Deployment Guide

Sun™ ONE Instant Messaging

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Contents

Deploying Sun ONE Instant Messaging

This guide gives an overview of the issues involved in designing and installing an instant messaging solution with Sun™ ONE Portal Server (also referred as Sun™ ONE Instant Messaging Server). It outlines important deployment concepts and installation decisions to be considered.

This guide contains the following sections:

Planning the Operating System and Hardware

The first step in planning your Sun ONE Instant Messaging configuration is to decide on the operating system platform and identify server hardware requirements. See the *Sun ONE Instant Messaging Release Notes* for more information.

`http://docs.sun.com/prod/s1.ipportalsicp`

NOTE Installing Sun ONE Instant Messaging in portal mode requires that your operating system be Solaris. Sun ONE Portal Server currently runs only on Solaris.

Deploying in Portal or Standalone Mode

This section provides an overview of deploying Sun ONE Instant Messaging in both portal and standalone modes.

Deployment Options

You can install and configure Sun ONE Instant Messaging in one of the two ways:

- As part of the Sun ONE Portal Server environment, making Sun ONE Instant Messenger available from Sun ONE Portal Server Desktop (Solaris only).
- As a standalone server

Whether you install Sun ONE Instant Messaging in the Sun ONE Portal Server environment or as a standalone server, you can use a variety of configurations to fit your site needs. See the *Sun ONE Instant Messaging Administrator's Guide* for more information on these configurations.

Deploying Sun ONE Instant Messaging in Portal Mode

Sun ONE Instant Messaging enables you to utilize a number of different portal deployment scenarios, including:

- Using directory server used by Sun ONE Portal Server
- Installing Sun ONE Instant Messaging Server and client components on the same host (the portal host)
- Installing Sun ONE Instant Messaging Server and client components on different hosts
- Using the Sun ONE Portal Server, Secure Remote Access (gateway and netlet) for encrypted communication in a secure mode between clients and the Sun ONE Instant Messaging Server

You can add Sun ONE Instant Messaging software to an existing portal deployment or create a fresh installation. Answer the following questions before deploying Sun ONE Instant Messaging in the portal mode:

- Do I want to deploy all the components on the portal host, or do I want to deploy separate components on different hosts? See the *Sun ONE Instant Messaging Installation Guide* for more guidelines.
- Do I want to run the Sun ONE Instant Messenger client in secure or non-secure mode? In the secure mode, communication between Sun ONE Instant Messaging Server and the multiplexor is encrypted. If you choose to use the secure mode, you must install the Sun ONE Portal Server, Secure Remote Access (gateway) product.
- Do I want to enable the Contact List of the portal channel and the archive provider based on Portal Search Server.
- Do I want to assign the Instant Messaging Service to existing users.
- Do I have all the other required software installed? See the Other Software Dependencies for more information on what other software is required.

Deploying Sun ONE Instant Messaging in Standalone Mode

When deploying Sun ONE Instant Messaging in the standalone mode, you do not need to install the Sun ONE Portal Server software. You will need an LDAP directory server to contain the user IDs required by Sun ONE Instant Messaging server for authentication and user search.

Sun ONE Instant Messaging enables you to utilize two different standalone deployment scenarios:

- Installing the Sun ONE Instant Messaging Server, multiplexor, and client components on the same system.
- Installing the Sun ONE Instant Messaging Server, multiplexor, and client components on different systems.

Other Software Dependencies

This section describes the server and client software needed by Sun ONE Instant Messaging and Sun ONE Instant Messenger. This additional software is not included with the Sun ONE Instant Messaging software package.

Be sure to install all the recommended operating system patches before installing any of the other required software or Sun ONE Instant Messaging itself.

NOTE	Currently, there are no high-availablity cluster agents for Sun ONE Instant Messaging .

Server Software Dependencies

Sun ONE Instant Messaging Server depends on the following software for proper operation. This software is not included with the Sun ONE Instant Messaging software. You must install and configure this software separately. See the *Sun ONE Instant Messaging 3.0 Release Notes* for information on supported software and versions.

- **Sun ONE Portal Server 6.0** - Required for deploying Sun ONE Instant Messaging in a portal environment. If you are installing Sun ONE Instant Messaging in a standalone environment, you do not need to install Sun ONE Portal Server 6.0. (However, you still might be required to buy the Sun ONE Portal Server software.)
- **Directory Server** - Either an LDAP directory for standalone or portal modes is required. See How Sun ONE Instant Messenger Uses the Directory Server for more information.

NOTE	For both portal and standalone modes, you can use an existing directory server; you do not have to install a directory server dedicated for Sun ONE Instant Messaging use. See Indexed LDAP Attributes for information on which directory attributes need to be indexed to optimize Sun ONE Instant Messaging .

- **Web Server** - Required to serve Sun ONE Instant Messenger files and resolve URLs included in instant messages and news channel content.

NOTE **Sun ONE Portal Server installations**: You can install Sun ONE Instant Messenger resources on the host containing the Sun ONE Portal Server and use the Web Server that ships with Sun ONE Portal Server. You can install the server and multiplexor components either on the Sun ONE Portal Server host or on a separate host.

- **SMTP server** - Required to send email to users who receive alerts while offline. In the absence of an SMTP server, alerts cannot generate email for offline users; otherwise, the product still functions normally. You can use an existing SMTP server; you do not need an SMTP server dedicated for Sun ONE Instant Messaging use.
- **(Optional) User Provisioning Tool** - Subscriber provisioning can be accomplished with LDAP command-line tools. All Sun ONE Instant Messaging preferences are accessible with the Sun ONE Instant Messenger.

Client Software Dependencies

Sun ONE Instant Messenger depends on the following software (see the *Sun ONE Instant Messaging Release Notes* for more information on supported software and versions):

- Java™ Runtime Environment
- Java™ Web Start or Java Plug-in

This software is not included with the Sun ONE Instant Messaging software. Download this software from the Java Web Start web site and install it on each client running the Sun ONE Instant Messenger. Table 1 shows the Instant Messenger's software dependencies. This table consists of two columns. The first column lists the client operating systems and the second the client software options.

Table 1 Client Software Dependencies

Client Operating System	Client Software Options
Solaris™ (2.6 or 8)	You must use Java Web Start. Java Plug-in is not an option. Download both the JRE for Solaris and Java Web Start.

Table 1 Client Software Dependencies

Client Operating System	Client Software Options
Windows 98, NT, or 2000	• If you download the JRE for Windows, it includes the Java Plug-in, so you don't need to download and install it separately. • If you download Java Web Start, the JRE is bundled with it and you don't need to download and install it separately. If Java Web Start is not installed, the default splash page will guide you through Java Web Start installation.
Mac OS 10.1 Webstart	• Use Java webstart bundled with the OS.

See the *Sun ONE Instant Messenger Quick Reference Guide* for information on obtaining and installing Java Runtime Environment, Java Web Start, and Java Plug-in software.

The Java Web Start web site for downloads is:

`http://java.sun.com/products/javawebstart/index.html`

NOTE After downloading the Java software from the Java Web Start web site, consider setting up your own internal web site to stage this software. You can customize your own web pages based on the `index.html`, `solaris.htm`, and `windows.htm` files supplied with Sun ONE Instant Messaging . See the *Sun ONE Instant Messaging Administrator's Guide* for instructions on customizing these files.

Creating an internal web site prevents your users from having to go to the Internet to obtain this software, avoiding potential download delays and forcing individual users to register for the software. It also enables you to better control your client configurations. For example, if you want your users to use Java Web Start and not Java Plug-in, you configure your internal web site for the Java Web Start software only.

Planning Your Server Configuration

This section provides the namespace and LDAP server information you need to plan your configuration.

Namespace Management

A namespace is defined by a node in the directory under which all uids are unique. With the namespace you must be able to associate an instant messaging domain name. Sun ONE Instant Messaging has the following namespace requirements:

- Sun ONE Instant Messaging supports one namespace per server.

  Sun ONE Instant Messaging does not support multiple name spaces per single server. In addition, in a domain hosting environment, a given Sun ONE Instant Messaging Server instance cannot serve more than one domain, unless uids are unique across the entire site.

- Sun ONE Instant Messaging supports one server per namespace.

  To enable users in different domains to communicate, you need to enable server-to-server communication. See the *Sun ONE Instant Messaging Administrator's Guide* for instructions on setting up server-to-server communications.

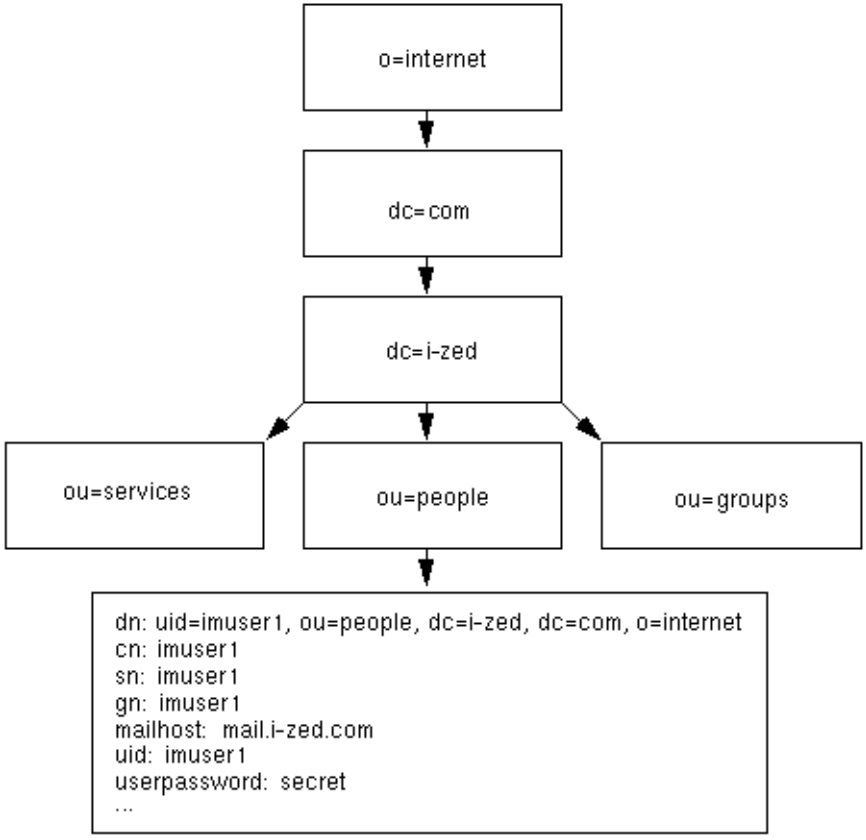
Directory Information Tree Examples

Use the following DIT examples to help determine how to deploy Sun ONE Instant Messaging at your site.

DIT Example 1—Unique UIDs Across the DIT

Figure 1 shows a DIT in which UIDs are unique across the tree.

Figure 1 DIT Example 1—Unique UIDs Across the DIT



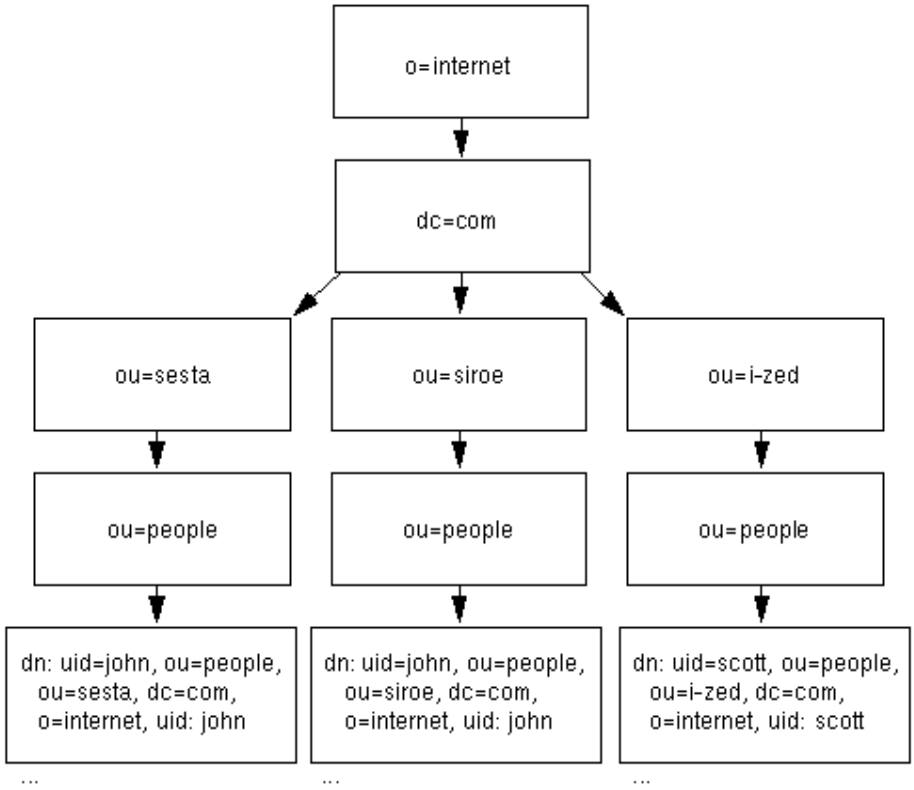
For this kind of tree structure, you would deploy a single Sun ONE Instant Messaging server and make the following base DN entry in the `iim.conf` file:

```
dc=i-zed, dc=com, o=internet
```

DIT Example 2—UIDs Unique Across Multiple Organizations

Figure 2 shows a DIT in which UIDs are unique for each organization (ou container).

Figure 2 DIT Example 2—UIDs Unique Across Multiple Organizations



For this kind of tree structure, deploy one Sun ONE Instant Messaging server for each logical subtree and use the following base DN entries:

- `Server 1: ou=sales, dc=i-zed, dc=com, o=internet`
- `Server 2: ou=engineer, dc=i-zed, dc=com, o=internet`
- `Server 3: ou=marketing, dc=isp, dc=com, o=internet`

NOTE These base DNs would also enable Sun ONE Instant Messaging Server to search LDAP groups, which appear at the same node in the DIT as the `people` containers. For simplicity's sake, Figure 2 does not show any `group` containers.

When deploying multiple servers in this example, pay attention to the following:

- You need to install three hosts each with its own Sun ONE Instant Messaging Server process. When running multiple hosts, users must be informed how to connect to the proper multiplexor. You accomplish this by installing a specific Instant Messenger component for each server instance. Therefore, the proper multiplexor host name that the client connects to gets filled in the appropriate launch file (`iim.html`, or `iim.jnlp/iimres.jnlp`). You can install a single client component, but then you need to edit the appropriate launch files to point users to the proper multiplexor. See the *Sun ONE Instant Messaging Administrator's Guide* for more information on customizing these files.
- Sun ONE Instant Messenger distinguishes users in different instant messaging domains by appending the instant messaging domain name to the user name, for example, `john@sales`, `scott@marketing`, and so on. In Sun ONE Instant Messenger, when you place your cursor over a userID, a tooltip message appears, displaying the user's status. If the user is on a server (domain) different than yours, the tooltip displays the userID in the form *userID@domain*.

NOTE To see and communicate with users in instant messaging domains on different servers, you need to configure Sun ONE Instant Messaging for server-to-server communication. See the *Sun ONE Instant Messaging Administrator's Guide* for more information.

Directory Server and Provisioning Sun ONE Instant Messenger Users

Sun ONE Instant Messaging itself does not store user information, but does store data such as user preferences. The user ID information is maintained in a directory that you specify during the installation process.

Sun ONE Instant Messaging does not provide user provisioning administration tools. You can use the site provisioning tools for your directory server.

There are no Sun ONE Instant Messaging specific commands to add, modify, or delete an Instant Messenger user. Use your site provisioning tools to perform these operations on the directory in which users exist. Administration of User preferences can be done from Sun ONE Instant Messenger. See the *Sun ONE Instant Messaging Administrator's Guide* for more information.

Likewise, in the case of a stand alone deployment you cannot disable a Sun ONE Instant Messenger user. The only way to prevent users from using Sun ONE Instant Messaging is to delete them from the directory. In the case of Portal Deployment the policy attributes can be used to disable the access to Instant Messenger.

How Sun ONE Instant Messenger Uses the Directory Server

Sun ONE Instant Messenger uses the directory server for user authentication and/or user search depending on the following configurations:

- **Standalone Deployment**. The LDAP directory server contained in the directory become user IDs for Sun ONE Instant Messenger users. Additionally, Sun ONE Instant Messenger performs user searches with that directory.
- **Portal Deployment**. If you use the directory server pointed by portal server, Sun ONE Instant Messenger does not authenticate the user IDs in the directory, it just performs user searches with the directory. (Sun ONE Portal Server itself performs the authentication based on whatever portal authentication mechanism is used.) When configured to use the directory, Sun ONE Instant Messaging users must first establish a session with Sun ONE Portal Server to use Sun ONE Instant Messaging.

Logical Domain versus DNS Domain

An important distinction needs to be made between the Sun ONE Instant Messaging domain (instant messaging domain) and the DNS domain, as they are not equivalent. The instant messaging domain name is the *logical* domain name you want the Sun ONE Instant Messaging Server to support. This is the name that is used by other Sun ONE Instant Messaging Servers in the network to identify this server (the name tagged to users on this server when displayed to users on other server). It is also the name used by this server to identify its users to other servers. This is not necessarily the FQDN (fully qualified domain name) of the system running the Sun ONE Instant Messaging Server.

During installation, the installer prompts you to enter the Sun ONE Instant Messaging domain name, which is stored in the `iim.conf` file as the `iim_server.domainname` parameter. This name can, and probably should be, different than the underlying DNS domain name. For example, if your DNS domain is `www.i-zed.com`, rather than use the same name for the instant messaging domain, consider using something such as `iim.i-zed.com`. This could help alleviate confusion that the Sun ONE Instant Messenger ID is not an email address.

The result of this is that an Instant Messenger user ID, which looks like an email address, is in fact not an email address. In some cases the Sun ONE Instant Messenger user ID might map to an email address. Thus, users might have a user ID such as `johndoe@i-zed.com` and an Instant Messenger ID of `johndoe@iim.i-zed.com` (the ID displayed by the tooltip in the Sun ONE Instant Messenger client).

In addition, if you install multiple Sun ONE Instant Messaging Servers, and multiple instant messaging logical domains, the users need to know about these domains to search for and locate appropriate contacts. Users can use the “Domain to search on” drop-down list, in the various Sun ONE Instant Messenger windows, to search other domains they are configured to access.

NOTE In future, the product might be redesigned to use DNS. At such point in time, the logical instant messaging domain name would no longer apply and you would want to use the DNS name.

Searching the Directory and Anonymous Bind

Sun ONE Instant Messaging needs to be able to search the directory to function correctly. By Default Sun ONE Instant Messaging assumes that the directory is configured to be searchable by anonymous users. If the directory is not readable by anonymous users, you must take additional steps to configure the `iim.conf` file with the credentials of a user ID that has at least read access to the directory.

These credentials consist of:

- A distinguished name (`dn`)
- The password of the above `dn`

Thus, you need to modify the `iim.conf` file if the LDAP directory server does not allow anonymous bind.

See the *Sun ONE Instant Messaging Administrator's Guide* for the steps to configure a specific user to search your directory.

LDAP Issues

The following LDAP issues might arise in a given deployment. Change the LDAP parameters in the `iim.conf` file accordingly.

Issue: Your directory does not permit anonymous bind. By default, Sun ONE Instant Messaging Server performs an anonymous search of the LDAP directory. However, it is common for sites to prevent anonymous searches in their directory so that any random person cannot do a search and retrieve all the information.

Solution: If your site's directory is configured to prevent such anonymous searches, then Sun ONE Instant Messaging Server needs to have a user ID and password it can use to bind and do searches. Use the `iim_ldap.usergroupbinddn` and `iim_ldap.usergroupbindcred` parameters to configure the necessary credentials. See the *Sun ONE Instant Messaging Administrator's Guide* for more details.

Issue: Your site does not use the `uid` attribute for user authentication.

Solution: Use the `iim_ldap.loginfilter` parameter to set the attribute that is used by your directory for authentication. By default, this parameter is set to `uid`. Also, change any "filter" parameters that contains `uid` in its value.

Issue: You want to change how Sun ONE Instant Messenger displays contact names from the default.

Solution: The default attribute that Sun ONE Instant Messenger uses to display contact names is `cn`. Thus, contact names appear as `Frank Smith`, `Mary Jones`, and so on. Edit the `iim_ldap.userdisplay` and `iim_ldap.groupdisplay` parameters to a different attribute, such as `uid`.

Issue: Your directory is indexed to use wildcards.

Solution: Change the `iim_ldap.allowwildcardinuid` parameter to `True`. This parameter determines if the use of wildcards should be enabled for User IDs while doing a search. As most directory installations have User IDs indexed for exact searches only, the default value is `False`. Setting this value to `True` can impact performance unless User IDs are indexed for substring search.

Issue: Your directory uses non-standard object / group classes.

Solution: Change the appropriate `iim_ldap.*` parameters, replacing `inetorgperson` and `groupofuniquenames` with your values.

Issue: Your directory does not use the `mail` attribute for email addresses. If so, Sun ONE Instant Messenger will not be able to forward instant messages to offline users as email messages.

Solution: By default, the `iim_ldap.user.mailattr` contains the value `mail`. Change this value to your site's value.

Issue: Your directory uses an attribute other than `uid` as the user id attribute

Solution: If the attribute "`loginname`" is used as the user id attribute:

```
iim_ldap.user.uidattr=loginname
```

Add the following index directives to the indexing rules in LDAP:

```
index login name eq
```

Indexed LDAP Attributes

Index the attributes below as indicated for adequate directory performance when used with Sun ONE Instant Messaging .

```
index   cn pres, eq, sub
index   sn pres, eq, sub
index   givenName pres, eq, sub
index   uid eq
index   uniquemember eq
```

If your site permits substring search on `uid`, the index list for `uid` should be:

```
index uid eq, sub
```

For more information on managing indexes refer to iPlanet Directory Server 5.1.Administrator's Guide at:
http://docs.sun.com/source/816-5606-10/index1.htm#996824

Planning Your Client Configuration

This section describes potential problems and solutions when installing and configuring the Sun ONE Instant Messenger client software to work with a web server. It also describes issues associated with running the client with Sun ONE Portal Server. See the *Sun ONE Instant Messaging Release Notes* for information on supported web server software.

Web Server Overview

When installing Sun ONE Instant Messaging with Sun ONE Portal Server, you can use the Sun ONE Portal Server's Web Server. When installing Sun ONE Instant Messaging in a standalone deployment, you supply the Web Server.

Sun ONE Instant Messaging depends on a Web Server to serve up Instant Messenger resources, including:

- An initial `index.html` file, provided by the product, or your own home page, with a link to invoke the Sun ONE Instant Messenger. (This applies only to a standalone deployment.)
- The product's client jar files (`iim.jar`, `iimres.jar`, `iimnet.jar`, and `iimjni.jar`).
- The Sun ONE Instant Messenger online help.
- Embedded URLs in messages and news channels, to Sun ONE Instant Messenger.

Web Server Issue for Both Portal and Standalone Deployments

Location of Sun ONE Instant Messenger Software and Web Server

Issue: You must install the Sun ONE Instant Messenger software on the host where the web server is installed. In a portal deployment, this can be the Sun ONE Portal Server host (the Sun ONE Portal Server's web server).

Some sites might include the web server on the Sun ONE Instant Messaging Server host, in which case there is no issue. However, if the web server is not on the Sun ONE Instant Messaging Server host, you will need to install the Sun ONE Instant Messenger software separately on the web server host.

Solution: Run the Sun ONE Instant Messaging installer, after installing the Sun ONE Instant Messaging Server software, and install just the Instant Messenger resources (the Sun ONE Instant Messenger component) on the web server host. See the *Sun ONE Instant Messaging Installation Guide* for more information.

Launching Java Web Start and MIME Types

Issue: To run Sun ONE Instant Messenger using Java Web Start, you might need to edit the web server's MIME types file to include a line for JNLP.

Solution:

1. Type the following URL to start the administration server in your browser: http://hostname.domain-name:administration_port

   For example: http://budgie.siroe.com:8888

2. Sun ONE Web Server then displays a window prompting you for a user name and password. Type the administration user name and password you specified during the Web Server installation.

3. Sun ONE Web Server displays the Administration Server page.

4. In the Manage Servers page, click Manage. Sun ONE Web Server displays the Server Manager page

5. Click the MIME Types link.

6. From the MIME file drop-down list, choose a MIME type to edit and click OK.

7. In the Global MIME Types page, select type from the Category drop-down list.

8. In the Content-Type text box, type:

   `application/x-java-jnlp-file`

9. In the File-Suffix text box, type:

   `jnlp`

10. Click New Type to create the MIME type.

11. Restart the Web Server for this change to take effect.

Solution: For Apache Web Server, the `mime.types` file, located in the Apache Web Server configuration directory (its location is site-specific), should be edited to include the line:

```
application/x-java-jnlp-file jnlp
```

Sun ONE Portal Server Issues

This section describes Sun ONE Portal Server specific issues with regards to Sun ONE Instant Messenger.

Application Channel Links

When installing Sun ONE Instant Messaging in the Sun ONE Portal Server environment, the installer inserts the following two links in the Applications channel of the Sun ONE Portal Server Desktop:

- Instant Messenger Plug-in (Starts Sun ONE Instant Messenger using the Java Plug-in)
- Instant Messenger (Starts Sun ONE Instant Messenger using Java Web Start)

These links are displayed to users in their Sun ONE Portal Server Desktop Applications channel only if they have not customized the Application Channel. If users do not automatically receive the Sun ONE Instant Messenger links, then they must add them manually from the available Application channel.

To Manually Add Applications to the Applications Channel

1. Click Edit on the Applications toolbar.
2. Select the Sun ONE Instant Messenger applications you want displayed in the Applications channel.
3. Click Finished to return to the Portal Server Desktop page.

Secure Mode vs. Non-Secure Mode

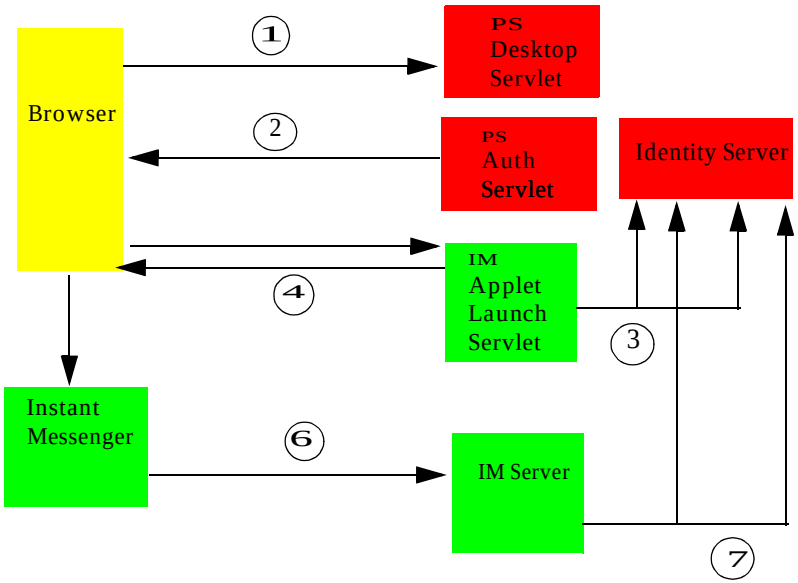
When you install Sun ONE Instant Messaging in the Sun ONE Portal Server environment, users invoke the Sun ONE Instant Messenger client from their Sun ONE Portal Server Desktop Applications channel. In the Sun ONE Portal Server environment, you configure Sun ONE Instant Messenger in either secure or non-secure mode. In secure mode, communication is encrypted through the Sun ONE Portal Server Netlet (SRA gateway). A lock icon appears in Sun ONE Instant Messenger's Status area when you are running in secure mode. See the *Sun ONE Portal Server Administrator's Guide* for more information on Netlet.

In non-secure mode, no encryption takes place between Sun ONE Portal Server and the user's machine.

Launching Sun ONE Instant Messenger in Sun ONE Portal Server Overview

Figure 3 shows how Sun ONE Instant Messenger functions in the Sun ONE Portal Server Single Sign-on (SSO) environment.

Figure 3 Sun ONE Instant Messenger Single Sign-on in Sun ONE Portal Server



The following describes the above figure:

1. User logs on to the Sun ONE Portal Server Desktop. Sun ONE Portal Server sets a Single Sign-on (SSO) cookie.
2. User selects the Instant Messenger link in the Applications Channel.

NOTE If the Sun ONE Instant Messenger log on fails, a “logon failed” dialog appears. If this happens click the Launch Sun ONE Instant Messenger link again.

3. The Sun ONE Instant Messenger launch servlet validates the user’s session ID and gets the user profile.
4. The launch servlet returns the Sun ONE Instant Messenger applet launch page, which contains the Sun ONE Portal Server SSO token as parameter.
5. The Sun ONE Instant Messenger applet is launched.
6. Sun ONE Instant Messenger talks to Sun ONE Instant Messaging Server, passing the SSO token.
7. Sun ONE Instant Messaging Server validates the SSO token with the Sun ONE Portal Server services.

Notes on Running Sun ONE Instant Messenger with Sun ONE Portal Server

Note the following conditions when running Sun ONE Instant Messenger in the Sun ONE Portal Server environment:

- You can run Sun ONE Instant Messenger in secure mode using either Java plug-in and Java Web Start to launch the application. (You can configure Sun ONE Instant Messenger for secure mode only if the Sun ONE Portal Server gateway is configured.) When running in secure mode, Sun ONE Instant Messenger displays a lock icon in the Status area at the top of the Main window.
- Secure mode does not work if users launch Sun ONE Instant Messenger from a desktop shortcut. In addition, unlike a standalone deployment, when running in a portal deployment Java Web Start does not give the option of creating a desktop shortcut. However, users can still create bookmarks (for both Java Web Start and Java Plug-in) to launch Sun ONE Instant Messenger. (Launching by a shortcut should only be done in standalone mode.)

- Single Sign-on (SSO) is not supported with the Sun ONE Portal Server Desktop if users launch Sun ONE Instant Messenger from an operating system desktop shortcut.
- Auto-logon - Because SSO is used, the Auto-logon feature for Sun ONE Instant Messenger cannot be disabled when running in portal mode.

Planning Your Multiplexor Configuration

This section describes the information you need to plan the Instant Messaging multiplexor configuration.

The Sun ONE Instant Messaging multiplexor component is a connection multiplexor that listens for Sun ONE Instant Messenger clients and opens only one connection to the backend Sun ONE Instant Messaging Server.

In effect, the multiplexor always acts as a front-end component to the Sun ONE Instant Messaging Server. Any client-server communication must go through the multiplexor; that is, Sun ONE Instant Messaging Server architecture is such that it always uses the multiplexor. Sun ONE Instant Messenger and Sun ONE Instant Messaging Server do not talk to each other directly.

You can install multiple multiplexors as needed, depending on your configuration. When using multiple multiplexors, you should consider also installing some sort of load balancer product, such as offered by Resonate.

For more information on multiplexor configuration, see “Tuning and Performance Issues” on page 27.

NOTE	Windows only supports one multiplexor process per machine. Solaris supports multiple multiplexors per machine.

Planning Security

This section describes the information you need to plan for Sun ONE Instant Messenger security, including:

- Access control
- Server-to-server communications
- Secure Sockets Layer (SSL)

- SRA Gateway and Netlet
- Accessing Sun ONE Instant Messenger outside a firewall

Planning Privileges: Access Control

Almost all features of Sun ONE Instant Messenger are controlled by a privilege system that limits what a user can see or do. Before deploying Sun ONE Instant Messaging Server, determine the privileges you want your users to have from the following list:

- **Administrator privileges** - Enables a user to control all aspects of the system, so should be restricted to the few administrator accounts.
- **Privilege to change client user settings** - Most likely you'll want to permit users to set and save their own preferences. However, for sites that want to standardize on user settings, you can deny this privilege and lock out users from making any preference changes.
- **Privilege to add and delete news channels** - Enables a user to create and delete news channels from Sun ONE Instant Messaging Server.
- **Privilege to add and delete conference rooms** - Enables a user to create and delete conference rooms from Sun ONE Instant Messaging Server.
- **Privilege to send and forward alerts** - Enables a user to create and send alert messages.
- **Privilege to set up watches on other users** - Enables a user to monitor the status of other users and receive an alert when the status changes.

You set or change user privileges by editing the appropriate ACL file. See *Sun ONE Instant Messaging Administrator's Guide* for more information on how to set privileges for the system.

You cannot disable a Sun ONE Instant Messenger user because Sun ONE Instant Messaging during authentication uses the directory for authenticating. Hence, any existing user can access Sun ONE Instant Messenger. The only way to prevent users from using Sun ONE Instant Messaging is to delete them from the directory. When deploying on a Portal Server, the policy attributes can be used to deny access to some users.

NOTE If you deny users the privilege to set up watches on other users —by editing the `sysWatch.acl` file—they will not be able to display Sun ONE Instant Messenger's Main window, effectively denying them the ability to send instant messages. However, users would still be able to see alerts and news channels.

Planning Server-to-Server Communication

You can configure multiple Sun ONE Instant Messaging Servers to communicate and form a larger instant messaging community. Users on each server can communicate with users on every other server, using conferences rooms on other servers, and subscribing to news channels on other servers (subject to access privileges).

For communicating between multiple Sun ONE Instant Messaging Servers in your network, you need to configure server-to-server communication. When configuring server-to-server communication, you identify your server to the other servers, and identify each *coserver*, or cooperating server, which will have a connection to your server.

When you configure your server to talk to another server, each server is notified of all activities, such as login, watch, conference room creation, and so on, which happen on its coservers. This means you must trust all of your coservers with activities happening on your system.

You establish server-to-server communication by editing the appropriate parameters in the `iim.conf` file on each server. See *Sun ONE Instant Messaging Administrator's Guide* for more information on how to configure server-to-server communication.

NOTE You can configure standalone installation of Sun ONE Instant Messaging Server to use server-to-server communication with a portal installation.

Planning Secure Sockets Layer (SSL) For Server to Server Communication

The high-level steps to configure SSL for server to server communications in Sun ONE Instant Messaging are:

1. Generating a self-signed certificate.
2. Generating a Certificate Signing Request.
3. Sending a Certificate Signing Request to a Certificate Authority (CA) and getting back a signed certificate.
4. Installing the Certificate on the Instant Messaging Server, and the CA's certificate on other servers; which means you also have to install the other server's CA certificate on your system. (This is much easier when you have the same CA.)
5. Activating SSL

When enabling SSL for use with Sun ONE Instant Messaging , choose one of the following methods:

- **Using a self-signed certificate** - Put your self-signed certificate in the `iimkeys` file (on Solaris,`/etc/opt/Sunwiim/config/iimkeys`; on Windows NT, *im_install_dir*`\config\iimkeys`)and also export it to other Sun ONE Instant Messaging Servers so they can put it in their `nlcacerts` file.
- **Using a certificate signed by a CA that is not already in `cacerts`** - Put your certificate and your signing CA's certificate in the `iimkeys` file (on Solaris, `/etc/opt/Sunwiim/config/iimkeys`; on Windows NT, *im_install_dir*`\config\iimkeys`). Also, export your signing CA's certificate to the other servers so that they can save this information in their `nlcacerts` file.
- **Using a certificate signed by a CA already in `cacerts`** - Put your certificate in the `iimkeys` file only (on Solaris, `/etc/opt/Sunwiim/config/iimkeys`; on Windows NT, *im_install_dir*`\config\iimkeys`), and the other servers already have your signing CA in their `cacerts` file.

NOTE You can run the following command to show all the CAs in your `cacerts` file:

Javahome`/keytool -list -keystore cacerts`

Run this command from the directory that contains the `cacerts` file. Select Return when prompted for password.

In all cases, remember that your Sun ONE Instant Messaging Server is the "client" of the other server, so you might have to import the CA's certificate for that server.

See the *Sun ONE Instant Messaging Administrator's Guide* for more information on how to activate SSL for Server to Server communication.

Other Considerations

The following information is useful if you are going to use SSL:

- The memory size of the instant messenger increases when you add SSL.
- Use `iimssl.jnlp` or `iimssl.html` for launching SSL enabled Instant Messenger.
- To support both SSL and non-SSL modes, you need to set up two separate multiplexors.

Planning SRA Gateway and Netlet

Sun ONE Instant Messaging enables users to communicate securely and reliably. It can take advantage of the Netlet technology offered by Sun ONE Portal Server Secure Remote Access (SRA) that enables instant messaging to occur over a secure virtual private network (VPN). In the Sun ONE Portal Server environment, you configure Sun ONE Instant Messenger in either secure or open mode. In secure mode, communication is encrypted through the Sun ONE Portal Server Netlet. In open mode, Sun ONE Instant Messenger communication is not encrypted.

When installing Sun ONE Instant Messaging in portal mode, you are asked if you want to run Sun ONE Instant Messenger in secure or open mode. When you choose during installation to run in secure mode, the installer configures the appropriate Netlet rules for encrypted communications. Refer to the *Sun ONE Instant Messaging Administrator's Guide* if you did not choose to run in secure mode, but later want to.

Planning for Accessing Sun ONE Instant Messenger Outside a Firewall

There are two modes to choose from: portal mode, and standalone mode.

Portal Mode

In this mode, the Sun ONE Instant Messaging client and Sun ONE Portal Server, SRA (gateway) are outside the firewall and the Sun ONE Portal Server, Sun ONE Instant Messaging multiplexor, and Sun ONE Instant Messaging Server are inside the firewall. Note that the connection between the multiplexor and the server is not encrypted; they should both be inside the firewall.

The SRA gateway can be configured to run in either secure or non-secure modes. In non-secure mode, the communication between client, gateway, firewall, and the other components is clear, without encryption.

In secure mode, the individual components communicate via VPN, which provides secure connections by encrypting lower protocol layers in an otherwise non-secure network, such as the internet.

Standalone Mode

In standalone mode, SSL is used to ensure link security between the Instant Messenger, and a multiplexor and server combination on either side of the firewall. This solution may still not provide adequate security since there is a server on the outside of the firewall.

An alternative to this is to have the Instant Messenger outside the firewall, while the multiplexor and server reside inside the firewall. With this alternative, the firewall is opened only for the SSL port to the multiplexor.

Tuning and Performance Issues

This section describes the information you need to consider for tuning and performance of your Sun ONE Instant Messaging system.

Tuning Server Memory

Server memory size can be set using the following `iim.conf` parameter: `iim.jvm.maxmemorysize`. This parameter specifies the maximum number of megabytes of memory that the JVM running the server is allowed to use. The default setting is 256 MB.

This parameter is used to construct the `-mx` argument of the java command. For example, if `iim.jvm.maxmemorysize = 500`, the JVM will be allowed to use up to 500 MB.

On NT, you cannot currently change this value.

Tuning the Multiplexor

A multiplexor consists of one or more multiplexor processes. There are three parameters (found in the `iim.conf` file) used for tuning multiplexor performance:

- `iim_mux.numinstances` - Specifies the number of multiplexor processes.
- `iim_mux.maxsessions` - Specifies the maximum number of clients that one mutliplexor process can handle. The default is 1000.
- `iim_mux.maxthreads` - Specifes the maximum number of threads per multiplexor process. The default is 5.

Figuring Maximum Number of Concurrent Client Connections

To figure the maximum number of concurrent client connections possible, multiply the `numinstances` number by the `maxsessions` number.

Multiplexor Configuration Rules of Thumb

The following suggestions and generalizations might be useful for your planning:

- The number of `iim_mux.maxthreads` should not exceed the number of CPUs on your server.

  This helps maximize resource utilization and optimizes processing speed.
- The `iim_mux.maxsessions` should be high enough to avoid rejecting connections, but it should be reasonable enough so that the multiplexor processes to not get overloaded.
- Be sure that your expected number of concurrent client connections is less than the maximum possible by a safe margin.
- However, do not configure threads or number of concurrent sessions to more than you require. Otherwise, you will unnecessarily consume system resources.
- A good starting point is to configure `iim_mux.numinstances` to the number of CPUs on the system.

Tuning Parameters for Archive Providers

The following three parameters need to be configured in the `iim.config` file:

- iim_arch.conference.quitetime
- iim_arch.poll.maxwaittime
- iim_arch.submit_timer

Table 2 provides a short description on each parameter. This table consists of three columns.The first column of the table lists the parameter name, the second column mentions the default value assigned to each parameter, and the third column a description on the parameter.

Table 2 Archive provider Configuration Parameters

Parameter Name	Default Value	Description
iim_arch.conference.quitetime	5	This parameter contains the maximum duration of silence between two consecutive messages in a room (both public and private) after which the RD expires and a new RD is created for archiving the message. The value is in minutes.
iim_arch.poll.maxwaittime	15	This parameter contains the maximum time for which poll data is buffered in the server. The value is in minutes.
iim_arch.submit_timer	120	This parameter contains the maximum time before which the PortalSearch Server will be updated.

Concurrent Users and Resource Requirements

Correctly formulating the maximum number of concurrent users that has to be sustained by the system is key to planning your resource requirements. Although a deployment usually has maximum number of configured users, it is important to plan for the maximum number of concurrent users (connected and more or less active). A conservative estimate for the number of concurrent users can then be determined based on a 1:10 ratio. Thus, for a deployment of 50,000 configured users, the concurrent users would be 5,000.

Use the following procedure to generate a more precise picture of your resource requirements:

1. Characterize your configured users using three general profiles:
   - Not Connected - Non-connected users consume disk space but no CPU or memory.
   - Connected / Inactive - Typical usage consists of having the client up and running and receiving a small amount of presence notification per day. Users rarely use the chat rooms.
   - Connected / Active - Typical usage consists of the following:
     - Presence updates equal to or greater than 20 times a day.
     - Contact list contains about 30 contacts.
     - Users subscribe to the presence updates of all the contacts in the contact list.
     - Users set up around 4 conferences or chats per day.
     - Each conference has 3 people in the conference rooms and lasts 10 minutes.
     - A message is added to the conference every 1 -15 seconds.
2. Determine the mix of profiles your system needs to accommodate.

   Divide all of your configured users into these groups.
3. Use Table 3 to determine Server and Multiplexor sizing numbers when archive is enabled or disabled. This table consists of four columns. The first column mentions the server memory consumption for connected per inactive users; the second column mentions the server memory consumption for connected per active users; the third column mentions the multiplexor memory consumption for connected per inactive users; and the fourth column mentions the multiplexor memory consumption for connected per active users. The figures listed in the table were generated using a 400MHz Ultra Sparc II Processor.

Table 3 Server and Multiplexor Sizing for Concurrent Users *

	Server Memory Consumption for Connected/Inactive Users	Server Memory Consumption for Connected/Active Users	Multiplexor Memory Consumption for Connected/Inactive Users	Multiplexor Memory Consumption for Connected/Active Users
Archive Disabled	8 MB +20 K per User	120 MB + 20 K per User	8 MB + 20 K per User	8MB + 28K per User

*** Figures generated using a 400MHz UltraSparc II processor.**

Table 3 Server and Multiplexor Sizing for Concurrent Users *

	Server Memory Consumption for Connected/Inactive Users	Server Memory Consumption for Connected/Active Users	Multiplexor Memory Consumption for Connected/Inactive Users	Multiplexor Memory Consumption for Connected/Active Users
SSO / Portal enabled	100MB +25K per User	120MB +30K per User	8M+35K per user	8 MB +40K per user
	*** Figures generated using a 400MHz UltraSparc II processor.**			

4. Use Table 4 to help determine the number of CPUs your installation requires for optimum performance when archive is enabled or disabled. This table consists of four columns. The first column mentions the server CPU Utilization requirement for connected per inactive users; the second column mentions the server CPU Utilization requirement for connected per active users; the third column mentions the multiplexor CPU Utilization for connected per inactive users; and the fourth column mentions multiplexor CPU Utilization for connected per active users. The figures listed in the table were generated using a 400MHz Ultra Sparc II Processor.

Table 4 CPU Utilization Numbers*

	Server CPU Utilization for Connected/Inactive Users	Server CPU Utilization for Connected/Active Users	Multiplexor CPU Utilization for Connected/Inactive Users	Multiplexor CPU Utilization for Connected/Active Users
Archive Disabled	Several hundred thousand users per CPU	30 K users per CPU	50 K users per CPU	5 K users per CPU
	*** Figures generated using a 400MHz UltraSparc II processor.**			

5. Add a safety buffer of extra capacity.

Small Deployment Sample Resource Requirements Numbers

For a small deployment with the server and multiplexor on a single server having 10,000 users with the following profile:

- 30% connected / active
- 20% connected / inactive
- 50% not connected

The memory requirements are: 1/2 CPU with 300-500 MB RAM.

Large Deployment Sample Resource Requirements Numbers

For a large deployment having 1,000,000 users with the following profile:

- 5% connected / active
- 20% connected / inactive
- 75% not connected

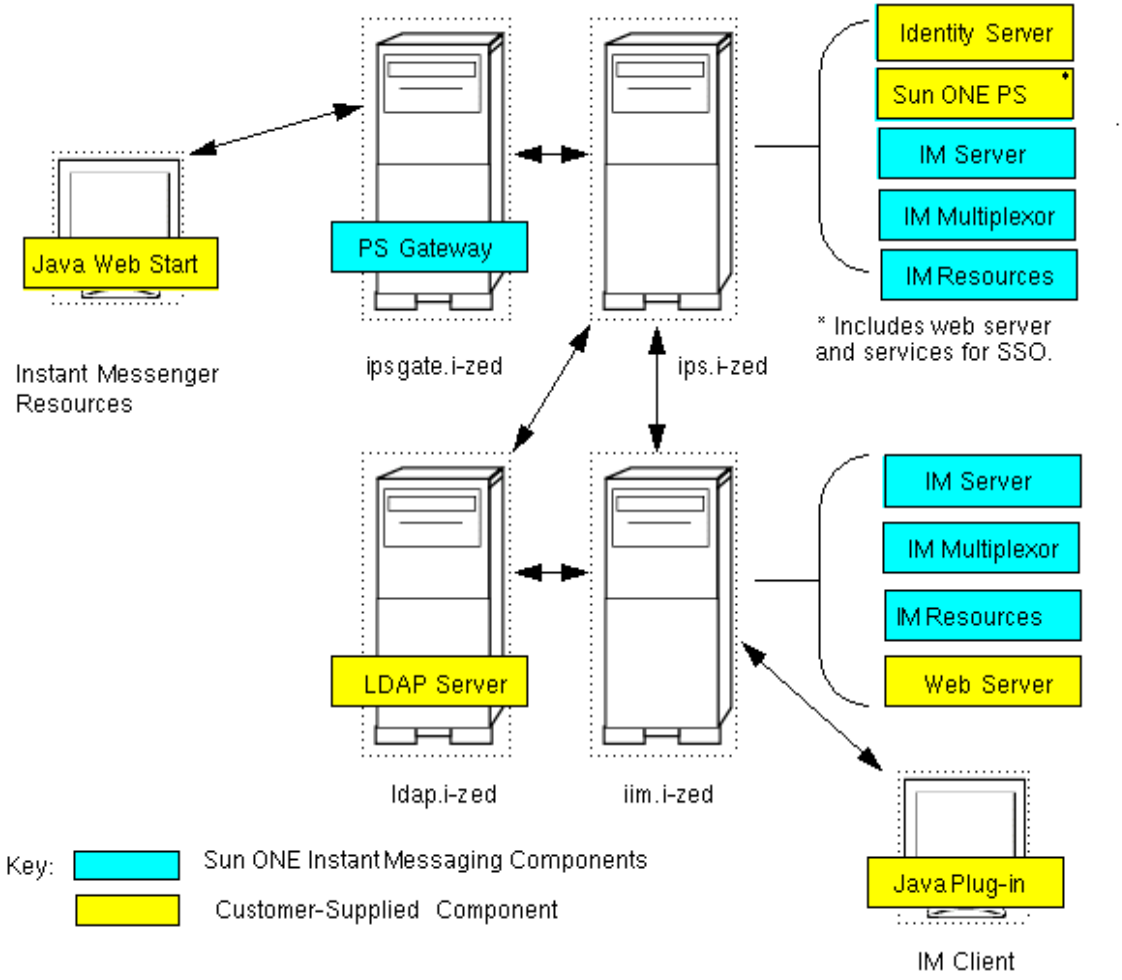
The server memory requirements are 4 GB RAM on 2 CPUs. The multiplexor requirement is 4 GB RAM on 16 CPUs.

NOTE	You need to use a provisioning tool to create the profile information on the backend server (LDAP) for each new user.

Sun ONE Instant Messaging Deployment Example

Figure 4 shows a sample deployment, including two Sun ONE Instant Messaging Servers (one in portal mode and one in standalone mode), and the required software components.

Figure 4 Sample Sun ONE Instant Messaging Deployment



Deploying Multiple Instances on a Server

You can create multiple instances from a single installation. Follow the steps outlined below to create multiple instances on the same server:

1. Install the software in a standalone mode.

2. Do the following to create an instance called xyz:

   ```
   mkdir /var/opt/SUNWiim/xyz
   mkdir /var/opt/SUNWiim/xyz/log
   mkdir /var/opt/SUNWiim/xyz/lock
   mkdir /var/opt/SUNWiim/xyz/db
   cp -r /etc/opt/SUNWiim/default /etc/opt/SUNWiim/xyz
   ```

3. Edit `/etc/opt/SUNWiim/xyz/imadmin` and rename the configuration file to:

   `/etc/opt/SUNWiim/xyz/config/iim.conf`

4. Edit `/etc/opt/SUNWiim/xyz/config/iim.conf` and modify the port number so that there is no conflict with the default instance.

5. Modify `iim.instancedir` and `iim.instancevardir` to point to directories relevant to the `xyz` instance.

6. Ensure that the file or directory ownership and permissions are the same for all instances.

7. Make renamed copies of `$installdir/html/iim.html iim.jnlp index.html` so that the client has the correct default port number for each instance.

Software Components Description

Table 5 describes the software components deployed on each host. This table consists of four columns. The first column lists the software components to be deployed on SRA gateway host; the second column lists the software components to be deployed on Sun ONE Portal Server host; the third column lists software components to be deployed on LDAP directory host for iim.i-zed users; and the fourth column lists the software components to be deployed on a standalone Sun ONE Instant Messaging Server host:

Table 5 Sample Deployment—Software Components for Hosts

ipsgate.i-zed	ips.i-zed	ldap.i-zed	iim.i-zed
SRA gateway host: • Sun ONE Portal Server, Secure Remote Access	Sun ONE Portal Server host: • Sun ONE Portal Server (includes web server, Identity Server and services for Single Sign-on) • Sun ONE Instant Messaging Server component • Instant Messaging Multiplexor component • Instant Messenger Resources	LDAP directory host for `iim.i-zed` users. • Sun ONE Directory Server	Standalone Sun ONE Instant Messaging Server host: • Sun ONE Instant Messaging Server component • Instant Messaging Multiplexor component • Instant Messenger Resources • Sun ONE Application Server Standard Edition

Instant Messenger Resources

Table 6 shows the Instant Messenger resources that are required for the two Instant Messaging hosts.This table consists of three columns. The first column lists the client files; the second column mentions whether the client files are used by ips.i-zed host and the location of the client file; the third column mentions whether the client files are used by iim.i-zed host and the location of the client file.

Table 6 Sample Deployment—Required Instant Messenger Resources

Client File	Used by ips.i-zed?	Used by iim.i-zed?
`index.html`	No. Not necessary for portal deployment.	Yes. Location: ips.i-zed / icp / index.html
`iim.html`	No, as this host's clients are only using Java Web Start.	Yes. Location: ips.i-zed / icp / iim.html
`iim.jnlp`	Yes. Location: ips.i-zed / iim.jnlp	No, as this host's clients are only using Java Plug-in.

Table 6 Sample Deployment—Required Instant Messenger Resources

Client File	Used by ips.i-zed?	Used by iim.i-zed?
`iimres.jnlp`	Yes. Location: ips.i-zed / iimres.jnlp	No, as this host's clients are only using Java Plug-in.

Client Files Content by Server

Each Instant Messaging server has its own client component. The `ips.i-zed` host uses Java Web Start, so it has `iim.jnlp`, and `iimres.jnlp` files. The `iim.i-zed` host uses the Java plug-in, so it has `index.html` and `iim.html` files.

In this example, the Instant Messenger component was not installed at the doc root of the Web Server. It was put in its own `icp` directory. See the *Sun ONE Portal Server Instant Collaboration Installation Guide* for more information on steps to take when the client is not installed at the web server doc root.

How the Sample Deployment Works

From a high-level overview, this sample deployment requires four hosts as follows:

S1psgate.i-zed - Host containing the SRAP gateway.

S1ps.i-zed - Host containing the Sun ONE Portal Server and Sun ONE Instant Messaging software.

ldap.i-zed - Host containing LDAP directory server.

S1im.i-zed - Host containing Sun ONE Instant Messaging software, installed in standalone mode.

This sample deployment contains a combination of two Instant Messaging server, one in the portal mode, running on `ips.i-zed`, another in standalone mode in `iim.i-zed`. It demonstrates how a company can cooperate with partners to communicate in a controlled and secure manner.

This deployment shows that users can get to the Instant Messaging server securely from outside the firewall, using the portal gateway, while at the same time users inside the firewall connect directly to the `iim.i-zed` server.

The outside users can talk with the internal users because the systems, `ips.i-zed` and `iim.i-zed`, are configured for server-to-server communication. If the link between these two systems are within a firewall, they can be connected without using SSL. If the link between them needs to be protected from snooping, the two systems can be set up to communicate using SSL. For simplicity in this example, the outside users are shown using only Java Web Start and the inside users only Java plug-in.

Using the hypothetical case that the outside users are partners of the company `I-ZED` who need to communicate with people working inside `I-ZED`, the partners are given access through the secure portal, authenticating themselves as legitimate users. They can then use instant messaging to communicate with users inside `I-ZED`.

To facilitate secure communications, conference rooms can be set up on `ips.i-zed`, which allow access by specific partners. For example, you can have a conference room, Nova, which allows only access by users A, B, C, who are partners of I-ZED working on the Nova project. And users X, Y, Z in `iim.i-zed` who also work on the Nova project are also allowed access. Access to this conference room is private. Non-invited users can't gain access.

The users, A, B, C and X, Y, Z can also watch each other's status so they know when the other goes online or goes away. The users, A, B, C can also subscribe to a news channel called Nova News and the users X, Y, Z can be set up to be able to post to this Nova News channel. Others can be restricted from reading this news channel, so information is limited to only those with specific access.

Users A, B, C can also subscribe to a general access I-ZED News channel, which is accessible to all who have access to the `ips.i-zed` Instant Messaging server. This news channel can contain general news related to I-ZED.

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