="-04:00">
```

**4 If you want the new time zone to be the default time zone for user preferences, modify the timezone entry in the following file:**

*cal\_svr\_base/SUNWics5/cal/html/default\_user\_prefs.xml*

- 5 Stop (if necessary) and then restart Calendar Server for your new time zone to take effect.

## Modifying an Existing Time Zone

This section describes how to modify an existing time zone. For example, you might want to change the name of a time zone, such as “America/Phoenix” to “US/Arizona”.

### ▼ To Modify an Existing Time Zone

- 1 **Modify the time-zone block for the time zone you want to change in the following file:**

`cal_svr_base/SUNWics5/cal/data/timezones.ics`

If you are changing a time-zone name, change the TZID entry to the new name.

- 2 **Modify the `getDisplaynameofTZID` template in the following file:**

`cal_svr_base/SUNWics5/cal/html/language/i18n.xml` file

where: *language* specifies the directory for the language your site is using. For example: `en` for English or `fr` for French.

If you are changing the name, change the existing time-zone name to the new name.

- 3 **Modify the following XML files for changes to the time zone:**

`cal_svr_base/SUNWics5/cal/html/change_timezone.xml`

`cal_svr_base/SUNWics5/cal/html/new_cal.xml`

`cal_svr_base/SUNWics5/cal/html/new_group.xml`

For information about the entries in these files, see [“Adding a New Time Zone” on page 305](#).

- 4 **If the change affects the default time zone for user preferences, modify the `icsTimeZone` entry in the following file:**

`cal_svr_base/SUNWics5/cal/html/default_user_prefs.xml`

- 5 **Stop (if necessary) and then restart Calendar Server for your time-zone changes to take effect.**



## Using Instant Messaging Pop-up Reminders

---

Calendar Server is integrated with Sun Java System Instant Messaging 6.0 (or later) to provide automatic pop-up reminders for both calendar events and tasks.

This chapter describes:

- [“Pop-up Reminders Overview” on page 309](#)
- [“Configuring Pop-up Reminders” on page 310](#)

### Pop-up Reminders Overview

This section contains the following topics:

- [“Pop-up Reminders Operation” on page 309](#)
- [“Pop-up Reminders Architectural Flow” on page 310](#)

### Pop-up Reminders Operation

Users can receive Instant Messenger pop-up reminders for upcoming events and tasks on their calendars. To enable these pop-up reminders, two things must happen:

- The administrator must configure Calendar Server and Instant Messaging Server to allow pop-up notifications.
- The end user must specify email reminders in the Options tab of Communications Express, which sets an alarm in the Event Notification System.
- The end user must enable calendar reminders in Instant Messenger.

With pop-ups enabled, when an impending event or task nears, the alarm set in the Event Notification System causes Calendar Server to send an email notification and Instant Messaging to display a pop-up reminder.

A Calendar Server administrator can choose to configure either email notifications or pop-up reminders or both for end users. For example, to turn email reminders off, set the following parameter in the `ics.conf` file:

```
caldb.serveralarms.binary.enable= "no"
```

## Pop-up Reminders Architectural Flow

If configured, Instant Messaging pop-up reminders follow this architectural flow:

1. The Instant Messaging JMS subscriber subscribes to Calendar Server events and notifications in the Event Notification Service (ENS).
2. Calendar Server publishes an event or task notification in `text/xml` or `text/calendar` format to ENS.
3. The Instant Messaging JMS subscriber receives the calendar event or task notification and then generates a message in `text/calendar` format.
4. The Instant Messaging server sends the message to the calendar owner, if the end user is online.
5. If the recipient is available, Instant Messenger generates an HTML pop-up reminder on the end user's desktop based on the message.

## Configuring Pop-up Reminders

This section includes the following configuration instructions:

- “To Configure Instant Messaging Server” on page 310
- “To Configure Calendar Server” on page 312
- “To Configure Instant Messenger” on page 313

### ▼ To Configure Instant Messaging Server

The high level list of tasks necessary to configure Instant Messaging for Pop-ups that follows is for your convenience. To configure Instant Messaging, refer to the Instant Messaging documentation available at:

<http://docs.sun.com/coll/1309.2>

#### 1 Install the new package `SUNwiimag`.

Before you can use Instant Messaging for Pop-ups, the Instant Messaging package must be installed using the Java Enterprise System installer.

**2 On the machine where Instant Messaging is installed, change to the following directory:**

```
cd /etc/opt/SUNWiim/default/config
```

**3 Edit one or more of the parameters in the `iim.conf` file as shown in the following table.**

The parameter values shown assume you want pop-up reminders for both events and tasks. If these parameters do not already exist in your `iim.conf` file, add them.

Parameter	Description and Appropriate Value to Use
JMS Consumers Section	
<code>jms.consumers</code>	Name of alarm. Set the value to <code>cal_reminder</code> .
<code>jms.consumer.cal_reminder.destination</code>	Destination of the alarm. Set the value to <code>enp:///ics/customalarm</code>
<code>jms.consumer.cal_reminder.provider</code>	The name of the provider. Set to <code>ens</code> . This must be the same as the name in <code>jms.providers</code> in the JMS Providers section.
<code>jms.consumer.cal_reminder.type</code>	The type of alarm to set. Set the value to <code>topic</code> .
<code>jms.consumer.cal_reminder.param</code>	The alarm parameter. Set the value to <code>"eventtype=calendar.alarm"</code> (including the quotes)
<code>jms.consumer.cal_reminder.factory</code>	C++ factory name. Set the value to: <code>com.iplanet.im.server.JMSCalendarMessageListener</code>
JMS Providers Section	
<code>jms.providers</code>	The name of the provider. Set value to <code>ens</code> . This must be the same as the value listed in the JMS Consumers Section for <code>jms.consumer.cal_reminder.provider</code> .
<code>jms.provider.ens.broker=cal.example.com</code>	Port number that ENS listens on. Set to the port specified in the <code>ics.conf</code> file parameter <code>service.ens.port</code> . The default is 57997.
<code>jms.provider.ens.factory</code>	C++ factory to use. Set to <code>com.iplanet.ens.jms.EnsTopicConnFactory</code>
Calendar Server General Parameters	
<code>iim_agent.enable</code>	Enables the Calendar agent. Set the value as follows including the quotes: <code>iim_agent.enable="true"</code>
<code>iim_agent.agent-calendar.enable</code>	Loads a component that enables the Calendar agent. Set the value as follows including the quotes: <code>iim_agent.agent-calendar.enable="true"</code>

Parameter	Description and Appropriate Value to Use
<code>agent-calendar.jid</code>	The JID of the Calendar agent. Set this value as follows: <code>agent-calendar.jid=calimbot.server.domain</code>
<code>agent-calendar.password</code>	The Calendar agent password. Set this value as follows: <code>agent-calendar.password=password</code>
<code>iim_server.components</code>	Set this value as follows: <code>iim_server.components=agent-calendar</code>

**4 Change to the directory where the `imadmin` command-line utility is located:**

```
cd /opt/SUNWiim/sbin
```

**5 Start the Calendar agent using `imadmin`:**

```
imadmin start agent-calendar
```

The Calendar agent is an Instant Messaging component that provides pop-up functionality to Calendar Server users. Using tools provided with Instant Messaging, you can start, stop, restart, or check the status of the Calendar agent as well as monitor its activity through log files.

---

**Note** – If you have scripts that include the `stop`, `start` and `refresh` commands, add the calendar agent to them.

---

For more information about `imadmin` and the Calendar agent, see the *Sun Java System Instant Messaging 7 2005Q1 Administration Guide*.

## ▼ To Configure Calendar Server

**Before You Begin** Confirm that the `ics.conf` parameters shown in the following table have the values shown. If they do not, or you wish to customize them, perform the following steps:

- 1 Log in as an administrator with permission to change the configuration.**
- 2 Change to the `/etc/opt/SUNWics5/cal/config` directory.**
- 3 Save your old `ics.conf` file by copying and renaming it.**
- 4 Edit the `ics.conf` parameters as shown in the following table:**



Parameter	Description and Default Value
<code>caldb.serveralarms</code>	Enables calendar alarms to be queued. The default is "yes" (enabled).
<code>caldb.serveralarms.contenttype</code>	Output format for alarm content. The default is "text/xml".
<code>caldb.serveralarms.dispatch</code>	Enables calendar alarms to be dispatched. The default is "yes".
<code>caldb.serveralarms.dispatchtype</code>	The type of server alarm to dispatch. The default is "ens".
<code>caldb.serveralarms.url</code>	This is the URL for alarm retrieving alarm contents. The default is "enp:///ics/customalarm".

**5 Save the file as `ics.conf`.**

**6 Restart Calendar Server.**

```
cal_svr_base/SUNWics5/cal/sbin/start-cal
```

## ▼ To Configure Instant Messenger

To receive pop-up reminders for Calendar Server events and tasks, end users must configure their Instant Messenger as follows:

- 1 On the Main window, from the Tools menu, select Settings.**
- 2 On the Settings window, click the Alerts tab.**
- 3 Check the Show Calendar Reminders option.**
- 4 Click OK.**



# Tuning Calendar Server Performance

---

To improve the performance of Calendar Server, consider the following options:

- [“Indexing the LDAP Directory Server” on page 315](#)
- [“Improving Calendar Search Performance in a DWP Environment” on page 316](#)
- [“Improving Performance of Calendar Searching by Disabling Wildcard Searches” on page 317](#)
- [“Improving Performance of the CLD Plug-in” on page 318](#)
- [“Improving Performance of the LDAP Data Cache” on page 318](#)
- [“Tuning the LDAP SDK Cache” on page 320](#)
- [“Tuning Automatic Backups” on page 320](#)
- [“Using Load Balancing Across Multiple CPU's” on page 321](#)
- [“Using Timeout Values” on page 321](#)

## Indexing the LDAP Directory Server

To improve performance when Calendar Server accesses the LDAP directory server, add indexes to the LDAP configuration file for the following attributes.

<code>icsCalendar</code>	This attribute is used to search for the default calendar for a calendar user or resource. Specify presence (pres), equality (eq), and substring (sub) index types.
<code>icsCalendarOwned</code>	This attribute is used to search for other calendars owned by the user. Specify presence (pres), equality (eq), and substring (sub) index types. See also <a href="#">“Improving Calendar Search Performance in a DWP Environment” on page 316</a> .
<code>mail, mailAlternateAddress</code>	These attributes specify a user’s primary and alternate email addresses. See also <a href="#">“Creating Users and Resources” on page 244</a> and <a href="#">“Calendar Server Utilities (csuser enable)” on page 249</a> .

For information about adding directory server indexes, refer to Directory Server documentation found at:

<http://docs.sun.com/coll/1316.1>

## Improving Calendar Search Performance in a DWP Environment

When you are in a DWP environment, that is, the calendar database is distributed across multiple back-end servers, searching for a calendar in the calendar database can be time consuming. It can be faster to look in the LDAP entry first and find out directly which DWP host the calendar resides on.

This section contains the following topics:

- “To Enable Calendar Searches to Look at LDAP” on page 316
- “To Improve Search Performance by Indexing” on page 317

### ▼ To Enable Calendar Searches to Look at LDAP

To enable calendar searches to look at the LDAP directory first, and the calendar database second, perform the following steps:

- 1 Edit the `service.calendarsearch.ldap` parameter in the `ics.conf` file, setting the parameter to “yes”, which is the default, as shown below:**

```
service.calendarsearch.ldap="yes"
```

- 2 Restart Calendar Services as follows:**

```
start-cal
```

---

**Note** – If you are allowing anonymous access to public calendars, you might prefer to disable calendar searches from looking at LDAP. In fact, Communications Express expects the parameter value to be “no”.

---

## ▼ To Improve Search Performance by Indexing

- 1 To determine if the calendar search performance can be improved by indexing, try the following LDAP command:

```
ldapsearch -b "base" "(&(icscalendarowned=*user*)
(objectclass=icsCalendarUser))"
```

where *base* is the LDAP base DN of the directory server where the user and resource data for Calendar Server is located, and *user* is the value that an end user can enter in a search dialog in .

Tests have shown that with 60,000 entries, the above search took about 50-55 seconds without indexing `icsCalendarOwned`. After indexing, the above search took only about 1-2 seconds.

- 2 Index appropriate LDAP attributes, or at least, `icsCalendarOwned`, by running

```
comm_dssetup.pl.
```

The `comm_dssetup.pl`, indexes this attribute and many others to improve performance in various ways. If you have not run `comm_dssetup.pl`, or ran it but did not perform the indexing, you can run the utility again to do the indexing, or you can use Directory Server tools to perform the indexing.

For information on how `comm_dssetup.pl` does indexing, see “Attribute Indexes” on page 66.

For information about adding directory server indexes, refer to Directory Server documentation found at:

<http://docs.sun.com/coll/1316.1>

## Improving Performance of Calendar Searching by Disabling Wildcard Searches

By default, wildcard searches are disabled in Calendar Server. That is, when you search for a calendar using the graphical user interface, or when you issue `search_calprops.wcap` in your custom interface, it searches for an exact match to the search string passed in with the WCAP command.

If you have enabled wildcard searches by uncommenting the following line in the `ics.conf` file (by removing the exclamation point (“!”) at the beginning), you may be experiencing a negative impact on performance.

```
!service.calendarsearch.ldap.primaryownersearchfilter =
"(&(|(uid=%s*)(cn=%s*)) (objectclass=icsCalendarUser))"
```

To test the impact of wildcard searches on performance, comment out the line again by inserting the exclamation point (“!”) in front of it.

## Improving Performance of the CLD Plug-in

Before the system accesses a calendar from the calendar database, it must determine which back-end machine stores that user's calendars. To find the appropriate back-end machine, the system searches the LDAP directory for the user's entry and picks up the `icsDWPHost` attribute. This search is time consuming, and it must be performed for every access to the calendar data. Every user session can result in many accesses of the database and thus many searches of the LDAP. To save time and enhance performance, enable the CLD cache by editing the `ics.conf` file as follows:

```
caldb.cld.cache.enable="yes"
```

The LDAP data cache stores the user ID and its associated `icsDWPHost` attribute. Before searching the LDAP for a user's entry, the system checks the cache for the user's ID. If it is in the cache, it picks up the back-end host name from the `icsDWPHost` attribute stored there. If it is not in the cache, the system performs the LDAP search and copies the user ID and attribute into the CLD cache. Subsequently, accesses to the user's calendar data will be faster, since it will now find the user ID in the cache.

## Improving Performance of the LDAP Data Cache

With the LDAP data cache enabled, you can tune it using the `ics.conf` parameters, adjust one or more of the parameters found in the following table:

---

**Note** – The LDAP data cache is enabled by default. You can disable it by setting:

```
local.ldap.cache.enable="no"
```

---

TABLE 21-1 `ics.conf` Parameters Used to Customize LDAP Data Caching

Parameter	Description/Value
<code>local.ldap.cache.checkpointinterval</code>	<p>The number of seconds for the checkpoint thread to sleep between checkpoints. The default is "60".</p> <p>In a high activity LDAP, you might want to decrease the interval to keep the cache as current as possible. At the same time, remember that the more often you refresh the cache, the more system overhead you introduce.</p>
<code>local.ldap.cache.circularlogging</code>	<p>Specifies whether to remove the LDAP data cache database log files after they have been processed. The default is "yes".</p> <p>Do not change this parameter unless you have a custom clean up routine that will remove the old log files.</p>

TABLE 21-1 ics.conf Parameters Used to Customize LDAP Data Caching (Continued)

Parameter	Description/Value
local.ldap.cache. logfilesize	Specifies the maximum size in megabytes of checkpoint file. The default is "10" megabytes.  If you have a high activity LDAP, this file could fill up before the checkpoint interval is over. Try to set the value to a number that is close to the actual size of the logs according to your experience
local.ldap.cache. maxthreads	Specifies the maximum number of threads for the LDAP data cache database. The default is "1000".  In a high activity LDAP, you might want to increase the number of threads. This could cause increased CPU utilization. Decrease the number of threads only if your LDAP activity is minimal.
local.ldap.cache. mempoolsize	Specifies the number of megabytes of shared memory. The default is "4" megabytes.
local.ldap.cache. entryttl	Specifies the "time to live" (TTL) in seconds for an LDAP data cache entry. The default is "3600" seconds (1 hour).  If your cache is filling up too fast (high activity), you can decrease the TTL time. However, this could increase the overall number of LDAP database accesses, which could slow the system down overall.
local.ldap.cache. cleanup.interval	Specifies the interval in seconds between each cache database cleanup. The default is "1800" seconds (30 minutes).  The system removes expired entries. The time interval does not have to be the same as the entry TTL time. But synchronizing them can make it more efficient.
local.ldap.cache. stat.enable	Specifies whether or not to log the access to the LDAP data cache and to print statistics in the log file. The default is "no".  For performance enhancement, use this only in debug mode.
local.ldap.cache. stat.interval	Specifies the interval in seconds when each statistics report is written to the log file. The default is "1800" seconds (30 minutes).  This is only active if local.ldap.cache.stat.enable is enabled. Decreasing the interval can help you pinpoint problems. Increasing the interval helps decrease system load.

---

**Note** – Communications Express expects data caching to be disabled.

---

## Tuning the LDAP SDK Cache

There are a couple of parameters that control how long an item stays in the cache, and how large the cache can be.

To tune the cache, edit one or more of the parameters as shown in the following table:

TABLE 21-2 ics.conf Parameters for Configuring the LDAP SDK Cache

Parameter	Description and Default Value
service.ldapmemcachettl	This is not currently implemented. You must manually remove the contents of the ldap_cache directory and then restart Calendar Server.  If service.ldapmemcache is "yes", this parameter is used to set the maximum number of seconds that an item can be cached. If "0", there is no limit to the amount of time that an item can be cached. The default is "30".
service.ldapmemcachesize	If service.ldapmemcache is "yes", this parameter is used to set the maximum amount of memory in bytes that the cache will consume. If "0", the cache has no size limit. The default is "131072".

## Tuning Automatic Backups

You must balance the number of backups you keep on disk with the need to not exceed available disk space. To help manage the amount of disk space your archival and hot backups take, you can change the settings of various ics.conf parameters that determine how many copies of the backups you keep at one time and where the disk space threshold is that will trigger clean up of the older copies.

There are three types of parameters that can be adjusted for the each backup type, archival and hot backup:

- mindays – The minimum number of days worth of backups held on disk.
- maxdays – The maximum number of days worth of backups held on disk.
- threshold – The percentage of disk space used. This is used as a trigger point.

Calendar Server keeps backups for the maximum number of days possible without going over the threshold on disk space. So if the current backup is going to push the disk usage above the threshold, the system will purge the oldest backup copy and see if disk space usage goes below the threshold. It will continue to purge old backup copies until either of the following conditions is met: removing another backup copy would bring the number of backups on disk below the minimum number of backup copies, or the disk space usage falls below the threshold.

Therefore, you can manage the amount of disk space backups use with the threshold parameter. And conversely, you can manage how many backups you keep on disk by adjusting the amount of disk space and copies allowed.



The following table lists the `ics.conf` parameters that control the disk space and number of backups kept on disk:

TABLE 21-3 `ics.conf` Parameters Used to Set Number of Backups Held on Disk

<code>ics.conf</code> Parameter	Default Setting	Description
<code>caldb.berkeleydb.hotbackup.mindays</code>	3	Minimum number of days of hot backups held on disk.
<code>caldb.berkeleydb.hotbackup.maxdays</code>	6	Maximum number of days of hot backups held on disk.
<code>caldb.berkeleydb.hotbackup.threshold</code>	70	Percent of disk space used for hot backups. Triggers purge of oldest copies when exceeded.
<code>caldb.berkeleydb.archive.mindays</code>	3	Minimum number of days of archival backups held on disk.
<code>caldb.berkeleydb.archive.maxdays</code>	6	Maximum number of days of archival backups held on disk.
<code>caldb.berkeleydb.archive.threshold</code>	70	Percent of disk space used for archival backups. Triggers purge of oldest copies when exceeded.

## Using Load Balancing Across Multiple CPU's

If a server has multiple CPU's, by default Calendar Server distributes the HTTP Service (`cshttpd` processes) and Distributed Database Service (`csdwpd` processes) across the CPU's.

The `service.http.numprocesses` and `service.dwp.numprocesses` parameters determine the actual number of processes that run for each service. By default, these parameters are set to the number of CPU's for the server during installation, but you can reset these values. For example, if a server has 8 CPU's, but you want a `cshttpd` and `csdwpd` process to run in only 4 CPU's, set the parameters as:

```
service.http.numprocesses="4"
service.dwp.numprocesses="4"
```

To disable load balancing, add the `service.loadbalancing` parameter to the `ics.conf` file and set it to "no". Then restart Calendar Server for the change to take effect.

## Using Timeout Values

Calendar Server performance can be adjusted using timeout values for various `ics.conf` parameters.

The following types of timeouts exist:

- "Timeout Values for `csadmin`" on page 322
- "HTTP Timeout Values for End Users" on page 322

- “GSE Queue Timeout Value” on page 323

For information about editing `ics.conf` parameters, see “Editing the `ics.conf` Configuration File” on page 421.

## Timeout Values for `csadmin`

The following table describes the Calendar Server timeout parameters in the `ics.conf` file used by the Administration (`csadmin`) service.

TABLE 21-4 HTTP Timeout Values for the Administration Service (`csadmin`)

Parameter	Description
<code>service.admin.idletimeout</code>	Specifies the number of seconds the <code>csadmin</code> service waits before timing out an idle HTTP connection. The default is 120 seconds (2 minutes).
<code>service.admin.resourcetimeout</code>	Specifies the number of seconds the <code>csadmin</code> service waits before timing out an HTTP session for a resource calendar. The default is 900 seconds (15 minutes).
<code>service.admin.sessiontimeout</code>	Specifies the number of seconds the <code>csadmin</code> service waits before timing out an HTTP session. The default is 1800 seconds (30 minutes).

## HTTP Timeout Values for End Users

The following table describes the Calendar Server HTTP timeout parameters in the `ics.conf` file that apply to end users.

TABLE 21-5 HTTP Timeout Values in `ics.conf` for End Users (`cshttpd` Service)

Parameter	Description
<code>service.http.idletimeout</code>	Specifies the number of seconds the <code>cshttpd</code> service waits before timing out an idle HTTP connection. The default is "120" seconds (2 minutes).
<code>service.http.resourcetimeout</code>	Specifies the number of seconds the <code>cshttpd</code> service waits before timing out an HTTP session for a resource calendar. The default is "900" seconds (15 minutes).

TABLE 21-5 HTTP Timeout Values in ics.conf for End Users (cshttpd Service) (Continued)

Parameter	Description
service.http.sessiontimeout	Specifies the number of seconds the cshttpd service waits before timing out an HTTP session.  The default is "1800" seconds (30 minutes).

## GSE Queue Timeout Value

The following `ics.conf` file parameter specifies the time in seconds to wait before Calendar Server scans the Group Scheduling Engine (GSE) queue for incoming jobs:

```
gse.belowthresholdtimeout="3"
```

If there are more jobs in the queue than the maximum threads allocated, the last thread always scans the queue again. Therefore, this setting only takes effect when the number of jobs is below the maximum threads allocated.

The default is "3". Increasing this number reduces the frequency the server scans the queue and can improve overall performance. However, if the queue is getting too large because of an increased volume of events, the time can be decreased to allow the queue to be processed faster. This may serve to slow down overall performance, but events will be updated sooner.



# Troubleshooting

---

This chapter covers some of the troubleshooting techniques you can use to determine if there is a problem with your system and what is causing it. The chapter contains the following topics:

- “Turning on Debugging Information” on page 326
- “Troubleshooting LDAP Issues” on page 328
- “Clearing the LDAP Cache” on page 327
- “Troubleshooting Migration Utilities” on page 328
- “Troubleshooting Calendar Server” on page 329
  - “Pinging a Calendar Service” on page 330
  - “Pinging a Calendar Service” on page 330
  - “Fixing stop-cal Problems” on page 331
  - “Fixing stop-cal Problems” on page 331
  - “Fixing stop-cal Problems” on page 331
  - “Fixing stop-cal Problems” on page 331
  - “Troubleshooting Searches that Don’t Complete Properly” on page 333
  - “Turning Off Those Annoying Daily Messages from csstored” on page 335
- “Dealing with Database Issues” on page 335
  - “Finding Berkeley Database Tools” on page 335
  - “Detecting Database Corruption” on page 337
  - “Preventing Service Interruptions When Your Database is Corrupted (Read-only Mode)” on page 339
  - “Handling Common Database Failures” on page 340
  - “Rebuilding a Corrupted Calendar Database” on page 342
  - “Using the Dump and Load Procedure to Recover a Calendar Database” on page 345
  - “Restoring an Automatic Backup Copy” on page 347
  - “Repairing Custom Backup Scripts” on page 350

## Turning on Debugging Information

While there is no one `ics.conf` parameter that puts the whole system in “debug mode”, this section describes some ways to get useful debug information:

- [“Increase Logging Level” on page 326](#)
- [“Enable Logging Access to the LDAP Cache” on page 326](#)
- [“Monitor the System Using Calendar Server Utilities” on page 327](#)

---

**Note** – Be sure to turn off excess logging and monitoring when not needed as it will negatively impact performance.

---

### Increase Logging Level

Use the parameter shown in the following table to increase the verbosity of logging:

Parameter	Description and Default Value
<code>logfile.loglevel</code>	Set to <code>DEBUG</code> to get all levels logged, including <code>CRITICAL</code> , <code>ALERT</code> , <code>ERROR</code> , <code>WARNING</code> , <code>NOTICE</code> , and <code>INFORMATION</code> . This applies to all logs.

For more information about the different logs available, see [“Using Calendar Server Log Files” on page 230](#).

### Enable Logging Access to the LDAP Cache

To log all accesses of the LDAP data cache and print out the log (report) set the `ics.conf` parameters shown in the following table:

Parameter	Description and Default Value
<code>local.ldap.cache.stat.enable</code>	Specifies whether or not to log the access to the LDAP data cache and to print statistics in the log file. The default is “no” (no statistics logged). Set to “yes” to enable logging of statistics.  For performance enhancement, use this only in debug mode.

Parameter	Description and Default Value
<code>local.ldap.cache.stat.interval</code>	<p>Specifies the interval in seconds when each statistics report is written to the log file. The default is “1800” seconds (30 minutes).</p> <p>This is only active if logging is enabled. Decreasing the interval can help you pinpoint problems. Increasing the interval helps decrease system load.</p>

## Clearing the LDAP Cache

There is currently no logic in Calendar Server to expire LDAP cache data. You must manually remove the contents of the `ldap_cache` directory and restart Calendar Server.

### ▼ To Clear the LDAP Cache

- 1 **Stop Calendar Server.**
- 2 **Remove all files in the `/var/opt/SUNWics5/csdb/ldap_cache` directory, but do not remove the `ldap_cache` directory itself.**
- 3 **Restart Calendar Server.**

## Monitor the System Using Calendar Server Utilities

Use the following Calendar Server utilities to monitor your system:

- `csmonitor` – Specify the debug level you need. The higher the number, the more verbose the messages.
- `csstats` – Use the `list` command to display statistical information from counter objects defined in the `counter.conf` file.
- `cs tool` – Use this utility to ping the following services: `csht tpd`, `csadmin d`, and `enpd`.

For more information on the Calendar Server utilities, see [Appendix D, “Calendar Server Command-Line Utilities Reference.”](#)

## Troubleshooting LDAP Issues

If you are creating a hosted environment for the first time, you must create the DC tree in LDAP by adding the appropriate entries for domains, containers, users, and resources. If the DC tree does not already exist when using a Calendar Server utility, such as `cscal`, you might see the following error message: "Initialization failed . . . exiting".

Be sure that your DC tree contains at least one (default) domain under the DC tree root. Create the DC tree structure using instructions found in [“Creating New Hosted Domains” on page 238](#).

## Troubleshooting Migration Utilities

Calendar Server offers several utilities for migrating calendar databases and LDAP directories. This section contains the following topics:

- [“What to do Before Calling Technical Support” on page 328](#)
- [“Where to Find the Migration Utilities” on page 328](#)

### What to do Before Calling Technical Support

In general, if you have trouble using the migration utilities, you should contact technical support, having already gathered the following information:

- Back-up copies of the databases in question.
- Copies of all the pertinent logs.
- Any error output messages, including cores.

### Where to Find the Migration Utilities

The various migration utilities and their documentation can be found at the locations indicated in the list that follows:

#### Schema Migration Utility (`commdirmig`)

This utility is bundled with Delegated Administrator, which is a separately installable component. It migrates your LDAP directory from Schema 1 to Schema 2. For information about this utility, see the *Sun Java System Communications Services 6 2005Q4 Schema Migration Guide*.

#### Calendar Server 5 to Calendar Server 6 Migration Utility (`cs5migrate`)

Technical support offers a migration bundle that includes the utility and the documentation for it.



**Calendar Server Migration Utility (csmig)**

This utility is installed with Calendar Server. Documentation can be found in [Chapter 4, “Database Migration Utilities,”](#) which includes a troubleshooting section. Running this utility is necessary if you are using hosted domains and the LDAP Calendar Lookup Database (CLD) plug-in.

**Calendar Server Virtual Domain Migration Utility (csvdmig)**

This utility is installed with Calendar Server. Documentation can be found in [Chapter 4, “Database Migration Utilities.”](#) Use this utility to prepares your calendar database and LDAP directory entries for hosted domains.

**Calendar Server 2 to Calendar Server 6 Migration Utility (ics2migrate)**

This utility is installed with Calendar Server. Documentation can be found in [Chapter 4, “Database Migration Utilities.”](#) Use this utility to migrate your Calendar Server 2 databases to be compatible with Calendar Server 5.

**Netscape Calendar Server 4 to Calendar Server 5 Migration Utility (ncs4migrate)**

This utility is available only from technical support. The utility package includes documentation. This utility migrates Netscape Calendar Server 4 to Calendar Server 5. These migrations tend to require special attention because of the lack of uniformity in the source database. It is not unusual for a lot of manual This utility is available only from technical support. The utility package includes documentation. This utility migrates Netscape Calendar Server 4 to Calendar Server 5. These migrations tend to require special attention. It is not unusual for a lot of work on the source file to be necessary before the utility can be run. You might consider using Professional Services to help you plan your migration.

## Troubleshooting Calendar Server

This section covers various troubleshooting ideas for non-database problems. The following topics are covered in this section:

- “Pinging a Calendar Service” on page 330
- “Fixing start-cal Problems” on page 330
- “Fixing stop-cal Problems” on page 331
- “Can’t Connect to Back-end Server” on page 332
- “Can’t Find Calendar” on page 333
- “Get “Unauthorized” When Trying to Log In Using Proxy Authentication” on page 333
- “Troubleshooting Searches that Don’t Complete Properly” on page 333
- “Turning Off Those Annoying Daily Messages from csstored” on page 335

---

**Tip** – In addition, there is a trouble shooting section for SSL in the SSL chapter:

“[Troubleshooting SSL](#)” on page 193

---

## Pinging a Calendar Service

To verify that a service is listening on a specified port number, use the “[cstool](#)” on page 413 utility ping command. Pinging a service does not verify that a service is actually running but indicates if it can accept a socket connection.

### Service Options for cstool

The Calendar Server service options are:

http	HTTP Service (cshttpd)
admin	Administration Service (csadmin)
ens	Event Notification Service (enpd)

---

**Note** – You cannot ping the DWP service (csdwpd), or Notification Service (csnotifyd).

---

### cstool Example

For example, to ping the machine with the host name calserver to see if the cshttpd service is listening on port 80:

```
cstool -p 80 -h calserver ping http
```

By default, cstool waits 120 seconds for a response; however, you can change by value by using the -t *timeout* option.

For the complete utility reference material, refer to [Appendix D, “Calendar Server Command-Line Utilities Reference.”](#)

---

**Note** – To run cstool, Calendar Server must be running.

---

## ▼ Fixing start-cal Problems

If not all of the calendar services started when you issued start-cal, the ones that did start must be stopped before restarting. For example, if enpd, csnotifyd, and csadmin started, but not cshttpd, then enpd, csnotifyd, and csadmin must be stopped.

To start calendar services:

- 1 **Log in as a user who has administrative rights to the system where Calendar Server is running.**

- 2 **Use `start-cal` to stop and then restart services. For example:**  
`cal_svr_base/SUNWics5/cal/sbin/start-cal`  
`start-cal` issues a `stop-cal` command first before starting the various calendar services.
- 3 **If `stop-cal` fails to stop, there might be some child processes that failed to stop. To handle this, see [“Fixing stop-cal Problems” on page 331](#).**

## Fixing stop-cal Problems

There are two separate issues to consider when Calendar Server shuts down:

- [“To Stop Child Processes” on page 331](#)
- [“To Recover After an Improper Shutdown” on page 332](#)

### ▼ To Stop Child Processes

After issuing `stop-cal`, it is possible that some child processes were not stopped. For example, `stop-cal` might stop the `cshttpd` parent process but not any `cshttpd` child processes. In this situation, you must stop the remaining Calendar Server processes individually, using the following procedure:

- 1 **Log in as a user who has administrative rights to the system where Calendar Server is running.**
- 2 **Determine the process ID (PID) of the remaining Calendar Server processes by entering a `ps` command for each service:**  
`ps -elf | grep cs-process`  
 where *cs-process* is `enpd`, `csnotifyd`, `csdwpd`, `csadmin`, or `cshttpd`. For example:  
`ps -elf | grep cshttpd`
- 3 **Using the PID of each process that is still running, enter a `kill -15` command to kill the process. For example: `kill -15 9875`**
- 4 **Enter each `ps` command again to make sure that all Calendar Server processes are stopped.**  
 If a Calendar Server process is still running,  
     enter a `kill -9` command to kill it.  
 For example: `kill -9 9875`

---

**Note** – On Linux systems with Calendar Server running, if you search for calendar processes using the `ps` command, the results might appear confusing. In Linux, the `ps` command returns the list of threads running rather than the list of processes. There is no known workaround to display only the processes.

---

## ▼ To Recover After an Improper Shutdown

If Calendar Server was not properly shutdown, perform the following steps:

- 1 Perform the steps in the previous procedure, [“Fixing stop-cal Problems” on page 331](#).
- 2 **Manually delete all files in the LDAP data cache database directory.**

These left over files could cause database corruptions. To delete the files:

- a. **Change to the LDAP data cache directory.**

The default is `/opt/SUNWics5/csdb/ldap_cache`, but use the directory pointed to by the `local.ldap.cache.homedir.path` parameter in the `ics.conf` file.

- b. **Remove all files in the directory.**

For example: `rm *.*`

- c. **Check to make sure all files were removed.**

For example: `ls`

- 3 **Restart Calendar Server.**

`cal_svr_base/SUNWics5/cal/sbin/start-cal`

For instructions on how to configure LDAP data caching, see [“Configuring Calendar Server for LDAP” on page 144](#). For more information about the LDAP data cache, see the *Sun Java System Communications Services 6 2005Q4 Deployment Planning Guide*.

## Can't Connect to Back-end Server

1. Ping the back-end server to see if it is responding.
  - If it is responding, go to step 3. If it is not responding, determine why it is failing, and when it is functioning again, proceed to
2. Clear the CLD cache. See [“Clearing the CLD Cache” on page 231](#).

If you are using the CLD cache option and you have updated a server name for an `ics.conf` parameter, you should clear the CLD cache to remove the server names. An out-of-date entry in the CLD cache can prevent a front-end server from establishing a connection to the correct back-end server or cause Calendar Server not to find a calendar after it have been moved.

3. Restart Calendar Server.

## Can't Find Calendar

If you are using the CLD cache option and you have moved one or more calendars to different back-end servers (or changed the name of the back-end server), perform the following steps:

1. Be sure that you followed the procedure for moving calendars found at:  
[“Managing User Calendars” on page 270.](#)
2. Clear the CLD cache. See [“Clearing the CLD Cache” on page 231.](#)

The CLD cache will be out of date if you moved one or more calendars to different back-end servers. To refresh it, you need to clear the cache so it will be rebuilt.

## Get “Unauthorized” When Trying to Log In Using Proxy Authentication

1. Verify that `service.http.allowadminproxy` is set to “yes”.
2. Verify that the `admin-user` has Calendar Server administrator privileges.
3. Verify that the `admin-password` is correct.
4. Verify that the `calendar-user` is a valid Calendar Server user.

## Troubleshooting Searches that Don't Complete Properly

The `nsslapd-sizelimit` and `nsLookthroughLimit` attributes in your LDAP directory server configuration must be large enough so that searches complete properly. If `nsSizeLimit` is not large enough, truncation can occur and no results will be displayed. If `nsLookthroughLimit` is not large enough the search may not complete.

This section covers the following topics:

- [“To Determine if Limit Attributes Have Appropriate Values” on page 334](#)
- [“To Set the Limit Attributes to Appropriate Values” on page 334](#)

## ▼ To Determine if Limit Attributes Have Appropriate Values

- 1 To determine if these attributes are set to appropriate values, try the following command:

```
ldapsearch -b "base"
"(&(icscalendarowned=*user*)(objectclass=icsCalendarUser))"
```

where *base* is the LDAP base DN of the directory server where the user and resource data for Calendar Server is located, and *user* is the value that an end user can enter in the search dialog in the user interface.

- 2 If the LDAP server returns an error, the `nsSizeLimit` or the `nsLookthroughLimit` parameters might not be large enough.

## ▼ To Set the Limit Attributes to Appropriate Values

The DN for these attributes is:

```
dn: cn=config,cn=ldbm databases,cn=plug ins,cn=config
```

- 1 Use `ldapmodify` to dynamically set the value of `nsLookthroughLimit`.

You do not have to stop and restart Directory Server to change this attribute.

The default value is 5000. You might want to increase this value if searches are not reporting results. However, this could slow down the LDAP server.

It is possible to set the limit to -1, which causes no limit to be used. However, do this with caution as it could conceivably cause the system to hang.

- 2 If you want to set `nsslapd-sizelimit` to a higher value, you must perform the following steps:
  - a. Stop the Directory Server.
  - b. Edit the `dse.ldif` file.
  - c. Restart the Directory Server.

---

**Note** – For information on how to use `ldapmodify` and edit the `dse.ldif` file, see Directory Server documentation found at:

<http://docs.sun.com/coll/1316.1>

---

## Turning Off Those Annoying Daily Messages from `csstored`

The `start-cal` command launches the `csstored` process by default, even if it is unconfigured. An unconfigured `csstored` process will emit a message stating it is unconfigured, every 24 hours, on every machine where `csstored` is running.

Disable the message by preventing `csstored` from running unconfigured. To disable the `csstored` process from running, set the following `ics.conf` parameter as shown for each machine where the message is being generated:

```
service.store.enable="no"
```

Be careful not to disable the process on the machines where you have `csstored` configured to make automatic backups.

## Dealing with Database Issues

This section covers various issues involving the calendar server databases:

- “Finding Berkeley Database Tools” on page 335
- “To Detect and Fix Database Deadlocks” on page 336
- “Detecting Database Corruption” on page 337
- “Preventing Service Interruptions When Your Database is Corrupted (Read-only Mode)” on page 339
- “Handling Common Database Failures” on page 340
- “Rebuilding a Corrupted Calendar Database” on page 342
- “Using the Dump and Load Procedure to Recover a Calendar Database” on page 345
- “Restoring an Automatic Backup Copy” on page 347
- “Repairing Custom Backup Scripts” on page 350

## Finding Berkeley Database Tools

Many of the troubleshooting steps you will want to take require having access to the Berkeley database utility programs. While a version of these utility programs is available in the Calendar Server bundle, they are not supported. You might want to obtain more information directly from Sleepycat Software (<http://www.sleepycat.com>).

This section covers the following topics:

- “To Access the Berkeley Database Utilities” on page 336
- “List of Available Tools” on page 336

## To Access the Berkeley Database Utilities

Set and export the LD\_LIBRARY\_PATH environment variable to reflect the following directory:

*cal\_svr\_base/SUNWics5/cal/tools/unsupported/bin/*

## List of Available Tools

The following table lists some of the commonly used Berkeley database tools (utility programs).

Berkeley Database Tools	Description
db_archive	Writes the path names of log files that are no longer in use to the standard output, one pathname per line.
db_checkpoint	A daemon process that monitors the database log and periodically calls the checkpoint routine to checkpoint it.
db_deadlock	Traverses the database environment lock region and aborts a lock request each time it detects a deadlock or a lock request that has timed out.
db_dump	Writes the specified file to standard output in a flat-text format understood by the db_load utility.
db_load	Reads from the standard input and loads it into the database file specified. If the file does not already exist it creates it.
db_printlog	Debugging utility that dumps log files in human-readable format.
db_recover	Restores the database to a consistent state after an unexpected application, database, or system failure.
db_stat	Displays statistics for the database environment.
db_verify	Verifies the structure of one or more files and the databases they contain.

## ▼ To Detect and Fix Database Deadlocks

If the Berkeley database is in a deadlock state, you must reset the database. It is important to detect this condition as early as possible.

To enable the system to periodically check the databases to detect a deadlock state and inform the Administrator:

- 1 Log in as an administrator with permission to change the configuration.**
- 2 Change to the /etc/opt/SUNWics5/cal/config directory.**
- 3 Save your old ics.conf file by copying and renaming it.**



**4 Edit the `ics.conf`, if necessary, to have the following value:**

```
local.caldb.deadlock.autodetect="yes"
```

---

**Note** – When this parameter is set to “yes”, the `db_deadlock` daemon is launched that will monitor the lock region.

---

## Detecting Database Corruption

Calendar database corruption can be caused by various reasons: system resource contention, hardware failures, application errors, database failures, and of course human error. This section describes how to detect calendar database corruption:

- [“Database Corruption Basics” on page 337](#)
- [“Monitoring Log Files” on page 337](#)
- [“Using csmonitor” on page 338](#)
- [“To Check for Calendar Database Corruption” on page 338](#)

### Database Corruption Basics

No one can guarantee corruption free databases. But you can minimize data loss and operational downtime. Closely monitoring the database and calendar server is key to detecting corruption early. Frequent and complete backups are the key to recovering from corruption once it is found.

There are two levels of corruption possible in a calendar database:

- Application level–Offending entries in one of more database files prevent the server from running when they are operated upon.
- Database level–Corruptions in the Berkeley database pages cause various problems. One common symptom is looping while running `csdb check`. Another common symptom is an error message like the following:

```
“illegal page type or format”,  
or “page 97895 doesn’t exist, create flag not set.”
```

### Monitoring Log Files

Monitor the Calendar Server log files, including the alarm logs, for any error messages that might indicate database corruption. For information about the log files, refer to [“Using Calendar Server Log Files” on page 230](#).

You should inspect the log files on a regular basis for ALERT, CRITICAL, ERROR, and WARNING level errors and, if found, examine the events for possible problems with the operation of Calendar Server. The NOTICE and INFORMATION level log events are generated during normal operation of Calendar Server and are provided to help you monitor server activity.

Never remove any transaction log files in the database directory. The transaction log files contain the transaction updates (additions, modifications, or deletions), and removing them can corrupt the calendar database beyond recovery.

---

**Note** – When requesting technical support for Calendar Server, you might be asked to provide the log files for help in resolving problems.

---

## Using `csmonitor`

Use the `csmonitor` utility to monitor Calendar Server. It will send an alert email to the administrator if it detects problems, such as more than one transaction log file, or a shortage of disk space for the calendar database. For more information, see “[csmonitor](#)” on page 396.

### ▼ To Check for Calendar Database Corruption

Use the `check` command to scan for corruptions in the calendar database, including calendar properties (`calprops`) and events and todos (tasks). If the `check` command finds an inconsistency that cannot be resolved, it reports the situation in its output.

The `check` command does not check for corruption in the alarm or group scheduling engine (GSE) databases.

- 1 **Log in as a user who has administration rights to the system where Calendar Server is installed.**
- 2 **Calendar Server can be either running or stopped; however, if possible, stop Calendar Server.**
- 3 **Make a copy of your calendar database, if you haven't already done so.**

Copy only the database (`.db`) files. You don't need to copy any share (`__db.*`) or log (`log.*`) files.

- 4 **Change to the `cal_svr_base/SUNWics5/cal/sbin` directory.**

For example, on Solaris Operating Systems for the default directory, enter:

```
cd /opt/SUNWics5/cal/sbin
```

- 5 **Run the `check` command on the copy of your calendar database:**

```
./csdb check dbdir /tmp/check.out
```

If you don't specify `dbdir`, `check` uses the database in the current directory.

The `check` command can generate a lot of information, so consider redirecting all output, including `stdout` and `stderr`, to a file (as shown in the example).

- 6 **When `check` has finished, review the output file. If your database is corrupted, run the `rebuild` command.**

(See “[Rebuilding a Corrupted Calendar Database](#)” on page 342.)

## Preventing Service Interruptions When Your Database is Corrupted (Read-only Mode)

This section covers how to keep your corrupted database accessible while you are in recovery mode and includes the following topics:

- “Using Read-only Mode” on page 339
- “To Put a Database in Read-only Mode” on page 339

### Using Read-only Mode

If you are encountering database corruption, one way to prevent service interruptions is to put your database in read-only mode. This mode allows end users to read database entries, but does not allow additions, modifications, or deletions. If an end user attempts to add, modify or delete any calendar data, the system gives an error message. In addition, administrator tools that add, modify or delete calendar events and todos will not work while the database is in read-only mode.

---

**Note** – If the database is corrupted to the point that it can’t be read, you must interrupt service long enough to restore a backup. The quickest way to restore a backup is to have a good hot backup. See “Before You Restore” on page 347.

---

### ▼ To Put a Database in Read-only Mode

- 1 While it isn’t necessary, you might choose to stop calendar services momentarily to prevent further corruption of the database.

To stop calendar services:

```
cal_svr_base/SUNWics5/cal/sbin/stop-cal
```

- 2 At a command line, change to the directory where the `ics.conf` is located:

```
cd /etc/opt/SUNWics5/config
```

- 3 Specify read-only mode for the calendar database:

```
caldb.berkeleydb.readonly="yes"
```

- 4 When you have completed editing the `ics.conf` file, restart Calendar Server:

```
cal_svr_base/SUNWics5/cal/sbin/start-cal
```

You must restart the services in order for the `ics.conf` changes to take effect.

## Handling Common Database Failures

This section covers a few of the common database failures and includes some suggested remedies. It contains the following topics:

- “[csadmind Won’t Start or Crashes During Startup](#)” on page 340
- “[Services Hung, and End Users Can’t Connect—Orphaned Locks](#)” on page 342
- “[csbdb rebuild Never Finishes—Database Looping](#)” on page 342

### ▼ **csadmind Won’t Start or Crashes During Startup**

Since `csadmind` is the service that handles both the group scheduling engine (GSE) and the alarm dispatch engine, this could have been caused by offending entries in the GSE queue or the alarm queue.

Remedies:

**1 If `csadmind` is not running, issue `stop-cal` immediately.**

Leaving calendar server running could cause transaction logs to accumulate, which could further corrupt the database, and could take much longer to reconcile the transaction log files to the database.

**2 Try restarting `csadmind` again (issue `start-cal` again).**

If it starts successfully, make sure the two queues are functioning by:

**a. Checking the GSE queue using `csschedule`.**

**b. Checking the alarm queue using `dbrig`.**

For instructions on running `csschedule` and `dbrig`, see [Appendix D, “Calendar Server Command-Line Utilities Reference.”](#)

**3 If `csadmind` crashes with a dump, analyze the `pstack`.**

If you notice any GSE related functions in the trace (they will have the letters GSE in them), look at the first entry in the GSE queue and the referenced entry in the events database. Most of the time, the event referred to in the GSE entry is the offending entry. To fix this problem:

**a. Remove the GSE entry using `csschedule`.**

**b. Remove the offending event from the database using `cscomponents`.**

For instructions on running `csschedule` and `cscomponents`, see [Appendix D, “Calendar Server Command-Line Utilities Reference.”](#)

**4 If the entries are not corrupted, then it could be a special case that the calendar server could not handle.**

Take the following steps:

**a. Take a calendar environment snapshot of the corrupted database, and contact customer support.**

To create an environmental backup:

**i. Use the `db_checkpoint` utility found at:**

`cal_svr_base/SUNWics5/cal/tools/unsupported/bin/db_checkpoint`

**ii. Run `db_archive -s`.**

Use the `-s` option to identify all the database files and copy them to a removable medium, such as CD, or DVD, or tape.

**iii. Run `db_archive -l`.**

Use the `-l` option to identify all the log files and copy unapplied log files to a removable-medium device.

**b. To avoid service interruptions, place your calendar database into a read-only state temporarily, and revert to a hot backup copy.**

- Placing your calendar database into a read-only state temporarily prevents any add, modify or delete transactions from taking place. End users will get an error message when they try to add, modify or delete any calendar data. Administrator tools that add, modify or delete calendar events and todos also will not work while the database is in read-only mode.

To put your calendar database in read-only mode, edit the `ics.conf` file and set the following parameter to “yes”, as shown:

```
caldb.berkeleydb.readonly="yes"
```

- Revert to a hot backup copy, using the instructions found in [“Restoring an Automatic Backup Copy” on page 347](#).

With `csstored` configured and enabled, a hot backup is available that should be within minutes of being up-to-date. You should always verify your hot backup copy to make sure it is not corrupt also. (Run `db_verify`.)

**5 If all else fails, perform the dump and reload procedure to see if it can salvage the database.**

This procedure is described in [“Using the Dump and Load Procedure to Recover a Calendar Database” on page 345](#).

## ▼ Services Hung, and End Users Can't Connect—Orphaned Locks

This condition may be caused by a control thread, which holds a Berkeley DB database page lock, quitting without releasing the lock. To confirm the problem, run `psstack` on `cshttpd` processes and `csadmin.d`. (`psstack` is a standard UNIX utility found at: `/usr/bin/psstack`) It should show threads that are waiting to acquire a lock.

To fix the problem, restart Calendar Server, as follows:

### 1 Change to the directory where `start-cal` resides.

```
cd cal_svr_base/SUNWics5/cal/sbin
```

### 2 Issue the `start-cal` command.

```
./start-cal
```

## ▼ csdb rebuild Never Finishes—Database Looping

Database looping is usually caused by corruption in the database files. Since it is a database corruption, it can be unrecoverable. There are several options:

### 1 Revert to the hot backup.

If the corruption occurred recently, you can use one of your hot backups.

### 2 Use your catastrophe archival recovery process.

For a suggested process, see [“Restoring an Automatic Backup Copy” on page 347](#).

### 3 Use the dump and reload procedure, [“Using the Dump and Load Procedure to Recover a Calendar Database” on page 345](#).

## Rebuilding a Corrupted Calendar Database

This section describes how to use the `csdb rebuild` command and contains the following topics:

- [“rebuild Overview” on page 342](#)
- [“To Rebuild a Calendar Database” on page 343](#)
- [“Sample Rebuild Output” on page 344](#)

### rebuild Overview

The `rebuild` command scans a calendar database and checks the calendar properties (`calprops`) events and todos (tasks) for corruption. If the `rebuild` command finds an inconsistency, it generates a rebuilt calendar database (`.db` files) in the `cal_svr_base/SUNWics5/cal/sbin/rebuild_db` directory.

The `rebuild` command without the `-g` option rebuilds all databases except the group scheduling engine (GSE) database. To also rebuild the GSE database, include the `-g` option.

To determine if the GSE database has any entries, run the `csschedule -v list` command and then let the GSE finish processing the entries before you run the `rebuild` command.

## ▼ To Rebuild a Calendar Database

**1** Log in as a user who has administration rights to the system where Calendar Server is installed.

**2** Stop Calendar Server.

**3** Make a copy of your calendar databases, placing them into the `/tmp/db` directory.

Copy the database (`.db`) files and the log (`log.*`) files. You don't need to copy any share (`__db.*`) files.

**4** Change to the `cal_svr_base/SUNWics5/cal/sbin` directory.

For example, on Solaris Operating Systems, for the default directory, enter:

```
cd /opt/SUNWics5/cal/sbin
```

---

**Note** – If disk space is a problem for the `sbin` directory, run the `rebuild` command in a different directory.

---

**5** Run the `rebuild` command on the copy of your calendar database:

```
./csdb rebuild /tmp/db /tmp/
```

If you don't specify a database path, `rebuild` uses the current directory. The `/tmp/` parameter specifies the destination directory for the rebuilt database.

To also rebuild the GSE database, include the `-g` option.

The `rebuild` command can generate a lot of information, so consider redirecting all output, including `stdout` and `stderr`, to a file.

**Note** – Always rebuild your calendar database using the latest backup copy.

However, if you have experienced a significant loss of data and you have periodically backed up your database and have more than one copy available, rebuild from the latest copy to the oldest one. (The only drawback is that calendar components that were deleted will reappear in the rebuilt database.)

For example, if you have three sets of backup calendar database files in directories `db_0601`, `db_0615`, and `db_0629`, run the `rebuild` command in the following sequence:

```
./csdb rebuild db_0629
./csdb rebuild db_0615
./csdb rebuild db_0601
```

The `rebuild` command then writes the rebuilt database to the `cal_svr_base/SUNWics5/cal/sbin/rebuild_db` directory.

---

- 6 When rebuild has finished, review the output in the `rebuild.out` file.**  
If the rebuild was successful, the last line in the `rebuild.out` file should be:  
Calendar database has been rebuilt
- 7 After you have verified that rebuild was successful in the previous step, copy the rebuilt database (`.db`) files from the `rebuild_db` directory to your production database.**
- 8 If you have any share (`__db.*`) or log (`log.*`) files from the corrupted database, move them to another directory.**
- 9 Restart Calendar Server.**

## Sample Rebuild Output

The following example shows the command and the output that it generated:

```
# ./csdb -g rebuild
Building calprops based on component information.
Please be patient, this may take a while...
Scanning events database...
512 events scanned
Scanning todos database...
34 todos scanned
Scanning events database...
512 events scanned
Scanning todos database...
34 todos scanned
Scanning deletelog database...
```



```
15 deletelog entries scanned
Scanning gse database...
21 gse entries scanned
Scanning recurring database...
12 recurring entries scanned
Successful components db scan
Calendar database has been rebuilt
Building components based on calprops information.
Please be patient, this may take a while...
Scanning calprops database to uncover events...
25 calendars scanned
Scanning calprops database to uncover todos...
25 calendars scanned
Successful calprops db scan
Calendar database has been rebuilt
```

---

**Note** – The preceding sample output shows the events and the todos databases scanned twice each. This is not an error. It scans the first time to verify the information in the calendar properties database and then scans again to make sure calendar properties database is accessible.

---

## Using the Dump and Load Procedure to Recover a Calendar Database

This sections contains the following topics:

- “Dump and Load Overview” on page 345
- “To Perform the Dump and Load Procedure” on page 346

### Dump and Load Overview

Use the dump and load procedure to try to recover a corrupted database. The dump and load procedure uses the Berkeley database `db_dump` and `db_load` utilities, which Calendar Server includes in the following directory:

```
cal_svr_base/SUNWics5/cal/tools/unsupported/bin
```

The `db_dump` utility reads a database file and writes the database entries to an output file, using a format that is compatible with the `db_load` utility.

For documentation about the `db_dump` and `db_load` utilities, refer to the Sleepycat Software Web site:

<http://www.sleepycat.com/docs/utility/index.html>

Your success in recovering a database using the `db_dump` and `db_load` utilities depends on the degree of corruption of your database. You might need to try several `db_dump` options before you successfully recover your database. If your database is severely corrupted, however, recovery might not be possible, and you might need to revert to the last good hot backup or archive backup of your database.

---

**Note** – Before you perform the dump and load procedure, your calendar database must be Berkeley DB version 3.2.9, or later. If you have an earlier version, first run the `cs5migrate` utility to upgrade your calendar database.

For the most up to date version of `cs5migrate`, call Sun technical support.

---

## ▼ To Perform the Dump and Load Procedure

- 1 **Log in as the user and group under which Calendar Server is running, such as `icsuser` and `icsgroup`, or as `superuser` (`root`).**
- 2 **Stop Calendar Server, if necessary.**
- 3 **Backup your corrupted database using a utility such as `csbackup`, the Sun StorEdge Enterprise Backup™ software, or Legato Networker®.**

For more information refer to [Chapter 17, “Backing Up and Restoring Calendar Server Data.”](#)

- 4 **Dump each corrupted database file using the `db_dump` utility.**

The database files are `ics50calprops.db`, `ics50journals.db`, `ics50alarms.db`, `ics50events.db`, `ics50todos.db`, and `ics50gse.db`.

Run `db_dump` using the following options, in order, until your database is recovered (or until you determine that the database can't be recovered):

- No options for minor database corruption.
- **-r option** for moderate database corruption.
- **-R option** for severe database corruption. The `-R` option dumps more data than the `-r` option, including partial and deleted records, from the corrupted database.

For example, to run `db_dump` with the `-r` option:

```
db_dump -r ics50events.db \> ics50events.db.txt
```

- 5 **Load the output file into a new database file using the `db_load` utility.**

For example:

```
db_load new.ics50events.db < ics50events.db.txt
```

If `db_load` reports an odd number of keys or data entries, edit the `db_dump` output file, and remove the odd key or data entries. Then run `db_load` again.

**6 Repeat the previous two steps for the other corrupted database files.**

That is, run `db_dump` for the other corrupted database files.

**7 Rebuild the recovered database files using the `csdb rebuild` command, as described in “Rebuilding a Corrupted Calendar Database” on page 342.**

When `rebuild` has finished, review the output in the output file. If the rebuild was successful, the last line in the `rebuild.out` file should be:

```
Calendar database has been rebuilt
```

If the `csdb rebuild` command was not successful, dump your database using the next `db_dump` option (`-r` or `-R`).

If the `db_dump -R` option does not recover your corrupted database, contact your Sun Microsystems technical support or sales account representative for assistance. In the meantime, you might need to revert to the last good backup of your database.

## Restoring an Automatic Backup Copy

If you have used the automatic backup feature described in [Chapter 10, “Configuring Automatic Backups \(csstored\)”](#), you can use the hot backup copy when your live database is corrupted.

This sections covers how to restore the two different automatic backups:

- “Before You Restore” on page 347
- “To Restore a Hot Backup” on page 347
- “To Restore an Archive Backup” on page 349

### Before You Restore

Before you restore a backup, be sure that you have:

- Tried to diagnose which transaction caused the corruption of the live database.
- Removed or corrected the corrupting transaction so the new archive will not be corrupted.
- Preserved the corrupted database by copying it to another directory or removable media. This is necessary should you need to contact technical support.

### ▼ To Restore a Hot Backup

Hot backups should be your first choice of backup when your live database is corrupted. To restore a hot backup, follow these steps:

- 1 Identify any log files that were unapplied or open for writing in the corrupted live database directory.**
- 2 Close the log that was open for writing. It contains the most recent transactions.**
- 3 Create a new (recovery) directory.**
- 4 Copy the current hot backup copy into the new recovery database directory.**
- 5 Copy the `log.*` files from your corrupted live database directory into your new recovery database directory.**
- 6 If you are keeping an archive copy of the database, copy the logs that had not been applied to the live database into the archive directory, so your archive backup copy will be complete.**
- 7 Run `db_recover` with the `-c -h` options specified against the new recovery database.**  
For example, if your new recovery directory is called `recoverydb`, then the command would be as follows:  

```
db_recover -c -h recoverydb
```
- 8 Leave the `log.*` files in the new recovery directory.**  
The `db_recover` program applied the log files to the new recovery databases, but starting with version 42, the Berkeley DB expects them to remain.
- 9 Run `db_verify` against the database files in the new recovery directory.**  
For instructions, see [“To Check for Calendar Database Corruption”](#) on page 338.
- 10 Run `csdb -v list` against the new recovery directory.**
- 11 If the new recovery directory passed all three preceding recovery steps, replace the old corrupted live database with the new recovery database.**
- 12 Copy the new live database into your hot backup directory to function as the new snapshot.**  
All new logs will be applied to this copy until the next regular snapshot is taken.
- 13 Start Calendar Server.**
- 14 If the new recovery directory failed any of the steps, identify an uncorrupted older hot backup as follows:**
  - a. Working backward through your hot backups, find the most recent copy that is not corrupted by running `db_verify` and `csdb -v list` on each in turn.**

- b. **The first hot backup copy that passes can be restored to your live database directory.**  
Replace the corrupted live database with the clean hot backup, as described in [“To Restore a Hot Backup” on page 347](#). (Be sure to read [“Before You Restore” on page 347](#) first.)
- c. **If none of your hot backups work and you do not have archive backups to try, call technical support. If you do have archive backups, follow the procedure that follows “To Restore an Archive Backup” on page 349.** (See also, [“Before You Restore” on page 347](#).)

## ▼ **To Restore an Archive Backup**

If you do not have an uncorrupted hot backup, but have archive backups and their transaction logs, you can restore the most current uncorrupted version of the archived database by performing the following steps:

- 1 **Identify any log files that were unapplied or open for writing in the corrupted live database directory.**
- 2 **Close the log that was open for writing. It contains the most recent transactions.**
- 3 **Create a new (recovery) directory.**
- 4 **Copy the most recent archive copy and its log files into the new recovery database directory.**
- 5 **Copy any unapplied `log.*` files from your corrupted live database directory into your new recovery database directory.**
- 6 **Run `db_recover` with the `-c -h` options specified against the new recovery database.**  
For example, if your new recovery directory is called `recoverydb`, then the command would be as follows:  

```
db_recover -c -h recoverydb
```
- 7 **Leave the `log.*` files in the new recovery directory.**  
The `db_recover` program applied the log files to the new recovery databases, but starting with version 4.2, Berkeley DB expects the log files to still be there.
- 8 **Run `db_verify` against the database files in the new recovery directory.**  
For instructions, see [“To Check for Calendar Database Corruption” on page 338](#).
- 9 **Run `csdb -v list` against the new recovery directory.**
- 10 **If the new recovery directory passed all three preceding recovery steps, replace the old corrupted live database with the new recovery database.**

- 11 Copy the new live database into your hot backup directory to function as the new snapshot.
- 12 Start Calendar Server.
- 13 If the new recovery directory failed any of the steps, identify an uncorrupted older archive backup as follows:
  - a. Working backward through your archive backup copies, find the most recent copy that is not corrupted by running the three recovery programs against each of them in turn: `db_recover -c-h`, `db_verify` and `csdb -v list`.
  - b. The first archive copy that passes can be restored to your live database directory.  
Replace the corrupted live database with the clean archive backup, as shown in [“To Restore an Archive Backup”](#) on page 349.
  - c. If none of your archive backups work, call technical support.

## Repairing Custom Backup Scripts

This section includes the following topics:

- [“Berkeley Tools Now Compiled with a Dynamic Library”](#) on page 350
- [“To Repair a Custom Backup Script”](#) on page 350

### Berkeley Tools Now Compiled with a Dynamic Library

If you have created a custom backup script using the Berkeley database tools, such as `db_recover`, you may find that it will no longer work after upgrading to Calendar Server. The reason for this is that the earlier versions of Calendar Server compiled the tools with a static library. The tools are now compiled with a dynamic library, `libdb-4.2.so`.

### To Repair a Custom Backup Script

To use the new dynamic library with your existing custom scripts, set the following global variable as shown:

```
LD_LIBRARY_PATH=libdb-4.2.so
```

## PART V

# Appendixes

This part contains the appendixes for the Administration Guide.

- [Appendix A, “Directory Configuration Worksheet”](#)
- [Appendix B, “Calendar Server Configuration Worksheet”](#)
- [Appendix C, “High Availability \(HA\) Configuration Worksheets”](#)
- [Appendix D, “Calendar Server Command-Line Utilities Reference”](#)
- [Appendix E, “Calendar Server Configuration Parameters”](#)





# Directory Configuration Worksheet

---

This worksheet helps you collect the information you will be asked for when running `comm_dssetup.pl`. The first column shows you the silent mode options and the expected information that is to follow it. The second column shows you the same option in interactive mode with the default answer.

There is a line provided in the right column for the answer you want to give. It applies to both the silent and interactive modes. For silent mode, use the answers as the value that follows the option. For interactive mode, enter your value at the prompt.

For examples and instructions on how to run `comm_dssetup.pl`, see [“Running the Directory Preparation Script” on page 67](#).

TABLE A-1 Directory Server Setup Script (`comm_dssetup.pl`) Worksheet

Silent Mode Options	Interactive Dialog and Defaults
-i yes   no	Add new Directory Server indexes (yes/no). Default: yes Your value:
-R yes   no	Reindex now (yes/no). Default: yes Your value:
-c Directory Server Root	Directory Server root path name. Default: <code>/var/mps/serverroot</code> Your value:

TABLE A-1 Directory Server Setup Script (comm\_dssetup.pl) Worksheet (Continued)

Silent Mode Options	Interactive Dialog and Defaults
-d Directory Server Instance	Directory Server instance subdirectory. Default: none Your value:
-r DC Root Suffix	DC Tree root suffix. Default: o=internet Your value:
-u User and Group Base Suffix	User/Group root suffix. Default: o=usergroup Your value:
-s yes no	Update schema (yes/no). Default: yes Your value:
-D Directory Manager DN	Directory Manager Distinguished Name (DN). Default: "cn=Directory Manager". Your value:
-w Directory Manager DN Password	Directory Manager DN password. Default: none. Your value:
-b yes no	Use this directory to store both configuration and user data (yes) or configuration data only (no). Default: yes Your value:
-t 1 1.5 2	Schema version: <ul style="list-style-type: none"> <li>■ Option 1 – Schema 1</li> <li>■ Option 1.5 – Schema 2 Compatibility Mode</li> <li>■ Option 2 – Schema 2 Native Mode</li> </ul> Default: 1 Your value:

TABLE A-1 Directory Server Setup Script (comm\_dssetup.pl) Worksheet (Continued)

Silent Mode Options	Interactive Dialog and Defaults
-m yes no	Do you want to modify the directory server? Default: yes no- prints out script but does not execute it.
-S PathtoSchemaFile	Path to the directory where the schema files are located. Default: ./schema Your value:



# Calendar Server Configuration Worksheet

---

This appendix contains the following worksheets to help you keep track of the information you need to run the Calendar Server configuration program, which is described in [Chapter 3](#), “Calendar Server Configuration Program (csconfigurator.sh)”

- “Administration, User Preferences and Authentication Panel Worksheet” on page 357
- “Email and Email Alarms Worksheet” on page 358
- “Runtime Configuration Worksheet” on page 359
- “Database, Logs, and Temporary Files Directories Worksheet” on page 360

## Administration, User Preferences and Authentication Panel Worksheet

TABLE B-1 Administration, User Preferences and Authentication Panel Worksheet

Option	Description
LDAP Server Host Name	Host name of the LDAP directory server you are using for user authentication. Default: current host. Your value:
LDAP Server Port	Port number that the LDAP server listens on. Default: 389. Your value:

TABLE B-1 Administration, User Preferences and Authentication Panel Worksheet (Continued)

Option	Description
Base DN	Entry in the LDAP directory used as the starting point from which searches will occur. Default: o=host . com. Your value:
Directory Manager DN	User name that can make changes in the directory server schema. Default: cn=Directory Manager. Your value:
Directory Manager Password	Password of the Directory Manager DN. Default: None Your value:
Administrator User ID	User ID of the Calendar Server Administrator. This user must be a user in the above LDAP directory server. Default: calmaster. Your value:
Administrator Password	Password of the Calendar Server Administrator. Default: None Your value:

## Email and Email Alarms Worksheet

TABLE B-2 Email and Email Alarms Worksheet

Option	Description
Email Alarms	Specifies whether Calendar Server should send an email alarm message to a Calendar Server administrator in case a server problem occurs. Default: Enabled. Your value:
Administrator Email Address	Email address of the Calendar Server Administrator who will receive the email alarm messages. Default: None. Your value:

TABLE B-2 Email and Email Alarms Worksheet (Continued)

Option	Description
SMTP Host Name	Host name of the SMTP server where email alarm messages should be sent. Default: Current host. Your value:

## Runtime Configuration Worksheet

TABLE B-3 Runtime Configuration Worksheet

Option	Description
Service Port	Port number that Calendar Server listens on to provide Web (HTTP) access to users. Default: 80. Your value:
Maximum Sessions	Maximum number of Calendar Server sessions. Default: 5000. Your value:
Maximum Threads	Maximum number of Calendar Server threads. Default: 20. Your value:
Number of Server Processes	Maximum number of Calendar Server processes. Default: Number of CPU's on the server where you are installing Calendar Server. Your value:
Runtime User ID	UNIX user name under which Calendar Server will run. Default: <code>icsuser</code> . Your value:
Runtime Group ID	UNIX group under which Calendar Server will run. Default: <code>icsgroup</code> . Your value:

TABLE B-3 Runtime Configuration Worksheet (Continued)

Option	Description
Calendar Server Startup	<p>Start after successful installation.</p> <p>Default: Checked.</p> <p>Your value:</p> <p>Start on system startup.</p> <p>Default: Checked.</p> <p>Your value:</p>

## Database, Logs, and Temporary Files Directories Worksheet

TABLE B-4 Database, Logs, and Temporary Files Directories Worksheet

Option	Description
Database Directory	<p>Directory where Calendar Server should create and store the calendar database files.</p> <p>Default: <code>/var/opt/SUNWics5/csdb</code></p> <p>Your value:</p>
Logs Directory	<p>Directory where Calendar Server writes log files.</p> <p>Default: <code>/var/opt/SUNWics5/logs</code></p> <p>Your value:</p>
Temporary Files Directory	<p>Directory where the Calendar Server writes temporary files.</p> <p>Default: <code>/var/opt/SUNWics5/tmp</code></p> <p>Your value:</p>



# High Availability (HA) Configuration Worksheets

---

To plan a high availability (HA) configuration for Calendar Server, use the following worksheets:

- “Calendar Server HA Configuration Worksheet” on page 361
- “Calendar Server Installation Worksheet” on page 362
- “Calendar Server Configuration Worksheet” on page 362

---

**Tip** – If you are viewing the HTML version of these worksheets and you want to print them, consider printing the PDF version for better control of page breaks.

---

## Calendar Server HA Configuration Worksheet

TABLE C-1 Calendar Serve HA Configuration Worksheet

Component	Value and Comments
File system mount point	For example: /global/cal Your value:
Logical Host Name	For example: cal-logical-host Your value:
Logical Host Name IP Address	Your value:
Nodes in the Cluster	For example: cal-node-1 and cal-node-2 Your value:
Calendar Resource Group Name	For example: cal-resource-group Your value:

TABLE C-1 Calendar Serve HA Configuration Worksheet (Continued)

Component	Value and Comments
Calendar Server Storage Resource	For example: cal-resource-group-store Your value:
Calendar Server Resource	For example: cal-resource Your value:

## Calendar Server Installation Worksheet

The following table lists the values you set when you install Calendar Server using the Sun Java Enterprise System installer.

TABLE C-2 Calendar Server Installation Worksheet

Component	Description and Comments
Calendar Server Installation Directory	Default value: opt/ For example: /global/cal/opt/r Your value:

## Calendar Server Configuration Worksheet

The following table lists the values you set when you run the Calendar Server configuration program (`csconfigurator.sh`).

TABLE C-3 Calendar Server Configuration Worksheet

Component	Description and Comments
LDAP Server Host Name	For example: ldaphost.sesta.com Your value:
LDAP Server Port	Port number that the LDAP server listens on. Default: 389. Your value:
Directory Manager DN	User name that can make changes in the directory server schema. Default: cn=Directory Manager. Your value:

TABLE C-3 Calendar Server Configuration Worksheet (Continued)

Component	Description and Comments
Directory Manager Password	Password of the Directory Manager DN. Default: None Your value:
Administrator User ID	User ID of the Calendar Server administrator. This user must be a user in the above LDAP directory server. Default: calmaster. Your value:
Administrator Password	Password of the Calendar Server administrator. Default: None Your value:
Email Alarms	Specifies whether Calendar Server should send an email alarm message to a Calendar Server administrator in case a server problem occurs. Default: Enabled. Your value:
Administrator Email Address	Email address of the Calendar Server administrator who will receive the email alarm messages. Default: None. Your value:
SMTP Host Name	Host name of the SMTP server where email alarm messages should be sent. Default: Current host. Your value:
Service Port	Port number that Calendar Server listens on to provide Web (HTTP) access to users. Default: 80. Your value:
Maximum Sessions	Maximum number of Calendar Server sessions. Default: 5000. Your value:

TABLE C-3 Calendar Server Configuration Worksheet (Continued)

Component	Description and Comments
Maximum Threads	Maximum number of Calendar Server threads. Default: 20. Your value:
Number of Server Processes	Maximum number of Calendar Server processes. Default: Number of CPU's on the server where you are installing Calendar Server. Your value:
Runtime User ID	Default value: icsuser For an HA configuration, add to <code>/etc/passwd</code> on all nodes in the cluster. Your value:
Runtime Group ID	Default value: icsgroup For an HA configuration, add to <code>/etc/group</code> on all nodes in the cluster. Your value:
Calendar Server Startup	Start after successful installation. Default: Checked. Your value: For an HA configuration, do <b>not</b> check this option. Start on system startup. Default: Checked. Your value: For an HA configuration, do <b>not</b> check this option.
Database Directory	Default: <code>var/opt/SUNWics5/csdb</code> For example: <code>/global/cal/var/opt/SUNWics5/csdb</code> Your value:
Logs Directory	Default: <code>var/opt/SUNWics5/logs</code> For example: <code>/global/cal/var/opt/SUNWics5/logs</code> Your value
Temporary Files Directory	Default: <code>var/opt/SUNWics5/tmp</code> For example: <code>/global/cal/var/opt/SUNWics5/tmp</code> Your value:

## Calendar Server Command-Line Utilities Reference

---

“csattribute” on page 369	“csexport” on page 393	“csschedule” on page 408
“csbackup” on page 371	“csimport” on page 394	“csstats” on page 411
“cscal” on page 373	“csmonitor” on page 396	“cstool” on page 413
“csclean” on page 377	“csplugin” on page 397	“csuser” on page 415
“cscomponents” on page 379	“cspurge” on page 399	“start-cal” on page 419
“csdb” on page 380	“csrename” on page 401	“stop-cal” on page 420
“csdomain” on page 383	“csresource” on page 403	
	“csrestore” on page 406	

For a short description of each utility, see “[Short Description of Command-Line Utilities](#)” on page 367.

Calendar Server provides command-line utilities not included in the Delegated Administrator bundled with Access Manager.

These Calendar Server utilities can be invoked from batch, shell, and scripting programs such as Perl. Some of these utilities (`csuser`, `csresource` and `csdomain`) have been superseded by the Delegated Administrator utility, but the rest are still used, even in a Schema 2 environment. For Schema 1, you must continue to use `csuser`, `csresource` and `csdomain`, and not use Delegated Administrator.

If needed, these utilities use default values from the `ics.conf` configuration file.

The command-line utilities are located in the following directory:  
`cal_svr_base/SUNWics5/cal/sbin`

All of the utilities must be started from the `sbin` directory, with the exception of `start-cal` and `stop-cal` which can be run from any directory, if the full path is specified.

---

**Note** – Error messages from these administrative tools are written to the `admin.log` file found in the `csdb` directory.

---

This chapter provides the following information:

- “Running the Command-Line Utilities” on page 366
  - “Syntax for Command-Line Utilities” on page 366
  - “Usage Rules for Command-Line Utilities” on page 367
  - “Return Code in Scripts” on page 367
  - “Short Description of Command-Line Utilities” on page 367

## Running the Command-Line Utilities

Run the command-line utilities while logged in as the user and group where Calendar Server is running, or as root. This was specified during installation; the defaults are `icsuser` and `icsgroup`.

For example, if your Calendar Server base directory is `cal_svr_base`, to run the `cscal` utility `list` command, you would do the following after logging in:

```
cd cal_svr_base/SUNWics5/cal/sbin
./cscal list
```

## Syntax for Command-Line Utilities

Calendar Server command-line utilities use the following syntax:

```
utility [ -option [value]] command [target]
```

where:

`utility` is the executable name of the utility, such as `cscal` or `csuser`.

`option` determines which action the command performs. Options are in lowercase and preceded by a hyphen (`-`), such as `-d`. An option enclosed in brackets (`[]`) is optional. If indicated, of two or more options can be used at the same time.

`value` further qualifies the action specified by `option`, such as a description used with the `-d` option. A value enclosed in brackets (`[]`) is optional. Values that include spaces must be enclosed in quotation marks (`" "`). Multiple values must be enclosed in quotation marks (`" "`), and each value must be separated by a space, unless indicated otherwise, such as the use of a semicolon delimited list.

command is an action the utility performs such as `list` or `create`. Commands separated by a vertical bar (|) indicate that either one (but not both) can be used at the same time.

target is the object on which the command takes effect, such as a calendar ID or user ID.

## Usage Rules for Command-Line Utilities

The following rules are general usage guidelines for the command line utilities:

- If you specify only the utility name, it lists all commands, options, and several examples.
- If you do not specify a required password, the utility prompts you for it.
- The `-v` (verbose) and `-q` (quiet) options are available for each utility.
- If a command is dangerous (that is, one that could cause a data loss), the utility prompts for confirmation before executing the command. Examples of dangerous commands are `cscal`, which can delete a calendar, and `csuser`, which can delete a user. The `-q` (quiet) option, however, disables confirmation prompting.
- The `version` command is available for each utility.

## Return Code in Scripts

If you run the command-line utilities from a script, the return code is “0” if the utility run successfully or “-1” for a failure.

# Short Description of Command-Line Utilities

The following table gives a short description the Calendar Server command-line utilities.

TABLE D-1 Calendar Server Command-Line Utilities Summary

Utility	Description
<a href="#">“csattribute” on page 369</a>	Manages the LDAP attributes of a calendar user or resource.
<a href="#">“csbackup” on page 371</a>	Backs up individual calendars, users, and the calendar database.
<a href="#">“cscal” on page 373</a>	Manages calendars and their properties.
<a href="#">“csclean” on page 377</a>	Removes user and resource calendars for Calendar Server users whose status attribute (inetUserStatus) has been marked as “deleted” by Delegated Administrator.

TABLE D-1 Calendar Server Command-Line Utilities Summary (Continued)

Utility	Description
“cscomponents” on page 379	Manages calendar components: events and tasks (todos).
“csdb” on page 380	Manages the calendar database.
“csdomain” on page 383	Manages Calendar Server attributes in the LDAP directory for a hosted (virtual) domain.
“csexport” on page 393	Exports a calendar in iCalendar (.ics) or XML (.xml) format.
“csimport” on page 394	Imports a calendar in iCalendar (.ics) or XML (.xml) format.
“csmonitor” on page 396	Monitors LDAP connectivity, log files, and available disk space for the calendar database.
“csplugin” on page 397	Views, enables, or disables configured Calendar Server API (CSAPI) plug-ins.
“cspurge” on page 399	Allows the manual purge of entries in the Delete Log database (ics50deletelog.db).
“csrename” on page 401	Allows the renaming of user ID's. Causes the whole database to be rewritten.
“csresource” on page 403	Manages calendar resources such as conference rooms and equipment.
“csrestore” on page 406	Restores individual calendars, users, and the calendar database.
“csschedule” on page 408	Manages scheduling entries in the Group Scheduling Engine (GSE) queue.
“csstats” on page 411	Displays counters in a Calendar Server.
“cstool” on page 413	Pings a running Calendar Server instance.
“csuser” on page 415	Manages calendar users.
“start-cal” on page 419	Starts all Calendar Server processes.
“stop-cal” on page 420	Stops all Calendar Server processes.



# csattribute

The `csattribute` utility manages Calendar Server user or resource LDAP entry attributes. Commands are:

- add an LDAP attribute and value to a specified target (user or resource object).
- list the attributes of a target object.
- delete an attribute from a target.

---

**Note** – If your site is using the LDAP CLD plug-in, do not use `csattribute` to change the `icsDWPHost` attribute when trying to specify a new back-end host server. Modifying `icsDWPHost` does not cause a new calendar to be created on the new back-end host. For more information, see [Chapter 6, “Configuring Calendar Database Distribution Across Multiple Machines”](#)

---

## Requirements

- Calendar Server can be running or stopped.
- You must be logged in as the user or group under which Calendar Server is running (such as `icsuser` and `icsgroup`) that was specified during installation, or as `root`.

## Syntax

```
csattribute [-q|-v]
            -a attribute=value
            [-t resource | user]
            [-d domain]
            add target
```

```
csattribute [-q|-v]
            -a attribute[=value]
            [-t resource | user]
            [-d domain]
            delete target
```

```
csattribute [-q | -v]
            [-t resource | user]
            [-d domain]
            list target
```

The following table describes the commands available for `csattribute`.

TABLE D-2 csattribute Utility Commands

Command	Description
<code>add target</code>	Adds an LDAP attribute and value to a specified target (user or resource object).
<code>list target</code>	Lists the attributes of a target object.
<code>delete target</code>	Deletes an attribute from a target.
<code>version</code>	Displays the version of the utility.

The following table describes the `csattribute` utility command options.

TABLE D-3 csattribute Utility Command Options

Option	Description
<code>-v</code>	Run in verbose mode: Display all available information about the command being performed. Default is off.
<code>-q</code>	Run in quiet mode: <ul style="list-style-type: none"> <li>■ Display no information if the operation is successful (errors, if they occur, are displayed).</li> <li>■ Suppress confirmation prompting for dangerous commands. Default is off.</li> </ul>
<code>-a attribute =value</code> or <code>-a attribute [=value ]</code>	An LDAP attribute and value: <ul style="list-style-type: none"> <li>■ <code>attribute</code> is required when using the <code>-a</code> option.</li> <li>■ <code>value</code> is required when the <code>-a</code> option is used with the <code>add</code> command, but it is optional when the <code>-a</code> option is used with the <code>delete</code> and <code>list</code> commands.</li> </ul>
<code>-t user   resource</code>	Type of target (user or resource object). Default is user.
<code>[-d domain]</code>	Specifies the name of a hosted (virtual) domain. Default is taken from the <code>service.defaultdomain</code> parameter in the <code>ics.conf</code> file.

## Examples

- Add the `icsCalendar` LDAP attribute with the value `tchang` to the user ID `tchang`:

```
csattribute -a icsCalendar=tchang add tchang
```

- Delete the LDAP attribute `icsCalendar` from `tchang`:

```
csattribute -a icsCalendar delete tchang
```

- Display the attributes of `tchang`:

```
csattribute list tchang
```

# csbackup

The `csbackup` utility backs up the calendar database, a specified calendar, or a user's default calendar. Commands are:

- `database` to backup the calendar database.
- `calendar` to backup a specified calendar.
- `defcal` to backup a user's default calendar.
- `version` displays the version number of the utility currently installed.

The `caldb.conf` version file located in the specified backup directory shows the version number of the database that was backed up.

For information about `csrestore`, see “[csrestore](#)” on page 406.

## Requirements

- Calendar Server can be running or stopped.
- You must run the utility locally on the machine where Calendar Server is installed.
- You must be logged in as the user and group under which Calendar Server is running (such as `icsuser` and `icsgroup`) that was specified during installation, or as `root`.

## Syntax

```
csbackup [-q] [-v]
          -f database target
```

```
csbackup [-q] [-v]
          -c calid
          calendar target
```

```
csbackup [-q] [-v]
          -a userid
          [-b basedn]
          defcal target
```

The following table describes the commands available for `csbackup`.

TABLE D-4 csbackup Utility Commands

Command	Description
<code>database target</code>	<p>Backs up the calendar database to the specified target database directory. By default, the target database directory is:</p> <pre>cal_svr_base/SUNWics5/cal/sbin/target-directory</pre> <p>If you specify only the target database directory, do not include the slash (/) before the directory name. For example:</p> <pre>csbackup database backupdir</pre> <p>Note: The csbackup utility fails if the target backup directory already exists and you do not specify the -f option. For example, the following command fails if backupdir exists, even if the directory is empty:</p> <pre>csbackup database backupdir</pre> <p>Therefore, if you specify a target backup directory that already exists, include the -f option when you run csbackup.</p> <p>You can also specify a nonexistent target backup directory and let csbackup create the directory for you.</p>
<code>calendar calid target</code>	Backs up the specified calendar ID to the specified target output file. The data format of the file is assumed by the file extension, .ics for text/calendar or .xml for text/xml.
<code>defcal userid target</code>	Backs up the default calendar of the specified user ID to the specified target file. The data format of the file is assumed by the file extension, .ics for text/calendar and .xml for text/xml.
<code>version</code>	Displays the version of the utility.

The following table describes the csbackup utility command options.

TABLE D-5 csbackup Utility Command Options

Option	Description
-v	Run in verbose mode: Display all available information about the command being performed. Default is off.
-q	Run in quiet mode: <ul style="list-style-type: none"> <li>■ Display no information if the operation is successful (errors, if they occur, are displayed).</li> <li>■ Suppress confirmation prompting for dangerous commands. Default is off.</li> </ul>
-a <i>userid</i>	The user ID of the calendar user to backup. This option is required for the default option. There is no default.

TABLE D-5 csbackup Utility Command Options (Continued)

Option	Description
-b <i>basedn</i>	<p>The base DN to be used for this user. The default is taken from the setting <code>local.ugldapbasedn</code> defined in the <code>ics.conf</code> file.</p> <p>The Base DN (distinguished name) is the entry in your LDAP directory used as the starting point from which searches occur.</p> <p>For example, if you specify a base DN of <code>ou=people, o=sesta.com</code>, all LDAP search operations executed by Calendar Server examine only the <code>ou=people</code> subtree in the <code>o=sesta.com</code> directory tree.</p>
-c <i>calid</i>	<p>The calendar ID to backup. This option is required with the <code>calendar</code> command. There is no default.</p> <p>For more information, see “<a href="#">Creating Calendar Unique Identifiers (calid’s)</a>” on page 260.</p>
-f	<p>To force any existing backup files to be deleted.</p> <p>In the current release, you must include the <code>-f</code> option if the backup target directory already exists, even if the directory is empty.</p>
-l	<p>To prepare the backup file for use with the Solstice™ Backup™ or the Legato Networker™ backup programs. For more information, see <a href="#">Chapter 17, “Backing Up and Restoring Calendar Server Data.”</a></p>

## Examples

- Backup the calendar database to a directory named `backupdir`:  
`csbackup database backupdir`
- Backup the calendar with the calendar ID `tchang` to the file `tchang.ics` as `text/calendar`:  
`csbackup -c tchang calendar tchang.ics`
- Backup the default calendar for `tchang` to the file `tchang.xml` as `text/xml`:  
`csbackup -a tchang defcal tchang.xml`

## cscal

The `cscal` utility manages calendars and their properties. Commands are:

- `create` a calendar
- `delete` a calendar
- `disable` a calendar
- `enable` a calendar
- `list` calendars
- `modify` calendar properties and group scheduling access control
- `reset` calendar properties to the default settings
- `version` displays the version number of the utility currently installed

## Requirements

- You must run the utility locally on the machine where Calendar Server is installed.
- Calendar Server can be running or stopped.
- You must be logged in as the user and group under which Calendar Server is running (such as `icsuser` and `icsgroup`) that was specified during installation, or as `root`.

## Syntax

```
cscal [-q|-v]
      [-a aces]
      [-c charset]
      [-d description]
      [-g categories]
      [-k yes|no]
      [-l langcode]
      [-m email]
      [-n name]
      [-o owner's uid]
      [-y otherowners]
      create|modify calid
```

```
cscal [-q|-v]
      [-o owner's uid]
      [-O]
      delete|reset calid
```

```
cscal [-q|-v]
      [-o owner's uid]
      [-O]
      disable|list [calid]
```

```
cscal [-q|-v]
      [-k yes|no]
      [-o owner's uid]
      [-O]
      enable [calid]
```

---

**Note** – Despite the fact that `cscal` does not check case when you enter the `-o` (owner's uid), the search is case insensitive.

---

The following table describes the commands available for the `cscal` utility.

TABLE D-6 cscal Utility Commands

Command	Description
<code>create calid</code>	Creates the calendar specified by <i>calid</i> .  <b>Note:</b> If your site is using the LDAP CLD plug-in, all calendars for a specific user must reside on the same back-end server, as indicated by the user's <code>icsDWPHost</code> LDAP attribute. If you try to create a calendar for the user on a different back-end server, Calendar Server returns an error.
<code>delete calid</code>	Deletes the calendar specified by <i>calid</i> .  If the <code>-o owner</code> option is specified, deletes all calendars whose primary owner is the specified uid.
<code>enable [calid]</code>	Enables the calendar specified by <i>calid</i> . If <i>calid</i> is not specified, enables all calendars.  If the <code>-o owner</code> option is specified, enables all calendars whose primary owner is the specified uid.
<code>disable [calid]</code>	Disables the calendar specified by <i>calid</i> . If <i>calid</i> is not specified, disables all calendars.  If the <code>-o owner</code> option is specified, disables all calendars whose primary owner is the specified uid.
<code>list [calid]</code>	Lists properties of the calendar specified by <i>calid</i> . If <i>calid</i> is not specified, lists properties of all calendars.  If the <code>-o owner's uid</code> option is specified, lists all calendars whose primary owner is the specified owner uid.  <b>Note</b> – ACE string permissions modified in the Calendar Express user interface may appear capitalized in the list command output. This has no significance. The ACE strings are case insensitive.
<code>modify calid</code>	Modifies the properties of the calendar specified by <i>calid</i> .
<code>reset calid</code>	Resets the properties of the calendar specified by <i>calid</i> to the default configuration settings.
<code>version</code>	Displays the version of the utility.

The following table describes the `cscal` utility command options.

TABLE D-7 cscal Utility Command Options

Option	Description
<code>-v</code>	Run in verbose mode: Display all available information about the command being performed. Default is off.
<code>-q</code>	Run in quiet mode: <ul style="list-style-type: none"> <li>■ Display no information if the operation is successful (errors, if they occur, are displayed).</li> <li>■ Suppress confirmation prompting for dangerous commands. Default is off.</li> </ul>

TABLE D-7 cscal Utility Command Options (Continued)

Option	Description
-a [ <i>aces</i> ]	Access Control Entries (ACE's) for a specified calendar. ACE's determine who can access a calendar for group scheduling and the types of permissions they have, such as create, delete, read, and write privileges. An ACE string or Access Control List (ACL), must be enclosed in quotation marks (" ").  The default is the <code>calstore.calendar.default.acl</code> parameter in the <code>ics.conf</code> file.  For details about the ACE format, see "Calendar Access Control" on page 47.
-c <i>charset</i>	Character set. The default is no character set.
-d <i>description</i>	Description (a viewable comment about the purpose of the calendar). The default is no description.
-g <i>category</i>	Category. Multiple categories must be enclosed in quotation marks (" ") and separated by spaces. The default is no category.
-k <i>yes no</i>	Specifies whether double booking is allowed for a user calendar. For example, yes means the calendar can have more than one event scheduled for the same time slot.  If the -k option is omitted, the default is taken from the <code>user.allow.doublebook</code> parameter in the <code>ics.conf</code> file. However, the <code>user.allow.doublebook</code> parameter is used only when a calendar is created.  After a calendar is created, Calendar Server checks the calendar properties database, <code>ics50calprops.db</code> , to determine if doublebooking is allowed. If you need to change the calendar properties for a calendar to allow or disallow doublebooking, reissue <code>cscal</code> with the -k option.
-l <i>langcode</i>	Language code. The default is no language code.
-m <i>email</i>	Email address. The default is no email.
-n <i>name</i>	Name. The default is no name.
-o <i>owner</i>	Primary owner. The default setting is the calendar ID ( <code>calid</code> ), which is usually the same as the user ID.
-O	Specifies all calendars of the primary owner. Default is the named calendar only.
-y <i>otherowners</i>	Other calendar owners. Multiple owners must be enclosed in quotation marks (" ") and separated by spaces. The default is no other owners.

## Examples

- Create the calendar with the calendar ID `tchang` with `tchang` as the primary owner with the visible name `Public_Calendar` using the default access control settings (as defined by `calstore.calendar.default.acl` in the `ics.conf` file):

```
cscal -o tchang -n Public_Calendar create tchang
```

- Modify calendar `chang` so that anyone has read and write access, it is associated with the category `sports`, and it is co-owned by `jsmith@sesta.com`:

```
cscal -a "@^a^rw^g" -g sports -y jsmith@sesta.com modify tchang
```



- Disable the calendar with the calendar ID `tchang` (users will not be allowed to read, write to, or locate it using the user interface):  
`cscal disable tchang`
- Enable the calendar with the calendar ID `tchang` (users are allowed to read or write to it using the user interface), but it does not allow doublebooking:  
`cscal -k no enable tchang`
- List the properties of `tchang`:  
`cscal list tchang`
- List all the properties of `tchang`:  
`cscal -v list tchang`
- List all the calendars in the database:  
`cscal list`
- Reset the calendar with the calendar ID `tchang` to the default configuration settings:  
`cscal reset tchang`
- Remove a description from the calendar with the calendar ID `tchang`:  
`cscal -d "" modify tchang`
- Remove all categories from the calendar with the calendar ID `tchang`:  
`cscal -g "" modify tchang`
- Remove other owners from the calendar with the calendar ID `tchang`:  
`cscal -y "" modify tchang`
- Delete `tchang` from the calendar database:  
`cscal delete tchang`
- Delete all calendars from the calendar database whose primary owner is `tchang`:  
`cscal -o tchang delete`

## csclean

The `csclean` utility only works in Schema 2 hosted domain mode. It removes user and resource calendars for users whose status attribute (`icsStatus`) has been marked as “deleted” by Delegated Administrator.

For Schema 1 and non-hosted domain mode, use `csuser` and `cscal` to remove all of the calendars for a deleted user.

## Requirements

- You must be using Schema 2 hosted domains.
- Calendar Server can be running or stopped.
- You must run `csclean` locally on the machine where Calendar Server is installed.
- You must be logged in as the user and group under which Calendar Server is running (such as `icsuser` and `icsgroup`) that was specified during installation, or as `root`.

## Syntax

```
csclean [-q | -v]
        [-g graceperiod]
        cclean domain
```

The following table describes the `csclean` utility command options.

TABLE D-8 csclean Utility Command Options

Option	Description
<code>-q</code>	Run in quiet mode: <ul style="list-style-type: none"> <li>▪ Display no information if the operation is successful (errors, if they occur, are displayed).</li> <li>▪ Suppress confirmation prompting for dangerous commands. Default is off.</li> </ul>
<code>-v</code>	Run in verbose mode: Display all available information about the command being performed. Default is off.
<code>-g <i>graceperiod</i></code>	Specifies the number of days to have elapsed since the calendar service was deleted for a user.  The default is 10 days.
<i>domain</i>	Specifies the domain in which to remove calendars for all users and resources.  An asterisk (*) removes all calendars for all users and resources in all domains.

## Examples

- Remove calendars for all users and resources in `sesta.com` whose calendar service has been deleted for at least 5 days:

```
csclean -g 5 cclean sesta.com
```

- Remove calendars for all users and resources in all domains whose calendar service has been deleted for at least 10 days:

```
csclean clean "*"

```

## cscomponents

The `cscomponents` utility manages calendar components: events and tasks (todos). Commands are:

- `delete` events and tasks in a calendar.
- `list` events and tasks in a calendar.
- `version` displays the version number of the utility currently installed.

## Requirements

- You must run the utility locally on the machine where Calendar Server is installed.
- Calendar Server can be running or stopped.
- You must be logged in as the user and group under which Calendar Server is running (such as `icsuser` and `icsgroup`) that was specified during installation, or as `root`.

## Syntax

```
cscomponents [-v|-q]
              [-e endtime]
              [-s starttime]
              [-t event|task]
              delete|list calid

```

The following table describes the commands available for the `cscomponents` utility.

TABLED-9 cscomponents Utility Commands

Command	Description
<code>delete <i>calid</i></code>	Deletes events and tasks in the calendar with the specified calendar ID.  <b>Note</b> – When deleting tasks, you must specify the <code>-s</code> option with an actual DateTime Z String specifying the starting date for removal. If you do not specify a date, or you specify zero (0) as the value for the option, all tasks will be deleted from the calendar.
<code>list <i>calid</i></code>	Lists events and tasks in the calendar with the specified calendar ID.

TABLE D-9 cscomponents Utility Commands (Continued)

Command	Description
version	Prints the version of the utility to the screen.

The following table describes the cscomponents utility command options.

TABLE D-10 cscomponents Utility Command Options

Option	Description
-v	Run in verbose mode: Display all available information about the command being performed. Default is off.
-q	Run in quiet mode: <ul style="list-style-type: none"> <li>▪ Display no information if the operation is successful (errors, if they occur, are displayed).</li> <li>▪ Suppress confirmation prompting for dangerous commands. Default is off.</li> </ul>
-e <i>endtime</i>	Ending time of the components. An end time of 0 means to the end of time. The default is 0.
-s <i>starttime</i>	Starting time of the components. A start time of 0 means from the beginning of time. The default is 0. <b>Note</b> - For tasks only, you must specify this option and the starting date specified must be a DateTime Z String. If the option is not specified, or the option is specified but the value is set to zero, all tasks for this calendar will be deleted.
-t <i>event   task</i>	Type of components (events or tasks) on which the action is performed. Default is both.

## Examples

- Delete all 2000 events in the calendar with the calendar ID tchang:  
cscomponents -s 20000101T000000Z -e 20001231T000000Z delete tchang
- List all events and tasks with details in the calendar with the calendar ID tchang:  
cscomponents -v list tchang

## csdb

The csdb utility manages the calendar databases (calendar, session, and statistics). Commands are:

- create a new database. (If a database does not exist when the server is started, Calendar Server creates one automatically.)
- delete an existing calendar database. A database cannot be deleted while it is open (when Calendar Server is running).

- list information about the database.
- check a calendar database to determine if any corruption has occurred.
- rebuild a corrupted calendar database.
- recover a damaged calendar database.
- version displays the version number of the utility currently installed.

## Requirements

- You must run the utility locally on the machine where Calendar Server is installed.
- Calendar Server must be stopped for the create, delete, or rebuild commands.
- You must be logged in as the user and group under which Calendar Server is running (such as icsuser and icsgroup) that was specified during installation, or as root.

## Syntax

```
csdb [-q|-v]
      [-t caldb|sessdb|statdb]
      create|delete [dbdir]
```

```
csdb [-q|-v]
      [-t caldb|sessdb|statdb]
      list [dbdir]
```

```
csdb [-q|-v]
      [-f]
      [-t caldb|sessdb|statdb]
      recover [dbdir]
```

```
csdb check [dbdir]
```

```
csdb rebuild [-a, -V]
             [-g] [dbdir [stdir]]
```

The following table describes the commands available for the csdb utility.

TABLE D-11 csdb Utility Commands

Command	Description
create [ <i>dbdir</i> ]	Creates the databases in the specified database directory. If a database directory is not specified, the current directory is used. If a database does not exist when the server is started, Calendar Server creates one automatically.

TABLE D-11 csdb Utility Commands (Continued)

Command	Description
delete [dbdir]	Deletes the databases in the specified database directory. If a database directory is not specified, the current directory is used. A database cannot be deleted while it is open (when Calendar Server is running).
list [dbdir]	Lists information about the databases in the specified database directory. If a database directory is not specified, the current directory is used.
recover [dbdir]	Attempts to recover damaged calendar databases in the specified database directory. If a database directory is not specified, the current directory is used. Is not implemented for session or statistics databases.
check [dbdir]	Scans a calendar database in the specified database directory to determine if any corruption has occurred and reports the results in its output. If a database directory is not specified, the current directory is used.
rebuild [dbdir [dstdir]]	Scans all calendar databases in the specified database directory to determine if any corruption has occurred and generates a rebuilt calendar database (.db files). If a database directory is not specified, the current directory is used. After the databases are rebuilt, <code>db_verify</code> runs.  The <i>dstdir</i> specifies an optional destination directory.
version	Displays the version of the utility.

The following table describes the csdb utility command options.

TABLE D-12 csdb Utility Command Options

Option	Description
-a	For <code>rebuild</code> command only, rebuilds only the alarms database.
-V	Must be passed in with <code>-a</code> for rebuilding the alarms database. Causes <code>verify</code> to be run against all databases, including alarms.
-v	Run in verbose mode: Display all available information about the command being performed. Default is off.
-q	Run in quiet mode: <ul style="list-style-type: none"> <li>■ Display no information if the operation is successful (errors, if they occur, are displayed).</li> <li>■ Suppress confirmation prompting for dangerous commands. Default is off.</li> </ul>
-f	Force the recovery of the calendar database.
-g	For the <code>rebuild</code> command, rebuild the group scheduling engine (GSE) database in addition to the other calendar databases.

TABLE D-12 csdb Utility Command Options (Continued)

Option	Description
-t caldb sessdb statdb	Specifies the target database group: <ul style="list-style-type: none"> <li>■ caldb (calendar)</li> <li>■ sessdb (session)</li> <li>■ statdb (statistics)</li> </ul> Note: If -t is not specified, csdb operates on all database groups, except for the check, recover and rebuild commands, which operate only on caldb (calendar).

## Examples

- Create new, unpopulated databases in the current directory:  
csdb -t caldb create
- Delete the databases in the current directory:  
csdb -t caldb delete
- List information about the calendar database in the current directory:  
csdb -v -t caldb list
- Attempt to recover all damaged databases in the current directory:  
csdb recover
- List information about the sessions database in the current directory:  
csdb -t sessdb list
- Rebuild the alarms database only:  
csdb -a -V rebuild

## csdomain

The `csdomain` utility manages Calendar Server attributes in the LDAP directory for a hosted (virtual) domain. These attributes are part of the `icsCalendarDomain` object class. Commands are:

- create a new hosted domain in the LDAP directory.
- add a Calendar Server attribute and its associated value in the LDAP directory for a specific hosted domain.
- delete a Calendar Server attribute in the LDAP directory for a specific hosted domain or delete an entire hosted domain.
- list Calendar Server attributes in the LDAP directory for a specific hosted domain.

## Requirements

- You must be in hosted (virtual) domain mode to run `csdomain`. That is, the following parameters in the `ics.conf` file must be set:
  - `service.virtualdomain.support` must be set to “yes”.
  - `local.schemaversion` must be set to the version of the LDAP schema (“1”, “1.5”, or “2”).
    - If `local.schemaversion` = “1” or “1.5”, `service.dcreport` must be set to the root suffix of the DC tree in the LDAP directory.
    - If `local.schemaversion` = “2”, `service.schema2root` must be set to the root suffix underneath which all domains are found.
  - You must have followed the instructions in [Chapter 11, “Setting Up Hosted Domains”](#) before using `csdomain` to add Organization Tree nodes.

You must run `csdomain` locally on the machine where Calendar Server is installed.

Calendar Server can be running or stopped.

- You must be logged in as the user and group under which Calendar Server is running (such as `icsuser` and `icsgroup`) that was specified during installation, or as `root`.

## Syntax

```
csdomain [-q | -v]
          -n node
          create domain
```

```
csdomain [-q | -v]
          {-a attr[=value] |
          -f filename}
          add domain
```

```
csdomain [-q | -v]
          [-a attr |
          -f filename]
          delete domain
```

```
csdomain [-q | -v]
          list domain
```

The following table describes the commands available for the `csdomain` utility.



TABLE D-13 csdomain Utility Commands

Command	Description
create	Create a new hosted domain in the LDAP directory. All Calendar Server users and resources for the domain are then created under this entry in the directory.
add	Add a Calendar Server attribute and its associated value in the LDAP directory for a specific domain. If you add or update domain LDAP attributes using csdomain, restart Calendar Server for the new values to take effect.
delete	Delete a Calendar Server attribute in the LDAP directory for a specific hosted domain or delete all LDAP entries for an entire domain.
list	Display Calendar Server attributes in the LDAP directory for a specific domain.
version	Display the version of the utility.

The following table describes the csdomain utility command options.

TABLE D-14 csdomain Utility Command Options

Option	Description
-v	Run in verbose mode: Display all available information about the command being performed. Default is off.
-q	Run in quiet mode: <ul style="list-style-type: none"> <li>■ Display no information if the operation is successful (errors, if they occur, are displayed).</li> <li>■ Suppress confirmation prompting for dangerous commands.</li> </ul> Default is off.
-a <i>attr</i> [= <i>value</i> ]	Specifies the LDAP attribute property name and its optional value. For a list of these attributes and property names, see <a href="#">“LDAP Attributes and Property Names” on page 386</a> .
-f <i>filename</i>	Specifies a text file that contains Calendar Server LDAP directory property names and their associated values.  For example: <pre>createLowerCase="yes" filterPrivateEvents="no" fbIncludeDefCal="no" subIncludeDefCal="no" uiProxyUrl="https://proxyserver"</pre>

TABLE D-14 csdomain Utility Command Options (Continued)

Option	Description
<i>-n node</i>	Applies to the create command as follows: <ul style="list-style-type: none"> <li>■ For LDAP Schema 1 – Specifies the node under which all users and resources are created. For example: <code>o=node2,o=node1,o=sesta</code></li> <li>■ For LDAP Schema 2 – Specifies the name of the node created for this domain. For example: <code>o=west.sesta.com</code>. If node is not specified, the domain name is used.</li> </ul>
<i>domain</i>	For the add, delete, and list commands, specifies an existing domain in the LDAP directory.  For the create command, specifies the unique name of a new domain that will be created in the LDAP directory.  For example: <code>west.sesta.com</code>

## LDAP Attributes and Property Names

The following tables describe the LDAP attributes and property names that apply to the `csdomain` utility. These attributes are part of the `icsCalendarDomain` object class. When you add or delete a value, you must use the property name and not the attribute name.

- [“icsAllowRights Attribute: csdomain Utility” on page 386](#)
- [“icsExtendedDomainPrefs Attribute: csdomain Utility” on page 388](#)
- [“Other LDAP Directory Attributes: csdomain Utility” on page 391](#)

If you add or update domain LDAP attributes using `csdomain`, restart Calendar Server for the new values to take effect.

### icsAllowRights Attribute: csdomain Utility

“[LDAP Attributes and Property Names](#)” on page 386 describes the `icsAllowRights` attribute and properties that you can set with the `csdomain` utility. This attribute is a 32-bit numeric string, with each bit in the string corresponding to a specific user right. (In the current release, some bits are not used and are set to zero by default.) If a bit corresponding to a specific right is set (value=1), the right is not allowed. If the bit is not set (value=0), the right is allowed.

Each property in the `icsAllowRights` attribute has a corresponding `ics.conf` parameter. If a property is not set (value = 0) or is not present (`service.virtualdomain.support = “no”`), Calendar Server uses the corresponding `ics.conf` parameter as the default value.

The value for `icsAllowRights` is a numeric string and not an integer. To use `icsAllowRights` programmatically in bitwise operations, you must first convert its string value to an integer.

TABLE D-15 icsAllowRights LDAP Directory Attribute and Properties

Bit	Property Name	Description
0	allowCalendarCreation	If set (bit 0=1), do not allow calendars to be created.  Corresponding ics.conf parameter: service.wcap.allowcreatecalendars
1	allowCalendarDeletion	If set (bit 1=1), do not allow calendars to be deleted.  Corresponding ics.conf parameter: service.wcap.allowdeletecalendars
2	allowPublicWritableCalendars	If set (bit 2=1), do not allow public writable calendars.  Corresponding ics.conf parameter: service.wcap.allowpublicwriteablecalendars
3		Not used in the current release.
4	allowModifyUserPreferences	If set (bit 4=1), do not allow domain administrators to get or set user preferences using WCAP commands.  Corresponding ics.conf parameter: service.admin.calmaster.wcap.allowgetmodifyuserprefs
5	allowModifyPassword	If set (bit 5=1), do not allow user to change password via this server.  Corresponding ics.conf parameter: service.wcap.allowchangepassword
6		Not used in the current release.
7		Not used in the current release.
8	allowUserDoubleBook	If set (bit 8=1), do not allow double booking for user's calendars.  Corresponding ics.conf parameter: user.allow.doublebook
9	allowResourceDoubleBook	If set (bit 9=1), do not allow double booking for resource calendars.  Corresponding ics.conf parameter: resource.allow.doublebook
10	allowSetCn	If set (bit 10=1), do not allow user to set the common name (cn) attribute using the WCAP set_userprefs command.  Corresponding ics.conf parameter: service.wcap.allowsetprefs.cn

TABLE D-15 icsAllowRights LDAP Directory Attribute and Properties (Continued)

Bit	Property Name	Description
11	allowSetGivenName	If set (bit 11=1), do not allow user to set the givenName attribute using the WCAP set_userprefs command.  Corresponding ics.conf parameter: service.wcap.allowsetprefs.givename
12	allowSetGivenMail	If set (bit 12=1), do not allow user to set the mail attribute using the WCAP set_userprefs command.  Corresponding ics.conf parameter: service.wcap.allowsetprefs.mail
13	allowSetPrefLang	If set (bit 13=1), do not allow user to set the preferredLanguage attribute using the WCAP set_userprefs command.  Corresponding ics.conf parameter: service.wcap.allowsetprefs.preferredlanguage
14	allowSetSn	If set (bit 14=1), do not allow user to set the surname (sn) attribute using the WCAP set_userprefs command.  Corresponding ics.conf parameter: service.wcap.allowsetprefs.sn
15-31		Not used in the current release.

## icsExtendedDomainPrefs Attribute: csdomain Utility

The following table describes the icsExtendedDomainPrefs attribute and properties that you can set with the csdomain utility. Each property has a corresponding ics.conf parameter. If a property is not set (value = 0, service.virtualdomain.support="no"), or is not present, Calendar Server uses the corresponding ics.conf parameter as the default value.

TABLE D-16 icsExtendedDomainPrefs LDAP Directory Attribute

Property Name	Description
allowProxyLogin	Specifies "yes" or "no" whether to allow proxy logins.  Corresponding ics.conf parameter: service.http.allowadminproxy (default = "no")

TABLE D-16 icsExtendedDomainPrefs LDAP Directory Attribute (Continued)

Property Name	Description
calmasterAccessOverride	<p>Specifies "yes" or "no" whether the Calendar Server administrator can override access control.</p> <p>Corresponding ics.conf parameter: service.admin.calmaster.overrides.accesscontrol (default = "no")</p>
calmasterCred	<p>Specifies an ASCII string that is the password of the user ID specified as the Calendar Server domain administrator.</p> <p>Corresponding ics.conf parameter: service.admin.calmaster.cred (no default)</p>
calmasterUid	<p>Specifies an ASCII string that is the user ID of the person designated as the Calendar Server domain administrator.</p> <p>Corresponding ics.conf parameter: service.admin.calmaster.userid (no default)</p>
createLowercase	<p>Specifies "yes" or "no" whether Calendar Server should convert a calendar ID (calid) to lowercase when creating a new calendar or when searching for a calendar</p> <p>Corresponding ics.conf parameter: calstore.calendar.create.lowercase (default = "no")</p>
domainAccess	<p>Specifies an access control list (ACL) for the domain. For information about ACLs, see <a href="#">“Access Control Lists (ACLs)” on page 49</a>.</p> <p>This ACL is used for cross domain searches. For more information, see <a href="#">“Cross Domain Searches” on page 213</a>.</p>
fbIncludeDefCal	<p>Specifies "yes" or "no" whether a user's default calendar is included in user's free/busy calendar list.</p> <p>Corresponding ics.conf parameter: calstore.freebusy.include.defaultcalendar (default = "yes")</p>
filterPrivateEvents	<p>Specifies "yes" or "no" whether Calendar Server filters (recognizes) Private and Time and Date Only (confidential) events and tasks. If "no", Calendar Server treats them the same as Public events and tasks.</p> <p>Corresponding ics.conf parameter: calstore.filterprivateevents (default = "yes")</p>
groupMaxSize	<p>Specifies the maximum number of attendees allowed in an LDAP group when expanding an event.</p> <p>Corresponding ics.conf parameter: calstore.group.attendee.maxsize (default is "0" – expand the group entirely)</p>

TABLE D-16 icsExtendedDomainPrefs LDAP Directory Attribute (Continued)

Property Name	Description
language	Specifies the language for a domain. Corresponding ics.conf parameter: local.domain.language
resourceDefaultAcl	Specifies an access control list (ACL) that is the default access control permissions used when a resource calendar is created. Corresponding ics.conf parameter: resource.default.acl (default is "@o^a^r^g;@o^c^wdeic^g; @^a^rsf^g"
setPublicRead	Specifies whether user default calendars are initially set to public read/private write ("yes") or private read/private write ("no"). Corresponding ics.conf parameter: service.wcap.login.calendar.publicread (default = "no")
searchFilter	Specifies a search filter for finding a user. Corresponding ics.conf parameter: local.userSearchFilter
ssoCookieDomain	Specifies that the browser should send a cookie only to servers in the specified domain. The value must begin with a period (.). For example: ".sesta.com" Corresponding ics.conf parameter: sso.cookieDomain (default is the current domain)
ssoUserDomain	Specifies the domain used as part of the user's SSO authentication. Corresponding ics.conf parameter: sso.userDomain (no default)
subIncludeDefCal	Specifies "yes" or "no" whether a user's default calendar is included in the user's subscribed calendar list. Corresponding ics.conf parameter: calstore.subscribed.include.defaultcalendar (default = "yes")
uiAllowAnyone	Specifies "yes" or "no" whether the user interface should show and use the "Everybody" access control list (ACL). Corresponding ics.conf parameter: ui.allow.anyone (default = "yes")

TABLE D-16 icsExtendedDomainPrefs LDAP Directory Attribute (Continued)

Property Name	Description
uiAllowDomain	Specifies "yes" or "no" whether the user interface should show and use the access control list (ACL) for this domain.  Corresponding ics.conf parameter: ui.allow.domain (default = "no")
uiBaseUrl	Specifies a URL for the base server address. For example: "https://proxyserver".  Corresponding ics.conf parameter: ui.base.url (no default)
uiConfigFile	Specifies an optional xml based configuration file that Calendar Server can read at startup that allows parts of the user interface to be hidden.  Corresponding ics.conf parameter: ui.config.file (no default)
uiProxyURL	Specifies a URL for the proxy server address to prepend in an HTML UI JavaScript file. For example: "https://web_portal.sesta.com/"  Corresponding ics.conf parameter: ui.proxyaddress.url (no default)

## Other LDAP Directory Attributes: csdomain Utility

The following table describes other LDAP attributes and properties that you can set with the csdomain utility.

TABLE D-17 Other LDAP Directory Attributes for the csdomain Utility

LDAP Attribute	Property Name	Description
icsAllowedServiceAccess	allowedAccessProtocols	Specifies whether access to Calendar Server is allowed. If set to "http", access is denied. If set to any other value, access is allowed.  Calendar Server uses this attribute only if the icsStatus attribute is not set.
icsDefaultAccess	userDefaultAcl	Specifies the ACL for a newly created user calendar.  Corresponding ics.conf parameter: calstore.calendar.default.acl

TABLE D-17 Other LDAP Directory Attributes for the csdomain Utility (Continued)

LDAP Attribute	Property Name	Description
icsDomainNames	searchDomainNames	Specifies the external domains that this domain can search when looking for calendars or users.  Corresponding ics.conf parameter: none
icsDWPBackEndHosts	(undefined)	Specifies the default back-end host (DNS name) for a user if a host name is not explicitly provided. This attribute is used when Calendar Server is in LDAP CLD mode.
icsStatus	statusCalendarDomain	Specifies that status of Calendar Server: <ul style="list-style-type: none"> <li>■ active—Calendar Server is accessible.</li> <li>■ inactive—Calendar Server is inaccessible. Calendars remain in the database and Calendar Server LDAP attributes remain unchanged.</li> <li>■ deleted—Calendar Server is inaccessible, because the person is marked as deleted.</li> <li>■ removed—Calendars have been removed from the calendar database.</li> </ul> If icsStatus is set, its value overrides the icsAllowedServiceAccess attribute. If icsStatus is not set, Calendar Server uses the icsAllowedServiceAccess attribute.
icsTimezone	timezone	Specifies the default time-zone ID. For example, America/New_York or Asia/Tokyo.  For the supported time zones, refer to the timezones.ics file.

## Examples

- Create a new hosted domain using LDAP schema 1 named west.sesta.com:  

```
csdomain -v -n o=nodewest,o=sesta create west.sesta.com
```
- Create a new hosted domain using LDAP schema 2 named east.sesta.com:  

```
csdomain -v -n nodeeast create east.sesta.com
```
- Display a list of Calendar Server LDAP attributes for the hosted domain named west.sesta.com:  

```
csdomain -v list west.sesta.com
```
- Set the time zone to America/New\_York for the hosted domain named west.sesta.com:



```
csdomain -v -a timezone=America/New_York
add west.sesta.com
```

## csexport

The `csexport` utility exports a calendar to a file in iCalendar (.ics) or XML (.xml) format. Commands are:

- `calendar` exports a specified calendar.
- `version` displays the version number of the utility currently installed.

## Requirements

- You must run the utility locally on the machine where Calendar Server is installed.
- Calendar Server can be running or stopped.
- You must be logged in as the user and group under which Calendar Server is running (such as `icsuser` and `icsgroup`) that was specified during installation, or as `root`.

## Syntax

```
csexport [-v|-q]
          -c calid
          calendar outputfile
```

The following table describes the commands available for the `csexport` utility.

TABLE D-18 csexport Utility Commands

Command	Description
<code>calendar <i>outputfile</i></code>	Export the calendar to the specified output file. The data format of the file is determined by the specified filename extension: <ul style="list-style-type: none"> <li>▪ .ics for iCalendar (text/calendar)</li> <li>▪ .xml for XML (text/xml)</li> </ul>
<code>version</code>	Display the version of the utility.

The following table describes the `csexport` utility command options.

TABLE D-19 csexport Utility Command Options

Option	Description
-v	Run in verbose mode: Display all available information about the command being performed. Default is off.
-q	Run in quiet mode: <ul style="list-style-type: none"> <li>▪ Display no information if the operation is successful (errors, if they occur, are displayed).</li> <li>▪ Suppress confirmation prompting for dangerous commands. Default is off.</li> </ul>
-c <i>calid</i>	The calendar ID of the calendar to export. This option is required with the calendar command. There is no default.

## Examples

- Export the calendar with the calendar ID `tchang` in iCalendar (`text/calendar`) format to a file named `tchang.ics`:

```
csexport -c tchang calendar tchang.ics
```
- Exports the calendar with the calendar ID `tchang` in XML (`text/xml`) format to a file named `tchang.xml`:

```
csexport -c tchang calendar tchang.xml
```

## csimport

The `csimport` utility imports a calendar from a file in iCalendar (`ics`) or XML format that was saved with the `csexport` utility. Commands are:

- `calendar` – Imports a specified calendar.
- `version` – Displays the version number of the utility currently installed.

Date calculations for importing a calendar's components use the time zone specified in the `X-NSCP-DTSTART-TZID` associated with the component. If none is present, then the server time zone found in the `ics.conf` is used.

## Requirements

- You must run the utility locally on the machine where Calendar Server is installed.
- Calendar Server can be running or stopped.
- You must be logged in as the user and group under which Calendar Server is running (such as `icsuser` and `icsgroup`) that was specified during installation, or as `root`.

## Syntax

```
csimport [-v|-q]
         -c calid
         calendar inputfile
```

The following table describes the commands available for the `csimport` utility.

TABLE D–20 `csimport` Utility Commands

Command	Description
calendar <i>inputfile</i>	Import the calendar from the specified input file. The data format of the file is determined by the filename extension: <ul style="list-style-type: none"> <li>■ .ics for iCalendar (text/calendar)</li> <li>■ .xml for XML (text/xml)</li> </ul>
version	Display the version of the utility.

The following table describes the `csimport` utility command options.

TABLE D–21 `csimport` Utility Command Options

Option	Description
-v	Run in verbose mode: Display all available information about the command being performed. Default is off.
-q	Run in quiet mode: <ul style="list-style-type: none"> <li>■ Display no information if the operation is successful (errors, if they occur, are displayed).</li> <li>■ Suppress confirmation prompting for dangerous commands. Default is off.</li> </ul>
-c <i>calid</i>	The calendar ID of the calendar to import. This option is required with the calendar command. If the specified calendar ID already exists, the imported data is merged with the current calendar. There is no default. For more information, see <a href="#">“Creating Calendar Unique Identifiers (calid’s)”</a> on page 260.

## Examples

- Import the calendar with the calendar ID `tchang` from the file `tchang.ics` and expect iCalendar (text/calendar file) format:

```
csimport -c tchang calendar tchang.ics
```
- Import the calendar with the calendar ID `tchang` from the file `tchang.xml` and expect XML (text/xml file) format:

```
csimport -c tchang calendar tchang.xml
```

## csmonitor

The `csmonitor` utility is a script that performs these monitoring functions:

- Checks LDAP connectivity according to specific `ics.conf` parameters.
- Checks the transaction log files, and if more than one file exists, `csmonitor` sends a warning by email.
- Checks the available disk space for the calendar database.
- Checks if Calendar Server services are running.

## Syntax

```
csmonitor [ -k | -c | -help]
```

The following table describes the commands for the `csmonitor` utility.

TABLE D-22 csmonitor Utility Command Options

Parameter	Description
-k	Stops <code>csmonitor</code> .
-c	Backs up the <code>csmonitor</code> log and purges it.
-help	Displays the <code>csmonitor</code> usage.

The following table `csmonitor`.

TABLE D-23 csmonitor Configuration Parameters

Parameter	Description
<code>service.monitor.continuous</code>	Specifies whether <code>csmonitor</code> should loop continuously: "0" – Do not loop continuously. "1" – Loop continuously. Default is "0".
<code>service.monitor.loopsdelay</code>	Specifies the delay in seconds between two monitoring loops. Default is "60".
<code>service.monitor.emailaddress.from</code>	Specifies the email address <code>csmonitor</code> sends messages from. Default is none.
<code>service.monitor.emailaddress.to</code>	Specifies the email address <code>csmonitor</code> should send messages to. Default is none.

TABLE D-23 csmonitor Configuration Parameters (Continued)

Parameter	Description
service.monitor.csdb.logthreshold	Specifies a threshold value in percent of the total disk space for the maximum disk occupation considered to be normal. If, on the disk where the calendar database (csdb directory) resides, occupation exceeds this value, csmonitor sends a warning email message. Default is "90".
logfile.monitor.logname	Specifies the csmonitor log file name. Default is "csmonitor.log".
logfile.monitor.maxlogfilesize	Specifies the maximum log file size. If the log file exceeds this size, csmonitor saves the log as csmonitor.log.timestamp and resets the log. Default is "2097152".
service.monitor.dbglevel	Specifies the debug level. The higher this value, csmonitor sends more precise and verbose messages. Default is "0".

## csplugin

The `csplugin` manages CSAPI plug-ins configured for your Calendar Server installation. Commands are:

- `activate` loads and starts a specified plug-in.
- `deactivate` shut downs and disables the specified plug-in type and plug-in name. (For descriptions of the supported plug-in types, see the `-t` option in [Table D-25](#).)
- `list` displays all supported plug-ins.
- `version` displays the version number of the utility currently installed.

## Requirements

- Must be run on the local machine where Calendar Server is installed.
- Calendar Server can be running or stopped.
- You must be logged in as the user and group under which Calendar Server is running (such as `icsuser` and `icsgroup`) that was specified during installation, or as `root`.

## Syntax

```
csplugin [-q|-v]
          [-r]
          -t ac|attr|auth|locate|lookup|xlate
          activate|deactivate plugin

csplugin [-q|-v] list
```

The following table describes the commands available for the csplugin utility.

TABLE D–24 csplugin Utility Commands

Command	Description
activate -t type <i>name</i>	Load and enable the specified plug-in type and plug-in name. (For descriptions of the supported plug-in types, see the -t option in <a href="#">Table D–25</a> .)
deactivate -t type <i>name</i>	Shut down and disable the specified plug-in type and plug-in name. (For descriptions of the supported plug-in types, see the -t option in <a href="#">Table D–25</a> .)
list	List all the supported plug-in types, names, and activation status. (For descriptions of the supported plug-in types, see the -t option in <a href="#">Table D–25</a> .)
version	Display the version of the utility.

The following table describes the csplugin utility command options.

TABLE D–25 csplugin Utility Command Options

Option	Description
-v	Run in verbose mode: Display all available information about the command being performed. Default is off.
-q	Run in quiet mode: <ul style="list-style-type: none"> <li>■ Display no information if the operation is successful (errors, if they occur, are displayed).</li> <li>■ Suppress confirmation prompting for dangerous commands. Default is off.</li> </ul>
-r	When used with the activate command, physically copies the plug-in into the Calendar Server plugin directory. When used with the deactivate command, deletes the plug-in from the plugin directory.

TABLE D-25 csplugin Utility Command Options (Continued)

Option	Description
-t <i>type</i>	Specifies one of the following supported types of plug-ins: <ul style="list-style-type: none"> <li>▪ ac— augments or overrides the default group scheduling access control mechanism.</li> <li>▪ attr— augments or overrides the mechanism for storing and retrieving user attributes.</li> <li>▪ auth— augments or overrides the login authentication mechanism.</li> <li>▪ locate— retrieves a calendar ID for the specified qualified URL.</li> <li>▪ lookup— augments or overrides the default calendar lookup mechanism.</li> <li>▪ xlate— augments or overrides the format translation of incoming and outgoing data.</li> </ul>

## Examples

- List details about all the supported plug-ins, including the type, name and the activation status of each plug-in configured for use with this server instance:  
`csplugin -v list`
- Load and enable the lookup type plug-in with the file named `mylookup`:  
`csplugin activate -t lookup mylookup`
- Disable the lookup type plug-in with the file named `mylookup` and then delete it from the plugin directory:  
`csplugin deactivate -t lookup mylookup -r`

## cspurge

The `cspurge` utility allows the manual purge of entries in the Delete Log database (`ics50deletelog.db`).

## Requirements

- You must run the utility locally on the machine where Calendar Server is installed.
- Calendar Server can be running or stopped.
- You must be logged in as the user and group under which Calendar Server is running (such as `icsuser` and `icsgroup`) that was specified during installation, or as `root`.

## Syntax

```
cspurge [-q] [-v]
        -e endtime
        -s starttime
```

The following table describes the cspurge utility command options.

TABLE D–26 cspurge Utility Command Options

Option	Description
-v	Run in verbose mode: Display all available information about the command being performed. Default is off.
-q	Run in quiet mode: <ul style="list-style-type: none"> <li>■ Display no information if the operation is successful (errors, if they occur, are displayed).</li> <li>■ Suppress confirmation prompting for dangerous commands. Default is off.</li> </ul>
-e <i>endtime</i>	Specifies the ending time in GMT (also referred to as UTC or Zulu). This value is up to (less than) the specified time.  The default is 0, which means to the end of time.
-s <i>starttime</i>	Specifies the starting time in GMT (also referred to as UTC or Zulu). This value includes (greater than or equal to) the specified time.  The default is 0, which means from the beginning of time.

## Examples

- Purge all entries in the Delete Log:

```
cspurge -v -e 0 -s 0
```
- Purge all entries from July 1, 2003 through July 31, 2003:

```
cspurge -v -e 20030731T235959Z -s 20030701T120000Z
```
- Purge all entries up to September 30, 2003:

```
cspurge -v -e 20031030T235959Z -s 0
```



## csrename

The `csrename` utility allows you to rename one or more calendar users. This utility renames calendar users as follows:

- Calendar database files—Renames users (user ID's) in the calendar database files and then writes the new database files to a destination directory. The existing calendar database files are not modified.
- LDAP directory server—Converts the user ID's in the Calendar Server LDAP attributes (that is, attributes with the “ics” prefix). The LDAP directory server is modified in place.

The `csrename` utility is located in the following directory:

```
cal_svr_base/SUNwics5/cal/sbin
```

## Requirements

Before you run `csrename`, you must first:

- Create an input mapping file (`-m` option) for the users you want to convert.
- Create any new users in the LDAP directory server, if necessary.
- Stop Calendar Server.

To run `csrename`, you must log in as `icsuser` (or as the Calendar Server runtime user ID specified during configuration). If you run `csrename` as superuser (`root`), you might need to reset the permissions for the new database files. To modify the LDAP directory server attributes, you must also have administrative rights for that directory.

If your Calendar Server installation has a front-end/back-end server configuration, you must run `csrename` on each back-end server.

## Syntax

Use the following syntax to run `csrename`:

```
csrename [-t DestinationDB]
          [-c ConfigFile]
          [-e ErrorFile]
          -m MappingFile
          rename [DB|LDAP]
```

table lists the options for this utility and gives a description of each:

TABLE D-27 Options for csrename

Option	Description
-t <i>DestinationDB</i>	Specifies the destination directory where csrename generates the new database with the converted user names. The default is <i>MigratedDB</i> . After csrename is finished, the <code>caldb.berkeleydb.homedir.path</code> parameter in the <code>ics.conf</code> file must point to the destination database. Either reset <code>caldb.berkeleydb.homedir.path</code> to point to the destination database directory, or move the destination database files to the directory indicated by the parameter.
-c <i>ConfigFile</i>	An input parameter that specifies a Calendar Server configuration file. The default is the <code>ics.conf</code> file. csrename uses the <code>caldb.berkeleydb.homedir.path</code> parameter in the configuration file to determine the location of the input calendar database. The default location of the calendar database is <code>/var/opt/SUNWics5/csdb</code> .
-e <i>ErrorFile</i>	The file where csrename writes any errors or database entries that cannot be resolved. The default is <code>MigrateError</code> .
-m <i>MappingFile</i>	Specifies an input mapping file. The default is <code>MigrateMapping</code> . The input mapping file is a text file that maps existing user ID's to new user ID's. You must create the mapping file before you run csrename. Specify one entry per line with a space between the old and new values.  For example:  tchang tc897675  jsmith js963123  bkamdar bk548769  If upon auditing your results, you find that one or more of your intended name changes was omitted, you can fix the error by creating a new mapping file with only the missed names in it and rerunning csrename.
DB LDAP	Specifies the database that gets updated:  DB converts user ID's in the new calendar database only (default).  LDAP converts user ID's in both the new calendar database and the LDAP directory server attributes.

## Examples

- Rename users based on the mapping file named `DBMapFile` and create the new calendar database in the destination directory named `newcalDB`:

```
csrename -t newcalDB -m DBMapFile rename DB
```

- Rename users based on values in the mapping file named `NewNames`, create the new calendar database in the destination directory named `NewDB`, and modify the Calendar Server attributes in the LDAP directory server:

```
csrename -t NewDB -m NewNames rename LDAP
```

## csresource

The `csresource` utility creates and manages LDAP entries and calendars for resources, such as conference rooms or equipment. (The `csresource` utility is available only for calendars associated with a resource and returns an error if issued against a user's calendar.) Commands are:

- `create` adds a new resource for a specified calendar ID (`calid`)
- `delete` removes a resource or all resources
- `disable` disables a resource or all resources
- `enable` enables a resource or all resources
- `list` displays a single resource or a list of all resources

## Requirements

- You must run the utility locally on the machine where Calendar Server is installed.
- Calendar Server can be running or stopped.
- You must be logged in as the user and group under which Calendar Server is running (such as `icsuser` and `icsgroup`) that was specified during installation, or as `root`.

## Syntax

```
csresource [-q] [-v]
           [-a aces]
           [-b basedn]
           [-d domain]
           [-t description]
           [-k yes|no]
           [-o owner]
           [-y otherowners]
           -m email
           -c calid
create common_name
```

```
csresource [-q] [-v]
           [-b basedn]
           [-d domain]
delete|disable|enable [common_name]
```

```
csresource [-q] [-v]
           [-b basedn]
           [-d domain]
           [-h host]
list [common_name]
```

Then following table describes the commands available for the csresource utility.

TABLE D–28 csresource Utility Commands

Command	Description
create common_name	Create a new resource for a specified calendar ID.
delete [common_name]	Delete a resource or, if no resource <i>common_name</i> is specified, delete all resources.
enable [common_name]	Enable a resource or, if no resource <i>common_name</i> is specified, enable all resources.
disable [common_name]	Disable a resource or, if no resource <i>common_name</i> is specified, disable all resources.
list [common_name]	Display a single resource calendar or, if no resource <i>name</i> is specified, display all resource calendars.  If the <i>-h host</i> option is included, display the calendar attributes for the specified name (or all resource calendars) on that back-end server.

**Note** – If the name contains a space in any of the above commands, it must be enclosed in quotation marks (" ").

The following table describes the csresource utility command options.

TABLE D–29 csresource Utility Command Options

Option	Description
-v	Run in verbose mode: Display all available information about the command being performed. Default is off.
-q	Run in quiet mode: <ul style="list-style-type: none"> <li>■ Display no information if the operation is successful (errors, if they occur, are displayed).</li> <li>■ Suppress confirmation prompting for dangerous commands.</li> </ul> Default is off.
-a [aces]	Access Control Entries (ACE's) for the specified calendar. ACE's determine who can access a calendar for group scheduling and the types of permissions they have, such as create, delete, read, and write privileges. An ACE string or Access Control List (ACL), must be enclosed in quotation marks (" ").  The default is the resource.default.acl parameter in the ics.conf file.  For information about the ACE format, see <a href="#">“Calendar Access Control” on page 264</a> .
-b [basedn]	LDAP base DN (distinguished name) to be used for the specified resource. The default is taken from the local.ugldapbasedn parameter in the ics.conf file.

TABLE D-29 csresource Utility Command Options (Continued)

Option	Description
-c calid	The icsCalendar attribute. This option is required with the create command. For more information, see “Creating Calendar Unique Identifiers (calid's)” on page 260.
-d domain	Specifies the name of a hosted (virtual) domain. Default is taken from the service.defaultdomain parameter in the ics.conf file.
-t [description]	Specifies a viewable comment about the purpose of the calendar. The default is no description.
-h host	Specifies the name of a back-end server where the resource calendar resides. This option applies only to the list command.
-k yes no	<p>Specifies whether double booking is allowed for a calendar associated with a resource such as a conference room. For example, yes means the resource calendar can have more than one event scheduled for the same time slot.</p> <p>If the -k option is omitted, the default is taken from the resource.allow.doublebook parameter in the ics.conf file. However, the resource.allow.doublebook parameter is used only when a calendar is created.</p> <p>After a calendar is created, Calendar Server checks the calendar properties database (ics50calprops.db) to determine if double booking is allowed. If you need to change the calendar properties for a calendar to allow or disallow double booking, reissue csresource with the -k option.</p>
-m email	Specifies the LDAP mail attribute (primary email address) for the resource.
-o owner	<p>Primary owner.</p> <p>Default is taken from service.admin.calmaster.userid in the ics.conf file.</p>
-y otherowners	Other owners. Multiple owners must be enclosed in quotation marks ( " ") and separated by spaces. The default is no other owners.
version	Display the version of the utility.

## Examples

- Display a list of all resource calendars and their LDAP attributes:

```
csresource -v list
```

- Create a resource calendar with the calendar ID (calid) room100 and the viewable name (LDAP cn attribute) MeetingRoom100:

```
csresource -m room100@sesta.com -c room100 create MeetingRoom100
```

- Display the LDAP attributes of the resource calendar with the viewable name MeetingRoom100:

```
csresource -v list MeetingRoom100
```

- Disable the resource calendar with the viewable name `MeetingRoom100`:

```
csresource disable MeetingRoom100
```

- Enable the resource calendar with the viewable name `MeetingRoom100` and allow doublebooking:

```
csresource -k yes enable MeetingRoom100
```

- Delete the resource calendar with the viewable name `MeetingRoom100`:

```
csresource delete MeetingRoom100
```

- Display the LDAP attributes of the resource calendar with the viewable name `MeetingRoom100` on the back-end server `sesta`:

```
csresource -v -h sesta list MeetingRoom100
```

## csrestore

The `csrestore` utility restores the calendar database, a specified calendar, or a user's default calendar that was saved using `csbackup` or `csexport`. Commands are:

- `database` restores the calendar database.
- `calendar` restores a specified calendar.
- `default` restores a user's default calendar.
- `version` displays the version number of the utility currently installed.

The `caldb.conf` version file located in the specified backup directory shows the version number of the database that was backed up.



**Caution** – Calendar Server 6 `csrestore` is not compatible with the version 2 of `csrestore`. Do not try to restore data that was backed up using Calendar Server 2 `csrestore` because data loss can occur.

---

## Requirements

- You must run the utility locally on the machine where Calendar Server is installed.
- If you are restoring the calendar database, Calendar Server must be stopped.
- You must be logged in as the user and group under which Calendar Server is running (such as `icsuser` and `icsgroup`) that was specified during installation, or as `root`.

## Syntax

```
csrestore [-v|-q]
          [-f]
          database inputdir
```

```
csrestore [-v|-q]
          -c calid
          calendar inputfile
```

```
csrestore [-v|-q]
          -a userid
          [-b basedn]
          defcal inputfile
```

The following table describes the commands available for the csrestore utility.

TABLE D–30 csrestore Utility Commands

Command	Description
database <i>inputdir</i>	Restore the calendar database from the specified input directory or input file that contains a backup calendar database. This operation overwrites all previous contents of the current calendar database.
calendar <i>inputfile</i>	Restore the specified calendar ID from the specified input file. The data format of the file is determined by the filename extension: <ul style="list-style-type: none"> <li>■ .ics for iCalendar (text/calendar).</li> <li>■ .xml for XML (text/xml).</li> </ul> If the specified calendar ID already exists, the calendar's data is cleared before it is restored.
defcal <i>inputfile</i>	Restore the default calendar of the specified user ID from the input file specified. The data format of the file is determined by the filename extension: <ul style="list-style-type: none"> <li>■ .ics for iCalendar (text/calendar).</li> <li>■ .xml for XML (text/xml).</li> </ul>
version	Display the version of the utility.

The following table describes the csrestore utility command options.

TABLE D–31 csrestore Utility Command Options

Option	Description
-v	Run in verbose mode: Display all available information about the command being performed. Default is off.

TABLE D-31 csrestore Utility Command Options (Continued)

Option	Description
-q	Run in quiet mode: <ul style="list-style-type: none"> <li>■ Display no information if the operation is successful (errors, if they occur, are displayed).</li> <li>■ Suppress confirmation prompting for dangerous commands.</li> </ul> Default is off.
-a <i>userid</i>	The user ID to restore. This option is required with the default option. There is no default.
-b <i>basedn</i>	The LDAP base DN (distinguished name) to be used for the specified user ID. The default is taken from the setting <code>local.ugldapbasedn</code> defined in the <code>ics.conf</code> file.
-f	To force any existing database files to be deleted.
-c <i>calid</i>	The calendar ID to restore. This option is required with the <code>calendar</code> command. There is no default. For more information, see “Creating Calendar Unique Identifiers (calid’s)” on page 260.

## Examples

- Restore the calendar database stored in the directory `backupdir` that was previously saved using `csbackup`:  

```
csrestore database backupdir
```
- Restore the calendar with the calendar ID `tchang` from the file `tchang.ics` located in the directory `backupdir` that was previously saved in iCalendar (text/calendar file) format using `csbackup` or `csexport`:  

```
csrestore -c tchang calendar backupdir/tchang.ics
```
- Restore `tchang` from the calendar database in `backupdir` that was previously saved using `csbackup`:  

```
csrestore -c tchang calendar backupdir
```
- Restore the default calendar owned by `tchang` from the file `tchang.ics` located in the directory `backupdir` that was previously saved in iCalendar (text/calendar file) format using `csbackup` or `csexport`:  

```
csrestore -a tchang defcal backupdir/tchang.ics
```

## csschedule

The `csschedule` utility manages schedule entries stored in the Group Scheduling Engine (GSE) queue. Commands are:

- `list` displays entries held in the GSE queue requested by a specified calendar ID.
- `delete` removes an entry from the GSE queue requested by a specified calendar ID.



- `version` displays the version number of the utility currently installed.

## Requirements

- You must run the utility locally on the machine where Calendar Server is installed.
- Calendar Server must be stopped.
- You must be logged in as the user and group under which Calendar Server is running (such as `icsuser` and `icsgroup`) that was specified during installation, or as `root`.

## Syntax

```
csschedule [-q|-v]
           [-c count]
           [-e endtime]
           [-s starttime]
           [-t scheduletime
            -o offset]
           [-u uid]
           list [calid]
```

```
csschedule [-q|-v]
           [-t scheduletime
            -o offset
            -u uid
            -n sequencenumber
            -r rid]
           list [calid]
```

```
csschedule [-q|-v]
           [-t scheduletime
            -o offset
            -u uid
            -n sequencenumber
            -r rid]
           delete [calid]
```

```
csschedule [-q|-v]
           [-s starttime]
           [-e endtime]
           delete [calid]
```

The following table describes the commands available for the `csschedule` utility.

TABLE D-32 `csschedule` Utility Commands

Command	Description
<code>list</code>	Display entries held in the GSE queue requested by a specified calendar ID.
<code>delete</code>	Delete an entry from the GSE queue requested by a specified calendar ID.
<code>version</code>	Display the version of the utility.

Then following table describes the `csschedule` utility command options.

TABLE D-33 `csschedule` Utility Command Options

Option	Description
<code>-v</code>	Run in verbose mode: Display all available information about the command being performed. Default is off.
<code>-q</code>	Run in quiet mode: <ul style="list-style-type: none"> <li>■ Display no information if the operation is successful (errors, if they occur, are displayed).</li> <li>■ Suppress confirmation prompting for dangerous commands. Default is off.</li> </ul>
<code>-c count</code>	The number of GSE queue entries to list. For example, specify 10 if you want to examine ten entries in the queue.
<code>-e endtime</code>	The ending time of the entry in the GSE queue where 0 means to the end of time. The default is 0.
<code>-n sequencenumber</code>	The sequence number of the event or task in the queue.
<code>-o offset</code>	An offset number for a schedule time. The offset number uniquely identifies an entry in the GSE queue when there is more than one entry scheduled at the same time.
<code>-r rid</code>	The recurrence ID (RID) of the event or todo. An RID is a semicolon delimited list of strings that identify each occurrence of a recurring event or todo.
<code>-s starttime</code>	The starting time of the entry in the GSE queue where 0 means from the beginning of time. The default is 0.
<code>-t scheduletime</code>	A schedule time, for example: <code>20001231T103045Z</code>
<code>-u uid</code>	The unique identifier (UID) of an entry in the GSE queue.

## Examples

- List in detail all entries stored in the GSE queue:  
`csschedule -v list`
- List the first ten entries stored in the GSE queue:

- ```
csschedule -c 10 list
```
- List the entries in the GSE queue scheduled between 10:30:45 to 11:30:45 on 12/31/2000:  
csschedule -s 20001231T103045Z -e 20001231T113045Z list
  - List the entry in the GSE queue for calendar tchang that is scheduled at 10:30:45, with an offset number of 2 at the time 10:30:45 on 12/31/2000, with the unique identifier 1111, recurrence ID 0, and sequence number 0:  
csschedule -v -t 20001231T103045Z -o 2 -u 1111 -r 0 -n 0 list tchang
  - Delete the entry in the GSE queue for calendar tchang at 10:30:45, the first offset at time 10:30:45 on 12/31/2000, with the unique identifier 1111, recurrence ID 0, and sequence number 0:  
csschedule -v -t 20001231T103045Z -o 1 -u 1111 -r 0 -n 0 delete tchang
  - Delete entries in the GSE that are scheduled between 10:30:45 and 16:30:45 on 12/31/2000:  
csschedule -v -s 20001231T103045Z -e 20001231T163045Z delete
  - Delete all entries in the GSE queue:  
csschedule -v delete

## csstats

The csstats utility displays Calendar Server statistics. Commands are:

- list counter statistics about a specified Calendar Server subsystem.
- version displays the version number of the utility currently installed.

For more information about counters, see [“Counters Configuration \(counter.conf\) File” on page 458](#).

## Requirements

- You must run the utility locally on the machine where Calendar Server is installed.
- Calendar Server can be running or stopped.
- You must be logged in as the user and group under which Calendar Server is running (such as icsuser and icsgroup) that was specified during installation, or as root.

## Syntax

```
csstats [-q|v]
        [-r registry]
        [-i iterations]
```

```
[-s delay]
list [subsystem]
```

The following table describes the commands available for the `csstats` utility.

TABLE D–34 `csstats` Utility Commands

| Command                       | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>list [subsystem]</code> | List counter statistics about a specified Calendar Server subsystem or. If subsystem is not specified, display basic information about the available subsystems, which are: <ul style="list-style-type: none"> <li>▪ <code>alarm</code> — monitoring of services alarm notifications</li> <li>▪ <code>auth</code> — login authentication</li> <li>▪ <code>db</code> — calendar database</li> <li>▪ <code>disk</code> — disk usage monitoring</li> <li>▪ <code>gse</code> — Group Scheduling Engine (GSE)</li> <li>▪ <code>http</code> — HTTP transport</li> <li>▪ <code>response</code> — server response times</li> <li>▪ <code>sess</code> — server session status</li> <li>▪ <code>wcap</code> — Web Calendar Access Protocol</li> </ul> |
| <code>Version</code>          | Display the version of the utility.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

The following table describes the `csstats` utility command options.

TABLE D–35 `csstats` Utility Command Options

| Option                     | Description                                                                                                                                                                                                                                             |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>-v</code>            | Run in verbose mode: Display all available information about the command being performed. Default is off.                                                                                                                                               |
| <code>-q</code>            | Run in quiet mode: <ul style="list-style-type: none"> <li>▪ Display no information if the operation is successful (errors, if they occur, are displayed).</li> <li>▪ Suppress confirmation prompting for dangerous commands.</li> </ul> Default is off. |
| <code>-i iterations</code> | The number of times to repeat statistical lookups. Default is 1.                                                                                                                                                                                        |
| <code>-r registry</code>   | The name and location of the file that stores counter statistics. The default is:<br><code>/opt/SUNWics5/cal/lib/counter/counter</code>                                                                                                                 |
| <code>-s delay</code>      | The amount of time (in seconds) to wait before displaying each statistical lookup. The default is 1 second.                                                                                                                                             |

## Examples

- Display basic information about counters and what types are available:

```
csstats list
```

- List counter statistics about the HTTP service subsystem (`hpptstat`):

```
csstats list http
```

- List counter statistics about the WCAP subsystem (`wcapstat`) every 10 seconds for one hour (3600 seconds):

```
csstats -i 3600 -s 10 list wcap
```

## cstool

The `cstool` utility can ping one of the following:

- The HTTP process, `cshttpd`.
- The administration service, `csadmin`
- The Event Notification Service (ENS) process, `enpd`.

The `cstool` utility can also display its version number.

The `cstool` can **not** be used to ping the following processes:

- The notification process, `csnotifd`.
- The DWP process, `csdwpd`.

---

**Note** – To refresh the configuration, use `stop-cal`, then `start-cal` to stop and then restart Calendar Server.

Do not use `cstool` to refresh the configuration. It could cause unpredictable negative outcomes.

For more information, see [“Starting and Stopping Calendar Server” on page 222](#).

---

## Requirements

- Calendar Server must be running.
- You must be logged in as the user and group under which Calendar Server is running (such as `icsuser` and `icsgroup`) that was specified during installation, or as `root`.

## Syntax

```
cstool [-q|-v]
        [-h host]
        [-p port]
        [-t timeout]
        ping [http|ens]
```

```
cstool [-q|-v]
        [-h host]
        version
```

The following table describes `cstool` commands and their parameters.

**TABLE D-36** `cstool` Utility Commands

| Command | Parameters                                      | Description                                                                                                                                                             |
|---------|-------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ping    | [http admin ens]<br>neither parameter specified | Ping the <code>cshttpd</code> process, the <code>csadmin</code> process, or the ENS process ( <code>enpd</code> ).<br>Ping the server where Calendar Server is located. |
| version | none                                            | Display the version of the utility.                                                                                                                                     |

The following table describes the `cstool` utility options.

**TABLE D-37** `cstool` Utility Command Options

| Option            | Description                                                                                                                                                                                                                                                                                      |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -v                | Run in verbose mode: Display all available information about the command being performed. Default is off.                                                                                                                                                                                        |
| -q                | Run in quiet mode: <ul style="list-style-type: none"> <li>■ Display no information if the operation is successful (errors, if they occur, are displayed).</li> <li>■ Suppress confirmation prompting for dangerous commands.</li> </ul> Default is off.                                          |
| -h <i>host</i>    | Specifies host name of the machine on which Calendar Server is running. The default value is set at installation and taken from the <code>local.hostname</code> parameter in the <code>ics.conf</code> file. Use this option if you are accessing a Calendar Server running on a remote machine. |
| -p <i>port</i>    | The port of the specified service, or if no service is specified, use the default value of the port as defined in the <code>ics.conf</code> file.                                                                                                                                                |
| -t <i>timeout</i> | The amount of time (in seconds) to wait for a response from the server. The default is 120 seconds.                                                                                                                                                                                              |

## Examples

- Ping the `cshttpd` service:  
`cstool ping http`
- Ping ENS on the server with host name `sesta`:  
`cstool -h sesta ping ens`
- Ping the machine with the host name `calserver` to see if the Calendar Server `cshttpd` service is listening on port 80:  
`cstool -p 80 -h calserver -p 80 ping http`
- Force a local Calendar Server to refresh all service's configurations:  
`cstool refresh`

## csuser

The `csuser` utility manages calendar user information stored in an LDAP directory server and the Calendar Server calendar database. Commands are:

- check if user is enabled for calendaring.
- create and enable a user for calendaring.

---

**Note** – This utility does not enable users for Address Book as is required for Communications Express. This will have to be done manually with `ldapmodify`.

---

- delete a user and the user's default calendar.  
You must use this command to delete users when you are in non-hosted domain mode. However, other calendars owned by the user are not deleted. Use `csctl` to remove other calendars of a deleted user.
- disable a user from logging in to Calendar Server.
- enable a user to log on to Calendar Server.
- list a user's calendar attributes.
- reset a user's calendar attributes to the default settings.

If you are using Directory Server, you can also use the `ldapsearch` and `ldapmodify` utilities. For information about these utilities, see the Directory Server documentation on the following Web site:

<http://docs.sun.com/coll/1316.1>

## Requirements

- Calendar Server can be running or stopped.
- You must run the utility locally on the machine where Calendar Server is installed.
- The LDAP server that stores calendar user information must be running.
- You must be logged in as the user and group under which Calendar Server is running (such as `icsuser` and `icsgroup`) that was specified during installation, or as `root`.

## Syntax

```
csuser [-q|-v]
        [-a aces]
        [-b basedn]
        -m email address
        [-d domain]
        -f filename
        -g givenname
        [-k yes|no]
        [-l langcode]
        -s surname
        -y userpassword
create userid
```

```
csuser [-q|-v]
        [-b basedn]
        [-d domain]
        [-h host]
list [userid]
```

```
csuser [-q|-v]
        [-b basedn]
        [-d domain]
[check|delete|disable|enable|reset] userid
```

The following table describes the commands available for the `csuser` utility.

TABLE D–38 csuser Utility Commands

| Command             | Description                                                |
|---------------------|------------------------------------------------------------|
| check <i>userid</i> | Check if the specified user ID is enabled for calendaring. |



TABLE D–38 csuser Utility Commands (Continued)

| Command        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| create userid  | Create the specified user ID and enable this user to log into Calendar Server.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| delete userid  | Delete the specified user ID.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| disable userid | Disable the specified user ID for calendaring. The utility defines <code>ht tp</code> as the value of the <code>icsAllowedServiceAccess</code> attribute.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| enable userid  | Enable the specified user ID for calendaring.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| list [userid]  | List the calendar attributes for the specified user ID. If user ID is not specified, list attributes for all enabled users.<br><br>If the <code>-hserver-name</code> option is included, list the calendar attributes for the specified user ID (or all enabled users) on that back-end server.                                                                                                                                                                                                                                                                                                                                                                                             |
| reset userid   | Reset all calendar attributes for a user ID to their default settings.<br><br>Note: After the calendar attributes for a user ID have been reset, all of the calendar attributes are removed from the user's LDAP entry, including <code>icsCalendarUser</code> (object class), <code>icsSubscribed</code> , <code>icsCalendarOwned</code> , <code>icsCalendar</code> , and <code>icsDWPHost</code> (if the user is in an LDAP CLD setup). A Calendar Server administrator then cannot create calendars on the user's behalf.<br><br>These attributes are restored in the user's LDAP entry when the Calendar Server administrator issues a <code>csuser enable</code> command for the user. |
| version        | Display the version of the utility.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

The following table describes the `csuser` utility command options.

TABLE D–39 csuser Utility Command Options

| Option    | Description                                                                                                                                                                                                                                             |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -v        | Run in verbose mode: Display all available information about the command being performed. Default is off.                                                                                                                                               |
| -q        | Run in quiet mode: <ul style="list-style-type: none"> <li>■ Display no information if the operation is successful (errors, if they occur, are displayed).</li> <li>■ Suppress confirmation prompting for dangerous commands. Default is off.</li> </ul> |
| -b basedn | The base DN to be used for all LDAP users. The default value is taken from the setting <code>local.ugldapbasedn</code> defined in the <code>ics.conf</code> file.                                                                                       |
| -b basedn | Specifies the base DN for the user.                                                                                                                                                                                                                     |
| -d domain | Specifies the name of a hosted (virtual) domain. Default is taken from the <code>service.defaultdomain</code> parameter in the <code>ics.conf</code> file.                                                                                              |

TABLE D-39 csuser Utility Command Options (Continued)

| Option           | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -a [aces]        | <p>Access Control Entries (ACE's) for a specified calendar. ACE's determine who can access a calendar for group scheduling and the types of permissions they have, such as create, delete, read, and write privileges. An ACE string or Access Control List (ACL), must be enclosed in quotation marks ("").</p> <p>Default is:</p> <pre>"@o^a^r^g;@o^c^wdeic^g; @a^s^f^g;@c^g;@p^r^g"</pre> <p>For details about the ACE format, see <a href="#">“Services Configuration” on page 430</a>.</p> |
| -f filename      | File name to specify a password for options that require a password (-y parameter). If you are running csuser from a script, for added security, specify the password in filename.                                                                                                                                                                                                                                                                                                              |
| -g givenname     | The user's LDAP given name (first name). This option is required. There is no default.                                                                                                                                                                                                                                                                                                                                                                                                          |
| -h host          | Specifies the name of a back-end server where the user's calendar resides. This option applies only to the list command.                                                                                                                                                                                                                                                                                                                                                                        |
| -p port          | The port number that LDAP server is listening to. The default value is taken from the setting <code>local.ugldapport</code> defined in the <code>ics.conf</code> file.                                                                                                                                                                                                                                                                                                                          |
| -k yes no        | <p>If double booking is allowed for a user's calendar. If yes, the user's calendar can have more than one event scheduled for the same time slot.</p> <p>Default is taken from the setting <code>user.allow.doublebook</code> defined in the <code>ics.conf</code> file.</p>                                                                                                                                                                                                                    |
| -l [langcode]    | Language code. Default is the value of <code>local.sitelanguage</code> in <code>ics.conf</code> .                                                                                                                                                                                                                                                                                                                                                                                               |
| -m email address | Specifies the LDAP mail attribute (primary email address) for the user.                                                                                                                                                                                                                                                                                                                                                                                                                         |
| -s surname       | The user's LDAP surname (last name). This option is required. There is no default.                                                                                                                                                                                                                                                                                                                                                                                                              |
| -u adminDN       | The LDAP distinguished name (DN) of the person with administration rights to the LDAP server that stores user authentication information. The default value is taken from the configuration setting <code>local.enduseradminDN</code> defined in the <code>ics.conf</code> file.                                                                                                                                                                                                                |
| -w password      | The password of the LDAP administrator DN specified by the -u option. The default value is taken from the configuration setting <code>local.enduseradmincred</code> defined in the <code>ics.conf</code> file. This option is required if you use the -u option.                                                                                                                                                                                                                                |
| -y userpassword  | The required calendar user's password. There is no default.                                                                                                                                                                                                                                                                                                                                                                                                                                     |

## Examples

- Check if the calendar user `jsmith@sesta.com` is enabled for calendaring (if the existing calendar user has access to calendar data for this Calendar Server):

```
csuser check jsmith@sesta.com
```

- Create an LDAP user with the user ID `jsmith@sesta.com` with the given name John, surname Smith, email address `jsmith@sesta.com`, and the domain `sesta.com`:

```
csuser -g John -s Smith -y password -m jsmith@sesta.com
      create jsmith@sesta.com -d sesta.com
```

- Delete the calendar user `jsmith@sesta.com`

```
csuser delete jsmith@sesta.com
```

- Disable the calendar user `jsmith@sesta.com` from logging in to Calendar Server:

```
csuser disable jsmith@sesta.com
```

---

**Note** – This command prevents `jsmith@sesta.com` from logging into Calendar Server to access calendar data, but it does not delete `jsmith`'s data from the calendar database. If `jsmith` is currently logged into Calendar Server, he retains access to calendar data until he logs off.

---

- Enable `jsmith@sesta.com` for calendaring (lets existing calendar user log in to Calendar Server):

```
csuser enable jsmith@sesta.com
```

- List all calendar attributes for `jsmith@sesta.com`:

```
csuser -v list jsmith@sesta.com
```

- List all calendar user ID's prefixed with the string `user`:

```
csuser -v list "user*"
```

- Reset all calendar attributes for `jsmith@sesta.com` to the default configuration settings:

```
csuser reset jsmith@sesta.com
```

- List all calendar attributes for `tchang` on the back-end server `sesta`:

```
csuser -v -h sesta list tchang
```

## start-cal

The `start-cal` utility starts the Calendar Server services in this order:

- `enpd`— Event Notification Service (ENS)
- `csnotifyd`— Notification Service
- `csadmind`— Administration Service
- `csdwpd`— Database Wire Protocol (DWP) service, the distributed database service that is started only with a remote Calendar Server database configuration
- `cshttpd`— HTTP Service

## Requirements

- You must run `start-cal` locally on the machine where Calendar Server is installed.
- You must be logged in as the user and group under which Calendar Server is running (such as `icsuser` and `icsgroup`) that was specified during installation, or as root.

## Syntax

```
start-cal
```

## Example

```
cal_svr_base/SUNWics5/cal/sbin/start-cal
```

For more information, see [“Starting and Stopping Calendar Server” on page 222](#).

## stop-cal

The `stop-cal` utility stops all Calendar Server services.

## Requirements

- You must run `stop-cal` locally on the machine where Calendar Server is installed.
- You must be logged in as the user and group under which Calendar Server is running (such as `icsuser` and `icsgroup`) that was specified during installation, or as root.

## Syntax

```
stop-cal
```

## Example

```
cal_svr_base/SUNWics5/cal/sbin/stop-cal
```

For more information, see [“Starting and Stopping Calendar Server” on page 222](#).

## Calendar Server Configuration Parameters

---

Calendar Server configuration parameters are stored in configuration files, including `ics.conf` and `counter.conf`.

This chapter provides the following information:

- “Editing the `ics.conf` Configuration File” on page 421
- “Configuration Parameters (`ics.conf`) File” on page 423
- “Counters Configuration (`counter.conf`) File” on page 458
- “Notification Messages” on page 462

### Editing the `ics.conf` Configuration File

Calendar Server configuration parameters are stored in the following file:

```
/etc/opt/SUNWics5/config/ics.conf
```

The `ics.conf` file is a ASCII text file, with each line defining a parameter and its associated value(s). The parameters are initialized during Calendar Server installation. After installation, you can edit the file using a text editor.



**Caution** – Modify the settings for parameters in the `ics.conf` file only as described in Sun documentation or as directed by a customer support representative.

For example: Remote administration is not enabled for Calendar Server. Do not change the `service.admin.port` parameter, because it is already set to its required value by Calendar Server. Otherwise, the `csadmin` process might not run properly.

---

## ▼ To edit the ics.conf file:

- 1 Log in as a user who has administrator rights to the system where Calendar Server is running.
- 2 Change to the `/etc/opt/SUNWics5/config` directory where the `ics.conf` file is located.
- 3 Edit parameters in the `ics.conf` file using a text editor such as `vi`. Conventions for parameters are:

- All parameters must be in lower case only.
  - A parameter and its associated value(s) must be separated by an equal sign (=), with spaces or tabs allowed before or after the equal sign. For example:

```
service.http.idletimeout = "120"
```

- A parameter value must be enclosed in double quotation marks ("). If a parameter allows multiple values, the entire value string must be enclosed in double quotation marks. For example:

```
calstore.calendar.owner.acl=
"@o^a^rsf^g;@o^c^wdeic^g"
```

- A comment line begins with an exclamation point (!). Comment lines are for informational purposes only and are ignored by Calendar Server.

Some parameters are released as comments, beginning with either one or two exclamation points (! or !!). To use this type of parameter, you must remove the exclamation point(s), supply a value (if needed), and then restart Calendar Server for the parameter to take effect.

For example, to use `!!caldb.dwp.server.[hostname].ip`, you must remove the exclamation points (!!), supply a value for `hostname`, and then restart Calendar Server.

- If a parameter is not in the `ics.conf` file, add the parameter and its associated value to the file.
  - If a parameter appears more than once, the value of the last parameter listed overrides the previous value.
  - All options must start at the beginning of a line.
- 4 After you make changes to parameters in the `ics.conf` file, stop and then restart Calendar Server for the new configuration values to take effect.

If you prefer, you can also stop Calendar Server before you edit the `ics.conf` file. For more information, see [“Starting and Stopping Calendar Server” on page 222](#).

# Configuration Parameters (ics.conf) File

Configuration parameters in the `ics.conf` file include:

- “Local Configuration” on page 423
- “Calendar Store Configuration” on page 427
- “Calendar Log Information Configuration” on page 428
- “Services Configuration” on page 430
- “SSL Configuration” on page 434
- “Hosted Domain Configuration” on page 436
- “Alarm Notification Parameters” on page 437
- “Calendar Lookup Database Configuration” on page 438
- “LDAP Data Cache Configuration Parameters” on page 442
- “Resource Calendar Configuration Parameters” on page 443
- “Single Sign-on (SSO) Configuration” on page 444
- “Group Scheduling Engine (GSE) Configuration” on page 446
- “Database Configuration” on page 447
- “Automatic Backups of the Calendar Database” on page 448
- “Calendar Database Parameters for ENS Messages” on page 449
- “Event Notification Server (ENS) Configuration” on page 451
- “Calendar Server API Configuration” on page 455
- “csmonitor Utility Configuration” on page 457

## Local Configuration

The following table shows the Local configuration parameters with each parameter’s default value and description.

**TABLE E-1** Local Configuration Parameters in the `ics.conf` File

| Parameter                           | Default Value | Description                                                                                 |
|-------------------------------------|---------------|---------------------------------------------------------------------------------------------|
| <code>local.autoprovision</code>    | "yes"         | Enables ("yes") or disables ("no") auto provisioning of Calendar Server users.              |
| <code>local.authldapbasedn</code>   | " "           | Base DN for LDAP authentication. If not specified, <code>local.ugldapbasedn</code> is used. |
| <code>local.authldaphost</code>     | "localhost"   | Host for LDAP authentication. If not specified, <code>local.ugldaphost</code> is used.      |
| <code>local.authldapbindcred</code> | " "           | Bind credentials (password) for user specified in <code>local.authldapbinddn</code> .       |

TABLE E-1 Local Configuration Parameters in the ics.conf File (Continued)

| Parameter                               | Default Value                   | Description                                                                                                                            |
|-----------------------------------------|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| local.authldapbinddn                    | " "                             | DN used to bind to LDAP authentication host to search for user's dn. If not specified or " ", anonymous bind.                          |
| local.authldapport                      | "389"                           | Port for LDAP authentication. If not specified, local.ugldapport is used.                                                              |
| local.authldappoolsize                  | "1"                             | Minimum number of LDAP client connections that are maintained for LDAP authentication. If not specified, local.ugldappoolsize is used. |
| local.authldapmaxpool                   | "1024"                          | Maximum number of LDAP client connections that are maintained for LDAP authentication. If not specified, local.ugldapmaxpool is used.  |
| local.lookupldap.search.minwildcardsize | "3"                             | Specifies the minimum string size for wildcard searches in an attendee lookup search. Zero (0) means always do a wildcard search.      |
| local.caldb.deadlock.autodetect         | "no"                            | Periodically checks if the Berkeley database is in a deadlock state and, if so, instructs the database to reset.                       |
| local.domain.language                   | "en"                            | Language for the domain.                                                                                                               |
| local.enduseradmincred                  | " "                             | Bind credentials (password) for LDAP user preferences authentication.                                                                  |
| local.enduseradmindn                    | " "                             | DN used to bind to LDAP user preferences host. Must be specified. If " " (not specified), anonymous bind is assumed.                   |
| local.hostname                          | " "                             | Host name of the machine on which Calendar Server is installed.                                                                        |
| local.installeddir                      | "cal_svr_base/SUNWics5/cal"     | Directory path location where Calendar Server is installed.                                                                            |
| local.instancedir                       | "cal_svr_base/SUNWics5/cal"     | Directory path location where programs and data for this instance of Calendar Server are installed.                                    |
| local.instance.lockdir.path             | "cal_svr_base/SUNWics5/cal/lib" | Specifies the location where lock files for this server instance are stored.                                                           |
| local.instance.pidfile.path             | "/etc/opt/SUNWics5/config"      | Specifies the location where PID files for this server instance are stored.                                                            |



TABLE E-1 Local Configuration Parameters in the ics.conf File (Continued)

| Parameter                    | Default Value                  | Description                                                                                                                                                                                                |
|------------------------------|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| local.instance.counter.path  | "cal_svr_base/SUNwics5/cal/lib | Specifies the location where counter files for this server instance are stored.                                                                                                                            |
| local.pluginidir.path        | " "                            | Directory path location where CSAPI plug-ins for this instance of Calendar Server are installed.                                                                                                           |
| local.rfc822header.allow8bit | "n"                            | Allow (y) or not allow (n) 8-bit headers in email messages sent by this server.                                                                                                                            |
| local.servergid              | "icsgroup"                     | Group ID (GID) for Calendar Server files, such as counters and logs.                                                                                                                                       |
| local.serveruid              | "icsuser"                      | User ID (UID) for Calendar Server files, such as counters and logs.                                                                                                                                        |
| local.sitelanguage           | "en"                           | Default language for this instance of Calendar Server.                                                                                                                                                     |
| local.smtp.defaultdomain     | " "                            | Name of the default domain used to lookup an attendee's calendarID that corresponds to an email address. For example, jsmith resolves to jsmith@sesta.com if the value for this is setting is "sesta.com". |
| local.supportedlanguages     | "en"                           | User languages supported by this instance of Calendar Server.                                                                                                                                              |
| local.ugldapbasedn           | " "                            | Base DN for LDAP user preferences. Must be specified and cannot be blank.                                                                                                                                  |
| local.ugldaphost             | "localhost"                    | Host name of machine that stores the LDAP user preferences.                                                                                                                                                |

TABLE E-1 Local Configuration Parameters in the ics.conf File (Continued)

| Parameter                        | Default Value                                                                                                                                                                                                                                                                                                                                                             | Description                                                                              |
|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| local.ugldapicsextendeduserprefs | "ceColorSet,<br>ceFontFace,<br>ceFontSizeDelta,<br>ceDateOrder,<br>ceDateSeparator,<br>ceClock,<br>ceDayHead,<br>ceDayTail,<br>ceInterval,<br>ceToolText,<br>ceToolImage,<br>ceDefaultAlarmStart,<br>ceSingleCalendarTZID,<br>ceAllCalendarTZIDs,<br>ceDefaultAlarmEmail,<br>ceNotifyEmail,<br>ceNotifyEnable,<br>ceDefaultView,<br>ceExcludeSatSun,<br>ceGroupInviteAll" | Values for the options in the icsExtendedUserPrefs attribute.                            |
| local.ugldapport                 | "389"                                                                                                                                                                                                                                                                                                                                                                     | Port number of the machine that stores LDAP user preferences.                            |
| local.ugldappoolsize             | "1"                                                                                                                                                                                                                                                                                                                                                                       | Minimum number of LDAP client connections that are maintained for LDAP user preferences. |
| local.ugldapmaxpool              | "1024"                                                                                                                                                                                                                                                                                                                                                                    | Maximum number of LDAP client connections that are maintained for LDAP user preferences. |
| local.user.authfilter            | "uid=%u"                                                                                                                                                                                                                                                                                                                                                                  | Filter to use for user lookup.                                                           |

## Calendar Store Configuration

The following table shows the Calendar Store Configuration parameters with each parameter's default value and description.

TABLE E-2 Calendar Store Configuration Parameters in the ics.conf File

| Parameter                          | Default Value                                               | Description                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------------------------|-------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| calstore.anonymous.calid           | "anonymous"                                                 | Calendar ID (calid) used for anonymous logins.                                                                                                                                                                                                                                                                                                                                                                                             |
| user.allow.doublebook              | "yes"                                                       | Determines if a user calendar can have more than one event scheduled for the same time slot when the calendar is created: <ul style="list-style-type: none"> <li>■ "no" prevents double booking.</li> <li>■ "yes" allows double booking.</li> </ul>                                                                                                                                                                                        |
| calstore.calendar.default.acl      | "@o^a^r^g;<br>@o^c^wdeic^g;<br>^a^fs^g;<br>^c^g;<br>^p^r^g" | Specifies the default access control permissions used when a user creates a calendar. The format is specified by a semicolon-separated list of access control entry (ACE) argument strings.<br><br>For details on the ACE format, see <a href="#">"Calendar Access Control" on page 264</a><br><br>To specify Access Control Entries for one or more calendars using the command-line utilities, see <a href="#">"cscal" on page 373</a> . |
| calstore.calendar.owner.acl        | "@o^a^rsf^g;<br>@o^c^wdeic^g"                               | Specifies the default access control settings for owners of a calendar.                                                                                                                                                                                                                                                                                                                                                                    |
| calstore.calendar.create.lowercase | "no"                                                        | Specifies whether Calendar Server should convert a calendar ID (calid) to lowercase when creating a new calendar or when looking up a calendar using the LDAP CLD plug-in.                                                                                                                                                                                                                                                                 |
| calstore.default.timezoneID        | "America/<br>New_York"                                      | Time zone ID to be used when: <ul style="list-style-type: none"> <li>■ A time zone ID is not supplied</li> <li>■ A calendar time zone ID is not found</li> <li>■ A user time zone ID is not found</li> </ul> An invalid value causes the server to use to the GMT (Greenwich Mean Time) time zone.                                                                                                                                         |
| calstore.filterprivateevents       | "yes"                                                       | Specifies whether Calendar Server filters (recognizes) Private and Time and Date Only (confidential) events and tasks. If "no", Calendar Server treats them the same as Public events and tasks.                                                                                                                                                                                                                                           |

TABLE E-2 Calendar Store Configuration Parameters in the ics.conf File (Continued)

| Parameter                                   | Default Value | Description                                                                                                                                                                                                                                                                                                                        |
|---------------------------------------------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| calstore.freebusy.include.defaultcalendar   | "yes"         | Specifies whether a user's default calendar is included in user's free/busy calendar list.                                                                                                                                                                                                                                         |
| calstore.freebusy.remove.defaultcalendar    | "no"          | Specifies whether a user's default calendar can be removed from user's free/busy calendar list.                                                                                                                                                                                                                                    |
| calstore.group.attendee.maxsize             | "0"           | Maximum number of attendees allowed in an LDAP group when expanding an event. Value of "0" means to expand the group entirely.                                                                                                                                                                                                     |
| calstore.recurrence.bound                   | "60"          | Maximum number of events that can be created by a recurrence expansion.                                                                                                                                                                                                                                                            |
| calstore.subscribed.include.defaultcalendar | "yes"         | Specifies whether a user's default calendar is included in the user's subscribed calendar list.                                                                                                                                                                                                                                    |
| calstore.subscribed.remove.defaultcalendar  | "no"          | Specifies whether a user's default calendar can be removed from the user's subscribed calendar list.                                                                                                                                                                                                                               |
| calstore.userlookup.maxsize                 | "200"         | Maximum number of results returned from LDAP lookup from user search. Value of "0" means no limit.                                                                                                                                                                                                                                 |
| calstore.unqualifiedattendee.fmt1.type      | "uid"         | Specifies how Calendar Server treats strings, such as <code>john doe</code> or <code>john doe: tv</code> , when performing a directory lookup for attendees of an event. Allowable values are: <code>uid</code> , <code>cn</code> , <code>gid</code> , <code>res</code> , <code>mailto</code> , <code>cap</code> .                 |
| calstore.unqualifiedattendee.fmt2.type      | "mailto"      | Specifies how Calendar Server treats strings with an at sign ( <code>@</code> ), such as <code>john.doe@sesta.com</code> , when performing a directory lookup for attendees of an event. Allowable values are: <code>uid</code> , <code>cn</code> , <code>gid</code> , <code>res</code> , <code>mailto</code> , <code>cap</code> . |
| calstore.unqualifiedattendee.fmt3.type      | "cn"          | Specifies how Calendar Server treats strings with a space, such as <code>john doe</code> , when performing a directory lookup for attendees of an event. Allowable values are: <code>uid</code> , <code>cn</code> , <code>gid</code> , <code>res</code> , <code>cap</code> .                                                       |
| store.partition.primary.path                | ". "          | Location of primary disk partition where calendar information is stored.                                                                                                                                                                                                                                                           |

## Calendar Log Information Configuration

The following table shows the calendar log configuration parameters with each parameter's default value and description.

TABLE E-3 Calendar Log Configuration Parameters in the ics.conf File

| Parameter                   | Default Value  | Description                                                                                                                                                          |
|-----------------------------|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| logfile.admin.logname       | "admin.log"    | Name of log file for logging administrative tools.                                                                                                                   |
| logfile.buffersize          | "0"            | Size of log buffers (in bytes).                                                                                                                                      |
| logfile.dwp.logname         | "dwp.log"      | Name of log file for logging Database Wire Protocol related administrative tools.                                                                                    |
| logfile.expirytime          | "604800"       | Number of seconds before log files expire.                                                                                                                           |
| logfile.flushinterval       | "60"           | Number of seconds between flushing buffers to log files.                                                                                                             |
| logfile.http.logname        | "http.log"     | Name of current log file for the cshttpd service.                                                                                                                    |
| logfile.http.access.logname | "httpd.access" | Name of current HTTP access log file.                                                                                                                                |
| logfile.logdir              | "logs"         | Directory location of log files.                                                                                                                                     |
| logfile.loglevel            | "NOTICE"       | Determines the level of detail the server will log. Each log entry is assigned one of these levels: CRITICAL, ALERT, ERROR, WARNING, NOTICE, INFORMATION, and DEBUG. |
| logfile.maxlogfiles         | "10"           | Maximum number of log files in log directory.                                                                                                                        |
| logfile.maxlogfilesize      | "2097152"      | Maximum size of each log file (in bytes).                                                                                                                            |
| logfile.maxlogsize          | "20971520"     | Maximum disk space for all log files (in bytes).                                                                                                                     |
| logfile.minfreediskspace    | "5242880"      | Minimum free disk space (in bytes) that must be available for logging.                                                                                               |
| logfile.notify.logname      | "notify.log"   | Name of log file for the csnotifyd service.                                                                                                                          |
| logfile.rollovertime        | "86400"        | Number of seconds before log files are rotated.                                                                                                                      |

## Administrator Configuration Parameters

The following table lists the ics.conf parameters that pertain to administrators.

TABLE E-4 Configuration Parameters for Administrators

| Parameter                    | Default Value | Description                                                                                                                                                 |
|------------------------------|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| service.admin.calmaster.cred | " "           | Password of the user ID specified as the Calendar Server administrator. This value is supplied at installation and is required by the installation program. |

TABLE E-4 Configuration Parameters for Administrators (Continued)

| Parameter                                            | Default Value | Description                                                                                                                                                |
|------------------------------------------------------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| service.admin.calmaster.userid                       | "calmaster"   | User ID of the person designated as the Calendar Server administrator. This value is supplied at installation and is required by the installation program. |
| service.admin.calmaster.overrides.accesscontrol      | "no"          | Indicates whether the Calendar Server administrator can override access control.                                                                           |
| service.admin.calmaster.wcap.allowgetmodifyuserprefs | "no"          | Indicates whether the Calendar Server administrator can get and set user preferences using WCAP commands.                                                  |
| service.admin.ldap.enable                            | "yes"         | If "yes", enables LDAP for user authentication of the user specified in service.admin.calmaster.userid.                                                    |

## Services Configuration

The following table shows the various services configuration parameters with each parameter's default value and description.

TABLE E-5 Services Configuration Parameters in the ics.conf File

| Parameter                 | Default Value | Description                                                                                                 |
|---------------------------|---------------|-------------------------------------------------------------------------------------------------------------|
| service.admin.alarm       | "yes"         | Enable ("yes") or disable ("no") alarm notifications for administration tools.                              |
| service.admin.checkpoint  | "yes"         | If "yes", start the csadmin database checkpoint thread.                                                     |
| service.admin.dbcachesize | "8388608"     | Maximum cache size (in bytes) for Berkeley Database for administration sessions.                            |
| service.admin.deadlock    | "yes"         | If "yes", start the csadmin database deadlock detection thread.                                             |
| service.admin.diskusage   | "no"          | If "yes", start the csadmin low disk space monitor thread.                                                  |
| service.admin.enable      | "yes"         | If "yes", start the csadmin service when starting all services and stop csadmin when stopping all services. |
| service.admin.idletimeout | "120"         | Number of seconds before timing out an HTTP connection in csadmin.                                          |
| service.admin.maxsessions | "100"         | Maximum number of administration sessions allowed.                                                          |
| service.admin.maxthreads  | "10"          | Maximum number of running threads per administration session.                                               |

TABLE E-5 Services Configuration Parameters in the ics.conf File (Continued)

| Parameter                        | Default Value | Description                                                                                                                                                                             |
|----------------------------------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| service.admin.numprocesses       | N/A           | Maximum number of a concurrent administration processes allowed.                                                                                                                        |
| service.admin.port               | N/A           | Set by the system. Do not change.                                                                                                                                                       |
| **CAUTION**                      |               |                                                                                                                                                                                         |
| service.admin.resourcetimeout    | "900"         | Number of seconds before timing out an administration connection.                                                                                                                       |
| service.admin.serverresponse     | "no"          | If "yes", start the csadmind service response thread.                                                                                                                                   |
| service.admin.sessiondir.path    | " "           | Temporary directory for administration session requests.                                                                                                                                |
| service.admin.sessiontimeout     | "1800"        | Number of seconds before timing out an HTTP session in csadmind.                                                                                                                        |
| service.admin.sleeptime          | "2"           | Number of seconds to wait between checking for started, stopped, or ready calendar service.                                                                                             |
| service.admin.starttime          | "300"         | Number of seconds to wait for any calendar service to start.                                                                                                                            |
| service.admin.stoptime           | "300"         | Number of seconds to wait for any calendar service to stop.                                                                                                                             |
| service.admin.stoptime.next      | "60"          | Number of seconds to wait between sending stop commands to any calendar service.                                                                                                        |
| service.dcroot                   | "o=internet"  | Root suffix of the DC tree in the directory.                                                                                                                                            |
| service.dnsresolveclient         | "no"          | If "yes", client IP addresses are checked against DNS if allowed HTTP access.                                                                                                           |
| service.plaintextloginpause      | "0"           | Number of seconds to delay after successfully authenticating a user using plain text passwords.                                                                                         |
| service.http.admins              | "calmaster"   | Space separated list of user ID's with administration rights to this Calendar Server.                                                                                                   |
| service.http.allowadminproxy     | "no"          | If "yes", allow login via proxy.                                                                                                                                                        |
| service.http.allowanonymouslogin | "yes"         | If "yes", allow anonymous (no authentication) access. This is a special type of login that is allowed only specified, restricted access (usually read only access to public calendars). |
| service.http.calendarhostname    | " " (Null)    | HTTP host for retrieving HTML documents.                                                                                                                                                |
| service.http.cookies             | "yes"         | Tells the server to whether or to support cookies (yes/no). It must be set to "yes" to enable single sign-on.                                                                           |
| service.http.dbcachesize         | "8388608"     | Maximum cache size of Berkeley DB for HTTP sessions.                                                                                                                                    |

TABLE E-5 Services Configuration Parameters in the ics.conf File (Continued)

| Parameter                       | Default Value | Description                                                                                                                                                                                                                     |
|---------------------------------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| service.http.domainallowed      | "" (Null)     | If specified and not "", filter to allow access based on TCP domains. For example, "ALL:LOCAL.sesta.com" would allow local HTTP access to anyone in the sesta.com domain. Multiple filters are separated by CR-LF(line feed).   |
| service.http.domainnotallowed   | "" (Null)     | If specified and not "", filter to not allow access based on TCP domains. For example, "ALL:LOCAL.sesta.com" would deny HTTP access to anyone in the sesta.com domain. Multiple filters must be separated by CR-LF (line-feed). |
| service.http.attachdir.path     | ". "          | Directory location relative to local.queuedir (or an absolute path if specified) where imported files are temporarily stored.                                                                                                   |
| service.http.ipsecurity         | "yes"         | If "yes", all requests that reference an existing session are verified as originating from the same IP address.                                                                                                                 |
| service.http.enable             | "yes"         | If "yes", start the cshttpd service when starting all services and stop cshttpd when stopping all services.                                                                                                                     |
| service.http.idletimeout        | "120"         | Number of seconds before timing out an HTTP connection.                                                                                                                                                                         |
| service.http.ldap.enable        | "yes"         | If "yes", LDAP connections for authentication and user preferences are created and maintained.                                                                                                                                  |
| service.http.listenaddr         | "INADDR_ANY"  | Specifies the TCP address that HTTP services will listen on for client requests. "INADDR_ANY" indicates any address.                                                                                                            |
| service.http.logaccess          | "no"          | If "yes", HTTP connections to server are fully logged.                                                                                                                                                                          |
| service.http.maxsessions        | "5000"        | Maximum number of HTTP sessions in cshttpd service.                                                                                                                                                                             |
| service.http.maxthreads         | "20"          | Maximum number of threads to service HTTP requests in cshttpd service.                                                                                                                                                          |
| service.http.numprocesses       | "1"           | Maximum number of concurrently running HTTP service (cshttpd) processes that should run on a server.<br><br>For a server that has multiple CPU's, see <a href="#">"Using Load Balancing Across Multiple CPU's"</a> on page 321  |
| service.http.port               | "80"          | Port for HTTP requests from Calendar Server users.                                                                                                                                                                              |
| service.http.proxydomainallowed | ""            | If specified and not "", filter for allowing proxy login based on TCP domains. Same syntax as service.http.domainallowed.                                                                                                       |
| service.http.resourcetimeout    | "900"         | Number of seconds before timing out an HTTP session.                                                                                                                                                                            |
| service.http.sessiondir.path    | "http"        | Temporary directory for HTTP sessions.                                                                                                                                                                                          |
| service.http.sessiontimeout     | "1800"        | Number of seconds before timing out an HTTP session in cshttpd service.                                                                                                                                                         |



TABLE E-5 Services Configuration Parameters in the ics.conf File (Continued)

| Parameter                                           | Default Value   | Description                                                                                                                                                                                                                                                                |
|-----------------------------------------------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| service.http.sourceurl                              | " "             | Directory relative to executable where all URL references to files are stored.                                                                                                                                                                                             |
| service.http.tmpdir                                 |                 | Directory relative to executable where all URL references to files are stored.<br>The default is: "/var/opt/SUNWics5/tmp"                                                                                                                                                  |
| service.http.uidir.path                             | "html"          | Directory that contains the default calendar client. If allowing only WCAP access, set to " ".                                                                                                                                                                             |
| service.ldapmemcache                                | "no"            | If "yes", use cache in LDAP SDK.                                                                                                                                                                                                                                           |
| service.ldapmemcachettl                             | "30"            | If service.ldapmemcache is "yes", pass in this value to the LDAP SDK. This is the maximum number of seconds that an item can be cached. If 0, there is no limit to the amount of time that an item can be cached.                                                          |
| service.ldapmemcachesize                            | "131072"        | If service.ldapmemcache is "yes", pass in this value to the LDAP SDK. This is the maximum amount of memory in bytes that the cache will consume. If 0, the cache has no size limit.                                                                                        |
| service.wcap.anonymous<br>.allowpubliccalendarwrite | "yes"           | If "yes", allow anonymous users to write to publicly writable calendars.                                                                                                                                                                                                   |
| service.wcap.format                                 | "text/calendar" | Specifies the default output format for commands currently applied only for freebusy.                                                                                                                                                                                      |
| service.wcap.freebusybegin                          | "30"            | Specifies the default offset from the current time in days for get_freebusy for beginning of the range.                                                                                                                                                                    |
| service.wcap.freebusyend                            | "30"            | Specifies the default offset from the current time in days for get_freebusy for end of the range.                                                                                                                                                                          |
| service.wcap.freebusy.redirecturl                   | ""              | For migration purposes, when migration is only partially done and calendars are split between the originating database and the Calendar Server target database. The URL of the originating database to look in if a calendar is not found in the Calendar Server database. |
| service.wcap.allowcreatecalendars                   | "yes"           | If "yes", allow calendars to be created.                                                                                                                                                                                                                                   |
| service.wcap.allowdeletecalendars                   | "yes"           | If "yes", allow calendars to be deleted.                                                                                                                                                                                                                                   |
| service.wcap.allowchangepassword                    | "no"            | If "yes", allow users to change their passwords via this server.                                                                                                                                                                                                           |
| service.wcap.<br>allowpublicwritablecalendars       | "yes"           | If "yes", allow users to have publicly writable calendars.                                                                                                                                                                                                                 |

TABLE E-5 Services Configuration Parameters in the ics.conf File (Continued)

| Parameter                                    | Default Value | Description                                                                                                                                                     |
|----------------------------------------------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| service.wcap.allowsetprefs.cn                | "no"          | If "yes", allow the set_userprefs.wcap attribute to modify the user preference "cn" (LDAP user's common name).                                                  |
| service.wcap.allowsetprefs.givenname         | "no"          | If "yes", allow the set_userprefs.wcap attribute to modify the user preference "givenname" (LDAP user's given name).                                            |
| service.wcap.allowsetprefs.icsCalendar       | "no"          | If "yes", allow the set_userprefs.wcap attribute to modify the user preference "icsCalendar" (a user's default calendar identifier).                            |
| service.wcap.allowsetprefs.mail              | "no"          | If "yes", allow the set_userprefs.wcap attribute to modify the user preference "mail" (user's email address).                                                   |
| service.wcap.allowsetprefs.preferredlanguage | "no"          | If "yes", allow the set_userprefs.wcap attribute to modify the user preference "preferredlanguage" (LDAP user's preferred language).                            |
| service.wcap.allowsetprefs.sn                | "no"          | If "yes", allow the set_userprefs.wcap attribute to modify the user preference "sn" (LDAP user's surname).                                                      |
| service.wcap.allowsetprefs.nswccalid         | "no"          | If "yes", allow the set_userprefs.wcap attribute to modify the user preference "nswccalid", which is the user's default calendar ID.                            |
| service.wcap.login.calendar.publicread       | "no"          | If "yes", default user calendars are initially set to public read/private write. If no, default user calendars are initially set to private read/private write. |
| service.wcap.userprefs.ldaproxyauth          | "no"          | If "yes", enables LDAP proxy authorization for get_userprefs.wcap command. If "no", anonymous LDAP search is performed.                                         |
| service.wcap.validateowners                  | "no"          | If "yes", the server must validate that each owner of a calendar exists in the directory (through LDAP or a CSAPI compatible user directory mechanism).         |
| service.wcap.version                         | "3.0"         | WCAP version.                                                                                                                                                   |

## SSL Configuration

The following table shows the ics.conf SSL Configuration parameters with each parameter's default value and description. While most of the SSL parameters take the default values, two of the parameters require you to change the value from the system default to the SSL value, as follows:

- `service.http.ssl.usessl = "yes"`
- `service.http.ssl.port.enable = "yes"`

The table that follow shows the `ics.conf` parameters and their default settings. Verify that your `ics.conf` parameters have the appropriate values:

**TABLE E-6** Configuration Parameters for SSL

| Parameter                                      | Default Value                         | Description                                                                                                                                                                                                                                                                                                                                            |
|------------------------------------------------|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>encryption.rsa.nsslactivation</code>     | "on"                                  | Enables the RSA Cypher Encryption Family Services for SSL.                                                                                                                                                                                                                                                                                             |
| <code>encryption.rsa.nssltoken</code>          | "internal"                            | Specifies the location of the RSA Cypher Encryption Family token.                                                                                                                                                                                                                                                                                      |
| <code>encryption.rsa.nsslpersonalityssl</code> | "SampleSSLServerCert"                 | Specifies the certificate name for the RSA Cypher Encryption Family.                                                                                                                                                                                                                                                                                   |
| <code>service.http.tmpdir</code>               | " <code>/var/opt/SUNWis5/tmp</code> " | Specifies a temp directory.                                                                                                                                                                                                                                                                                                                            |
| <code>service.http.uidir.path</code>           | "html"                                | Specifies directory where the UI files are found.                                                                                                                                                                                                                                                                                                      |
| <code>service.http.ssl.cachedir</code>         | ":"                                   | Specifies the physical path location for the SSL cache.                                                                                                                                                                                                                                                                                                |
| <code>service.http.ssl.cachesize</code>        | "10000"                               | Specifies the maximum size of the SSL cache database.                                                                                                                                                                                                                                                                                                  |
| <code>service.http.ssl.usssl</code>            | "no"                                  | For SSL configuration, change this value to "yes".<br>Specifies whether the <code>csht tpd</code> process should use the SSL subsystem.                                                                                                                                                                                                                |
| <code>service.http.ssl.port.enable</code>      | "no"                                  | For SSL configuration, change this value to "yes".<br><b>Note</b> – This does not disable the HTTP process from listening to its port. There is no way to actually disable HTTP, but you can assign it to another port that is non-functional.<br>Do <i>not</i> set <code>service.http.enable="no"</code> . That would disable the HTTPS process also. |
| <code>service.http.ssl.port</code>             | "443"                                 | Specifies the SSL port number where the <code>csht tpd</code> process listens for HTTPS requests from Calendar Server users.<br>Do not set this to the same default port used by HTTP ("80").                                                                                                                                                          |
| <code>service.http.ssl.securesession</code>    | "yes"                                 | Specifies whether to encrypt the entire session.                                                                                                                                                                                                                                                                                                       |
| <code>service.http.ssl.certdb.path</code>      | "alias"                               | Specifies the physical path location of the SSL Certificate Database.                                                                                                                                                                                                                                                                                  |
| <code>service.http.ssl.certdb.password</code>  | "password"                            | Specifies the SSL Certificate Database access password.                                                                                                                                                                                                                                                                                                |
| <code>service.http.ssl.sourceurl</code>        | "https://localhost:443"               | Specifies the SSL host name and port number for the originating source URL.                                                                                                                                                                                                                                                                            |

TABLE E-6 Configuration Parameters for SSL (Continued)

| Parameter                                | Default Value                                                                            | Description                                         |
|------------------------------------------|------------------------------------------------------------------------------------------|-----------------------------------------------------|
| service.http.ssl.ssl2.ciphers            | ""                                                                                       | Specifies ciphers for SSL2.                         |
| service.http.ssl.ssl2.sessiontimeout     | "0"                                                                                      | Specifies the session timeout for SSL2.             |
| service.http.ssl.ssl3.ciphers            | "rsa_rc4_40_md5,<br>rsa_rc2_40_md5,<br>rsa_des_sha,<br>rsa_rc4_128_md5,<br>rsa_3des_sha" | Specifies a list of supported or valid SSL ciphers. |
| service.http.ssl.ssl3.<br>sessiontimeout | "0"                                                                                      | Specifies the timeout value for the SSL session.    |

## Hosted Domain Configuration

The following table shows the hosted (virtual) domain configuration parameters with each parameter's default value and description.

TABLE E-7 Configuration Parameters for Hosted Domain Support

| Parameter                         | Default Value | Description                                                                                                                                                                                                                           |
|-----------------------------------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| service.virtualdomain.<br>support | "n"           | Enables ("y") or disables ("n") support for hosted (virtual) domains.                                                                                                                                                                 |
| local.schemaversion               | "1"           | Specifies the version of the LDAP schema: <ul style="list-style-type: none"> <li>■ "1" Sun LDAP Schema 1. See also <code>service.dcreot</code></li> <li>■ "2" Sun LDAP Schema 2. See also <code>service.schema2root</code></li> </ul> |
| service.dcreot                    | " "           | Specifies the root suffix of the DC tree in the LDAP directory, if <code>local.schemaversion="1"</code> . For example: "o=internet"                                                                                                   |
| service.schema2root               | " "           | Specifies the root suffix underneath which all domains are found, if <code>local.schemaversion="2"</code> . For example: "o=sesta.com"                                                                                                |
| service.defaultdomain             | " "           | Specifies the default domain for this instance of Calendar Server. Used when a domain name is not supplied during a login. For example: "sesta.com".                                                                                  |
| service.loginseparator            | "@+"          | Specifies a string of separators used for the <i>login-separator</i> when Calendar Server parses <code>userid[login-separator]domain</code> . Calendar Server tries each separator in turn.                                           |
| service.siteadmin.userid          | " "           | Specifies the user ID of the domain administrator.                                                                                                                                                                                    |
| service.siteadmin.cred            | " "           | Specifies the password of the domain administrator.                                                                                                                                                                                   |

## Alarm Notification Parameters

The following table shows the alarm notification server configuration parameters with each parameter's default value and description.

TABLE E-8 Alarm Notification Configuration Parameters in the ics.conf File

| Parameter                                   | Default Value                                                           | Description                                                                                                           |
|---------------------------------------------|-------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| alarm.diskstat.msgalarmdescription          | <i>"percentage<br/>calendar<br/>partition disk<br/>space available"</i> | Description sent with insufficient disk space messages.                                                               |
| alarm.diskstat.msgalarmstatinterval         | "3600"                                                                  | Number of seconds between monitoring disk space.                                                                      |
| alarm.diskstat.msgalarmthreshold            | "10"                                                                    | Percentage of available disk space that triggers sending a warning message.                                           |
| alarm.diskstat.msgalarmthresholddirection   | " - 1"                                                                  | Whether alarm.diskstat.msgalarmthreshold is above or below percentage. - 1 is below and 1 is above.                   |
| alarm.diskstat.<br>msgalarmwarninginterval  | "24"                                                                    | Number of hours between sending warning messages about insufficient disk space.                                       |
| alarm.msgalarmnoticehost                    | "localhost"                                                             | The host name of the SMTP server used to send server alarms.                                                          |
| alarm.msgalarmnoticeport                    | "25"                                                                    | The SMTP port used to send server alarms.                                                                             |
| alarm.msgalarmnoticercpt                    | "Postmaster<br>@localhost"                                              | The email address to whom server alarms sent.                                                                         |
| alarm.msgalarmnoticesender                  | "Postmaster<br>@localhost"                                              | The email address used as the sender when the server sends alarms.                                                    |
| alarm.msgalarmnoticetemplate                | " "                                                                     | The default format used to send email alarms:<br><br>"From: %s\nTo: %s\nSubject: ALARM: %s of<br>\ "%s\ " is n\n%s\n" |
| alarm.responsestat.<br>msgalarmdescription  | "calendar<br>service not<br>responding"                                 | Description sent with no service response messages.                                                                   |
| alarm.responsestat.<br>msgalarmstatinterval | "3600"                                                                  | Number of seconds between monitoring services.                                                                        |
| alarm.responsestat.<br>msgalarmthreshold    | "100"                                                                   | Only trigger sending a warning message if no service response.                                                        |

TABLE E-8 Alarm Notification Configuration Parameters in the ics.conf File (Continued)

| Parameter                                         | Default Value | Description                                                                                                                                                             |
|---------------------------------------------------|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| alarm.responsestat.<br>msgalarmthresholddirection | "-1"          | Specifies whether alarm.responsestat.<br>msgalarmthreshold is the percentage above or below<br>the threshold.<br><br>A value of -1 is below, and a value of 1 is above. |
| alarm.responsestat.<br>msgalarmwarninginterval    | "24"          | Number of hours between sending warning messages<br>about no service response sent out.                                                                                 |

## Calendar Lookup Database Configuration

The following table shows the Calendar Lookup Database (CLD) parameters with each parameter's default value and description.

TABLE E-9 Calendar Lookup Database (CLD) Parameters in the ics.conf File

| Parameter                        | Default Value | Description                                                                                                                                                                                                                                                                                                                                                          |
|----------------------------------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| csapi.plugin.calendarlookup      | "n"           | Enable ("y") or disable ("n") calendar lookup plug-ins.                                                                                                                                                                                                                                                                                                              |
| csapi.plugin.calendarlookup.name | "*"           | Specifies the name of a specific calendar lookup plug-in to load.<br>If this value is an asterisk ("*"), Calendar Server loads all<br>plug-ins.                                                                                                                                                                                                                      |
| caldb.cld.type                   | "local"       | Specifies the type of CLD plug-in to use:<br><br>"local" specifies that all calendars are stored on the local<br>server where Calendar Server is running and no plug-in is<br>loaded.<br><br>"directory" specifies the LDAP CLD plug-in, which uses a<br>calendar owner's icsDWPHost LDAP attribute to determine<br>the server where a specified calendar is stored. |

TABLE E-9 Calendar Lookup Database (CLD) Parameters in the ics.conf File (Continued)

| Parameter                                       | Default Value | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------------------------------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>caldb.dwp.server.default</code>           | " "           | Specifies the fully qualified default DWP server name used by Calendar Server if a user or resource calendar entry in the LDAP server database does not have an <code>icsDWPHost</code> attribute.<br><br>If a user who logs into Calendar Server through Communications Express, or using WCAP commands, does not have an <code>icsDWPHost</code> attribute, Calendar Server uses this parameter to auto-provision the attribute.<br><br>If a user already has an <code>icsDWPHost</code> attribute, <code>caldb.dwp.server.default</code> is not used.<br><br>This name must be resolvable by your Domain Name Service (DNS) into a valid IP address. |
| <code>caldb.cld.cache.enable</code>             | "yes"         | Enables ("yes") or disables ("no") the Calendar Lookup Database (CLD) cache option. For optimum performance for the LDAP CLD plug-in, set to "yes".                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <code>caldb.cld.cache.logfilesizemb</code>      | "10"          | Specifies the maximum size in megabytes of the checkpoint file.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <code>caldb.cld.cache.mempoolsizemb</code>      | "4"           | Specifies the size in megabytes of shared memory.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>caldb.cld.cache.maxthread</code>          | "1000"        | Specifies the maximum number of database threads.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>caldb.cld.cache.homedir.path</code>       | ". "          | Specifies the location of database event, task, and alarm files for the CLD cache option. The default value of ". " specifies that these files are stored in the <code>/var/opt/SUNWics5/csdb/cld_cache</code> directory.                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <code>caldb.cld.cache.checkpointinterval</code> | "60"          | Specifies the number of seconds between checkpoints.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <code>caldb.cld.cache.circularlogging</code>    | "yes"         | Specifies whether to remove the checkpoint files after they are synchronized for the CLD cache option.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <code>caldb.dwp.server.host-name.ip</code>      | " "           | Specifies the host name of a server that is storing a calendar database. The server must be running the DWP ( <code>csdwpd</code> ) service. This name must be resolvable by your Domain Name Service (DNS) into a valid IP address. This parameter is used by the LDAP CLD plug-in.<br><br>Note: In each part of the parameter, <i>host-name</i> must be identical and fully qualified. For example:<br><br><code>caldb.dwp.server.sesta.com.ip="sesta.com"</code>                                                                                                                                                                                     |
| <code>caldb.dwp.connthreshold</code>            | "1"           | Maximum number of backlogged requests before the server obtains a new network connection.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <code>caldb.dwp.initconns</code>                | "2"           | Initial number of connections for the Database Wire Protocol service client to make to each Database Wire Protocol service host.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

TABLE E-9 Calendar Lookup Database (CLD) Parameters in the ics.conf File (Continued)

| Parameter                                           | Default Value | Description                                                                                                                                                                                                                                                                                                                                            |
|-----------------------------------------------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>caldb.dwp.inittthreads</code>                 | "2"           | Initial number of threads for handling Database Wire Protocol service requests.                                                                                                                                                                                                                                                                        |
| <code>caldb.dwp.maxcons</code>                      | "1000"        | Maximum number of connections allowed to a server using the Database Wire Protocol service.                                                                                                                                                                                                                                                            |
| <code>caldb.dwp.maxthreads</code>                   | "20"          | Maximum number of threads allowed to a server using the Database Wire Protocol service.                                                                                                                                                                                                                                                                |
| <code>caldb.dwp.md5</code>                          | "n"           | Specifies if the server performs MD5 (Message Digest 5) one-way hash checking of all Database Wire Protocol service requests. (One-way hash functions are used to create digital signatures for message authentication.) <ul style="list-style-type: none"> <li>■ "n" disables MD5 hash checking.</li> <li>■ "y" enables MD5 hash checking.</li> </ul> |
| <code>caldb.dwp.server.hostname.ip</code>           | " "           | Specifies the IP address of the server using the Database Wire Protocol (DWP) service at the specified machine's hostname.                                                                                                                                                                                                                             |
| <code>caldb.dwp.server.hostname.port</code>         | "9779"        | Specifies the port number of the server using the Database Wire Protocol (DWP) service at the specified machine's hostname.                                                                                                                                                                                                                            |
| <code>caldb.dwp.server.back-end-server.admin</code> | " "           | On a front-end server, specifies the user ID that is used for authentication for a DWP connection to a back-end server, where <i>back-end-server</i> is the name of the server.                                                                                                                                                                        |
| <code>caldb.dwp.server.back-end-server.cred</code>  | " "           | On a front-end server, specifies the password that is used for authentication for a DWP connection to a back-end server, where <i>back-end-server</i> is the name of the server.                                                                                                                                                                       |
| <code>caldb.dwp.stacksize</code>                    | "65536"       | Stack size for Database Wire Protocol service threads.                                                                                                                                                                                                                                                                                                 |
| <code>caldb.cld.directory.ldapbasedn</code>         |               | Base DN to authenticate against if LDAP plug-in is used for the calendar locate mechanism.                                                                                                                                                                                                                                                             |
| <code>caldb.cld.directory.ldaphost</code>           |               | Host name of the LDAP server to access if an LDAP plug-in is used for the calendar locate mechanism.                                                                                                                                                                                                                                                   |
| <code>caldb.cld.directory.ldapbindcred</code>       |               | Bind credentials (password) for the user specified in the setting <code>local.authldapbinddn</code> if an LDAP plug-in is used for the calendar locate mechanism.                                                                                                                                                                                      |
| <code>caldb.cld.directory.ldapbinddn</code>         |               | DN used to bind to for authentication to search for user's DN if an LDAP plug-in is used for the calendar locate mechanism.                                                                                                                                                                                                                            |
| <code>caldb.cld.directory.ldapport</code>           | "389"         | Port number of the LDAP server to access if an LDAP plug-in is used for the calendar locate mechanism.                                                                                                                                                                                                                                                 |



TABLE E-9 Calendar Lookup Database (CLD) Parameters in the ics.conf File (Continued)

| Parameter                        | Default Value | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------------------------------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| csapi.plugin.authentication      | "n"           | If "y", load only the plug-in specified in <code>csapi.plugin.authentication.name</code> or if not specified, load all authentication class plug-ins in alphabetical order. For authentication, use each of these plug-ins in alphabetical order.                                                                                                                                                                                                                                                                                        |
| csapi.plugin.authentication.name | ""            | If <code>csapi.plugin.loadall</code> is "n" and <code>csapi.plugin.authentication</code> is "y", only load this specific plug-in. If not specified or blank (""), load all authentication class plug-ins.                                                                                                                                                                                                                                                                                                                                |
| logfile.dwp.buffersize           | "0"           | Size of Database Wire Protocol service log buffers (in bytes).                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| logfile.dwp.expirytime           | "604800"      | Number of seconds before the Database Wire Protocol service log files expire.                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| logfile.dwp.flushinterval        | "60"          | Number of seconds between flushing buffers to the Database Wire Protocol service log files.                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| logfile.dwp.logdir               | "logs"        | Directory location of the Database Wire Protocol service log files.                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| logfile.dwp.loglevel             | "Notice"      | Determines the level of detail the server will log for the Database Wire Protocol service. Each Database Wire Protocol log entry is assigned one of the following levels (starting with the most severe): Critical, Error, Warning, Notice, Information, and Debug. If you set this preference to Critical, the server will log the least amount of detail. If you want the server to log the most amount of detail, specify Debug. For example, if you specify Warning, only Critical, Error, and Warning level log entries are logged. |
| logfile.dwp.maxlogfiles          | "10"          | Maximum number of Database Wire Protocol related log files in log directory.                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| logfile.dwp.maxlogfilesize       | "2097152"     | Maximum size of each Database Wire Protocol log file (in bytes).                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| logfile.dwp.maxlogsize           | "20971520"    | Maximum disk space for all Database Wire Protocol log files (in bytes).                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| logfile.dwp.minfreediskspace     | "5242880"     | Minimum free disk space that must be available for logging Database Wire Protocol service activity (in bytes). When this value is reached, the server will attempt to free disk space by expiring old log files. All logging will be paused if no space can be freed up.                                                                                                                                                                                                                                                                 |
| logfile.dwp.rollovertime         | "86400"       | Number of seconds before Database Wire Protocol service log files are rotated.                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

TABLE E-9 Calendar Lookup Database (CLD) Parameters in the ics.conf File (Continued)

| Parameter                    | Default Value | Description                                                                                                                                                                                                                                          |
|------------------------------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| service.dwp.admin.userid     | " "           | On a back-end server, specifies the user ID that is used to authenticate a DWP connection. This parameter is optional. If a back-end server does not specify a user ID, no authentication is performed.                                              |
| service.dwp.admin.cred       | " "           | On a back-end server, specifies the password that is used to authenticate a DWP connection. This parameter is optional. If a back-end server does not specify a password, no authentication is performed.                                            |
| service.dwp.calendarhostname | "localhost"   | The hostname of the machine on which the Database Wire Protocol service is running.                                                                                                                                                                  |
| service.dwp.maxthreads       | "1000"        | Maximum number of concurrently running Database Wire Protocol service threads.                                                                                                                                                                       |
| service.dwp.numprocesses     | "1"           | Maximum number of concurrently running Database Wire Protocol (DWP) service (csdwpd) processes that should run on a server.<br><br>For a server that has multiple CPUs, see <a href="#">"Using Load Balancing Across Multiple CPU's"</a> on page 321 |
| service.dwp.enable           | "no"          | If "yes", start the csdwpd service when starting all services and stop csdwpd when stopping all services                                                                                                                                             |
| service.dwp.idletimeout      | "86400"       | Amount of time (in seconds) before closing the Database Wire Protocol service persistent connections that are idle.                                                                                                                                  |
| service.dwp.port             | "59779"       | Port number that the Database Wire Protocol service listens to. This value is the default port for the LDAP CLD plug-in.                                                                                                                             |
| service.dwp.ldap.enable      | "yes"         | Enable ("yes") or disable ("no") LDAP for remote user authentication for the Database Wire Protocol (csdwpd) service.                                                                                                                                |
| service.calendarsearch.ldap  | "yes"         | Specifies whether Calendar Server searches the LDAP directory and then the calendar database ("yes") or only the calendar database ("no").                                                                                                           |

## LDAP Data Cache Configuration Parameters

The following table describes the configuration parameters in the ics.conf file for the LDAP data cache.

TABLE E-10 LDAP Data Cache Configuration Parameters

| Parameter                                        | Description                                                                                                                                                                        |
|--------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>local.ldap.cache.enable</code>             | Enables (“yes”) or disables (“no”) the LDAP data cache. The default is “no”.                                                                                                       |
| <code>local.ldap.cache.checkpointinterval</code> | Specifies the number of seconds for the checkpoint thread to sleep. The default time is “60” seconds.                                                                              |
| <code>local.ldap.cache.circularlogging</code>    | Specifies whether or not to remove the old cache files. The default is “yes”.                                                                                                      |
| <code>local.ldap.cache.homedir.path</code>       | Specifies the physical location of LDAP data cache database. The default is <code>/var/opt/SUNWics5/csdb/ldap_cache</code> .                                                       |
| <code>local.ldap.cache.logfilesize</code>        | Specifies the maximum size in megabytes of the checkpoint file. The default is “10” megabytes.                                                                                     |
| <code>local.ldap.cache.maxthreads</code>         | Specifies the maximum number of threads for the LDAP data cache database. The default is “1000”.                                                                                   |
| <code>local.ldap.cache.mempoolsizemb</code>      | Specifies the number of megabytes of shared memory. The default is “4” megabytes.                                                                                                  |
| <code>local.ldap.cache.entryttl</code>           | Specifies the time to live (TTL) in seconds for an LDAP data cache entry. The default is “3600” seconds (1 hour).                                                                  |
| <code>local.ldap.cache.stat.enable</code>        | Specifies whether or not to log access to the LDAP data cache and to print statistics in the log file. The default is “no”.<br><br>Note This parameter applies only to debug mode. |
| <code>local.ldap.cache.stat.interval</code>      | Specifies the interval in seconds when each statistics report is written to the log file. The default is “1800” seconds (30 minutes).                                              |
| <code>local.ldap.cache.cleanup.interval</code>   | Specifies the interval in seconds between each database cleanup. The default is “1800” seconds (30 minutes).                                                                       |

## Resource Calendar Configuration Parameters

To configure resource calendars, use the parameters found in The following table:

TABLE E-11 Configuration Parameters for Resource Calendars

| Parameter                 | Default Value | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| resource.allow.doublebook | "no"          | <p>Determines if a calendar that belongs to a resource (such as a conference room or audio visual equipment) can have more than one event scheduled for the same time slot when the calendar is created:</p> <ul style="list-style-type: none"> <li>■ "no" prevents double booking.</li> <li>■ "yes" allows double booking.</li> </ul> <p>This parameter is used only when a resource calendar is created. After a resource calendar is created, Calendar Server checks the calendar properties (ics50calprops.db) to determine if double booking is allowed.</p> <p>If you need to change the calendar properties for a resource calendar to allow or disallow double booking, use csresource with the -k option.</p> |
| resource.default.acl      |               | <p>Specifies the default access control permissions used when a resource calendar is created.</p> <p>The default is: "@@o^a^r^g;@@o^c^wdeic^g;@^a^rsf^g"</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

## Single Sign-on (SSO) Configuration

- [“Configuring SSO Through Access Manager” on page 444](#)
- [“Configuring SSO Through Communications Servers Trusted Circle Technology” on page 445](#)

### Configuring SSO Through Access Manager

The following table shows the SSO configuration parameters with each parameter's default value and description when you are using Access Manager.

TABLE E-12 SSO Configuration Parameters in the ics.conf File (Through Access Manager)

| Parameter                        | Default                                            | Description                                                                             |
|----------------------------------|----------------------------------------------------|-----------------------------------------------------------------------------------------|
| local.calendar.sso.singlesignoff | "yes"                                              | Enables ("yes") or disables ("no") SSO for Calendar Server.                             |
| local.calendar.sso.amcookieName  | "iPlanetDirectoryPro"                              | Specifies the name of the Access Manager SSO cookie.                                    |
| local.calendar.sso.amnamingurl   | "http://AccessManager:port/amserver/namingservice" | Specifies the URL of the Access Manager SSO naming service.                             |
| local.calendar.sso.amloglevel    | "3"                                                | Specifies the log level for Access Manager SSO. Range is from 1 (quiet) to 5 (verbose). |

TABLE E-12 SSO Configuration Parameters in the ics.conf File (Through Access Manager) (Continued)

| Parameter                  | Default      | Description                                                |
|----------------------------|--------------|------------------------------------------------------------|
| local.calendar.sso.logname | "am_sso.log" | Specifies the name of the Access Manager SSO API log file. |

## Configuring SSO Through Communications Servers Trusted Circle Technology

The following table shows the SSO configuration parameters with each parameter's default value and description when the Communications Servers trusted circle technology.

TABLE E-13 SSO Configuration Parameters in the ics.conf File Using Communications Servers Trusted Circle Technology

| Parameter        | Default Value             | Description                                                                                                                                                                                                                                                                                                                                                                         |
|------------------|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| sso.appid        | "ics50"                   | Unique application ID for this Calendar Server installation. Each trusted application must also have a unique application ID. For example: <code>sso.appid="ics50"</code>                                                                                                                                                                                                           |
| sso.appprefix    | "ssogrp1"                 | The prefix value to be used for formatting the SSO cookies. The same value needs to be used by all trusted applications, because only SSO cookies with this prefix will be recognized by Calendar Server.<br><br>The application prefix must not end with a hyphen (-), because Calendar Server appends a hyphen to the value. For example:<br><code>sso.appprefix="ssogrp1"</code> |
| sso.appid.url    |                           | Verification URL for the value specified for <code>sso.appid</code> . For example:<br><code>"sso.ics50.url="http://siroe.com:80/default.html"</code>                                                                                                                                                                                                                                |
| sso.nnn.ip       | <code>sso.appid.ip</code> | IP address of the value specified for <code>sso.appid</code> . For example:<br><code>sso.ics50.ip="123.12.456.123"</code>                                                                                                                                                                                                                                                           |
| sso.cookieDomain | ". "                      | Causes the browser to send a cookie only to servers in the specified domain.<br><br>The value must begin with a period (.). For example:<br><code>".sesta.com"</code>                                                                                                                                                                                                               |
| sso.enable       | "1"                       | Enables or disables SSO: <ul style="list-style-type: none"> <li>■ "1" (default) enables SSO functions.</li> <li>■ "0" disables SSO functions.</li> </ul> If this parameter is missing from <code>ics.conf</code> , Calendar Server ignores SSO functions.                                                                                                                           |

**TABLE E-13** SSO Configuration Parameters in the ics.conf File Using Communications Servers Trusted Circle Technology  
(Continued)

| Parameter                 | Default Value | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------------------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| sso.singlesignoff         | "true"        | If set to "true", the server removes all SSO cookies for the user that match the value for sso.appprefix when the user logs out. If "false" the server removes only its SSO user cookie.                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| sso.userdomain            | " "           | Sets the domain used as part of the user's SSO authentication.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| sso.appid.url="verifyurl" | " "           | Specifies the verify URL values for peer SSO hosts. A parameter is required for each trusted peer.<br><br>appid is the application ID of a peer SSO host whose SSO cookies are to be trusted. For Calendar Server, the appid is ics50.<br><br>verifyurl identifies the URL of the trusted peer in the format: "http://host:port/VerifySSO?". Do not omit the question mark (?) after VerifySSO.<br><br>host is the URL of the host, and port is the port number for the host.<br><br>For example, for Calendar Server on sesta.com with port number 8883:<br><br>sso.ics50.url=<br><br>"http://sesta.com:8883/VerifySSO?" |

## Group Scheduling Engine (GSE) Configuration

The following table shows the Group Scheduling Engine (GSE) configuration parameters with each parameter's default value and description.

**TABLE E-14** Group Scheduling Engine (GSE) Configuration Parameters in the ics.conf File

| Parameter                  | Default Value | Description                                                                                                                                                                                                                                                                                                                                                             |
|----------------------------|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| gse.autorefreshreplystatus | "yes"         | Specifies if the auto refresh feature is enabled or disabled. If auto refresh is enabled, after an attendee replies to an event organizer, that attendee's reply status is automatically propagated to other attendees for that scheduled event. <ul style="list-style-type: none"> <li>■ "yes" enables auto refresh.</li> <li>■ "no" disables auto refresh.</li> </ul> |

TABLE E-14 Group Scheduling Engine (GSE) Configuration Parameters in the ics.conf File (Continued)

| Parameter                              | Default Value | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|----------------------------------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>gse.belowthresholdtimeout</code> | "3"           | Specifies (in seconds) how long to wait before the server scans the schedule queue for incoming jobs. If there are more jobs in the queue than the maximum threads allocated, the last thread will always scan the job queue again. Therefore, this setting only takes effect when the number of jobs is below the maximum threads allocated.<br><br>Increasing this number reduces the frequency the server scans the job queue and improves overall performance. |
| <code>gse.maxthreads</code>            | "10"          | Specifies the maximum number of concurrent threads the server uses to process the schedule queue. Each thread processes one job in the queue.                                                                                                                                                                                                                                                                                                                      |
| <code>gse.retryexpiredinterval</code>  | "86400"       | Specifies (in seconds) the maximum length of time the server will retry to complete a group scheduling job. If the time exceeds the maximum length of time specified, the server treats the job as a retry expired condition and reports the error.<br><br>Note that the default of 86400 seconds equals one day.                                                                                                                                                  |
| <code>gse.retryinterval</code>         | "300"         | Specifies (in seconds) how often the server will retry a previous failing job. The server retries a failing job only when a network error is encountered. The server treats most such errors, however, as fatal errors and does not consider them as retries.                                                                                                                                                                                                      |
| <code>gse.stacksize</code>             | "65535"       | Specifies the maximum stack size (in bytes) of a group scheduling thread.                                                                                                                                                                                                                                                                                                                                                                                          |

## Database Configuration

The following table lists the ics.conf parameters used to configure database handling, and gives each parameter's default value and description.

TABLE E-15 Database Configuration Parameters in the ics.conf File

| Parameter                                        | Default Value | Description                                                                                                                                             |
|--------------------------------------------------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>caldb.berkeleydb.checkpointinterval</code> | "60"          | Number of seconds between checkpointing database transactions.                                                                                          |
| <code>caldb.berkeleydb.circularlogging</code>    | "yes"         | If "yes" remove database checkpoint files after their transactions are synchronized. Do not set this to "no" unless you have enabled automatic backups. |
| <code>caldb.berkeleydb.deadlockinterval</code>   | "100"         | Number of milliseconds between checking for database deadlocks that need to be broken.                                                                  |

TABLE E-15 Database Configuration Parameters in the ics.conf File (Continued)

| Parameter                      | Default Value | Description                                                                                                                                                                                                                                                                                        |
|--------------------------------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| caldb.berkeleydb.homedir.path  | ". "          | Directory (relative to the location of the program executable files or an absolute path if specified) where database event, task, and alarm files are stored. The default is ".", which specifies:<br><br>/var/opt/SUNWics5/csdb                                                                   |
| caldb.berkeleydb.logfilesizemb | "10"          | Maximum megabytes for a database checkpoint file.                                                                                                                                                                                                                                                  |
| caldb.berkeleydb.maxthreads    | "10000"       | Maximum number of threads that database environment must be prepared to accommodate.                                                                                                                                                                                                               |
| caldb.berkeleydb.mempoolsizemb | "4"           | Megabytes of shared memory for database environment.                                                                                                                                                                                                                                               |
| caldb.calmaster                | " "           | Email for user or alias that is responsible for administering the database.                                                                                                                                                                                                                        |
| caldb.counters                 | "yes"         | If "yes", data base statistics (reads, writes, deletes) will be counted.                                                                                                                                                                                                                           |
| caldb.counters.maxinstances    | "100"         | Maximum number of calendars that can have counters. A calendar is enabled for counters using the csca1 command line utility.                                                                                                                                                                       |
| caldb.smtmsgfmtidir            | "en"          | Specifies the directory under /etc/opt/SUNWics5/config that contains the localized version of the files used to format email notifications.<br><br>For example, "en" specifies the directory for the English localized version, and "fr" specifies the directory for the French localized version. |
| caldb.smtpport                 | "25"          | Port for SMTP host.                                                                                                                                                                                                                                                                                |

## Automatic Backups of the Calendar Database

The following table lists the parameters used by the automatic backup process (csstored), gives the default value where available, and describes the ics.conf parameter.

TABLE E-16 ics.conf Parameters Used by the Automatic Backup Process

| Parameter                     | Default Value    | Description                |
|-------------------------------|------------------|----------------------------|
| logfile.store.logname         | defaultstore.log | Name of the log file.      |
| logfile.logdir                | ". "             | Path to the log directory. |
| caldb.berkeleydb.homedir.path | none             | Path to live database.     |



TABLE E-16 ics.conf Parameters Used by the Automatic Backup Process (Continued)

| Parameter                                               | Default Value    | Description                                                                                                                                                    |
|---------------------------------------------------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| caldb.berkeleydb.archive.path                           | none             | Path to the archive backup.                                                                                                                                    |
| caldb.berkeleydb.hotbackup.path                         | none             | Path to the hot backup.                                                                                                                                        |
| caldb.berkeleydb.archive.enable                         | "yes"            | Enable/disable automatic archive backups.                                                                                                                      |
| caldb.berkeleydb.hotbackup.enable                       | "yes"            | Enable/disable automatic hot backups.                                                                                                                          |
| caldb.berkeleydb.hotbackup.mindays                      | "3"              | Minimum number of hot backup copies kept on disk.                                                                                                              |
| caldb.berkeleydb.hotbackup.maxdays                      | "7"              | Maximum number of hot backup copies kept on disk.                                                                                                              |
| caldb.berkeleydb.hotbackup.threshold                    | "70"             | Percentage of used disk space that triggers purging of old hot backup copies.                                                                                  |
| caldb.berkeleydb.archive.mindays                        | "3"              | Minimum number of archive backup copies kept on disk.                                                                                                          |
| caldb.berkeleydb.archive.maxdays                        | "7"              | Maximum number of archive backup copies kept on disk.                                                                                                          |
| caldb.berkeleydb.archive.threshold                      | "70"             | Percentage of used disk space that triggers purging of old archive backup copies.                                                                              |
| caldb.berkeleydb.circularlogging                        | "yes"            | Enables/disables management of the number of, and disk space occupied by, backup copies.                                                                       |
| caldb.berkeleydb.archive.interval                       | "120"            | Time in seconds between opening of new transaction logs.                                                                                                       |
| alarm.msgalarmnoticercpt                                | "root@localhost" | Email address of the administrator to notify when necessary.                                                                                                   |
| service.store.enable<br>(not included in ics.conf file) | "yes"            | Enables csstored to be started by start-cal. Must be added to the ics.conf file, set to "no", if you want to disable csstored from being started by start-cal. |

## Calendar Database Parameters for ENS Messages

The following table describes the parameter, default value, and description for each of the parameters used to configure the calendar database. If you require a value other than the default, you must set it in the ics.conf file.

TABLE E-17 Calendar Database Parameters for ENS Messages

| Parameter                                       | Default Value               | Description                                                                               |
|-------------------------------------------------|-----------------------------|-------------------------------------------------------------------------------------------|
| caldb.serveralarms.url                          | "enp:///ics/alarm"          | Specifies the URL for the ENS message.                                                    |
| caldb.serveralarms.contenttype                  | " "                         | Specifies the content type of the alarm data. Value can be "text/xml" or "text/calendar". |
| caldb.berkeleydb.ensmsg.createcal               | "no"                        | Creates an ENS message when a calendar is created.                                        |
| caldb.berkeleydb.ensmsg.createcal.url           | "enp:///ics/calendarcreate" | Specifies the URL for the ENS message.                                                    |
| caldb.berkeleydb.ensmsg.createcal.contenttype   | "text/xml"                  | Specifies the content type of the message data: "text/xml" (default) or "text/calendar".  |
| caldb.berkeleydb.ensmsg.deletecal               | "no"                        | Creates an ENS message when a calendar is deleted.                                        |
| caldb.berkeleydb.ensmsg.deletecal.url           | "enp:///ics/calendardelete" | Specifies the URL for the ENS message.                                                    |
| caldb.berkeleydb.ensmsg.deletecal.contenttype   | "text/xml"                  | Specifies the content type of the message data: "text/xml" (default) or "text/calendar".  |
| caldb.berkeleydb.ensmsg.modifycal               | "no"                        | Creates an ENS message when a calendar is modified.                                       |
| caldb.berkeleydb.ensmsg.modifycal.url           | "enp:///ics/calendarmodify" | URL for the ENS message.                                                                  |
| caldb.berkeleydb.ensmsg.modifycal.contenttype   | "text/xml"                  | Specifies the content type of the message data: "text/xml" (default) or "text/calendar".  |
| caldb.berkeleydb.ensmsg.createevent             | "no"                        | Creates an ENS message when an event is created.                                          |
| caldb.berkeleydb.ensmsg.createevent.url         | "enp:///ics/caleventcreate" | Specifies the URL for the ENS message.                                                    |
| caldb.berkeleydb.ensmsg.createevent.contenttype | "text/xml"                  | Specifies the content type of the message data: "text/xml" (default) or "text/calendar".  |
| caldb.berkeleydb.ensmsg.modifyevent             | "no"                        | Creates an ENS message when an event is modified.                                         |
| caldb.berkeleydb.ensmsg.modifyevent.url         | "enp:///ics/caleventmodify" | Specifies the URL for the ENS message.                                                    |
| caldb.berkeleydb.ensmsg.modifyevent.contenttype | "text/xml"                  | Specifies the content type of the message data: "text/xml" (default) or "text/calendar".  |
| caldb.berkeleydb.ensmsg.deleteevent             | "no"                        | Creates an ENS message when an event is deleted.                                          |
| caldb.berkeleydb.ensmsg.deleteevent.url         | "enp:///ics/caleventdelete" | Specifies the URL for the ENS message.                                                    |

TABLE E-17 Calendar Database Parameters for ENS Messages (Continued)

| Parameter                                       | Default Value              | Description                                                                              |
|-------------------------------------------------|----------------------------|------------------------------------------------------------------------------------------|
| caldb.berkeleydb.ensmsg.deleteevent.contenttype | "text/xml"                 | Specifies the content type of the message data: "text/xml" (default) or "text/calendar". |
| caldb.berkeleydb.ensmsg.createtodo              | "no"                       | Creates an ENS message when a todo is created.                                           |
| caldb.berkeleydb.ensmsg.createtodo.url          | "enp:///ics/caltodocreate" | Specifies the URL for the ENS message.                                                   |
| caldb.berkeleydb.ensmsg.createtodo.contenttype  | "text/xml"                 | Specifies the content type of the message data: "text/xml" (default) or "text/calendar". |
| caldb.berkeleydb.ensmsg.modifytodo              | "no"                       | Creates an ENS message when a todo is modified.                                          |
| caldb.berkeleydb.ensmsg.modifytodo.url          | "enp:///ics/caltodomodify" | Specifies the URL for the ENS message.                                                   |
| caldb.berkeleydb.ensmsg.modifytodo.contenttype  | "text/xml"                 | Specifies the content type of the message data: "text/xml" (default) or "text/calendar". |
| caldb.berkeleydb.ensmsg.deletetodo              | "no"                       | Creates an ENS message when a todo is deleted.                                           |
| caldb.berkeleydb.ensmsg.deletetodo.url          | "enp:///ics/caltododelete" | Specifies the URL for the ENS message.                                                   |
| caldb.berkeleydb.ensmsg.deletetodo.contenttype  | "text/xml"                 | Specifies the content type of the message data: "text/xml" (default) or "text/calendar". |

## Event Notification Server (ENS) Configuration

Calendar Server, when configured to do so, uses an external generic service called the Event Notification Server (ENS), which accepts reports of server-level events that can be categorized into specific areas of interest and notifies other servers that have registered interest in certain categories of events. Calendar Server uses ENS to send and receive alarm notifications that include the creation, deletion, or modification of calendar events and tasks as well as general operational warning and error messages.

The following table shows the Event Notification Server (ENS) configuration parameters in `ics.conf`, with each parameter's default value and description.

TABLE E-18 Event Notification Server (ENS) Configuration Parameters in the ics.conf File

| Parameter          | Default Value | Description                                                                                           |
|--------------------|---------------|-------------------------------------------------------------------------------------------------------|
| service.ens.enable | "yes"         | If "yes", start the enpd service when starting all services and stop enpd when stopping all services. |
| service.ens.host   | "localhost"   | The host name of the machine on which ENS is running.                                                 |

TABLE E-18 Event Notification Server (ENS) Configuration Parameters in the ics.conf File (Continued)

| Parameter                         | Default Value | Description                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| service.ens.port                  | "57997"       | The port number of the machine on which ENS is running.                                                                                                                                                                                                                                                                                                                                                              |
| service.ens.library               | "xenp"        | The name of ENS plug-in.                                                                                                                                                                                                                                                                                                                                                                                             |
| service.notify.enable             | "yes"         | If "yes", start the csnotifyd service when starting all services and stop csnotifyd when stopping all services.                                                                                                                                                                                                                                                                                                      |
| service.notify.maxretrytime       | "-1"          | How many times csnotifyd will consecutively retry and fail to contact ENS.<br>A value of "-1" causes the alarm thread to retry indefinitely.                                                                                                                                                                                                                                                                         |
| service.notify.retryinterval      | "3"           | Number (in seconds) that csnotifyd waits before attempting to recontact ENS after a connection failure.                                                                                                                                                                                                                                                                                                              |
| service.notify.startupretrytime   | "0"           | Total number of seconds Calendar Server keeps trying to contact ENS before it stops. This setting is similar to caldb.serveralarms.maxretrytime except that it applies only when the alarm thread is first starting. Once the alarm thread has successfully started, caldb.serveralarms.maxretrytime is used.<br>A value of "0" tells the alarm thread to exit immediately if it fails to connect to ENS at startup. |
| ens.startlistener                 | "0"           | Acceptable values:<br><ul style="list-style-type: none"> <li>■ "1"</li> <li>■ "0"</li> </ul>                                                                                                                                                                                                                                                                                                                         |
| caldb.berkeleydb.alarmretrytime   | "300"         | Retry time in seconds after a recoverable alarm delivery error.                                                                                                                                                                                                                                                                                                                                                      |
| caldb.berkeleydb.ensmsg.createcal | "no"          | If "yes", create an Event Notification Service message when a calendar is created using the following format:<br>enp://ics/createcal?calid=cal                                                                                                                                                                                                                                                                       |
| caldb.berkeleydb.ensmsg.modifycal | "no"          | If "yes", create an Event Notification Service message when a calendar is modified using the following format:<br>enp://ics/modifycal?calid=cal                                                                                                                                                                                                                                                                      |
| caldb.berkeleydb.ensmsg.deletecal | "no"          | If "yes", create an Event Notification Service message when a calendar is deleted using the following format:<br>enp://ics/deletecal?calid=cal                                                                                                                                                                                                                                                                       |

TABLE E-18 Event Notification Server (ENS) Configuration Parameters in the ics.conf File (Continued)

| Parameter                                       | Default Value               | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------------------------------|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| caldb.berkeleydb.ensmsg.advancedtopic           | "no"                        | Specifies how modify event notifications are published: <ul style="list-style-type: none"> <li>■ If "yes", the system differentiates between reply, refresh, or modify transactions by publishing to the respective topic: <ul style="list-style-type: none"> <li>caldb.berkeleydb.ensmsg.replyevent</li> <li>caldb.berkeleydb.ensmsg.refreshevent</li> <li>caldb.berkeleydb.ensmsg.modifyevent</li> </ul> </li> <li>■ If "no", the system publishes all three types (reply, refresh, modify) to the following topic: <ul style="list-style-type: none"> <li>caldb.berkeleydb.ensmsg.modifyevent</li> </ul> </li> </ul> |
| caldb.berkeleydb.ensmsg.createevent             | "no"                        | If "yes", create an ENS message when an event is created.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| caldb.berkeleydb.ensmsg.deleteevent             | "no"                        | If "yes", create an ENS message when an event is deleted.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| caldb.berkeleydb.ensmsg.modifyevent             | "no"                        | If "yes", create an ENS message when an event is modified.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| caldb.berkeleydb.ensmsg.refreshevent            | "no"                        | Specifies whether Calendar Server should create an ENS message when an event is refreshed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| caldb.berkeleydb.ensmsg.refresheventcontenttype | "text/xml"                  | Specifies the content type of the message data for the refresh of an event. Values can be "text/xml" or "text/calendar".                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| caldb.berkeleydb.ensmsg.refresheventurl         | "enp://ics/caleventrefresh" | Specifies the URL for ENS message for the refresh of an event.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| caldb.berkeleydb.ensmsg.replyevent              | "no"                        | Specifies whether Calendar Server should create an ENS message for a reply to an event.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| caldb.berkeleydb.ensmsg.replyeventcontenttype   | "text/xml"                  | Specifies the content type of the message data for a reply to an event. Values can be "text/xml" or "text/calendar".                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| caldb.berkeleydb.ensmsg.replyeventurl           | "enp://ics/caleventreply"   | Specifies the URL for the ENS message for a reply to an event.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| caldb.berkeleydb.ensmsg.createtodo              | "no"                        | If "yes", create an Event Notification Service message when a todo (task) is created using the following format: <pre>enp://ics/createtodo? uid=uid&amp;rid=rid</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| caldb.berkeleydb.ensmsg.modifytodo              | "no"                        | If "yes", create an Event Notification Service message when a task is modified using the following format: <pre>enp://ics/modifytodo? uid=uid&amp;rid=rid</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

TABLE E-18 Event Notification Server (ENS) Configuration Parameters in the ics.conf File (Continued)

| Parameter                          | Default Value | Description                                                                                                                                                                                                                                                                       |
|------------------------------------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| caldb.berkeleydb.ensmsg.deletetodo | "no"          | If "yes", create an Event Notification Service message when a task is deleted using the following format:<br><br>enp://ics/deletetodo?uid=uid&rid=rid                                                                                                                             |
| caldb.berkeleydb.ensmsg.qsize      | "10000"       | Initial size of the in-memory ENS message queue. This queue stores all ENS messages other than alarm reminders.                                                                                                                                                                   |
| caldb.berkeleydb.ensmsg.schedreq   | "no"          | If "yes", create an Event Notification Service message when a scheduling request is written to the calendar is deleted using the following format:<br><br>enp://ics/schedreq?calid=cal<br>&method=method&type={event todo}<br>&uid=uid&rid=rid                                    |
| caldb.serveralarms                 | "yes"         | If "yes", alarm emails will be sent.                                                                                                                                                                                                                                              |
| caldb.serveralarms.acktimeout      | "30"          | Specifies the number of seconds ENS's alarm thread waits for an acknowledgment from csnotifyd after publishing an alarm notification. If the timeout expires, the alarm thread assumes the alarm notification is no longer processing and publishes the alarm notification again. |
| caldb.serveralarms.dispatchtype    | "ens"         | Specifies the dispatch type for Calendar Server alarms: <ul style="list-style-type: none"> <li>■ If "ens", the server uses the external ENS to send and receive alarms.</li> <li>■ If "smtp", the server sends alarms as standard SMTP messages and to bypass ENS.</li> </ul>     |
| caldb.serveralarms.initthreads     | "10"          | Initial number of server alarm threads.                                                                                                                                                                                                                                           |
| caldb.serveralarms.maxretrytime    | "-1"          | How many times the alarm thread will consecutively retry and fail to contact ENS.<br><br>"-1" causes the alarm thread to retry indefinitely.                                                                                                                                      |
| caldb.serveralarms.maxthreads      | "10"          | Maximum number of server alarm threads.                                                                                                                                                                                                                                           |
| caldb.serveralarms.retryinterval   | "5"           | Number (in seconds) that the alarm thread (in csadmind) waits before attempting to recontact ENS.                                                                                                                                                                                 |
| caldb.serveralarms.stacksize       | "65536"       | Stack frame size for server alarm threads.                                                                                                                                                                                                                                        |

TABLE E-18 Event Notification Server (ENS) Configuration Parameters in the ics.conf File (Continued)

| Parameter                                        | Default Value | Description                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------------------------------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>caldb.serveralarms.startupretrytime</code> | "0"           | Total number of seconds Calendar Server keeps trying to contact ENS before failing. This setting is similar to the setting <code>caldb.serveralarms.maxretrytime</code> except that it applies only when the alarm thread is first starting. Once the alarm thread has started successfully, <code>caldb.serveralarms.maxretrytime</code> is used.<br><br>If "0", the alarm thread exits immediately if it fails to connect to ENS at startup. |
| <code>caldb.smtphost</code>                      | "localhost"   | Send alarm emails to this SMTP host.                                                                                                                                                                                                                                                                                                                                                                                                           |

## Calendar Server API Configuration

The following table shows the Calendar Server API (CSAPI) configuration parameters with each parameter's default value and description.

TABLE E-19 CSAPI Configuration Parameters in the ics.conf File

| Parameter                                     | Default Value | Description                                                                                                                                                                                                                                                                                  |
|-----------------------------------------------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>csapi.plugin.authentication</code>      | "n"           | If the value is "y", load only the plug-in specified in <code>csapi.plugin.authentication.name</code> .                                                                                                                                                                                      |
| <code>csapi.plugin.accesscontrol</code>       | "n"           | Enable ("y") or disable ("n") Access Control plug-in.                                                                                                                                                                                                                                        |
| <code>csapi.plugin.authentication</code>      | "n"           | If the value is "y", load only the plug-in specified in <code>csapi.plugin.authentication.name</code> .<br><br>If the value is "n", or if not specified, load all authentication class plug-ins in alphabetical order. For authentication, use each of these plug-ins in alphabetical order. |
| <code>csapi.plugin.authentication.name</code> | " "           | If <code>csapi.plugin.loadall</code> is "n" and <code>csapi.plugin.authentication</code> is "y", only load this specific plug-in. If not specified or blank (" "), load all authentication class plug-ins.                                                                                   |
| <code>csapi.plugin.database</code>            | "y"           | If "y", load only the plug-in specified in <code>csapi.plugin.database.name</code> .<br><br>If "n", or if not specified, load all database plug-ins in alphabetical order.                                                                                                                   |

TABLE E-19 CSAPI Configuration Parameters in the ics.conf File (Continued)

| Parameter                                     | Default Value             | Description                                                                                                                                                                                                                                                                                                                          |
|-----------------------------------------------|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>csapi.plugin.database.name</code>       | "cs_caldb_berkeley10"     | If <code>csapi.plugin.loadall</code> is "n" and <code>csapi.plugin.database</code> is "y", load only this plug-in. If not specified or blank (" "), load all database plug-ins in alphabetical order.                                                                                                                                |
| <code>csapi.plugin.datatranslator</code>      | "y"                       | If "y", load only the plug-in specified in <code>csapi.plugin.datatranslator.name</code> or if not specified, load all data translator class plug-ins in alphabetical order. For data translation, use each of these plug-ins in alphabetical order.                                                                                 |
| <code>csapi.plugin.datatranslator.name</code> | "cs_data_translatorcsv10" | If <code>csapi.plugin.loadall</code> is "n" and <code>csapi.plugin.datatranslator</code> is "y", load this specific plug-in.<br><br>If blank (" "), or not specified, load all data translator class plug-ins.                                                                                                                       |
| <code>csapi.plugin.dbtranslator</code>        | "y"                       | Enable ("y") or disable ("n") database-to-output format plug-ins.                                                                                                                                                                                                                                                                    |
| <code>csapi.plugin.dbtranslator.name</code>   | **"                       | If <code>csapi.plugin.dbtranslator</code> is "y", then either: <ul style="list-style-type: none"> <li>■ If "**", load all the database-to-output format plug-ins.</li> <li>■ If this value is a library name, load only this specific plug-in.</li> </ul> If <code>csapi.plugin.dbtranslator</code> is "n", this setting is ignored. |
| <code>csapi.plugin.loadall</code>             | "n"                       | If "y", load all plug-ins found in the plug-ins directory. (Plug-ins have an .so extension.)<br><br>If "n", only load the specific class of plug-ins flagged by their respective parameters. For example, set <code>csapi.plugin.authentication</code> to "y" to load authentication class plug-ins.                                 |
| <code>csapi.plugin.userprefs</code>           | "n"                       | If "y", load only the plug-in specified in <code>csapi.plugin.userprefs.name</code> or if not specified, load all user preferences class plug-ins in alphabetical order. For user preferences, use each of these plug-ins in alphabetical order.                                                                                     |



TABLE E-19 CSAPI Configuration Parameters in the ics.conf File (Continued)

| Parameter                                | Default Value | Description                                                                                                                                                                                                                                |
|------------------------------------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>csapi.plugin.userprefs.name</code> | " "           | If <code>csapi.plugin.loadall</code> is "n" and <code>csapi.plugin.userprefs</code> is "y", this parameter is used. If not specified or blank (" "), load all user preferences class plug-ins. Otherwise, only load this specific plug-in. |

## csmonitor Utility Configuration

The following table shows the `csmonitor` utility configuration parameters with each parameter's default value and description.

TABLE E-20 csmonitor Utility Configuration Parameters in the ics.conf File

| Parameter                                      | Default Value   | Description                                                                                                                                                                                                                                                                                 |
|------------------------------------------------|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>service.monitor.continuous</code>        | "0"             | Specifies whether <code>csmonitor</code> should loop continuously:<br>"0"—Do not loop continuously.<br>"1"—Loop continuously.<br>This option requires more system resources, but it can be useful in debug mode.                                                                            |
| <code>service.monitor.loopsdelay</code>        | "60"            | Specifies the delay in seconds between two monitoring loops.                                                                                                                                                                                                                                |
| <code>service.monitor.emailaddress.from</code> | none            | Specifies the email address <code>csmonitor</code> sends messages from.                                                                                                                                                                                                                     |
| <code>service.monitor.emailaddress.to</code>   | none            | Specifies the email address <code>csmonitor</code> should send messages to.                                                                                                                                                                                                                 |
| <code>service.monitor.csdb.logthreshold</code> | "90"            | Specifies a threshold value in percent of the total disk space for the maximum disk occupation considered to be normal. If the disk occupation where the calendar database ( <code>csdb</code> directory) resides exceeds this value, <code>csmonitor</code> sends a warning email message. |
| <code>logfile.monitor.logname</code>           | "csmonitor.log" | Specifies the <code>csmonitor</code> log file name.                                                                                                                                                                                                                                         |
| <code>logfile.monitor.maxlogfilesize</code>    | "2097152"       | Specifies the maximum log file size. If the log file exceeds this size, <code>csmonitor</code> saves the log as <code>csmonitor.log.timestamp</code> and resets the log.                                                                                                                    |
| <code>service.monitor.dbglevel</code>          | "0"             | Specifies the debug level. The higher this value, <code>csmonitor</code> sends more precise and verbose messages.                                                                                                                                                                           |

## Counters Configuration (counter.conf) File

Calendar Server counters (statistics) configuration parameters are in the following file:

```
/etc/opt/SUNWics5/config/counter.conf
```

The counter.conf file is an ASCII text file, with each line defining a counter and its parameters: name, type, size (in bytes), and description. A parameter with spaces must be enclosed in double quotation marks (" "). A comment line must begin with an exclamation point (!). Comment lines are for informational purposes only.

The first part of a counter's name identifies the counter object used with the `csstats` utility. For more information about the command-line utilities, see [Appendix D, "Calendar Server Command-Line Utilities Reference."](#)

---

**Note** – Do not modify the counter.conf file unless instructed to do so by customer support staff.

---

This section describes the Calendar Server counter.conf parameters, including:

- "Alarm Counters" on page 458
- "Server Response Counters" on page 461
- "Group Scheduling Counters" on page 460
- "HTTP Counters" on page 459
- "Database Counters" on page 461
- "WCAP Counters" on page 461
- "Disk Usage Counters" on page 459
- "Session Status Counters" on page 461
- "Authentication Counters" on page 460

### Alarm Counters

The following table shows each alarm counter's name, type, size, and description.

TABLE E-21 Alarm Counters in the counter.conf File

| Name               | Type  | Size | Description                       |
|--------------------|-------|------|-----------------------------------|
| alarm.high         | GAUGE | 4    | Highest ever recorded value.      |
| alarm.low          | GAUGE | 4    | Lowest ever recorded value.       |
| alarm.current      | GAUGE | 4    | Current monitored valued.         |
| alarm.warningstate | GAUGE | 4    | Warning state: yes (1) or no (0). |

TABLE E-21 Alarm Counters in the counter.conf File (Continued)

| Name                        | Type    | Size | Description                         |
|-----------------------------|---------|------|-------------------------------------|
| alarm.countoverthreshold    | COUNTER | 4    | Number of times crossing threshold. |
| alarm.countwarningsent      | COUNTER | 4    | Number of warnings sent.            |
| alarm.timelastset.desc      | TIME    | 4    | Last time current value was set.    |
| alarm.timelastwarning       | TIME    | 4    | Last time warning was sent.         |
| alarm.timereset             | TIME    | 4    | Last time reset was performed.      |
| alarm.timestatechanged.desc | TIME    | 4    | Last time alarm state changed.      |

## Disk Usage Counters

The following table shows each disk usage counter's name, type, size, and description.

TABLE E-22 Disk Usage Counters in the counter.conf File

| Name                       | Type   | Size | Description                                  |
|----------------------------|--------|------|----------------------------------------------|
| diskusage.availSpace       | GAUGE  | 5    | Total space available in the disk partition. |
| diskusage.lastStatTime     | TIME   | 4    | The last time statistic was taken.           |
| diskusage.calPartitionPath | STRING | 512  | Calendar partition path.                     |
| diskusage.percentAvail     | GAUGE  | 4    | Disk partition space available percentage.   |
| diskusage.totalSpace       | GAUGE  | 5    | Total space in the disk partition.           |

## HTTP Counters

The following table shows each HTTP counter's name, type, size, and description.

TABLE E-23 HTTP (httpstat) Counters in the counter.conf File

| Name                        | Type    | Size | Description                                      |
|-----------------------------|---------|------|--------------------------------------------------|
| httpstat.avgConnectionTime  | GAUGE   | 4    | Average connection response time.                |
| httpstat.currentStartTime   | TIME    | 4    | When Calendar Server was started.                |
| httpstat.lastConnectionTime | TIME    | 4    | Last time new client connection was accepted.    |
| httpstat.maxConnections     | COUNTER | 4    | Maximum number of concurrent connections served. |
| httpstat.maxSessions        | COUNTER | 4    | Maximum number of WCAP sessions served.          |

TABLE E-23 HTTP (httpstat) Counters in the counter.conf File (Continued)

| Name                           | Type    | Size | Description                                                    |
|--------------------------------|---------|------|----------------------------------------------------------------|
| httpstat.numConnections        | COUNTER | 4    | Total number of connections served.                            |
| httpstat.numCurrentConnections | GAUGE   | 4    | Current number of active connections.                          |
| httpstat.numCurrentSessions    | GAUGE   | 4    | Current number of WCAP sessions.                               |
| httpstat.numFailedConnections  | COUNTER | 4    | Total number of failed connections served.                     |
| httpstat.numGoodLogins.desc    | COUNTER | 4    | Number of successful logins served by the current HTTP server. |
| httpstat.numFailedLogins       | COUNTER | 4    | Number of failed logins served by the current HTTP server.     |

## Group Scheduling Counters

The following table shows each Group Scheduling Engine (GSE) counter's name, type, size, and description.

TABLE E-24 Group Scheduling Engine (GSE) Counters in the counter.conf File

| Name                           | Type    | Size | Description                             |
|--------------------------------|---------|------|-----------------------------------------|
| gsestat.lastWakeUpTime         | TIME    | 4    | Last time GSE wakes up and process job. |
| gsestat.lastJobProcessedTime   | TIME    | 4    | Last time GSE processes a job.          |
| gsestat.numJobsProcessed       | COUNTER | 4    | Total number of jobs GSE processed.     |
| gsestat.numActiveWorkerThreads | COUNTER | 4    | Total number of active Worker Threads.  |

## Authentication Counters

The following table shows each Authentication counter's name, type, size, and description.

TABLE E-25 Authentication (authstat) Counters in the counter.conf File

| Name                         | Type    | Size | Description                               |
|------------------------------|---------|------|-------------------------------------------|
| authstat.lastLoginTime       | TIME    | 4    | Last time a user logged in.               |
| authstat.numSuccessfulLogins | COUNTER | 4    | Total number of successful logins served. |
| authstat.numFailedLogins     | COUNTER | 4    | Total number of failed logins served.     |

## WCAP Counters

The following table shows each WCAP counter's name, type, size, and description.

TABLE E-26 WCAP (wcapstat) Counters in the counter.conf File

| Name                 | Type    | Size | Description                    |
|----------------------|---------|------|--------------------------------|
| wcapstat.numRequests | COUNTER | 4    | Total number of WCAP requests. |

## Database Counters

The following table shows each Database counter's name, type, size, and description.

TABLE E-27 Database (dbstat) Counters in the counter.conf File

| Name                  | Type    | Size | Description                       |
|-----------------------|---------|------|-----------------------------------|
| dbstat.numReads       | COUNTER | 4    | Total number of database reads.   |
| dbstat.numWrites      | COUNTER | 4    | Total number of database writes.  |
| dbstat.numDeletes     | COUNTER | 4    | Total number of database deletes. |
| dbstat.lastReadTime   | TIME    | 4    | Last time of database read.       |
| dbstat.lastWriteTime  | TIME    | 4    | Last time of database write.      |
| dbstat.lastDeleteTime | TIME    | 4    | Last time of database delete.     |

## Server Response Counters

The following table shows each Server Response counter's name, type, size, and description.

TABLE E-28 Server Response Counters in the counter.conf File

| Name                        | Type  | Size | Scale | Description                           |
|-----------------------------|-------|------|-------|---------------------------------------|
| serverresponse.lastStatTime | TIME  | 4    |       | Last time statistic was taken.        |
| serverresponse.responseTime | GAUGE | 4    | 2     | Server response time in milliseconds. |

## Session Status Counters

The following table shows each Session Status counter's name, type, size, and description.

TABLE E-29 Sessions Status Counters in the counter.conf File

| Name                        | Type    | Size | Scale | Description                             |
|-----------------------------|---------|------|-------|-----------------------------------------|
| sessstat.maxSessions.desc   | COUNTER | 4    | 4     | Maximum number of HTTP sessions served. |
| sessstat.numCurrentSessions | GAUGE   | 4    | 2     | Current number of HTTP sessions.        |

## Notification Messages

Calendar Server sends the types of email messages described in [“Calendar Server Mail Parameters” on page 462](#). The format of these messages is controlled by the associated format (.fmt) file listed in the table. Format files are located in specific directories for each locale (such as /en for English and /fr for French) in the following directory:

```
/etc/opt/SUNWics5/config
```

For example, the English version of the task (todo) alarm message format is specified in the file:

```
/etc/opt/SUNWics5/config/en/mail_todoalarm.fmt
```

This section describes:

- [“Calendar Server Mail Parameters” on page 462](#)
- [“Special Character Sequences for Events” on page 464](#)
- [“Date Sub-Formatting” on page 465](#)
- [“Conditional Printing” on page 466](#)
- [“Special Character Sequences for Task Notifications” on page 467](#)
- [“Special Character Sequences for Dates” on page 468](#)
- [“Simple Event Reminder Example” on page 469](#)
- [“Complex Event Reminder Example” on page 470](#)

## Calendar Server Mail Parameters

The following table shows the message type, parameter name, default format file description, and recipient for each Calendar Server Mail parameter.

TABLE E-30 Calendar Server Email Formats in the ics.conf File

| Message Type  | Parameter                      | Format File (default)   | Description                                         | Recipients                   |
|---------------|--------------------------------|-------------------------|-----------------------------------------------------|------------------------------|
| Event Publish | calmail.imipeventpublish.fname | "mail_eventpublish.fmt" | Announces an event or a change to an existing event | Those listed in Notification |

TABLE E-30 Calendar Server Email Formats in the ics.conf File (Continued)

| Message Type                        | Parameter                                      | Format File (default)                   | Description                                      | Recipients                   |
|-------------------------------------|------------------------------------------------|-----------------------------------------|--------------------------------------------------|------------------------------|
| Event Cancel                        | calmail.imipeventcancel.fname                  | "mail_eventcancel.fmt"                  | Announces an event cancellation                  | Those listed in Notification |
| Reply to Event                      | calmail.imipeventreply.fname                   | "mail_eventreply.fmt"                   | Replies to an event notification.                | Those listed in Notification |
| Request Event                       | calmail.imipeventrequest.fname                 | "mail_eventrequest.fmt"                 | Subscribes to an event notification.             | Those listed in Notification |
| Event Alarm                         | calmail.eventreminder.fname                    | "mail_eventreminder.fmt"                | Reminder for an upcoming event                   | Those listed in Reminder     |
| Recurring Event Notification        | calmail.imipeventnotificationrecur.fname       | "mail_eventnotificationrecur.fmt"       | Notifies of a recurring event                    | Those listed in Notification |
| Event Cancel Notification           | calmail.imipeventcancelnotification.fname      | "mail_eventcancelnotification.fmt"      | Notifies of a cancelled event                    | Those listed in Notification |
| Recurring Event Cancel Notification | calmail.imipeventcancelnotificationrecur.fname | "mail_eventcancelnotificationrecur.fmt" | Notifies of a cancelled recurring event          | Those listed in Notification |
| Task Publish                        | calmail.imiptodopublish.fname                  | "mail_todopublish.fmt"                  | Announces a task or a change to an existing task | Those listed in Notification |
| Task Cancel                         | calmail.imiptodocancel.fname                   | "mail_todocancel.fmt"                   | Announces a task cancellation                    | Those listed in Notification |
| Reply to Task                       | calmail.imiptodoreply.fname                    | "mail_todoreply.fmt"                    | Replies to a task notification                   | Those listed in Notification |
| Todo Request                        | calmail.imiptodorequest.fname                  | "mail_todorequest.fmt"                  | Subscribes to a todo notification.               | Those listed in Notification |
| Task Alarm                          | calmail.todoreminder.fname                     | "mail_todoreminder.fmt"                 | Reminder for an upcoming task                    | Those listed in Reminder     |

Calendar Server generates notification messages by combining a particular event or task with the contents of a format file. The values of data fields within an event or task can be output to the message. The notification message can also include MIME header lines and associated special values. Using special character sequences (format notations), you can include the values of events, tasks, and MIME headers in the message. The lines in the format file are format strings comprised of special character sequences that are replaced with actual values from calendar

data fields when the mail message is generated. Special character sequences consist of two characters, the first is the percent sign (%) and the second represents the specific format notation.

The following sections describe special character sequences:

- “Special Character Sequences for Events” on page 464
- “Special Character Sequences for Task Notifications” on page 467
- “Special Character Sequences for Dates” on page 468

## Special Character Sequences for Events

The following table shows the format code and meaning for Special Character Sequences for Event Notifications.

TABLE E-31 Special Character Sequences for Event Notifications

| Format Code | Meaning                                                                                                                                                                                                                                                           |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| %0          | Start time in localized format                                                                                                                                                                                                                                    |
| %1          | End time in localized format                                                                                                                                                                                                                                      |
| %A          | exdates in iCalendar format (semicolon-separated list of ISO 8601 date strings listing dates to exclude)                                                                                                                                                          |
| %a          | rdates in iCalendar format (semicolon-separated list of ISO 8601 date strings listing recurrence dates)                                                                                                                                                           |
| %B          | Start time (also see %Z)                                                                                                                                                                                                                                          |
| %b          | Output the start time and end time in iCalendar format. If the start time has the parameter value=date, only the month/day/year portion of the date is output. If end time has the same month/day/year value as the start time, only the start time is generated. |
| %C          | Create time                                                                                                                                                                                                                                                       |
| %c          | Event class                                                                                                                                                                                                                                                       |
| %d          | Event description. (also see %F)                                                                                                                                                                                                                                  |
| %E          | End time (also see %Z)                                                                                                                                                                                                                                            |
| %e          | Exception rules in iCalendar format                                                                                                                                                                                                                               |
| %F          | Event description - folded line / iCalendar format (also see %d)                                                                                                                                                                                                  |
| %G          | The event's geographic location (latitude and longitude)                                                                                                                                                                                                          |
| %g          | Organizer's email address. (There is no guarantee as to the authenticity of this value.)                                                                                                                                                                          |



TABLE E-31 Special Character Sequences for Event Notifications (Continued)

| Format Code        | Meaning                                                                                                                                                                           |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| %K                 | Organizer email in the form of a mailto:url                                                                                                                                       |
| %k                 | Alarm count                                                                                                                                                                       |
| %L                 | Location                                                                                                                                                                          |
| %l                 | Recurrence rules in iCalendar format                                                                                                                                              |
| %M                 | Modify time                                                                                                                                                                       |
| %N                 | New line                                                                                                                                                                          |
| %n                 | The current time stamp used with DTSTAMP                                                                                                                                          |
| %P                 | Priority                                                                                                                                                                          |
| %r                 | Recurrence id (blank if this event does not recur)                                                                                                                                |
| %S                 | Event sequence number                                                                                                                                                             |
| %s                 | Summary                                                                                                                                                                           |
| %t                 | Event status                                                                                                                                                                      |
| %U                 | Unique Event Identifier                                                                                                                                                           |
| %Z                 | Used in conjunction with the time field code to force the time to be rendered in UTC. (%B displays the start time in local time whereas %ZB displays the start time in UTC time.) |
| %%                 | Displays the percent (%) character                                                                                                                                                |
| %(sub-format code) | Specifies a sub-format for the data identified by code. (For details, see <a href="#">“Date Sub-Formatting” on page 465.</a> )                                                    |

## Date Sub-Formatting

Date-time values can be formatted in many different ways. Using a sub-format, you can provide additional information to describe how a date-time value should be formatted. If a sub-format is not specified, the server uses a default format to output the date. Using a sub-format field allows you to specify the exact format to be used.

For example, %B specifies that the output string includes the event's begin time. This default format prints out the date, time, the time zone, and everything possible about the date. The sub-format string for date values is a `strftime` format string (see [“Special Character Sequences for Dates” on page 468](#)). If you were only interested in the month and year of the start time, instead of %B, you would use: `%( %m %Y)B`.

## Example

The following example:

```
The event begins: %B%N
The event ends: %(%b %d, %Y %I:%M %p)E%N
```

produces output that resembles the following notification:

```
The event begins Feb 02, 1999 23:30:00 GMT Standard Time
The event ends Feb 03, 1999 02:30 AM
```

## Conditional Printing

Sometimes it is desirable to print a line only under certain conditions. For example, the following lines:

```
title: %S%N
start: %B%N
end: %E%N
```

produce output that resembles the following notification:

```
title: Staff Meeting
start: Feb 04, 1999 09:00:00
end: Feb 04, 1999 10:00:00
```

There are two conditions, however, where the above example would yield misleading or incorrect results:

- If the event has no end time
- If the event is an “all-day” event that starts and ends on the same day

In these situations, it is best not to print the end time at all. By default, only the year, month, and day are printed when a time stamp has the attribute of being all-day. Furthermore, if an event start time has the all-day attribute and the event ends on the same day as it starts, a special conditional flag is set. Use the ? modifier to print conditional values only when the special conditional flag is not set.

For example, if you change the lines in the above example to:

```
title: %S%N
start: %B%N
end: %?E%N
```

The last line will not be printed for all-day events for which the start day and end day are the same. It produces the following output for typical all-day events (such as birthdays or anniversaries):

title: Staff Meeting  
start: Feb 04, 1999

The ? flag can be combined with other modifiers. For example:

The event ends: %?(%b %d, %Y %I:%M %p)E%N

## Special Character Sequences for Task Notifications

The following table shows the format code and meaning for Special Character Sequences for Task Notifications.

TABLE E-32 Special Character Sequences for Task Notifications

| Format Code | Meaning                                                                                                  |
|-------------|----------------------------------------------------------------------------------------------------------|
| %A          | exdates in iCalendar format (semicolon-separated list of ISO 8601 date strings listing dates to exclude) |
| %a          | rdates in iCalendar format (semicolon-separated list of ISO 8601 date strings listing recurrence dates)  |
| %B          | start time (also see %Z)                                                                                 |
| %C          | create time                                                                                              |
| %c          | task class                                                                                               |
| %D          | due date and time.                                                                                       |
| %d          | task description. (also see %F)                                                                          |
| %E          | due date and time in IMIP format                                                                         |
| %e          | exception rules in iCalendar format                                                                      |
| %F          | task description - folded line, iCalendar format (also see %d)                                           |
| %G          | this task's geographic location, the latitude and longitude.                                             |
| %g          | organizer's email address (cannot guarantee the authenticity of this value)                              |
| %K          | organizer's email in the form of a mailto:URL                                                            |
| %k          | alarm count                                                                                              |
| %L          | the location                                                                                             |
| %l          | recurrence rules in iCalendar format                                                                     |
| %M          | modify time                                                                                              |

TABLE E-32 Special Character Sequences for Task Notifications (Continued)

| Format Code        | Meaning                                                                                                                                                                     |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| %N                 | a new line                                                                                                                                                                  |
| %n                 | "now" (the current time stamp and used with DTSTAMP)                                                                                                                        |
| %P                 | priority                                                                                                                                                                    |
| %r                 | the recurrence ID (blank if this task does not recur)                                                                                                                       |
| %S                 | is the task's Sequence Number                                                                                                                                               |
| %s                 | summary                                                                                                                                                                     |
| %t                 | the status                                                                                                                                                                  |
| %U                 | the UID                                                                                                                                                                     |
| %Z                 | used in conjunction with time field code to force the time to be rendered in UTC (%B displays the start time in local time whereas %ZB displays the start time in UTC time) |
| %%                 | displays the % character                                                                                                                                                    |
| %(sub-format code) | specify a sub-format for the data identified by code (for details, see <a href="#">"Date Sub-Formatting"</a> on page 465)                                                   |

## Special Character Sequences for Dates

The following table shows the format code and meaning for Special Character Sequences for dates.

**Note** – The special date format codes appear in this section only for convenience. Calendar Server does not rewrite any of the codes, but simply uses the operating system implementation.

TABLE E-33 Special Character Sequences for Dates

| Format Code | Meaning                                             |
|-------------|-----------------------------------------------------|
| %a          | Abbreviated weekday name                            |
| %A          | Full weekday name                                   |
| %b          | Abbreviated month name                              |
| %B          | Full month name                                     |
| %c          | Date and time representation appropriate for locale |
| %d          | Day of month as decimal number (01 - 31)            |

TABLE E-33 Special Character Sequences for Dates (Continued)

| Format Code | Meaning                                                                    |
|-------------|----------------------------------------------------------------------------|
| %H          | Hour in 24 hour format (00 - 23)                                           |
| %I          | Hour in 12 hour format (01 - 12)                                           |
| %j          | Day of year as decimal number (001 - 366)                                  |
| %m          | Month as decimal number (01 - 12)                                          |
| %M          | Minute as decimal number (00 - 59)                                         |
| %p          | Current locale's A.M./P.M. indicator for 12 hour clock                     |
| %S          | Second as decimal number (00 - 59)                                         |
| %U          | Week of year as decimal number, with Sunday as first day of week (00 - 53) |
| %w          | Weekday as decimal number (0 - 6; Sunday is 0)                             |
| %W          | Week of year as decimal number, with Monday as first day of week (00 - 53) |
| %x          | Date representation for current locale                                     |
| %X          | Time representation for current locale                                     |
| %y          | Year without century, as decimal number (00 - 99)                          |
| %Y          | Year with century, as decimal number                                       |
| %Z          | Time-zone name or abbreviation; no characters if time zone is unknown      |
| %%          | Percent sign                                                               |

## Simple Event Reminder Example

The following example shows the default event reminder message format:

```

1  EVENT REMINDER
2  --MIME-Version: 1.0%N
3  --Content-Type: text/plain; charset=%s%N
4  --Content-Transfer-Encoding: %x%N%N
5      Summary: %s%N
6          Start: %(%a, %d %b %Y %I:%M %p)B%N
7          End: (%a, %d %b %Y %I:%M %p)E%N
8      Location: %L%N%N
9  Description: %N%d%N

```

The description of each line in this example is:

- Line 1 is the message subject.
- Line 2 begins with `~~`, which indicates that it is a MIME wrapper line. That is, the replacement of special character sequences are those associated with an internal MIME object rather than an event or task. The special sequence `%N` is a line feed. The subject line does not need the special new line sequence, while all other lines do.
- Line 3 is also a MIME header line. It contains the special character sequence `%s`, which will be replaced by the character set associated with the event or task being mailed.
- Line 4 is the last MIME line, `%x` is the content transfer encoding string needed for this message.
- Line 5 lists the event summary and calls out the event summary with `%s`.
- Line 6 lists the event start time. It makes use of a sub-format string on the special character sequence `%B`. For details, see [“Date Sub-Formatting” on page 465](#).
- Line 7 lists the event end time.
- Line 8 lists the location of the event.
- Line 9 lists the description of the event.

The following sample resembles the notification message generated by the above example:

```
From: jsmith@sesta.com (James Smith)
Date: Wed, 15 Nov 1999 19:13:49
To: jsmith@sesta.com
Subject: EVENT REMINDER
MIME-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit
Summary: smtp_rig event 1
    Start: Tues, 16 Nov 1999 02:00 PM
    End: Tues, 16 Nov 1999 03:00 PM
Location: Green Conference Room
Description: This is the description for a randomly generated event.
```

## Complex Event Reminder Example

The following example shows a more complex multipart message. This example has a text part and an IMIP PUBLISH part.

```
EVENT PUBLICATION
~~MIME-Version: 1.0%N
~~Content-Type: multipart/mixed; boundary="%b"%N%N
This is a multi-part message in MIME format.%N
~~-%b%N
~~Content-Type: text/plain; charset=%s%N
```

```

~~Content-Transfer-Encoding: %X%N%N
  Summary: %S%N
    Start: %(%a, %d %b %Y %I:%M %p)B%N
    End: %(%a, %d %b %Y %I:%M %p)E%N
    Location: %L%N%N
    Description: %N%d%N%N
~~- -%b%N
~~Content-Type: text/calendar; method=%m; component=%c; charset=%s%N
~~Content-Transfer-Encoding: %X%N%N
BEGIN:VCALENDAR%N
PRODID:-//iPlanet/Calendar Hosting Server//EN%N
METHOD:PUBLISH%N
VERSION:2.0%N
BEGIN:VEVENT%N
ORGANIZER:%K%N
DTSTAMP:%Zn%N
DTSTART:%ZB%N
DTEND:%ZE%N
SUMMARY:%s%N
UID:%U%N
  %R
  %A
  %a
  %e
  %l
SEQUENCE:%S%N
LOCATION:%L%N
GEO:%G%N
  %F
STATUS:%t%N
END:VEVENT%N
END:VCALENDAR%N
~~- -%b- -

```





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