9

Chat and Instant Messaging

In the intranet website `book.com` of "Palm Tree Publications", as an administrator, you are required to provide an environment for employees to enjoy chatting, instant messaging, mailing, and SMS text messaging with others. This chapter will introduce to us, how to enjoy instant messaging. Then, it will discuss how to manage emails. Finally, it will focus on SMS text messenger.

By the end of this chapter, you will have learnt how to:

- Add a participant for chatting.
- Manage (view and delete) participants in the chat portlet.
- Start chatting.
- Set up chat portlet.
- Manage (check, delete, forward, reply, search) mails.
- Set up mail portlet.
- Manage SMS text messenger portlet.

Working with Chat Portlet

In order to let employees enjoy chatting and instant messaging with others, we should use the Liferay **Chat** portlet. Let's experience how to enjoy chatting and instant messaging first.

As an administrator of "Palm Tree Publications", you need to create a **Page** called "**Instant Messaging**" under the **Page,** "**Community**", at the **Book Lovers** Community and also add the **Chat** portlet in the **Page,** "**Instant Messaging**".

Adding a Participant

First of all, log in as "**Palm Tree**" and do the following:

1. Add a **Page** called "**Instant Messaging**" under the **Page,** "**Community**" at the **Book Lovers** Community **Public Pages,** if the **Page** is not already present.

2. Add the **Chat** portlet in the **Page,** "**Instant Messaging**" of the **Book Lovers** Community where you want to set up chatting and an instant messaging environment, if **Chat** portlet is not already present.

After adding the **Chat** portlet, you can view it as shown in the following figure.
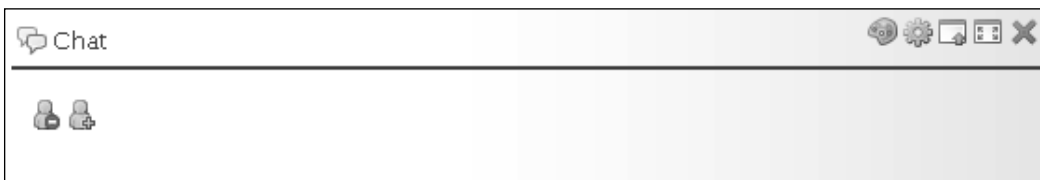
Then, we need to add a participant in the **Chat** portlet. As an editor at the Editorial department, "**Lotti Stein**" wants to ping the manager, "**David Berger**", online and further share some comments about Liferay books. Let's do it as follows:
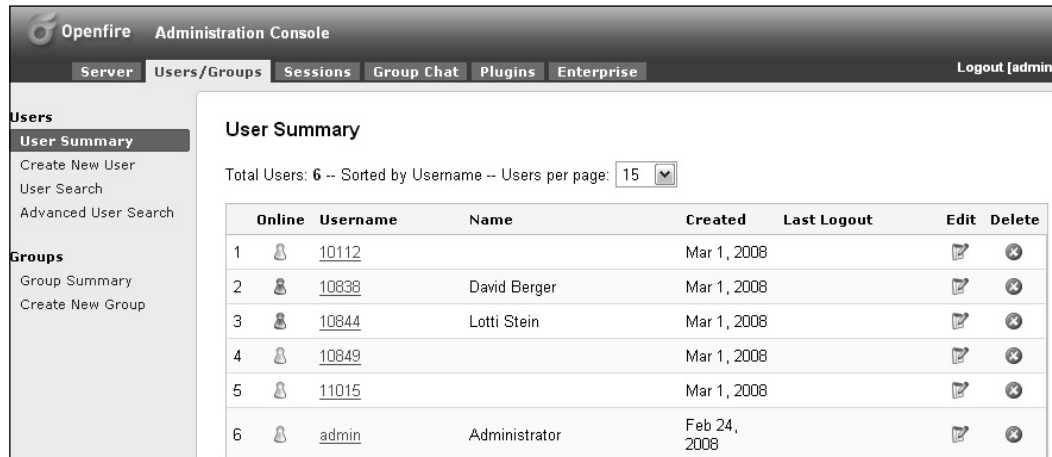
1. Login as "**Lotti Stein**" first.

2. Go to the **Page,** "**Instant Messaging**", " under the **Page,** "**Community**", at the **Book Lovers** Community **Public Pages**.

3. Click on the **Add** icon.

4. Input a participant's email address, such as "**david@book.com**".

5. Press the **Enter** key.

You will see the participant's full name appear, such as "**David Berger**". After adding more participants, such as "**John Stuckia**" and "**Rolf Hess**", you can view all participants as shown in the following figure.

Managing Participants

All the **Users** you've invited will appear as a list of participants. If the **User** "**David Berger**" is online ,then the icon to the left of the **User** name becomes light blue. Otherwise, it remains light gray; for example, **User** "John Stuckia". As shown in the following figure, only two **Users** ("**David Berger**" and "**Lotti Stein**") are online in the server. For details about **OpenFire**, refer to the forthcoming section.

The participants are removable. For example, "**Lotti Stein**" wants to remove a participant "**Rolf Hess**", from the list of participants. Let's do it as follows:

1. Locate the participant, such as "**Rolf Hess**".

2. Click on the icon to the left of the **User** name, such as "**Rolf Hess**". You will see that the participant "**Rolf Hess**" is highlighted.

3. Click the **Remove** icon. This participant will be removed from the list of participants.

In short, to remove a **User** from the list of participants, simply locate the **User** you want to remove by clicking on the icon to the left of the **User** name. Then, click the **Remove** icon. The selected **User** name will be removed from the list of participants.

Starting Chatting

Irrespective of whether the participants are online or not, you can begin to **Chat** with them. For example, as an editor of editorial department, "**Lotti Stein**" wants to start chatting with the manager, "**David Berger**". Let's do it as follows:

1. Locate the participant, "**David Berger**".
2. Click the **User** name, ,"**David Berger**".
3. A **Chat** box will appear.
4. Input the message, "**David, how are you**?"
5. Press the **Enter** key. Your messages will appear starting with the keyword, **Me,** in the message box (as shown in the following figure).
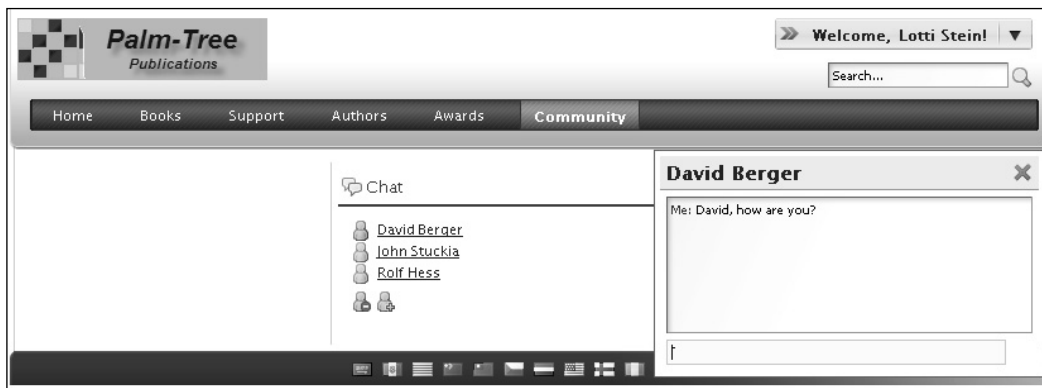
As a manager of the editorial department, "**David Berger**" will have to do the following, to receive the messages from "**Lotti Stein**":

1. Login as "**David Berger**" in new browser.
2. Go to the **Page,** "**Instant Messaging**" under the **Page,** "**Community**" at the **Book Lovers** Community **Public Pages**.
3. Locate the participant, "**Lotti Stein**".
4. Click the **User** name, "**Lotti Stein**".
5. A chat box will appear with the messages from "**Lotti Stein**".
6. Input the message, "**I am fine, and you?**"

7. Press the **Enter** key. Your messages will appear starting with the keyword "**Me**:" in the message box and the messages sent by the other **User, Lotti Stein**" here, will appear starting with the **User's** name as shown in the following figure:
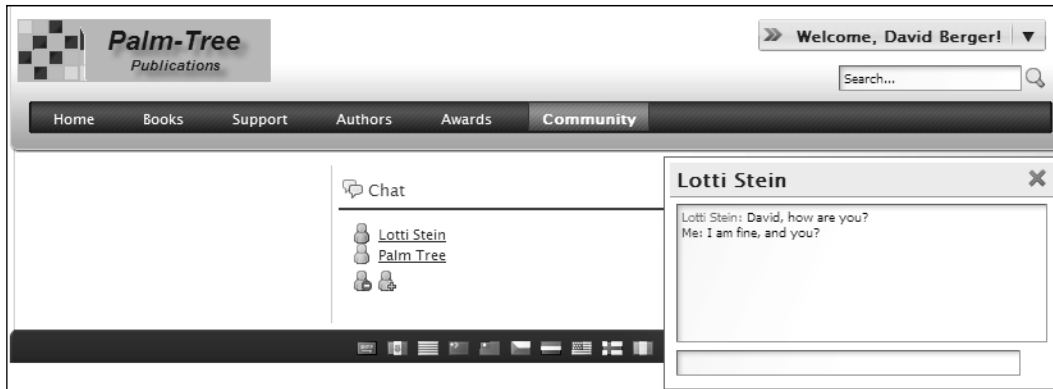
Generally, to start chat, locate the **User** you want to chat with, by the **User** name first. Click on the **User** name link. A **Chat** box will appear. You can chat with many **Users** at the same time. To do this, just click on the **Users'** name link. Each **Chat** box is only for one unique **User**.

The **Chat** box contains the **User's** name on the upper left. You can close the current **Chat** box by clicking on the mark **X** to the upper right.

> Note that the **Chat** box is hidden in your current **Page** initiatively. Whenever a new message comes from the **User,** you are chatting with, the **Chat** box will pop up with the new message and possible previous messages.

To send messages, simply input your messages in the message input box first, and then press the **Enter** key. Your messages will appear starting with the keyword, **Me,** in the message box, and the messages sent by the other **Users** will appear starting with their **User** names.

How Does It Work?

Liferay **Chat** portlet (AJAX Instant Messaging) allows **Users** to automatically chat over XMPP (Jabber) protocol with other **Users**. Instant Messaging lets members interact with other members in real time. A private room may exists for customers which could give them access to others.

Liferay **Chat** portlet integrates with a Jabber server, that is, OpenFire. This session will introduce Instant Messaging, AJAX, and Jabber (OpenFire).

> OpenFire (previously known as Wildfire Server) is a real-time collaboration (RTC) server, adopted open protocol for instant messaging, XMPP (also called Jabber). URL: `http://www.jivesoftware.com/products/openfire/`.

Use Instant Messaging

Instant messaging (IM) acts as a form of real-time communication among **Users,** based on typed text. It allows easy collaboration. In contrast to email, the participants know whether the peer is available. Conversations by instant messaging can be saved for later reference.

One of the Instant Messaging protocols is Extensible Messaging and Presence Protocol (XMPP).

> XMPP is an open, XML-inspired protocol for near-real-time, extensible instant messaging (IM) and presence information. It is the core protocol of the Jabber Instant Messaging and Presence technology. URL: `http://www.xmpp.org/`.

On the one hand, XMPP is based on open standards, different from other instant messaging protocols. Similar to email, XMPP is an open system where a **User** having a domain name and a suitable Internet connection can run a Jabber server, and talk to others on other servers.

On the other hand, another useful feature of the XMPP system is, transports, also called gateways. Through this, **Users** can access networks using other protocols. These protocols can be other instant messaging protocols, such as SMS or Email. The case is different from multi-protocol clients, as **Users** can access XMPP server at the server level. That is, it communicates with other servers through gateway services, which are running on a remote server.

Another interesting feature of XMPP is the HTTP binding behind restricted firewalls.

For instance, **Community A User** wants to chat with **Community B User**. **Community A User** and **Community B User** have accounts on the Jabber Server and the Third Part Server respectively. When **Community A User** types in and sends his/her message, a sequence of events is set in action, as shown in the following figure:
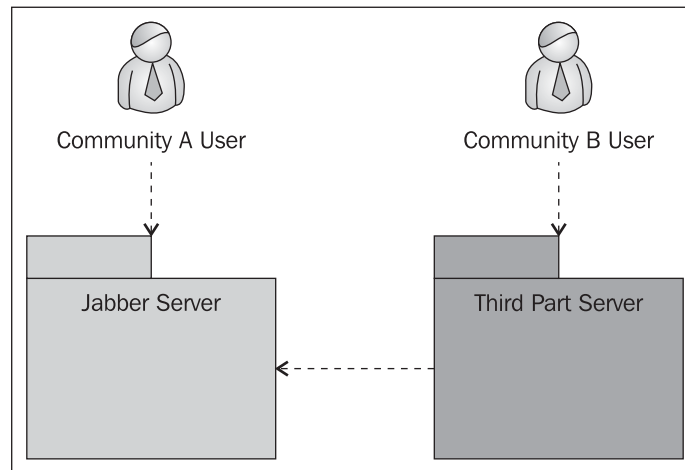
- **Community A User's** client sends his/her message to the Jabber Server.

    ° If **Third Part Server** is blocked on Jabber Server, the message is dropped.

- The **Jabber Server** opens a connection to the Third Part Server.

- The Jabber server delivers the message to **Community B User**.

    ° If **Jabber Server** is blocked on **Third Part Server**, the message is dropped.

- If **Community B User** is not currently connected, the message is stored for later delivery.

> Jabber is the Linux of instant messaging—an open, secure, ad-free alternative to consumer IM services. URL: `http://www.jabber.org/`

Employ AJAX

AJAX is Asynchronous JavaScript and XML. In short, AJAX makes portal **Pages** feel more responsive, by exchanging minimum amounts of data with the server. Thus, the entire portal **Page** does not have to be reloaded, when the **User** requests a change. You can use AJAX to increase the portal **Page's** interactivity, usability, functionality and speed.

In other words, AJAX acts as an asynchronous data transfer mechanism, that is, HTTP requests, between the browser and the portal server, allowing portal **Pages** to request a few bits of information from the server, instead of whole portal **Pages**. The AJAX makes portal applications smaller, faster and more user-friendly as shown in the following figure:
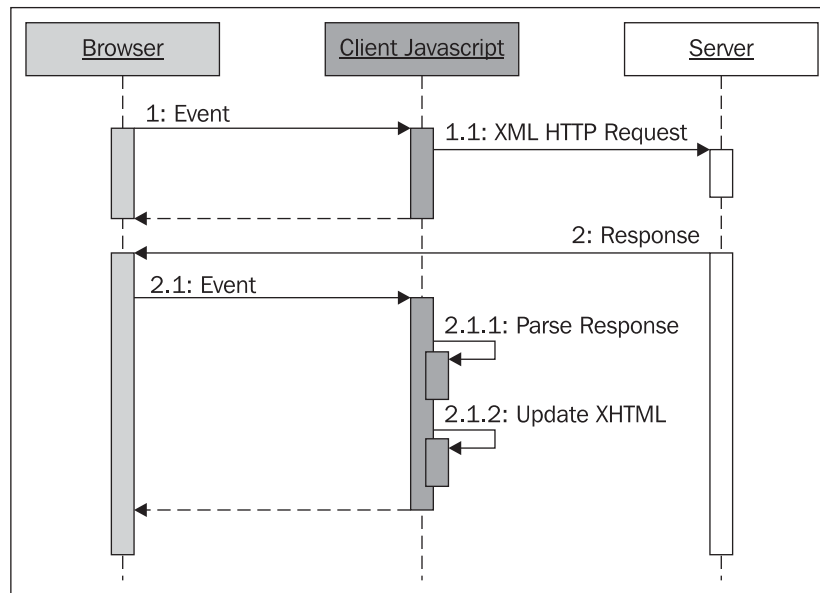
In general, AJAX is based on the following standards:

- JavaScript—Scripting language of the Web
- XML—Extensible Markup Language
- XHTML (or HTML)—Extensible Hypertext Markup Language
- CSS—Cascading Style Sheets

AJAX follows web standards supported by all major browsers. Thus, AJAX applications are browser and platform independent. The main advantage of AJAX is the separation of data, format, style, and function.

Using Chat Portlet Effectively

The **Chat** portlet allows **Users** to chat over XMPP protocol with other logged-in **Users** automatically. In order to use the **Chat** portlet effectively, let's set up an XMPP server and configure Liferay.

Set up XMPP Server

First, we have to set up a XMPP (Jabber) server. Suppose that we use **OpenFire** as an XMPP (Jabber) server. Here are the steps to set up **OpenFire** as follows:

1. Create a folder, and name it **OpenFire.**

2. Download the **OpenFire.**

3. Extract the file to the **OpenFire** folder.

4. Open the **OpenFire** folder and furthermore, `bin`.

5. Click on `openfire_x_x_x.exe` or unzip `openfire_x_x_x.tar.gz`.

6. Click **Launch Admin**.

7. Proceed with configuring **OpenFire** based on your requirements, as shown in the following figure.

Configure Liferay

Then, you need to configure the XMPP server (such as **OpenFire**) with Liferay. You can simply open `portal-ext.properties` at `$LIFERAY_ROOT/webapps/Root/WEB-INF/classes`.

You just enter the following lines (Suppose that **OpenFire** and Liferay are on the same server):

```
jabber.xmpp.server.enabled=true
reverse.ajax.enabled=true
```

If you want to configure the integration by default settings, here are some options. The following is the complete set of properties related to the setup of XMPP server.

```
jabber.xmpp.server.enabled=false
jabber.xmpp.server.address=localhost
jabber.xmpp.server.name=localhost
jabber.xmpp.server.port=5222
jabber.xmpp.user.password=admin
```

You can also configure the **Chat** portlet when XMPP server is on a separate server. The following lines are a real example.

```
jabber.xmpp.server.enabled=true
reverse.ajax.enabled=true
jabber.xmpp.server.address=liferay.cignex.com
jabber.xmpp.server.name=liferay-cignex
jabber.xmpp.server.port=5222
jabber.xmpp.user.password=admin
```

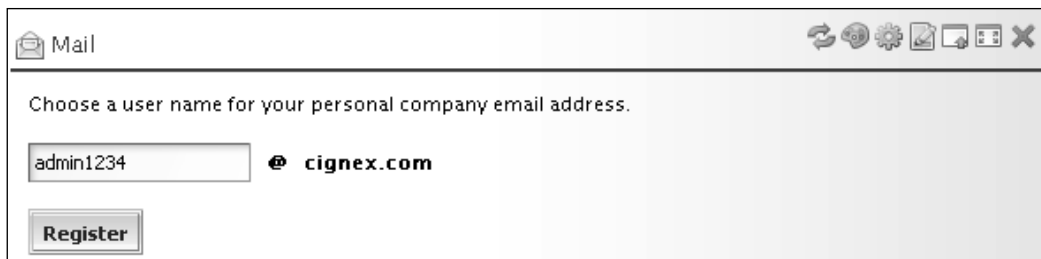> Note that you have to turn firewall off in Windows for the **Chat** Portlet to run properly.

Working with Mail Portlet

In order to let employees manage their emails, we can use the Liferay **Mail** portlet. As an administrator of "Palm Tree Publications", you need to create a **Page** called "**Mail**" under the **Page,** "**Community**" at the **Book Lovers** Community **Public Pages** and also add the **Mail** portlet in the **Page,** "**Mail**".

Experiencing Mail Management

First of all, login as "**Palm Tree**". Then, let's do the above as follows:

1. Add a **Page** called "**Mail**" under the **Page** "**Community**" at the **Book Lovers** Community **Public Pages,** if the **Page** is not already present.

2. If the **Mail** portlet is not already present, add it in the **Page,** "**Mail**" of the **Book Lovers** Community where you want to manage mails. You will see the **Mail** portlet as shown in the following figure.

> Let's assume that we set up the mail domain as "**cignex.com**" in the **Enterprise Admin** portlet for testing purposes, as we have a mail engine with this mail domain already. Of course, you could set up the mail domain as "**book.com**", or something else, if you had a mail engine with this mail domain in your hand.

As an editor of the editorial department, "**Lotti Stein**", you may want to manage your mails in the mail domain, "**cignex.com**". You can first **choose a user name for your personal company** the **email address**, say "**admin1234**" and register. Let's do it as follows:

1. Login as "**Lotti Stein**".
2. Go to the **Page** "**Mail**" under the **Page,** "**Community**", at the **Book Lovers** community **Public Pages**.
3. Locate the **Mail** portlet.
4. Input the value for **User** name as "**admin1234**".
5. Click the **Register** button.

Your new email address is "**admin1234@cignex.com**". **This email address will also serve as your login,** as shown in the following figure.

You can now check for new messages in your inbox, by clicking the **Inbox** link first. Then, you can view the **Unread messages**, and either **Check Mail** or create a **New** mail, as shown in the following figure:
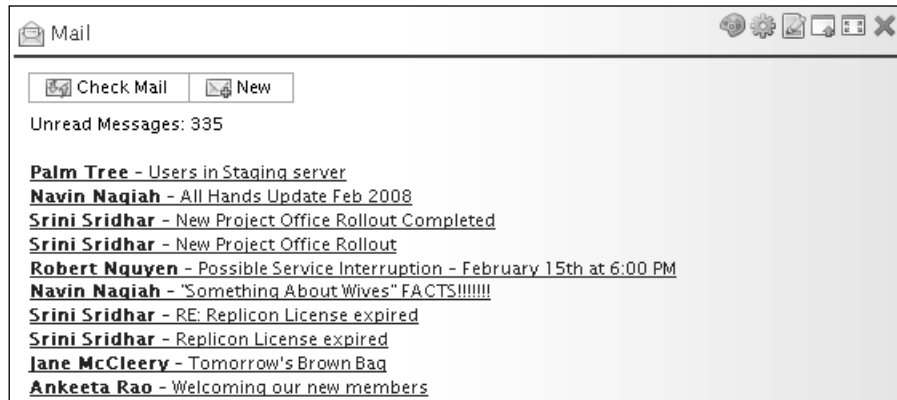
You can go to the **Page** of **Mail** management by clicking on any link of **Unread Messages**, or **Check Mail** button or **New** button. Further, you can manage emails through the **Mail** portlet of your current account. Email management includes the following features (as shown in the following figure):

- Create a **New** email.
- **Check Mail**.
- **Reply to** an email.
- **Reply All** emails.
- **Forward** emails.
- **Delete** emails.
- **Print** emails, and
- Search.
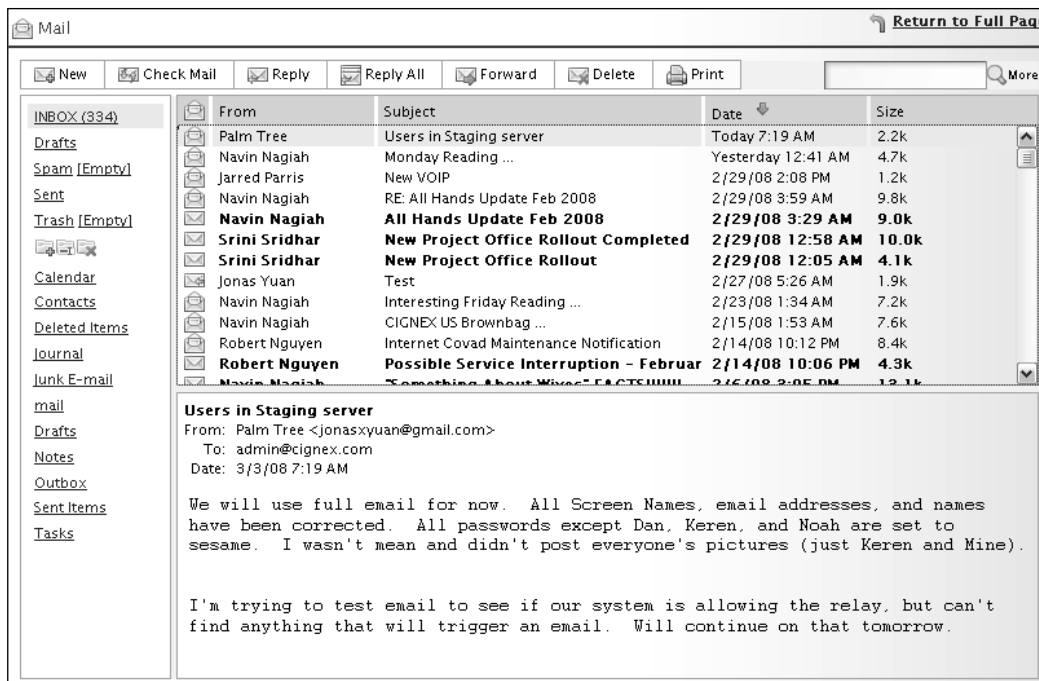
Note that the first email with the subject, "**Users in Staging server**", is sent through the **SMS Text Messenger** portlet. For more details, refer to the forthcoming section.

How to Set up Mail Server?

In order to make the **Mail** portlet work, we have to set up a mail server with IMAP, POP and SMTP protocols. Suppose that the Enterprise "Palm Tree Publications" has a mail server with the domain "exg3.exghost.com", an account "admin@cignex.com/admin1234", and protocol IMAP, POP and SMTP. As an administrator, you need to integrate this mail server with **IMAP**, **POP** and **SMTP** protocol in Liferay. Let's do it as follows:

1. Find the file ROOT.xml in $TOMCAT_DIR/conf/Catalina/localhost.

2. Find the mail configuration first.

3. Then configure it as follows:

    ```
    <!-- Mail -->
    <Resource
    name="mail/MailSession"
    ```

```
auth="Container"
type="javax.mail.Session"
mail.imap.host="exg3.exghost.com"
mail.imap.port="143"
mail.pop.host="exg3.exghost.com"
mail.pop.port="110"
mail.store.protocol="imap"
mail.transport.protocol="smtp"
mail.smtp.host="exg3.exghost.com"
mail.smtp.port="2525"
mail.smtp.auth="true"
mail.smtp.starttls.enable="true"
mail.smtp.user="admin@cignex.com"
password="admin1234"
mail.smtp.socketFactory.class="javax.net.ssl.SSLSocketFactory"
/>
```

In short, a **Mail** portlet is an AJAX web-mail client. We can configure it to work with any mail server. It reduces page refreshes, since it displays message previews and message lists in a dual pane window.

How to Set up Mail Portlet?

If you have proper **Permissions**, you can change the preferences of the **Mail** portlet. To change the preferences, you can simply click the **Preferences** icon to the upper right of the **Mail** portlet.

With the **Recipients** tab selected, you can find potential recipients from the **Directory** (**Enabled** or **Disabled**) and the **Organization** (**My Organization** or **All Available**). Click the **Save** button after making any changes.

Using the **Filters** tab, you can set the values to filter emails associated with an email address to a **Folder**. Click the **Save** button after making any changes.

> Note that the maximum number of email addresses is ten. This number is also configurable at the `portal-ext.properties`

Similarly, the **Forward Address** tab allows all emails to be forwarded to the email address you want. Enter one email address **Per Line**. Remove all entries to disable email forwarding. Select **Yes** to leave, or **No** to not leave a copy of the forwarded message. Click the **Save** button after making any changes.

Further, the **Signature** tab also allows you to set up your signature using HTML text editor. The signature you have set up will be added to each outgoing message. Click the **Save** button after making any changes.

The **Vacation Message** tab allows you to set up vacation messages using HTML text editor. **The vacation message notifies others of your absence** (as shown in the following figure). Click the **Save** button after making any changes.
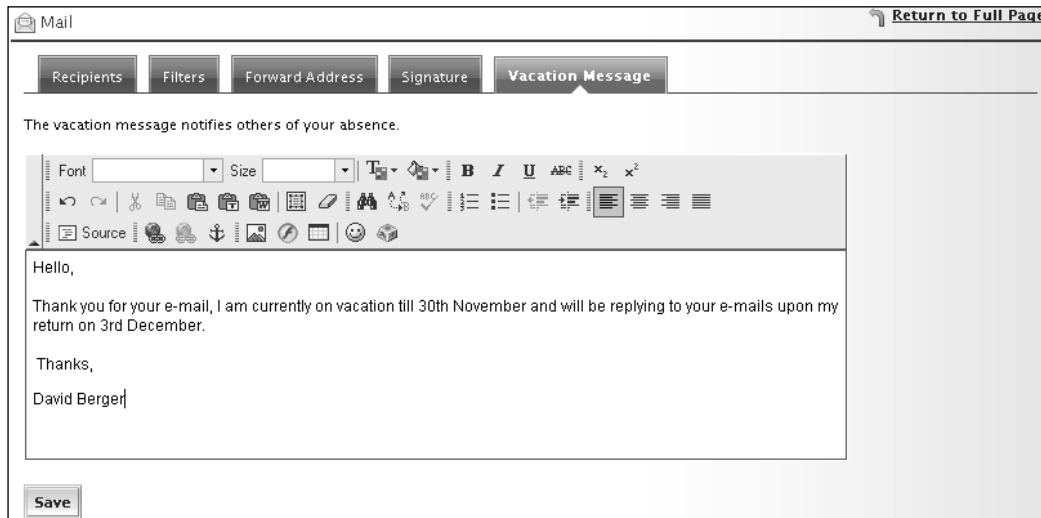

Using Permissions

The following table shows **Permissions** for the **Mail** portlet. A **Community User** can set up all **Permissions** (marked 'X') while a **Guest User has** the **View**, **Configuration** and **Preferences Permissions**. By default, a **Community** (marked '*') as well as a **Guest User** has **View** action.

Action	Description	Community	Guest
View	Views this portlet	X, *	X, *
Configuration	Configures **Permissions** of this portlet	X	X
Preferences	Configures mail setting of this portlet	X	X

Obviously, as a **User** of the **Book Lovers** Community, "**Lotti Stein**" has only **View Permissions** on the **Mail** portlet, by default. Since the **Book Lovers** community has no **Permission** "**Preferences**", it follows that "**Lotti Stein**" too has no "**Preferences**" **Permission**.

As an administrator, you may need to set up the **Community Users** having **Permissions, Preference** as well as **View,** on the **Mail** portlet. Thus, the **Community User** can set up mail settings. That is, you need to add **Permissions** (**Preference**) on the **Mail** portlet at the **Book Lovers** community. Let's do it as follows (see the following figure):

1. Click on the **Configuration** icon to the top right of the **Mail** portlet.
2. Then click on the **Permissions** tab.
3. Select the **Community** tab.
4. Select **Permission**, **Preferences,** in the **Available** box.
5. Click on the **Add** arrow, and
6. Click on the **Save** button if you are ready.
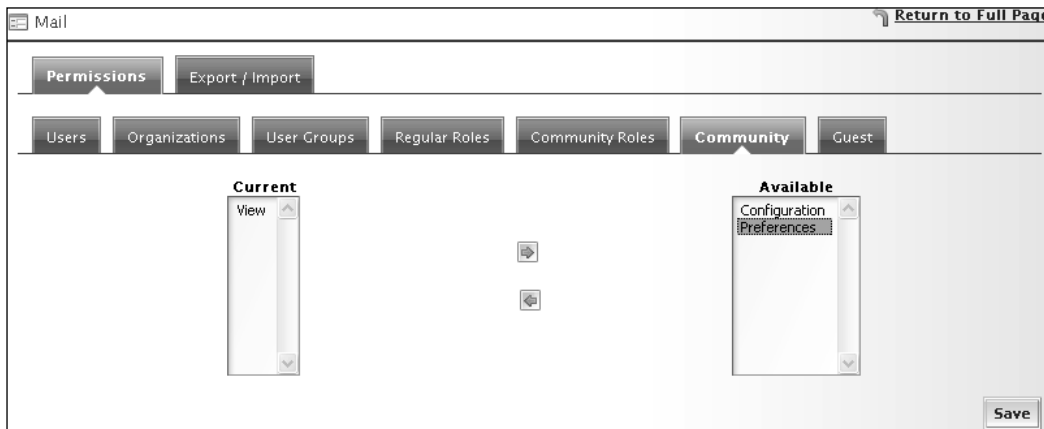
Using Mail Portlet effectively

Liferay Portal can integrate with Washington IMAP + Sendmail, Cyrus IMAP + Postfix, and Dovecot + Postfix, as well as with Microsoft Exchange and other IMAP servers. As stated above, the mail server "`exg3.exghost.com`" is Microsoft Exchange server.

You can access your email through an IMAP server. If access is on IMAP, the portal does not have to know where to persist the mail.

> IMAP stands for Internet Message Access Protocol. URL:
> `http://www.imap.org/`.

One of the popular protocols used for email is IMAP, an application layer Internet protocol. IMAP operates on port 143 that allows a local client to access email on a remote server.

IMAP supports both connected and disconnected modes of operation. Until the **User** explicitly deletes them, email IMAP clients generally leave messages on the server. Moreover, IMAP offers access to the mail store.

IMAP has a lot of advantages. Here, we have listed just some of them:

*   Use connected and disconnected modes of operation.
*   **Users** can connect to the same mailbox simultaneously.
*   **Users** have access to MIME message parts and partial fetch.
*   Has message state information.
*   Supports multiple mailboxes on the server.
*   Provides ability for search on the server-side.
*   Has a built-in extension mechanism.
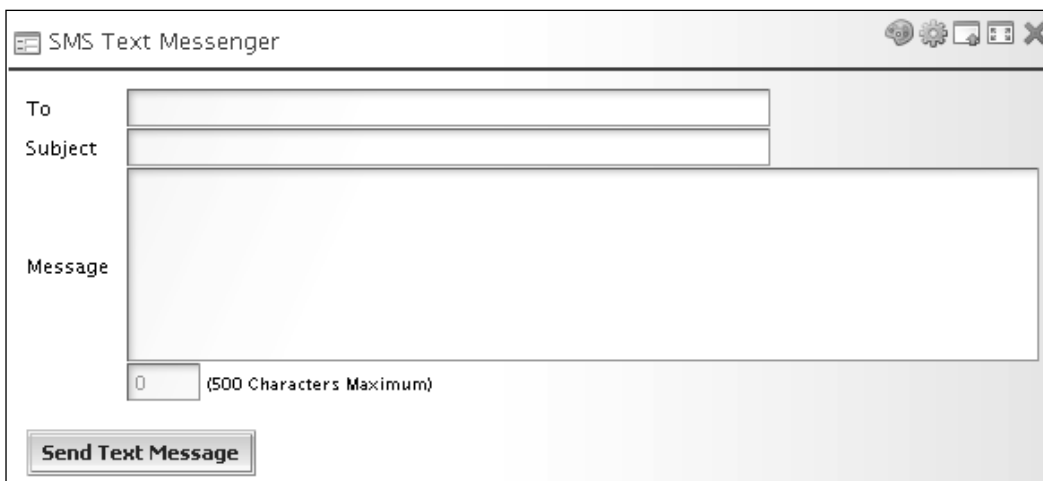
Working with SMS Text Messenger

In order to let employees send text message to others, anytime, we can use the Liferay **SMS Text Messenger** portlet. As an administrator of "Palm Tree Publications", you need to create a **Page** called "**SMS**" under the **Page** "**Community**" at the **Book Lovers** Community and add the **SMS Text Messenger** portlet in the **Page,** "**SMS**".

Using SMS Text Messenger

First of all, login as "**Palm Tree**". Then, let's do the above action as follows:

1. Add a **Page** called "**SMS**" under the **Page** "**Community**" at the **Book Lovers** Community **Public Pages,** if the **Page** is not already present.

2. Add the **SMS Text Messenger** portlet in the **Page,** "**SMS**" of the **Book Lovers** Community where you want to set up **SMS Text Messenger** (if this portlet is not already present). You will see the **SMS Text Messenger** portlet as shown in the following figure:

As an editor of the editorial department, "**Lotti Stein**" wants to send a **Message,** say "**Users in Staging server**", to a person, say"**admin@cignex.com**". Let's do it as follows:

1. Login as "**Lotti Stein**".

2. Go to the **Page** "**SMS**" under the **Page** "**Community**" at the **Book Lovers** community **Public Page**.

3. Locate the **SMS Text Messenger**.

4. Input value for **To** as "**admin@cignex.com**", **Subject** as "**Users in Staging server**" and a **Message**.

5. Click the **Send Text Message** button.

The **User** "**admin@cignex.com**" will receive this email sooner or later, as we have described in the previous section.

SMS Text Messenger

To	admin@cignex.com
Subject	Users in Staging server
Message	We will use full email for now. All Screen Names, email addresses, and names have been corrected. All passwords except Dan, Keren, and Noah are set to sesame. I wasn't mean and didn't post everyone's pictures (just Keren and Mine). I'm trying to test email to see if our system is allowing the relay, but can't find anything that will trigger an email. Will continue on that tomorrow.

415   (500 Characters Maximum)

Send Text Message

How to Set up SMTP?

In order to make **SMS Text Messenger** work well, we have to set up the mail server with SMTP protocol. Suppose that the Enterprise "Palm Tree Publications" has a mail server with a domain "smtp.gmail.com", an account "jonasxyuan/jonas1234", and a protocol, SMTP. As an administrator, you need to integrate this mail server with SMTP protocol in Liferay. Let's do it as follows:

1. Find the file ROOT.xml in $TOMCAT_DIR/conf/Catalina/localhost.

2. Find the mail configuration first.

3. Then, configure it as follows:

```
<Resource
name="mail/MailSession"
auth="Container"
type="javax.mail.Session"
mail.imap.host="smtp.gmail.com"
mail.pop.host="smtp.gmail.com"
mail.store.protocol="imap"
mail.transport.protocol="smtp"
mail.smtp.host="smtp.gmail.com"
mail.smtp.port="465"
mail.smtp.auth="true"
mail.smtp.starttls.enable="true"
mail.smtp.user="jonasxyuan"
password="jonas123456"
mail.smtp.socketFactory.class="javax.net.ssl.SSLSocketFactory"
/>
```

In short, the **SMS Text Messenger** portlet allows you to send SMS text messages from your portal page anytime.

Using SMS Effectively

The Short Message Service (SMS), called text messaging, is used to send short messages to and from mobile phones. It provides a mechanism for the delivery of short text messages over mobile networks, in order to transmit messages to and from mobiles. The text message from the sender can be stored in a central short message center, which then forwards it to the recipient. If the recipient is not available, the short message is stored temporally and will be sent later. SMS provides return receipts. Thus, the sender gets a brief message notification if the short message is delivered to the recipient.

You may need to read the following part, if you are interested in the organization of network elements for supporting SMS. Otherwise, you can leave it for your future needs. The following figure shows a typical organization of network elements in a network supporting SMS (refer to more details at `http://www.wirelessdevnet.com/channels/sms/features/sms.html`).
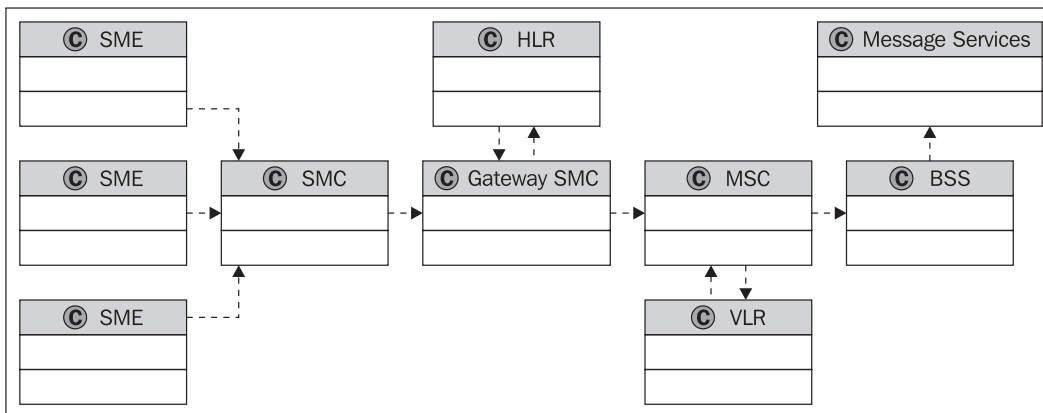
The **SMC** (Short Message Center) stores and forwards messages, to and from the message station. The **SME** (Short Message Entity) receives and sends short messages.

The SMS GWMS (SMS gateway **MSC**), a gateway **MSC**, can receive short messages. After receiving the short message from the message center, GMSC employs the SS7 (Signaling System #7) network to interrogate the current position of the mobile station from the **HLR** (home location register).

HLR, as a main database, holds information about the subscription profile of the mobile. It also maintains the routing information for the subscriber where the mobile is currently situated. The GMSC thus passes on the short message to the correct **MSC**.

MSC (Mobile Switching Center) switches connections between mobile stations.

A **VLR** (Visitor Location Register) communicates with each **MSC** and contains temporary information about the mobile. **MSC** switches the short message to the corresponding **BSS** (Base Station System), which transmits the short message to the mobile. The **BSS** is made up of transceivers, which send and receive information over the air interface, to and from the mobile station. The short message is passed over signaling channels, so that the recipient (for example, mobile) can receive this short piece of information, even if a data call or a voice call is going on.

Summary

This chapter discussed how to add a participant for chatting, how to manage (view and delete) participants in the **Chat** portlet, how to start chatting, and how to set up the **Chat** portlet first. Then it discussed how to manage (check, delete, add, reply, forward, search) emails and also to set up the **Mail** portlet properly. Finally, it discussed how to manage the **SMS Text Messenger** portlet and send SMS text messages.