

eXo Platform 3.0 - Collaboration Functions

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Chapter 1. Prerequisites

You can refer to the following links to understand more about the eXo Collaboration Reference Guide:

- GateIn:

<http://docs.jboss.com/gatein/portal/3.1.0-FINAL/reference-guide/en-US/html/index.html>

- OpenSocial gadget:

http://wiki.opensocial.org/index.php?title=Main_Page

- WebService:

<http://docs.jboss.org/exojcr/1.12.4-GA/developer/en-US/html/part-ws.html>

- Chatserver:

<http://www.igniterealtime.org/builds/openfire/docs/latest/documentation/javadoc/index.html>

- Vcard:

<http://en.wikipedia.org/wiki/VCard>

- ICalendar standard:

<http://en.wikipedia.org/wiki/ICalendar> <http://www.ietf.org/rfc/rfc2445.txt>

Chapter 2. Applications

2.1. Portlets

2.1.1. Calendar portlet

The Calendar portlet is packaged in the calendar.war file.

2.1.1.1. Description

The Calendar portlet shows the Calendar application of eXo Collaboration with a lot of features provided to users.

The Calendar application includes the following features:

- Create multiple personal calendars, manage calendars easily with calendar groups.
- Create events or tasks using the **Quick Add** dialog easily.
- Create events or tasks in details.
- Create all-day events.
- View other attendee's availability schedules.
- Create recurring events.
- Get reminders.
- View calendars by various views: day, week, month and year.
- View events day-by-day by navigating the mini-calendar quickly.
- Share calendars with others.
- Import/Export calendars.
- Publish your calendars with RSS, CalDAV.
- Search for events and/or tasks in calendars.
- Print your agenda.

2.1.1.2. Portlet.xml

To see the portlet in the project, please follow this path:
/eXoApplication/calendar/webapp/src/main/webapp/WEB-INF/portlet.xml

2.1.2. Chatbar portlet

The Chatbar portlet is packaged in the Chatbar.war file.

2.1.2.1. Description

The Chatbar portlet shows the Chatbar application of eXo Collaboration that can be positioned in the portal or page layout as any other, but behaves as a floating box. The bar remains floating at its location even when the browser window is scrolled or resized. Its height is fixed, but can be expanded horizontally to any size available in its container. This allows the portlet to be placed in two layout cases:

- Large width area (typically header or footer).
- Narrow column.

The Chatbar application implements all functions of the Chat application, allowing you to send and receive messages anywhere after you are logged in successfully. The Chatbar is a typical toolbar with buttons to open menus. It gives access to main features of Chat:

- Status change and presence indicator.
- Contacts.
- Rooms.
- Minimized conversation window.

2.1.2.2. Portlet preferences

The Chatbar Portlet consists of some preferences as in the following sample code:

```
<portlet-preferences>
  <preference>
    <name>showMailLink</name>
    <value>true</value> <!--true/false -->
    <read-only>false</read-only>
  </preference>

  <preference>
    <name>showCalendarLink</name>
    <value>true</value> <!--true/false -->
    <read-only>false</read-only>
  </preference>

  <preference>
    <name>showContactLink</name>
    <value>true</value> <!--true/false -->
    <read-only>false</read-only>
  </preference>

  <preference>
    <name>mailUrl</name>
    <value>portal/private/intranet/mail</value> <!--String page name -->
    <read-only>false</read-only>
  </preference>

  <preference>
    <name>calendarUrl</name>
    <value>portal/private/intranet/calendar</value> <!--String page name -->
    <read-only>false</read-only>
  </preference>

  <preference>
    <name>contactUrl</name>
    <value>portal/private/intranet/contact</value> <!--String page name -->
    <read-only>false</read-only>
  </preference>
</portlet-preferences>
```

```

<preference>
  <name>info</name>
  <value>info</value> <!--this is only the key to get the resource bundle the full key : UIConfigForm.label.in
  <read-only>true</read-only>
</preference>
</portlet-preferences>

```

Preference Name	Possible Values	Default Values	Description
showMailLink	true / false	true	true or false value to let users see the application icon or not
showCalendarLink	true / false	true	true or false value to let user see the application icon or not
showContactLink	true / false	true	true or false value to let user see the application icon or not
mailUrl	string	Portal/private/intranet/page	page url to application page it come when you configuration page.xml and navigation.xml in portal no need to combine with %domain name : port% chatbar will resolve it from server
calendarUrl	string	Portal/private/intranet/page	page url to application page it come when you configuration page.xml and navigation.xml in portal no need to combine with %domain name : port% chatbar will resolve it from server
contactUrl	string	Portal/private/intranet/page	page url to application page it come when you configuration page.xml and navigation.xml in portal no need to combine with %domain name : port% chatbar will resolve it from server
info	Info	Info	This is only the key to get the resource bundle the full key : UIConfigForm.label.info

2.1.2.3. Portlet.xml

See the portlet in the project following this path:
/eXoApplication/chatbar/webapp/src/main/webapp/WEB-INF/portlet.xml

2.1.3. Chat Portlet

The Chat Portlet is packaged in the Chat.war file.

2.1.3.1. Description

The Chat Portlet shows the Chat application of eXo Collaboration that allows users to enter chat rooms and communicate with online others at real time.

2.1.3.2. Portlet.xml

See the portlet in the project following this path:
/eXoApplication/chat/webapp/src/main/webapp/WEB-INF/portlet.xml

2.1.4. Contact Portlet

Contact Portlet is packaged in the Contact.war file.

2.1.4.1. Description

Contact Portlet shows the Contact application of eXo Collaboration that allows users to personalize their contact view from different view types such as List view and VCards view.

2.1.4.2. Portlet.xml

See the portlet in the project following this path:
/eXoApplication/contact/webapp/src/main/webapp/WEB-INF/portlet.xml

2.1.5. Mail Portlet

The Mail Portlet is packaged in the Mail.war file.

2.1.5.1. Description

Mail Portlet shows the Mail application of eXo Collaboration that offers a lot of features to users such as sending, receiving or viewing their mails through Internet without actually downloading them to their computer. Users not only take advantages of eXo Mail by keeping and receiving all important messages, files and pictures forever but also by looking for and viewing their needed messages easily whenever they want. Additionally, the Mail application is smoothly integrated with other Collaboration modules, such as Address Book and Calendar.

2.1.5.2. Portlet.xml

See the portlet in the project following this path:
/eXoApplication/mail/webapp/src/main/webapp/WEB-INF/portlet.xml

2.1.6. RSSreader Portlet

The RSSreader Portlet is packaged in the Rssreader.war file.

2.1.6.1. Description

eXo Collaboration uses the RSS Reader Portlet that facilitates users to quickly get a view of their favorite feeds around the web. They will get the latest news, the last updated posts from their favorite blogs, latest emails, and more.

2.1.6.2. Portlet.xml

See the portlet in the project following this path:
/eXoApplication/content/webapp/src/main/webapp/WEB-INF/portlet.xml

2.2. Gadgets

eXo Collaboration consists of three gadgets: eventslist, tasklist and messageslist. They are packaged in the csResources.war file.

2.2.1. Eventslist

2.2.1.1. Description

Eventslist lists the maximum number of upcoming events, that is configurable by users. For example, they can set the preference list to 5 or 10 events.

See the preferences of this gadget in the following sample code:

```
<UserPref datatype="string" display_name="__MSG_baseurl__" name="url" required="true" value="/calendar"/>
<UserPref datatype="string" display_name="__MSG_subscribeurl__" name="subscribeurl" required="true" value="/portlet" />
<UserPref datatype="string" default_value="10" display_name="__MSG_limit__" name="limit"/>
<UserPref datatype="enum" default_value="AM/PM" display_name="__MSG_format__" name="timeformat"/>
```

Details:

Preferences	Description
url	link to Calendar portlet
Subscribeurl	link to upcoming events
limit	The maximum number of upcoming events
timeformat	The time format for upcoming events

For more details on the preferences of gadgets, see [here](#)

2.2.1.2. Links to used REST services

It uses upcomingEvent service in the following package:
org.exoplatform.webservice.cs.calendar.CalendarWebservice.java

2.2.2. Tasklist

Tasklist list the maximum number of upcoming tasks that is configurable by users. For example, they can set the preference list to 5 or 10 tasks.

2.2.2.1. Description

See the preferences of this gadget in the following sample code:

```
<UserPref datatype="hidden" default_value="/calendar:/portal/rest/private/cs/calendar/upcoming:10:AM/PM:Default"
```

Details: Setting: It collects all the configuration of upcoming tasks and add some more functions to help developers change the configuration of the default skin.

2.2.2.2. Links to used REST services

It uses upcomingEvent service in the following package:
org.exoplatform.webservice.cs.calendar.CalendarWebservice.java

2.2.3. Messageslist

It lists the maximum number of unread messages, that is configurable by users.

2.2.3.1. Description

See the preferences of this gadget in the following sample code:

```
<UserPref datatype="hidden" display_name="__MSG_baseurl__" name="url" required="true" value="/mail"/>
<UserPref datatype="hidden" display_name="__MSG_subscribeurl__" name="subscribeurl" required="true" value="/port
<UserPref datatype="hidden" default_value="5" display_name="__MSG_limit__" name="limit"/>
<UserPref datatype="hidden" default_value="" display_name="__MSG_account__" name="account"/>
<UserPref datatype="hidden" default_value="" display_name="__MSG_folder__" name="folder"/>
<UserPref datatype="hidden" default_value="" display_name="__MSG_tag__" name="tag"/>
```

Details:

Preferences	Description
Url	The Url of Mail Application.
Subscribeurl	The link to upcoming messages.
Limit	The number of displayed unread messages that is set by users.
Account	The mail account in the Mail application.
Folder	The folder consists of unread messages.
Tag	The tags in all unread messages.

2.2.3.2. Links to used REST services

It uses the unreadMail service in the following package:
org.exoplatform.webservice.cs.mail.MailWebservice.java

Chapter 3. Configurations

3.1. Components in eXo Collaboration Configuration

This table shows some main components that take init-param in the applications of eXo Collaboration:

Applications	Components	Description
Calendar	CalendarServiceImpl	It is a service that manages calendars in the Calendar application of eXo Collaboration
Chat	HistoryImpl	It is a service that saves the chat history of users
	XMPPMessenger	It is a service that processes messages of chat users, basing on the XMPP Protocol
	DefaultPresenceStatus	It is a component that controls the presence status of chat users.
Contact	ContactServiceImpl	It is a service that supplies functions to manage contacts in the Address Book application of eXo Collaboration
Webservice	AddActionsPlugin	It is used to register a listener for the actions on the nodes

3.1.1. CalendarService

The configuration of the Calendar application is applied mainly in */eXoApplication/calendar/service/src/main/resources/conf/portal/configuration.xml* Use the CalendarService to configure the Calendar. The following information will explain details of its configuration. When this configuration file is executed, the component named `org.exoplatform.calendar.service.impl.CalendarServiceImpl` will process the actions of the Calendar application.

```
<component>
  <key>org.exoplatform.calendar.service.CalendarService</key>
  <type>org.exoplatform.calendar.service.impl.CalendarServiceImpl</type>
  <init-params>
    <properties-param>
      <name>eventNumber.info</name>
      <property name="eventNumber" value="100"/>
    </properties-param>
  </init-params>
</component>
```

Details:

Properties-Param	Property name	Description	Possible Value	Default Value
eventNumber	eventNumber	The number of events in a calendar	interger	100

3.1.2. HistoryImpl

The configuration of historyImpl is found in the `/extension/webapp/src/main/webapp/WEB-INF/cs-extension/cs/chat/chat-service-configuration.xml`. When this configuration file is executed, the component named `org.exoplatform.services.xmpp.history.impl.jcr.HistoryImpl` initializes all the configured parameters.

```
<component>
  <type>org.exoplatform.services.xmpp.history.impl.jcr.HistoryImpl</type>
  <init-params>
    <value-param>
      <name>workspace</name>
      <value>collaboration</value>
    </value-param>
    <value-param>
      <name>repository</name>
      <value>repository</value>
    </value-param>
    <value-param>
      <name>path</name>
      <value>exo:applications/eXoChat/history</value>
    </value-param>
  </init-params>
</component>
```

Details:

Value-Param	Description	Possible Values	Default Value
workspace	Workspace is the workspace name in JCR where history data is stored	string	collaboration
repository	Repository is the repository name in JCR where history data is stored	string	repository
path	Path is JCR path to the location where history data is stored	string	exo:applications/eXoChat/history

3.1.3. XMPPMessenger

The configuration of the XMPPMessenger component is found in `/extension/webapp/src/main/webapp/WEB-INF/cs-extension/cs/chat/chat-service-configuration.xml`. It helps eXo Collaboration connect the Openfire instance.

```

<component>
  <type>org.exoplatform.services.xmpp.connection.impl.XMPPMessenger</type>
  <init-params>
    <properties-param>
      <name>openfire-connection-conf</name>
      <property name="host" value="127.0.0.1"/>
      <property name="port" value="5222"/>
    </properties-param>
    <properties-param>
      <name>send-file</name>
      <property name="timeout" value="7200000"/>
    </properties-param>
  </init-params>
</component>

```

Details:

Properties-param	Property name	Description	Possible Values	Default Value
openfire-connection-conf	host	IP address or hostname for the openfire server	integer	127.0.0.1
	port	Port to connect to on the openfire server. Should be the same that set in openfire configuration "Client to Server"	integer	5222
send-file	timeout	timeout before aborting attempt to establish a file transfer	integer	7200000

3.1.4. DefaultPresenceStatus

The configuration of the DefaultPresenceStatus component is found in */extension/webapp/src/main/webapp/WEB-INF/cs-extension/cs/chat/chat-service-configuration.xml*.

```

<component>
  <type>org.exoplatform.services.presence.DefaultPresenceStatus</type>
  <init-params>
    <properties-param>
      <name>presence-status</name>
      <property name="mode" value="Free to chat"/>
    </properties-param>
  </init-params>
</component>

```

Details:

Properties-param	Property name	Description	Possible Values	Default Value	
presence-status	mode	It shows the	string	Free to chat	

Properties-param	Property name	Description	Possible Values	Default Value	
		present status of users			

3.1.5. ContactService

The configuration of the ContactService component is found in *eXoApplication/contact/service/src/main/resources/conf/portal/configuration.xml* when the server starts, the configuration file that contains the declaration of ContactService component is executed, after that a ContactService component is created with params and plug-ins in the configuration file.

```
<component>
  <key>org.exoplatform.contact.service.ContactService</key>
  <type>org.exoplatform.contact.service.impl.ContactServiceImpl</type>
  <init-params>
    <values-param>
      <name>UserCanSeeAllGroupAddressBooks</name>
      <description>User can see all GroupAddressBooks or only GroupAddressBooks that the user has at least one m
      <value>false</value>
    </values-param>
    <values-param>
      <name>NonPublicGroups</name>
      <description>Groups that should not be displayed in broadcast list. Wildcards may be used in groups name</
    </values-param>
  </init-params>
</component>
```

Values-param	Description	Possible Values	Default Value
UserCanSeeAllGroupAddressBooks	User can see all GroupAddressBooks or only GroupAddressBooks that the user has at least one membership.	true/false	false
NonPublicGroups	Groups that shouldn't be displayed in broadcast list. Wildcards may be used in groups name.	true/false	N/A

3.2. External Component Plug-ins

The following table describes the main functions of external component plug-ins:

Applications	Components	Description
Calendar	NewUserListener	Create default personal calendars.
	NewGroupListener	Create default group calendars.
	NewMembershipListener	Share calendars to members of a specific group.
	ReminderPeriodJob	Execute sending reminder emails

Applications	Components	Description
		to users.
	PopupReminderPeriodJob	Open a pop-up reminder on the browser of users.
	AddActionsPlugin	Enable the systems to automatically update the updated date of events/tasks in a calendar when the content of these events/tasks are changed.
Chat	HistoryPeriodJob	Save the chat history of users.
	RequestFilterComponentPlugin	Delete the session of a user when the browser is suddenly closed or the session is changed.
	AuthenticationLoginListener	Start the session and log in the chat server.
	AuthenticationLogoutListener	End the session and log out the chat server.
Contact	NewUserListener	Create personal contact data for users.
	NewMembershipListener	Create address book for a specific group.
	UpdateUserProfileListener	Update the personal profile of a user when it is changed on the portal.
Content	RSSContentPlugin	The formatter used to analyze the data from a RSS rsource.
	DescriptionPlugin	Represent the data from a RSS source.
Mail	AuthenticationLogoutListener	Stop checking mails of a user when he logs out.
Social Intergration	CalendarDataInitialize	Create a calendar for a group in a specific space.
	ContactDataInitialize	Create an address book for a group in a specific space.
	ContactSpaceActivityPublisher	Customize the activity status of a specific space when an event happens on an address book.
	CalendarSpaceActivityPublisher	Customize the activity status of a specific space when an event happens on a calendar.
	PortletPreferenceRequiredPlugin	Declare the application that will

Applications	Components	Description
		automatically create database.

3.2.1. Calendar Configuration

3.2.1.1. NewUserListener

Each user can have a default personal calendar created. Use the NewUserListener to configure that. To use the plug-in in the component configuration, you must use the target-component:

```
<target-component>org.exoplatform.services.organization.OrganizationService</target-component>
```

The configuration is applied mainly in extension `/webapp/src/main/webapp/WEB-INF/cs-extension/cs/calendar/calendar-service-configuration.xml`.

```
<component-plugin>
  <name>calendar.new.user.event.listener</name>
  <set-method>addListenerPlugin</set-method>
  <type>org.exoplatform.calendar.service.impl.NewUserListener</type>
  <description>description</description>
  <init-params>
    <value-param>
      <name>defaultEventCategories</name>
      <value>Meeting,Calls,Clients,Holiday,Anniversary</value>
    </value-param>
    <value-param>
      <name>defaultCalendarCategory</name>
      <value>My group</value><!-- Single value -->
    </value-param>
    <value-param>
      <name>defaultCalendar</name>
      <value>Default</value>
    </value-param>
    <!--Params for default calendar setting -->
    <value-param>
      <name>viewType</name>
      <value>1</value>
    </value-param>

    <value-param>
      <name>timeInterval</name>
      <value>15</value><!-- in minutes -->
    </value-param>

    <value-param>
      <name>weekStartOn</name>
      <value>2</value>
    </value-param>

    <value-param>
      <name>dateFormat</name>
      <value>MM/dd/yyyy</value>
    </value-param>

    <value-param>
      <name>timeFormat</name>
      <value>HH:mm</value> <!-- HH:mm/hh:mm a -->
    </value-param>

    <value-param>
      <name>localeId</name>
      <value>BEL</value>
    </value-param>

    <value-param>
```

```

    <name>timezoneId</name>
    <value>Europe/Brussels</value>
  </value-param>

  <value-param>
    <name>baseUrlForRss</name>
    <value/>
  </value-param>

  <value-param>
    <name>isShowWorkingTime</name>
    <value>>false</value><!-- boolean true/false -->
  </value-param>

  <value-param>
    <name>workingTimeBegin</name>
    <value>08:00</value><!-- -->
  </value-param>

  <value-param>
    <name>workingTimeEnd</name>
    <value>18:00</value><!-- -->
  </value-param>

  <values-param>
    <name>ignoredUsers</name>
    <description>Definition users to ignore create default calendar</description>
    <!-- <value>demo</value> <value>marry</value> -->
  </values-param>
</init-params>
</component-plugin>

```

Details:

- **Name:** `calendar.new.user.event.listener` - The unique key to avoid duplicate names. Users can change it.
- **Set-method:** `addListenerPlugin` - The function is executed at the target of the component to register `NewUserListener`.
- **Type:** `org.exoplatform.calendar.service.impl.NewUserListener` - The class is set up to execute the creation of database.
- **Description:** It is a plug-in used to create default personal calendars.

See the details about the init-params of the component in the following table:

Value-params	Description	Possible value	Default Value
defaultEventCategories	Default event categories for users.	String (Comma separated list of category names)	Meeting, Calls, Clients, Holiday, An
defaultCalendarCategory	Name of the calendar group.	String	Default
viewType	Default view after user logins and goes to Calendar portlet.	0-6 (see below)	1
timeInterval	The time unit interval when you drag and move the event (in Day view and Week view only).	integer in minutes	15

Value-params	Description	Possible value	Default Value
weekStartOn	Day to use as the beginning of the week. It only affects the Week view.	1-7 (see below)	2
dateFormat	The display format for dates.	valid Java Date format	MM/dd/yyyy
timeFormat	The display format for time.	valid Java Date format	HH:mm
localeId	ID of the geographic locale.	valid locale ID	BEL
timezoneIds	User time zone.	valid TimeZone id	Europe
baseUrlForRss	The url to publish the RSS content.	none	none
isShowWorkingTime	Indicate if the working time should be highlighted in the Day view.	true/false	false
workingTimeBegin	The start time in working time.	time in timeFormat	08:00
workingTimeEnd	The end time in working time.	time in timeFormat	18:00
ignoredUsers	Definition users to ignore create the default calendar.	user id, use multiple by each line	demo/marry

viewType parameter is encoded by a number as follow:

0 : Day view

1 : Week view

2 : Month view

3 : Year view

4 : List view

5 : Schedule view

6 : Working days view

weekStartOn parameter is encoded as follow:

1 : Sunday

2 : Monday

3 : Tuesday

4 : Wednesday

5 : Thursday

6 : Friday

7 : Saturday

3.2.1.2. NewGroupListener

To use the plug-in in the component configuration, you must use the target-component:

```
<target-component>org.exoplatform.services.organization.OrganizationService</target-component>
```

The configuration is applied mainly in `extension/webapp/src/main/webapp/WEB-INF/cs-extension/cs/calendar/calendar-service-configuration.xml`

```
<component-plugin>
  <name>calendar.new.group.event.listener</name>
  <set-method>addListenerPlugin</set-method>
  <type>org.exoplatform.calendar.service.impl.NewGroupListener</type>
  <description>description</description>
  <init-params>
    <value-param>
      <name>defaultEditPermission</name>
      <value>*. *</value><!-- Multi value membership, use coma (,) to split values -->
    </value-param>
    <value-param>
      <name>defaultViewPermission</name>
      <value>*. *</value>
    </value-param>
    <value-param>
      <name>defaultLocale</name>
      <value>BEL</value>
    </value-param>
    <value-param>
      <name>defaultTimeZone</name>
      <value>Europe/Brussels</value>
    </value-param>
    <values-param>
      <name>ignoredGroups</name>
      <description>Definition group to ignore create default calendar</description>
      <!-- <value>/platform/guests</value> -->
      <value>/spaces/*</value> <!-- single value, use more <value> tags to add more group -->
    </values-param>
  </init-params>
</component-plugin>
```

Details:

- **Name:** `calendar.new.group.event.listener` is the unique key to avoid duplicate names. Users can change it.
- **Set-method:** `addListenerPlugin` is the function is executed at the target of the component to register `NewGroupListener`.
- **Type:** `org.exoplatform.calendar.service.impl.NewGroupListener` is the class set up to execute the creation of database.

- **Description:** It is a plug-in used to create default group calendars.

See the details about the init-params of the component in the following table:

Value-params	Description	Possible values	Default values
defaultEditPermission	The default permission assigned to membership in a specific group to edit calendars and events/tasks of the calendar.	User id (Multi value membership, use coma (,) to split values)	. means that all members in that group can modify and add, remove a calendar, events/tasks of the calendar
defaultViewPermission	The default permission assigned to membership in a specific group to view a calendar and events /tasks of the calendar.	User id (Multi value membership, use coma (,) to split values)	. means that all members in that group can view this calendar and all the events/tasks of this calendar.
defaultLocale	The default locale of the calendar.	Valid locale id	BEL (see more locale ids http://userpage.chemie.fu-berlin)
defaultTimeZone	The default time zone of the calendar.	Valid timezone id	Europe/Brussels (see more for timeZone ids http://www.unicode.org/cldr/data)
ignoredGroups	Definition group to ignore create the default calendar.	Group id (use line to define multiple value)	/platform/guests

3.2.1.3. NewMembershipListener

To use the plug-in in the component configuration, you must use the target-component:

```
<target-component>org.exoplatform.services.organization.OrganizationService</target-component>
```

The configuration is applied mainly in *extension/webapp/src/main/webapp/WEB-INF/cs-extension/cs/calendar/calendar-service-configuration.xml*

```
<component-plugin>
  <name>calendar.new.membership.event.listener</name>
  <set-method>addListenerPlugin</set-method>
  <type>org.exoplatform.calendar.service.impl.NewMembershipListener</type>
  <description>description</description>
</component-plugin>
```

Explanation:

- **Name:** `calendar.new.membership.event.listener` is the unique key to avoid duplicate names. Users can change it.

- **Set-method:** addListenerPlugin is the function is executed at the target of the component.
- **Type:** org.exoplatform.calendar.service.impl.NewMembershipListener is the class is set up to execute the creation of database.
- **Description:** It is a plug-in used to execute sending reminder emails to users.

3.2.1.4. ReminderPeriodJob

The Calendar application of eXo Collaboration can send event reminders by using the email reminder plug-in configuration. You will probably need to adjust this configuration to meet your own needs. The feature is based on a periodic poll of the stored reminders.

You must use the following target component to use the plug-in in this configuration:

```
<target-component>org.exoplatform.services.scheduler.JobSchedulerService</target-component>
```

The configuration is applied in *extension/webapp/src/main/webapp/WEB-INF/cs-extension/cs/cs-configuration.xml*

```
<component-plugin>
  <name>RecordsJob</name>
  <set-method>addPeriodJob</set-method>
  <type>org.exoplatform.calendar.service.ReminderPeriodJob</type>
  <description>add e-mail reminder job to the JobSchedulerService</description>
  <init-params>
    <properties-param>
      <name>job.info</name>
      <description>save the monitor data periodically</description>
      <property name="jobName" value="ReminderJob"/>
      <property name="groupName" value="CollaborationSuite"/>
      <property name="job" value="org.exoplatform.calendar.service.ReminderJob"/>
      <property name="repeatCount" value="0"/>
      <property name="period" value="180000"/>
      <property name="startTime" value="+0"/>
      <property name="endTime" value=""/>
    </properties-param>
  </init-params>
</component-plugin>
```

Details:

- **Name:** RecordsJob is the name of a schedule job. Keep this value.
- **Set-method:** addPeriodJob is the plug-in registering method. Keep this value.
- **Type:** org.exoplatform.calendar.service.ReminderPeriodJob is a class that executes to transfer the data into database of Job Scheduler.
- **Description:** Add email reminder job to the JobSchedulerService.

See the details about the init-params of the component in the following table:

Properties-param	Description	Property names	Description	Possible values	Default values
job.info	Save the monitor data	jobName	The name of job	String	ReminderJob

Properties-param	Description	Property names	Description	Possible values	Default values
	periodically.				
		groupName	The name of group job.	String	CollaborationSuite
		job	The name of actual job class.	Class path	org.exoplatform.calendar
		repeatCount	How many times to run this job.	Long	0, (use '0' which means 'run forever')
		period	The time interval (millisecond) between job executions.	Long	180000
		startTime	The time the job starts to run.	Integer	+0
		endTime	The time the job ends to run.	Integer	none

3.2.1.5. PopupReminderPeriodJob

You must use the following target component to use the plug-in in this configuration:

```
<target-component>org.exoplatform.services.scheduler.JobSchedulerService</target-component>
```

The configuration is applied in *extension/webapp/src/main/webapp/WEB-INF/cs-extension/cs/cs-configuration.xml*

```
<component-plugin>
  <name>PopupRecordsJob</name>
  <set-method>addPeriodJob</set-method>
  <type>org.exoplatform.calendar.service.PopupReminderPeriodJob</type>
  <description>add popup reminder job to the JobSchedulerService</description>
  <init-params>
    <properties-param>
      <name>job.info</name>
      <description>save the monitor data periodically</description>
      <property name="jobName" value="PopupReminderJob"/>
      <property name="groupName" value="CollaborationSuite"/>
      <property name="job" value="org.exoplatform.calendar.service.PopupReminderJob"/>
      <property name="repeatCount" value="0"/>
      <property name="period" value="6000"/>
      <property name="startTime" value="+0"/>
      <property name="endTime" value=""/>
    </properties-param>
    <properties-param>
      <name>popupreminder.info</name>
      <description>save the monitor data periodically</description>
      <property name="portalName" value="portal"/>
    </properties-param>
  </init-params>
</component-plugin>
```

Details:

- **Name:** PopupRecordsJob is the name of the job. Keep this value.
- **Set-method:** addPeriodJob is the plug-in registering method. Keep this value.
- **Type:** org.exoplatform.calendar.service.PopupReminderPeriodJob is a class that executes to transfer the data into database of Job Scheduler.
- **Description:** Add popup reminder job to the JobSchedulerService.

See the details about the init-params of the component in the following table:

Properties-params	Description	Property names	Description	Possible values	Default values	
job.info	Save the monitor data periodically.	jobName	The name of job	String	PopupReminderJob	
		groupName	The name of group job.	String	CollaborationSuite	
		job	The name of actual job class.	Class path	org.exoplatform.calendar.service.PopupReminderPeriodJob	
		repeatCount	How many times to run this job.	Long	0, (use '0' which means 'run forever)	
		period	The time interval (millisecond) between job executions.	Long	6000	
		startTime	The time the job starts to run.	Long	+0	
		endTime	The time the job ends to run.	Integer	None	
popupreminders.info	Save the monitor data periodically.	portalName	The name of the portal	String	portal	##

3.2.2. AddActionsPlugin

The configuration of the AddActionsPlugin is found in *WEB-INF/cs-extension/cs/webservice/webservice-configuration.xml* It is used to register the listener named

`org.exoplatform.webservice.cs.LastUpdateAction` and it is executed, basing on `eventTypes`.

```
<component>
  <type>org.exoplatform.services.jcr.impl.ext.action.SessionActionCatalog</type>
  <component-plugins>
    <component-plugin>
      <name>Last Update Action</name>
      <set-method>addPlugin</set-method>
      <type>org.exoplatform.services.jcr.impl.ext.action.AddActionsPlugin</type>
      <description>add actions plugin</description>
      <init-params>
        <object-param>
          <name>actions</name>
          <object type="org.exoplatform.services.jcr.impl.ext.action.AddActionsPlugin$ActionsConfig">
            <field name="actions">
              <collection type="java.util.ArrayList">
                <value>
                  <object type="org.exoplatform.services.jcr.impl.ext.action.ActionConfiguration">
                    <field name="eventTypes">
                      <string>addNode,changeProperty</string>
                    </field>
                    <field name="nodeTypes">
                      <string>exo:calendarEvent</string>
                    </field>
                    <field name="actionClassName">
                      <string>org.exoplatform.webservice.cs.LastUpdateAction</string>
                    </field>
                  </object>
                </value>
              </collection>
            </field>
          </object>
        </object-param>
      </init-params>
    </component-plugin>
  </component-plugins>
</component>
```

- **object-param:** Actions is the name of the object.
- **object type:** `org.exoplatform.services.jcr.impl.ext.action.AddActionsPlugin$ActionsConfig` is a class used to register the following field names in the table below:

Field name	Description	String
eventTypes	The type of the event.	addNode, changeProperty
nodeTypes	The type of the node.	exo:calendarEvent
actionClassName	The registration class to execute the actions that the plug-in requires.	org.exoplatform.webservice.cs.LastUpdateAction

3.2.3. Chat Configuration

The Chat configuration is applied in `/extension/webapp/src/main/webapp/WEB-INF/cs-extension/cs/chat/chat-service-configuration.xml`.

3.2.3.1. HistoryPeriodJob

```
<external-component-plugins>
  <target-component>org.exoplatform.services.scheduler.JobSchedulerService</target-component>
```

```

<component-plugin>
  <name>ChatRecordsJob</name>
  <set-method>addPeriodJob</set-method>
  <type>org.exoplatform.services.xmpp.connection.impl.HistoryPeriodJob</type>
  <description>add chat messages from Openfire Server to History</description>
  <init-params>
    <properties-param>
      <name>job.info</name>
      <description>save the monitor data periodically</description>
      <property name="jobName" value="messageToHistoricalMessageJob"/>
      <property name="groupName" value="CollaborationSuite"/>
      <property name="job" value="org.exoplatform.services.xmpp.connection.impl.HistoryJob"/>
      <property name="repeatCount" value="0"/>
      <property name="period" value="3000"/>
      <property name="startTime" value="+0"/>
      <property name="endTime" value=""/>
    </properties-param>
    <properties-param>
      <name>history.info</name>
      <description>save the monitor data periodically</description>
      <property name="logBatchSize" value="50"/>
    </properties-param>
  </init-params>
</component-plugin>
</external-component-plugins>

```

Details:

- **Name:** ChatRecordsJob is the name of the job. Keep this value.
- **Set-method:** addPeriodJob is the plug-in registering method. Keep this value.
- **Type:** org.exoplatform.services.xmpp.connection.impl.HistoryPeriodJob is a class that executes to transfer the data into the database of Job Scheduler.
- **Description:** It is used to save chat messages from Openfire Server to History.

See the details about the init-params of the component in the following table:

Properties-param	Description	Property names	Description	Possible values	Default values
job.info	Save the monitor data periodically.	jobName	The name of job	String	messageToHistoricalMessageJob
		groupName	The name of group name.	String	CollaborationSuite
		job	The name of actual job class.	Class path	org.exoplatform.services.xmpp.connection.impl.HistoryJob
		repeatCount	How many times to run this job.	integer	0 (use '0' which means 'run forever')
		period	The time interval (millisecond) between job executions.	Long	3000
		startTime	The time the job	Long	+0

Properties-param	Description	Property names	Description	Possible values	Default values
			starts running.		
		endTime	The time the job ends running.	Long	none
history.info	Save the monitor data periodically.	logBatchSize	The maximum number of messages in the cache are saved once the job runs.	Integer	50

3.2.3.2. RequestFilterComponentPlugin

```

<external-component-plugins>
  <target-component>org.exoplatform.services.rest.impl.RequestHandlerImpl</target-component>
  <component-plugin>
    <name>ws.rs.request.filter</name>
    <set-method>addPlugin</set-method>
    <type>org.exoplatform.services.rest.impl.RequestFilterComponentPlugin</type>
    <init-params>
      <value-param>
        <name>RESTMPPServiceFilter</name>
        <value>org.exoplatform.services.xmpp.rest.filter.RESTMPPServiceFilter</value>
      </value-param>
    </init-params>
  </component-plugin>
</external-component-plugins>

```

Details:

- **Name:** ws.rs.request.filter is the name of the filter. Keep this value.
- **Set-method:** addPlugin is the plug-in registering method. Keep this value.
- **Type:** org.exoplatform.services.rest.impl.RequestFilterComponentPlugin is a class that executes the requests of the plugin.
- **Description:** It is used to delete the session of a user when he suddenly closes the browser or changes the session.

See the details about the init-params of the component in the following table:

Value-param	Description	Possible value	Default value
RESTMPPServiceFilter	The name of the filter.	Class path	org.exoplatform.services.xmpp.re

3.2.3.3. AuthenticationLoginListener and AuthenticationLogoutListener

Two functions: login and logout of XMPPRestService are responsible for creating a new XMPPSessionImpl and destroying an existing XMPPSessionImpl. They can be called by listeners: AuthenticationLoginListener, AuthenticationLogoutListener or from client(browser) through Rest protocol (jabberLogin, jabberLogout in

UIMainChatWindow.js). You must use the same target component for two external component plug-ins:

```
<target-component>org.exoplatform.services.listener.ListenerService</target-component>
```

3.2.3.3.1. AuthenticationLoginListener

```
<component-plugin>
  <name>exo.core.security.ConversationRegistry.register</name>
  <set-method>addListener</set-method>
  <type>org.exoplatform.services.xmpp.connection.impl.AuthenticationLoginListener</type>
  <description>description</description>
</component-plugin>
```

Details:

- **Name:** `exo.core.security.ConversationRegistry.register` is the name of plug-in.
- **Set-method:** `addListener` is the plug-in registering method. Keep this value.
- **Type:** `org.exoplatform.services.xmpp.connection.impl.AuthenticationLoginListener` is a class to execute the requests of the plug-in.
- **Description:** It is used to start the session and log in the chat server.

3.2.3.3.2. AuthenticationLogoutListener

```
<component-plugin>
  <name>exo.core.security.ConversationRegistry.unregister</name>
  <set-method>addListener</set-method>
  <type>org.exoplatform.services.xmpp.connection.impl.AuthenticationLogoutListener</type>
  <description>description</description>
</component-plugin>
```

Details:

- **Name:** `exo.core.security.ConversationRegistry.unregister` is the name of plug-in.
- **Set-method:** `addListener` is the plug-in registering method. Keep this value.
- **Type:** `org.exoplatform.services.xmpp.connection.impl.AuthenticationLogoutListener` is a class to execute the requests of the plug-in.
- **Description:** It is used to end the session and log in the chat server.

3.2.4. Contact Configuration

The Contact Application is configured by three external component plug-ins: `NewUserListener`, `NewMembershipListener` and `UpdateUserProfileListener`. They use the same target component:

```
<target-component>org.exoplatform.services.organization.OrganizationService</target-component>
```

The Contact configuration is found in

extension/webapp/src/main/webapp/WEB-INF/cs-extension/cs/contact/contact-service-configuration.xml.

3.2.4.1. NewUserListener

```
<component-plugin>
  <name>contact.new.user.event.listener</name>
  <set-method>addListenerPlugin</set-method>
  <type>org.exoplatform.contact.service.impl.NewUserListener</type>
  <description>description</description>
</component-plugin>
```

Details:

- **Name:** `contact.new.user.event.listener` is the name of listener.
- **Set-method:** `addListenerPlugin` is the plug-in registering method. Keep this value.
- **Type:** `org.exoplatform.contact.service.impl.NewUserListener` is a class that executes all the requires of the plug-in.
- **Description:** It is used to initialize personal contact data for users.

3.2.4.2. NewMembershipListener

```
<component-plugin>
  <name>contact.new.membership.event.listener</name>
  <set-method>addListenerPlugin</set-method>
  <type>org.exoplatform.contact.service.impl.NewMembershipListener</type>
  <description>description</description>
</component-plugin>
```

Details:

- **Name:** `contact.new.membership.event.listener` is the name of the listener.
- **Set-method:** `addListenerPlugin` is the plug-in registering method. Keep this value.
- **Type:** `org.exoplatform.contact.service.impl.NewMembershipListener` is a class that executes all the requires of the plug-in.
- **Description:** It is used to initialize an address book for a specific group.

3.2.4.3. UpdateUserProfileListener

```
<component-plugin>
  <name>contact.new.userprofile.event.listener</name>
  <set-method>addListenerPlugin</set-method>
  <type>org.exoplatform.contact.service.impl.UpdateUserProfileListener</type>
  <description>description</description>
</component-plugin>
```

Details:

- **Name:** `contact.new.userprofile.event.listener` is the name of the listener.

- **Set-method:** addListenerPlugin is the plug-in registering method. Keep this value.
- **Type:** org.exoplatform.contact.service.impl.UpdateUserProfileListener is a class that executes all the requires of the plug-in.
- **Description:** It is used to update the personal profile of a user when he changes it on the portal.

3.2.5. Content Configuration

The Content application, such as RSS reader of eXo Collaboration, is configured by two external component plug-ins: RSSContentPlugin and DescriptionPlugin. Both the external components plug-ins use the same target component:

```
<target-component>org.exoplatform.content.service.ContentDAO</target-component>
```

This content configuration is applied in *extension/webapp/src/main/webapp/WEB-INF/cs-extension/cs/content/content-service-configuration.xml*.

3.2.5.1. RSSContentPluginDescriptionPlugin

```
<component-plugin>
  <name>rssreader.listener</name>
  <set-method>addPlugin</set-method>
  <type>org.exoplatform.content.service.RSSContentPlugin</type>
  <description>rss reader plugin</description>
</component-plugin>
```

Details:

- **Name:** rssreader.listener is the name of the listener.
- **Set-method:** addPlugin is the plugin registering method. Keep this value.
- **Type:** org.exoplatform.content.service.RSSContentPlugin is a class extending ContentPlugin and implements loadContentMeta method to get content items.
- **Description:** It is a formatter used to analyze the data from a RSS resource.

3.2.5.2. DescriptionPlugin

```
<component-plugin>
  <name>description.listener</name>
  <set-method>addPlugin</set-method>
  <type>org.exoplatform.content.service.DescriptionPlugin</type>
  <description>Description plugin</description>
</component-plugin>
```

Details:

- **Name:** description.listener is the name of the listener.

- **Set-method:** addPlugin is the plug-in registering method. Keep this value.
- **Type:** org.exoplatform.content.service.DescriptionPlugin is a class that executes all the requires of the plug-in.
- **Description:** It is a plug-in to represent the data from a RSS source.

3.2.6. Mail Configuration

3.2.6.1. AuthenticationLogoutListener

In the Mail application of eXo Collaboration, when a user checks messages for one account, the remote mailbox fetch is performed as a background job. Before CS 1.2, the job was continuing until all messages had been retrieved or when the user stopped the check through the UI. Hence, even when a user was not logged in, the background job was continuing. This can be the resource intensive for the server if many users have large mailboxes.

Since eXo Collaboration 1.2, one capability is added to halt the background job when the user session terminates (logout or timeout). It makes CS more friendly with server resources. If you want to activate this feature, you need to add a bunch of xml congifuration in */extension/webapp/src/main/webapp/WEB-INF/cs-extension/cs/mail/mail-service-configuration.xml*:

```
<external-component-plugins>
  <target-component>org.exoplatform.services.listener.ListenerService</target-component>
  <component-plugin>
    <name>exo.core.security.ConversationRegistry.unregister</name>
    <set-method>addListener</set-method>
    <type>org.exoplatform.mail.service.AuthenticationLogoutListener</type>
    <description>description</description>
  </component-plugin>
</external-component-plugins>
```

Details:

- **Name:** exo.core.security.ConversationRegistry.unregister is the name of listener.
- **Set-method:** addListener is the plug-in registering method. Keep this value.
- **Type:** org.exoplatform.mail.service.AuthenticationLogoutListener is a class that executes all the requires of the plug-in.
- **Description:** It is a plug-in used to stop checking mails of a user when he logs out.

3.2.7. Social Integration Configuration

The Social Integration Configuration is applied in */extension/webapp/src/main/webapp/WEB-INF/cs-extension/cs/social-integration/social-integration-configuration.xml*.

3.2.7.1. CalendarDataInitialize

```
<external-component-plugins>
  <target-component>org.exoplatform.social.core.space.spi.SpaceService</target-component>
  <component-plugin>
    <name>CalendarDataInitialize</name>
```

```

<set-method>addSpaceListener</set-method>
<type>org.exoplatform.cs.ext.impl.CalendarDataInitialize</type>
<init-params>
  <value-param>
    <name>portletName</name>
    <value>CalendarPortlet</value>
  </value-param>
</init-params>
</component-plugin>
</external-component-plugins>

```

Details:

- **Name:** CalendarDataInitialize is the name of plug-in.
- **Set-method:** addSpaceListener is the plug-in registering method. Keep this value.
- **Type:** org.exoplatform.cs.ext.impl.CalendarDataInitialize is a class that executes all the requires of the plug-in.
- **Description:** It is used to initialize a calendar for a group in a specific space.

See the details about the init-params of the component in the following table:

value-param	Description	Possible value	Default value
portletName	The name of the portlet	String	CalendarPortlet

3.2.7.2. ContactDataInitialize

```

<external-component-plugins>
  <target-component>org.exoplatform.social.core.space.spi.SpaceService</target-component>
  <component-plugin>
    <name>ContactDataInitialize</name>
    <set-method>addSpaceListener</set-method>
    <type>org.exoplatform.cs.ext.impl.ContactDataInitialize</type>
    <init-params>
      <value-param>
        <name>portletName</name>
        <value>ContactPortlet</value>
      </value-param>
    </init-params>
  </component-plugin>
</external-component-plugins>

```

Details:

- **Name:** ContactDataInitialize is the name of the plug-in.
- **Set-method:** addSpaceListener is the plug-in registering method. Keep this value.
- **Type:** org.exoplatform.cs.ext.impl.ContactDataInitialize is a class that executes all the requires of the plug-in.
- **Description:** It is a plug-in used to initialize an address book for a group in a specific space.

See the details about the init-params of the component in the following table:

value-param	Description	Possible value	Default value
portletName	The name of the portlet	String	ContactPortlet

3.2.7.3. ContactSpaceActivityPublisher

```
<external-component-plugins>
  <target-component>org.exoplatform.contact.service.ContactService</target-component>
  <component-plugin>
    <name>ContactEventListener</name>
    <set-method>addListenerPlugin</set-method>
    <type>org.exoplatform.cs.ext.impl.ContactSpaceActivityPublisher</type>
  </component-plugin>
</external-component-plugins>
```

Details:

- **Name:** ContactEventListener is the name of the plug-in.
- **Set-method:** addListenerPlugin is the plug-in registering method. Keep this value.
- **Type:** org.exoplatform.cs.ext.impl.ContactSpaceActivityPublisher is a class that executes all the requires of the plug-in.
- **Description:** It is a plug-in used to customize the activity status of a specific space when an event happens on an address book.

3.2.7.4. CalendarSpaceActivityPublisher

```
<external-component-plugins>
  <target-component>org.exoplatform.calendar.service.CalendarService</target-component>
  <component-plugin>
    <name>CalendarEventListener</name>
    <set-method>addEventListenerPlugin</set-method>
    <type>org.exoplatform.cs.ext.impl.CalendarSpaceActivityPublisher</type>
  </component-plugin>
</external-component-plugins>
```

Details:

- **Name:** CalendarEventListener is the name of the plug-in.
- **Set-method:** addEventListenerPlugin is the plug-in registering method. Keep this value.
- **Type:** org.exoplatform.cs.ext.impl.CalendarSpaceActivityPublisher is a class that executes all the requires of the plug-in.
- **Description:** It is a plug-in used to customize the activity status of a specific space when an event happens on a calendar.

3.2.7.5. PortletPreferenceRequiredPlugin

```
<external-component-plugins>
  <target-component>org.exoplatform.social.core.space.spi.SpaceService</target-component>
  <component-plugin>
```

```

<name>portlets.prefs.required</name>
<set-method>setPortletsPrefsRequired</set-method>
<type>org.exoplatform.social.core.application.PortletPreferenceRequiredPlugin</type>
<init-params>
  <values-param>
    <name>portletsPrefsRequired</name>
    <value>CalendarPortlet</value>
    <value>ContactPortlet</value>
  </values-param>
</init-params>
</component-plugin>
</external-component-plugins>

```

Details:

- **Name:** `ortlets.prefs.required` is the name of the plug-in.
- **Set-method:** `setPortletsPrefsRequired` is the plug-in registering method. Keep this value.
- **Type:** `org.exoplatform.social.core.application.PortletPreferenceRequiredPlugin` is a class that executes all the requires of the plug-in.
- **Description:** It is a plug-in used to declare the application that will automatically create database.

See the details about the init-params of the component in the following table:

value-param	Description	Possible value	Default value
portletsPrefsRequired	The name of plug-in added to SpaceService	String	ContactPortlet / ContactPortlet

3.3. eXo Chatserver Configuration

3.3.1. Openfire Configuration

The Chat service of eXo Collaboration is a Jabber engine powered by Openfire. eXo Platform will delegate the actual Jabber protocol communication to Openfire.

You have the full latitude to configure Openfire. There are two possible ways to do it:

- The admin console: <http://localhost:9090/>.
- The `openfire.xml` file in `$openfirehome/conf/`.

3.3.1.1. Configuration in Openfire.xml

The Openfire server has a single configuration file called `openfire.xml` and located under the `exo-openfire/conf` directory. Configuration is based on properties expressed in an XML syntax. For example, to set the property `prop.name.is.blah=value`, you would write this xml snippet:

```

<prop>
  <name>
    <is>
      <blah>value</blah>
    </is>
  </name>
</prop>

```

```

</is>
</name>
</prop>

```

Openfire has an extensive list of configuration properties. You can read a list of all properties on this page: <http://www.igniterealtime.org/community/docs/DOC-1061>.

3.3.1.2. eXo specific configuration

The eXo Collaboration bundle comes with a pre-configured Openfire server. It is bundled with some eXo plugins and configurations that allow connectivity with eXo Platform. The key properties for integration are:

- **provider.auth.className:** An implementation of the AuthProvider interface for authentication of users on the Chat server.
- **provider.users.className:** An implementation of the UserProvider interface to which Openfire will delegate users management.
- **provider.groups.className:** An implementation of the GroupProvider interface to which Openfire will delegate groups management.

eXo Platform provides implementations for these 3 interfaces with ExoAuthProvider, ExoUserProvider, ExoGroupProvider. These implementations are based on eXo REST framework and let you configure the endpoints within the openfire.xml file with additional properties:

Property	Description	Default value
eXo.env.serverBaseURL	The base URL of the server.	http://localhost:8080/##
eXo.env.restContextName	The context name of REST Web application.	rest
provider.authorizedUser.name	The username to authenticate to access the HTTP REST service.	root
provider.authorizedUser.password	The password matching with provider.authorizeduser.name.	gtn
exoAuthProvider.authenticationURL	The URL to authenticate users.	/organization/authenticate/
exoAuthProvider.authenticationMethod	The HTTP method used for the authentication method.	POST
exoUserProvider.findUsersURL	The URL to find all users.	/organization/xml/user/find-all/
exoUserProvider.findUsersMethod	The HTTP method used to find all users in the system.	GET
exoUserProvider.getUsersURL	The URL to retrieve a range of users.	/organization/xml/user/view-range/
exoUserProvider.getUsersMethod	The HTTP method used for user/view-range.	GET
exoUserProvider.usersCountURL	The URL to count the number of users.	/organization/xml/user/count

Property	Description	Default value
<code>exoUserProvider.usersCountMethod</code>	The HTTP method used to count the number of users.	GET
<code>exoUserProvider.userInfoURL</code>	The URL to get the information of users.	/organization/xml/user/info/
<code>exoUserProvider.userInfoMethod</code>	The HTTP method used to get the information of users.	GET
<code>exoGroupProvider.groupInfoURL</code>	The URL to get the information of a group of users.	/organization/xml/group/info/
<code>exoGroupProvider.groupInfoMethod</code>	The HTTP method used to get the information of a group of users.	GET
<code>exoGroupProvider.getGroupsAllURL</code>	The URL to view a list of all user groups.	/organization/xml/group/view-all/
<code>exoGroupProvider.getGroupsAllMethod</code>	The HTTP method used to view a list of all user groups.	GET
<code>exoGroupProvider.getGroupsRangeURL</code>	The URL to list groups in a specific range.	/organization/xml/group/view-from-to/
<code>exoGroupProvider.getGroupsRangeMethod</code>	The HTTP method used to list groups in a specific range.	GET
<code>exoGroupProvider.getGroupsForUserURL</code>	The URL to list groups to which a user belongs.	/organization/xml/group/groups-for-user/
<code>exoGroupProvider.getGroupsForUserMethod</code>	The HTTP method used to list groups to which a user belongs.	GET
<code>exoGroupProvider.groupsCountURL</code>	The URL to count the number of groups.	/organization/xml/group/count
<code>exoGroupProvider.groupsCountMethod</code>	The HTTP method used to count the number of groups.	GET

As you can see, the default settings will only work if eXo Platform is deployed on the same host as Openfire, on the port 8080.



Note

`restContextName` is used to specify the Openfire server that is dedicated for the portal. If the `eXo.env.restContextName` system property exists, it will override this value.

The `eXo.env.restContextName` system property can be set by specifying the `-D` option to the Java command when running Openfire.

For example:

- If Openfire server is dedicated for the portal named "portal", the command will have the following format:

```
java -DeXo.env.restContextName=rest -jar ../lib/startup.jar .
```

- If Openfire server is dedicated for the portal named "csdemo", the command will have following format:

```
java -DeXo.env.restContextName=rest-csdemo -jar ../lib/startup.jar.
```

By default, the Openfire server is dedicated to the portal named "portal".

3.3.2. System Configuration

Openfire makes use of several ports for communication.

Interface	Port	Type	Description
All addresses	5222	Client to Server	The standard port for clients is to connect to the server. Connection may or may not be encrypted. You can update the security settings for this port.
All addresses	9090 & 9091	Admin Console	The ports used for the unsecured and secured Openfire Admin Console accesses respectively.
All addresses	7777	File Transfer Proxy	The port used for the proxy service that allows files to be transferred between two entities on the XMPP network.
All addresses	3478 & 3479	STUN Service	The port used for the service that ensures connectivity between entities behind a NAT.

You can view the table above in <http://hostname:9090/index.jsp> after you are logged into the Openfire's web console and also customize those ports by yourself.

3.3.3. AS configuration

To enable the propagation of identity across the Chat webapp, you are required to enable the SSO valve on the Tomcat-based Application server.

- For the Jboss server, edit `jboss/server/default/deploy/jboss-web.deployer/server.xml`.

- For the Tomcat server, edit *tomcat/conf/server.xml*.

The valve should already be there, you just need to uncomment it if it is not already done.

```
<Valve className="org.apache.catalina.authenticator.SingleSignOn"/>
```

In case of the cluster deployment, you may want to use `ClusteredSingleSignOn` instead.

```
<Valve className="org.jboss.web.tomcat.service.sso.ClusteredSingleSignOn"/>
```

Chapter 4. JCR Structure

eXo Collaboration is a JCR-based product, so data of eXo Collaboration are managed by the eXo-JCR service with each specific structure. The chapter aims at outlining the JCR structure of each application in eXo Collaboration through diagrams and then describing properties of main node types.

Each diagram shows nodes and their primary node types. Every node/childnode must have only one primary node type represented in the round bracket () under the node/childnode, but may also have many mixin node types. Because mixin nodes cannot define the node structure like the primary nodes, they are not shown in the diagrams and their properties hereafter are not described.

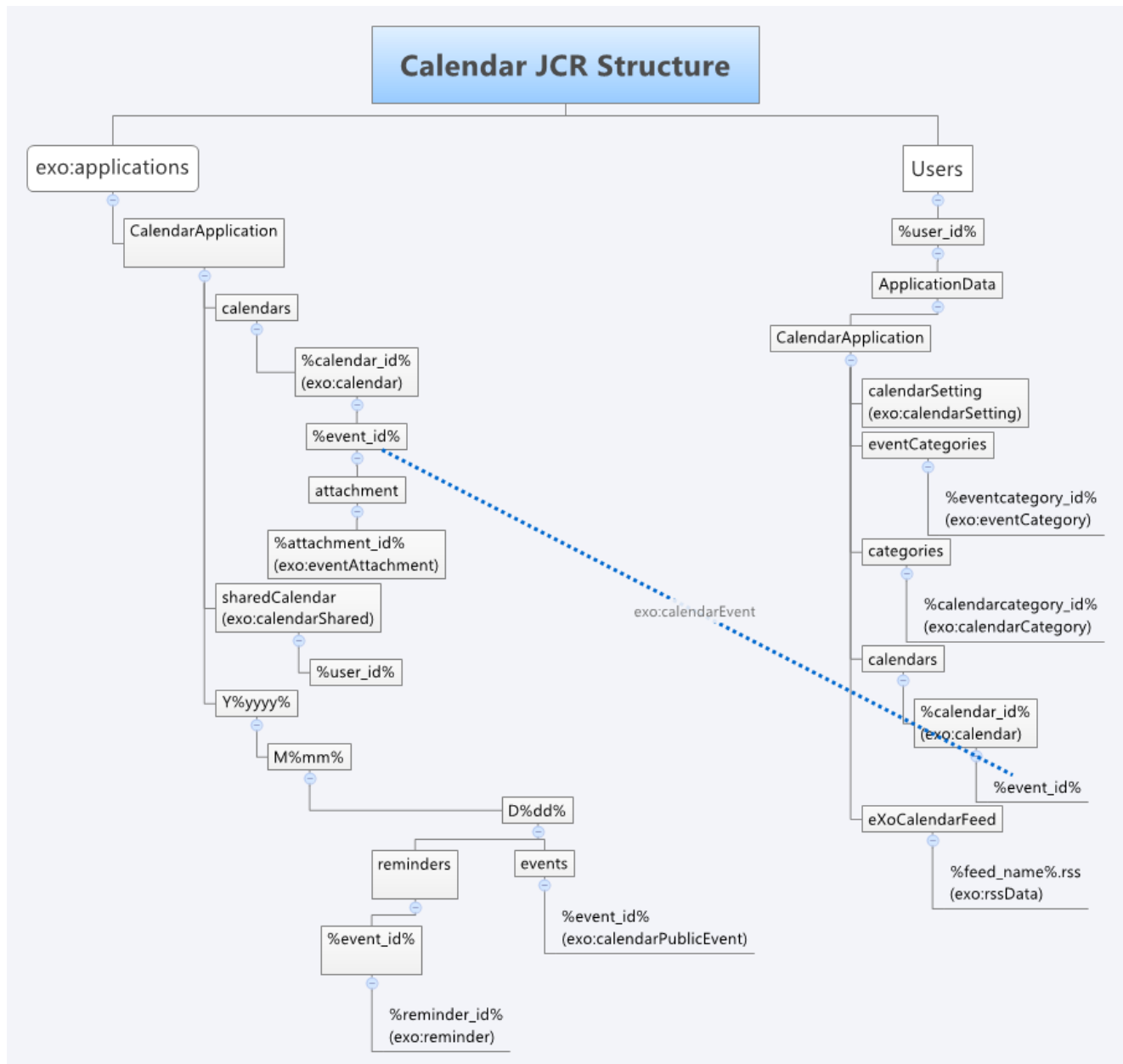


Note

To learn more about the eXo Collaboration JCR Structure, you should have the certain knowledge of [JCR](#).

4.1. Calendar JCR Structure

The Calendar JCR Structure is divided into two main branches: one for public (exo:application) and the other for user (Users).



The node type **exo:calendar** has the following properties:

Property name	Required type	Description
exo:id	String	Id of the calendar.
exo:name	String	Name of the calendar.
exo:description	String	Brief description of the calendar.
exo:viewPermissions	String	List of users/groups having the view permissions.
exo:editPermissions	String	List of users/groups having the edit permissions.
exo:groups	String	List of user groups to which the calendar belongs.
exo:categoryId	String	Id of the category containing the calendar.

Property name	Required type	Description
exo:calendarColor	String	Color name of the calendar that is defined in the <i>org.exoplatform.web.ui.form.ext.UIFormColorPicker</i> class (such as <i>SkyBlue</i> , <i>PowderBlue</i>).
exo:calendarOwner	String	Name of the user creating the calendar.
exo:locale	String	Location where the calendar is set in format of the uppercase ISO 3166 3-letter country code.
exo:timeZone	String	Id of the time zone that is set by the user in compliance with the Java class: <i>java.util.TimeZone</i> .
exo:publicUrl	String	The public ICAL link of the calendar.
exo:privateUrl	String	The private ICAL link of the calendar.

The node type **exo:calendarEvent** has the following properties:

Property name	Required type	Description
exo:id	String	Id of the event.
exo:eventType	String	Type of the event, including Event and Task.
exo:summary	String	Summary of the event.
exo:location	String	Location where the event will take place.
exo:taskDelegator	String	Name of the user being delegated the task.
exo:description	String	Brief description of the event.
exo:eventCategoryId	String	Id of the category containing the event.
exo:eventCategoryName	String	Name of the category containing the event.
exo:calendarId	String	Id of the calendar containing the event.
exo:fromDateTime	Date	Start time of the event.
exo:toDateTime	Date	End time of the event.
exo:priority	String	The preference order of the event, including 4 values: none, low,

Property name	Required type	Description
		normal, high.
exo:isPrivate	Boolean	Define if the event is private or not.
exo:eventState	String	State of the event which depends on each event type.
exo:invitation	String	List of email addresses of users being invited to the event. This property is for the Event type only.
exo:participant	String	List of users being invited to the event. This property is for the Event type only.
exo:participantStatus	String	Status of the participant, including name and status value.
exo:message	String	Message of the invitation email.
exo:repeat	String	Repetition type of the event, including: "norepeat", "daily", "weekly", "monthly", "yearly", "weekend", "workingdays".
exo:sendOption	String	The option to notify users before sending the invitation via email: never (not sending all time), always (sending without asking) and ask (asking before sending).

The node type **exo:eventAttachment** has the following properties:

Property name	Required type	Description
exo:fileName	String	Name of the attached file.

The node type **exo:reminder** has the following properties:

Property name	Required type	Description
exo:id	String	Id of the reminder.
exo:eventId	String	The event id of the reminder.
exo:creator	String	Define who creates the reminder.
exo:alarmBefore	Long	Amount of time that the reminder message is sent before the event starts.
exo:email	String	List of emails to which the reminder message is sent.

Property name	Required type	Description
exo:timeInterval	Long	Interval for resending the reminder message in minutes.
exo:reminderType	String	The types of reminders, including email and popup.
exo:fromDateTime	Date	Start time to send the reminder.
exo:remindDateTime	Date	Time to send the reminder.
exo:isRepeat	Boolean	Check if the reminder is repeated or not.
exo:isOver	Boolean	Check if the reminder is expired or not.
exo:summary	String	Summary of the reminder.
exo:description	String	Brief description of the reminder.

The node type **exo:calendarPublicEvent** has the following properties:

Property name	Required type	Description
exo:id	String	Id of the public event.
exo:eventType	String	Event type, including Task and Event.
exo:calendarId	String	Calendar Id of the public event.
exo:rootEventId	String	Id of each corresponding node: <code>exo:calendarEvent</code> .
exo:fromDateTime	Date	Start time of the public event.
exo:toDateTime	Date	End time of the public event.
exo:participant	String	List of users being invited to the public event.
exo:eventState	String	State of the public event, including: busy, available, outside.

The node type **exo:calendarSetting** has the following properties:

Property name	Required type	Description
exo:viewType	String	View type of the calendar. For more details, refer to the <i>org.exoplatform.calendar.service.CalendarSetting</i> class.
exo:timeInterval	Long	The interval for each UI display to be performed, for example dragging and dropping one event

Property name	Required type	Description
		in the Calendar application.
exo:weekStartOn	String	Define the start date of one week, complying with the <i>org.exoplatform.calendar.service.CalendarSetting</i> class.
exo:dateFormat	String	Define the date format, including dd/MM/yyyy, dd-MM-yyyy, MM/dd/yyyy, and MM-dd-yyyy.
exo:timeFormat	String	Define the time format, including "hh:mm a" and "HH:mm".
exo:location	String	Location where the calendar is set in format of the uppercase ISO 3166 3-letter country code.
exo:timeZone	String	Id of the time zone, which is set by the user in compliance with the Java class: java.util.TimeZone.
exo:showWorkingTime	Boolean	Check if the working period is displayed or not.
exo:workingTimeBegin	String	Time to start working. This property only takes effect when exo:showWorkingTime is set to true.
exo:workingTimeEnd	String	Time to end working. This property only takes effect when exo:showWorkingTime is set to true.
exo:defaultPrivateCalendars	String	List of the hidden private calendars.
exo:defaultPublicCalendars	String	List of the public calendars hidden.
exo:defaultSharedCalendars	String	List of the shared calendars hidden.
exo:sharedCalendarsColors	String	Define the color of the shared calendar, which is in format of calendar id:color name .
exo:sendOption	String	The option to notify users before sending an invitation via email: never (not sending all time), always (sending message without asking) and ask (asking before sending).

The node type **exo:eventCategory** has the following properties:

Property name	Required type	Description
exo:id	String	Id of the category to which an event belongs.
exo:name	String	Name of the category to which an event belongs.
exo:description	String	Brief description of the category to which an event belongs.

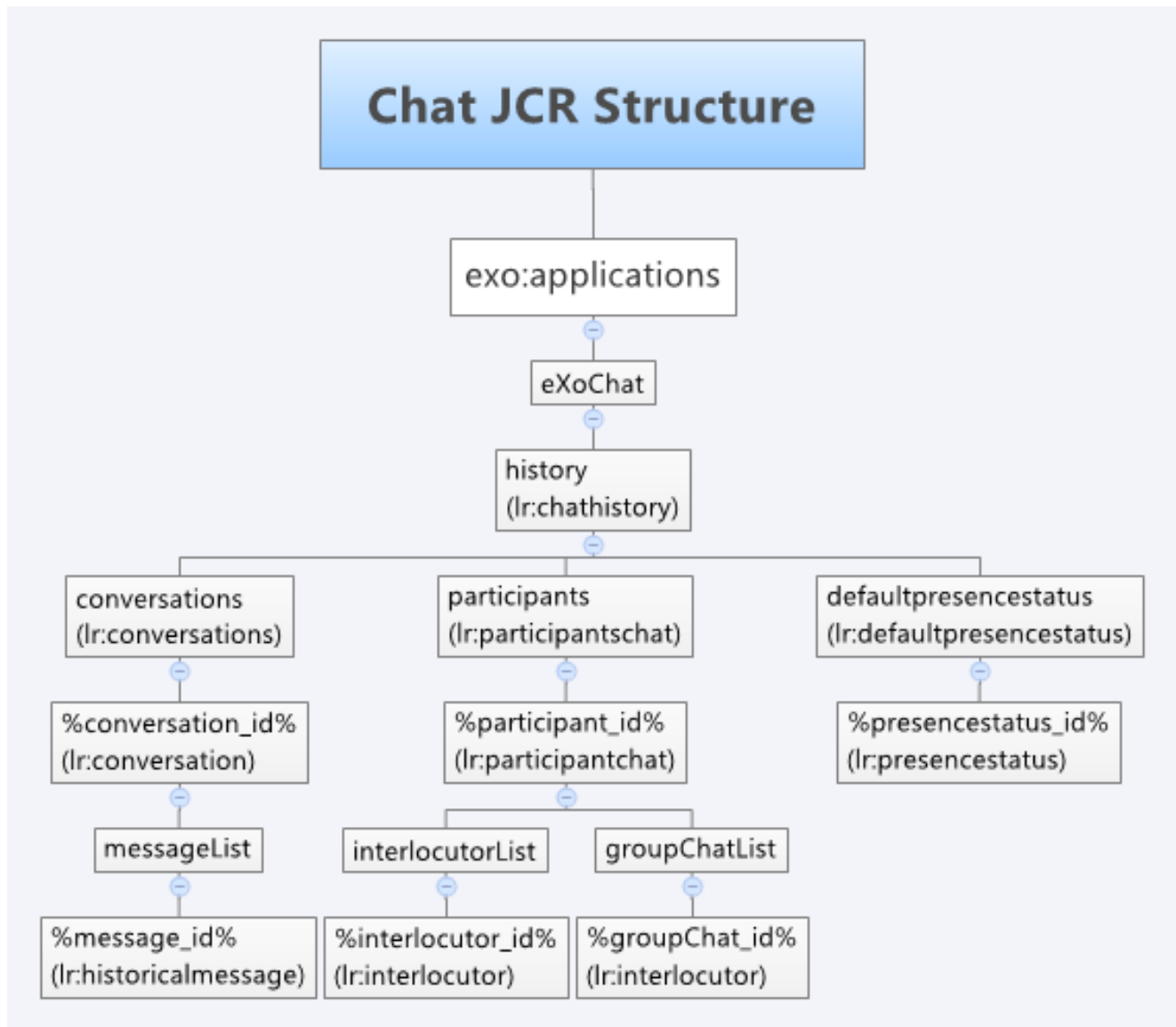
The node type **exo:calendarCategory** has the following properties:

Property name	Required type	Description
exo:id	String	Id of the category to which a calendar belongs.
exo:name	String	Name of the category to which a calendar belongs.
exo:description	String	Brief description of the category to which a calendar belongs.
exo:calendarIds	String	List of calendar Ids belonging to the category.

The node type **exo:rssData** has the following properties:

Property name	Required type	Description
exo:baseUrl	String	Original link to the RSS file.
exo:title	String	Title of the feed.
exo:content	Binary	Content of the feed.

4.2. Chat JCR Structure



The node type **lr:conversation** has the following properties:

Property name	Required type	Description
lr:conversationstartDate	Date	Start date of the conversation.
lr:conversationlastActiveDate	Date	Last date when the conversation is updated.

The node type **lr:historicalmessage** has the following properties:

Property name	Required type	Description
lr:messagefrom	String	Jabber Id of the user (or chat room) sending (or containing) the message respectively.
lr:messageto	String	Jabber Id of the user (or chat room) to whom (to which) the message is sent.
lr:messagetype	String	List of message types. For more details, refer to the

Property name	Required type	Description
		<i>org.jivesoftware.smack.packet.Message.Type class.</i>
lr:messagebody	String	Main content of the message.
lr:messagedateSend	Date	Date when the message was sent.
lr:messagereceive	Boolean	Check if the message has been received or not.

The node type **lr:participantchat** has the following properties:

Property name	Required type	Description
lr:participantchatjid	String	Jabber Id of the user.
lr:participantchatusername	String	Username of the portal.

The node type **lr:interlocutor** contains information regarding to the conversation between two users or of the chat room. It has the following properties:

Property name	Required type	Description
lr:conversationId	String	Id of the conversation which is the JCR node name of lr:conversation.
lr:interlocutorjid	String	Jabber Id of the chat room or user.
lr:interlocutorname	String	Username or name of the chat room.
lr:interlocutorisRoom	Boolean	Define if the conversation is performed between two users or is of chat room.

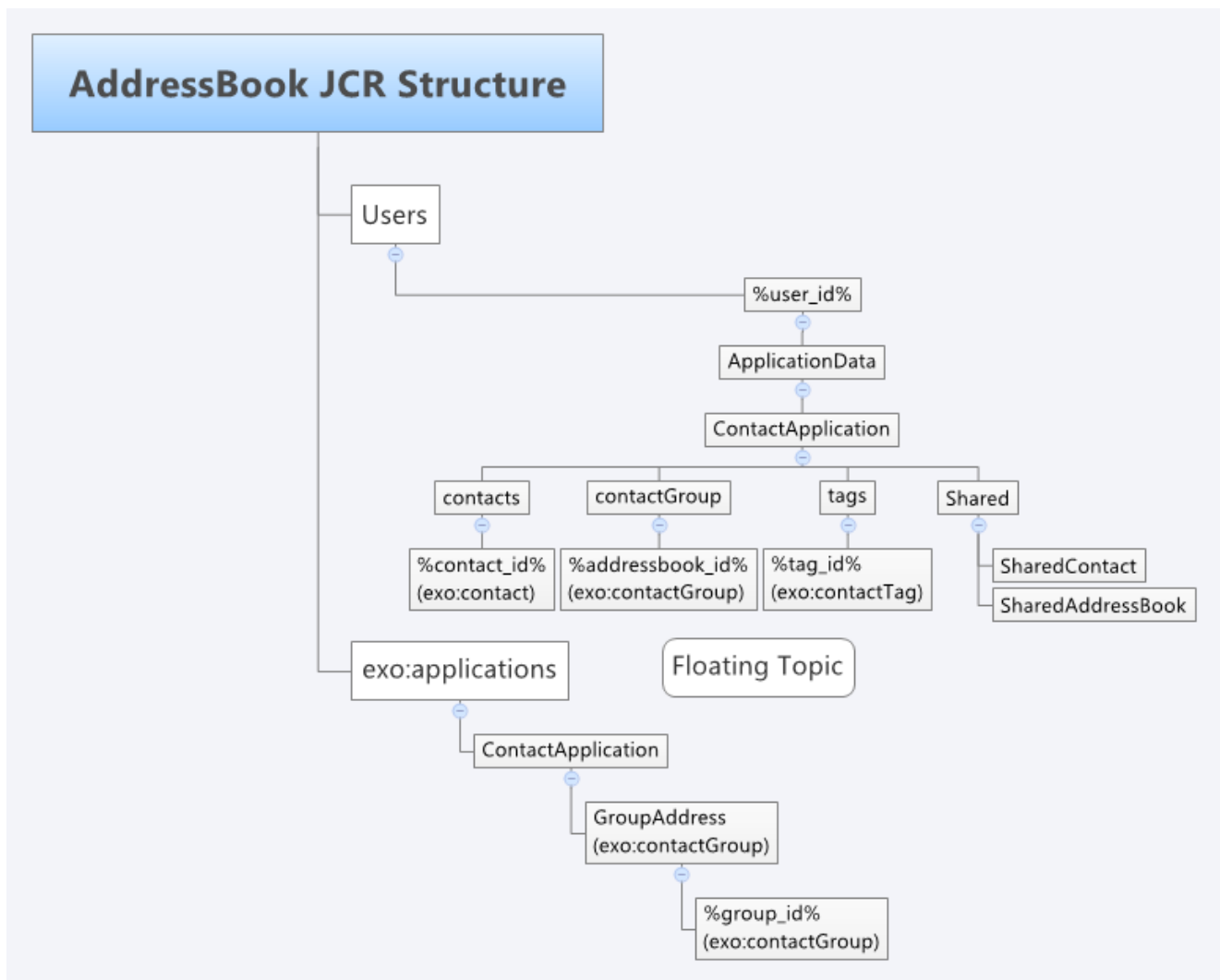
The node type **lr:defaultpresencestatus** has the following properties:

Property name	Required type	Description
lr:conversationlastActiveDate	Date	Date when the conversation is last updated.

The node type **lr:presencestatus** contains information regarding to the current status of user. It has the following properties:

Property name	Required type	Description
lr:userid	String	Id of the user.
lr:status	String	Current status of the user included in the <i>org.jivesoftware.smack.packet.Presence.Type class.</i>

4.3. Address Book JCR Structure



The node type **exo:contact** contains information of each contact. It has the following properties:

Property name	Required type	Description
exo:id	String	Node name of the exo:contact property.
exo:fullName	String	Full name of the contact.
exo:firstName	String	First name of the contact.
exo:lastName	String	Last name of the contact.
exo:nickName	String	Nickname of the contact.
exo:gender	String	Gender of the contact.
exo:birthday	Date	Birthday of the contact.
exo:jobTitle	String	Job name of the contact.
exo:emailAddress	String	Email address of the contact.
exo:exoId	String	Id of the user in the Chat application of eXo Collaboration.

Property name	Required type	Description
exo:googleId	String	Google Id of the user.
exo:msnId	String	MSN Id of the user.
exo:aolId	String	AOL Id of the user.
exo:yahooId	String	Yahoo Id of the user.
exo:icrId	String	ICR Id of the user.
exo:skypeId	String	Skype Id of the user.
exo:icqId	String	ICQ Id of the user.
exo:homeAddress	String	Home address of the contact.
exo:homeCity	String	Home city of the contact.
exo:homeState_province	String	Home state/province of the contact.
exo:homePostalCode	String	Home postal code of the contact.
exo:homeCountry	String	Home country of the contact.
exo:homePhone1	String	Primary home phone number of the contact.
exo:homePhone2	String	Secondary home phone number of the contact.
exo:homeFax	String	Home fax of the contact.
exo:personalSite	String	Personal site of the contact.
exo:workAddress	String	Address where the contact works.
exo:workCity	String	City where the contact works.
exo:workState_province	String	State/province where the contact works.
exo:workPostalCode	String	Postal code of the location where the contact works.
exo:workCountry	String	Country where the contact works.
exo:workPhone1	String	Primary phone number at the contact's working location.
exo:workPhone2	String	Secondary phone number at the contact's working location.
exo:workFax	String	Fax number at the contact's working location.
exo:mobilePhone	String	Mobile phone of the contact.
exo:webPage	String	Website of the contact.
exo:note	String	Note of the contact.

Property name	Required type	Description
exo:categories	String	List of categories created by the user.
exo:editPermissionUsers	String	List of users obtaining the edit permission.
exo:viewPermissionUsers	String	List of users obtaining the view permission.
exo:editPermissionGroups	String	List of groups obtaining the edit permission.
exo:viewPermissionGroups	String	List of groups obtaining the view permission.
exo:tags	String	List of tag Ids which the contact has marked.
exo:lastUpdated	Date	Time when the contact is last updated.
exo:isOwner	Boolean	Define if the contact is created by the user or is available in the OrganizationService. If the value is set to false, the contact is created by the user.

The node type **exo:contactGroup** contains information of an address book. Each node type has the following properties:

Property name	Required type	Description
exo:id	String	Id of the address book.
exo:name	String	Name of the address book.
exo:description	String	Brief description of the address book.
exo:editPermissionUsers	String	List of users having the permission to edit the address book.
exo:viewPermissionUsers	String	List of users having the permission to view the address book.
exo:editPermissionGroups	String	List of groups having the permission to edit the address book.
exo:viewPermissionGroups	String	List of groups having the permission to view the address book.

The node type **exo:contactTag** contains information of each tag. This node type includes the following

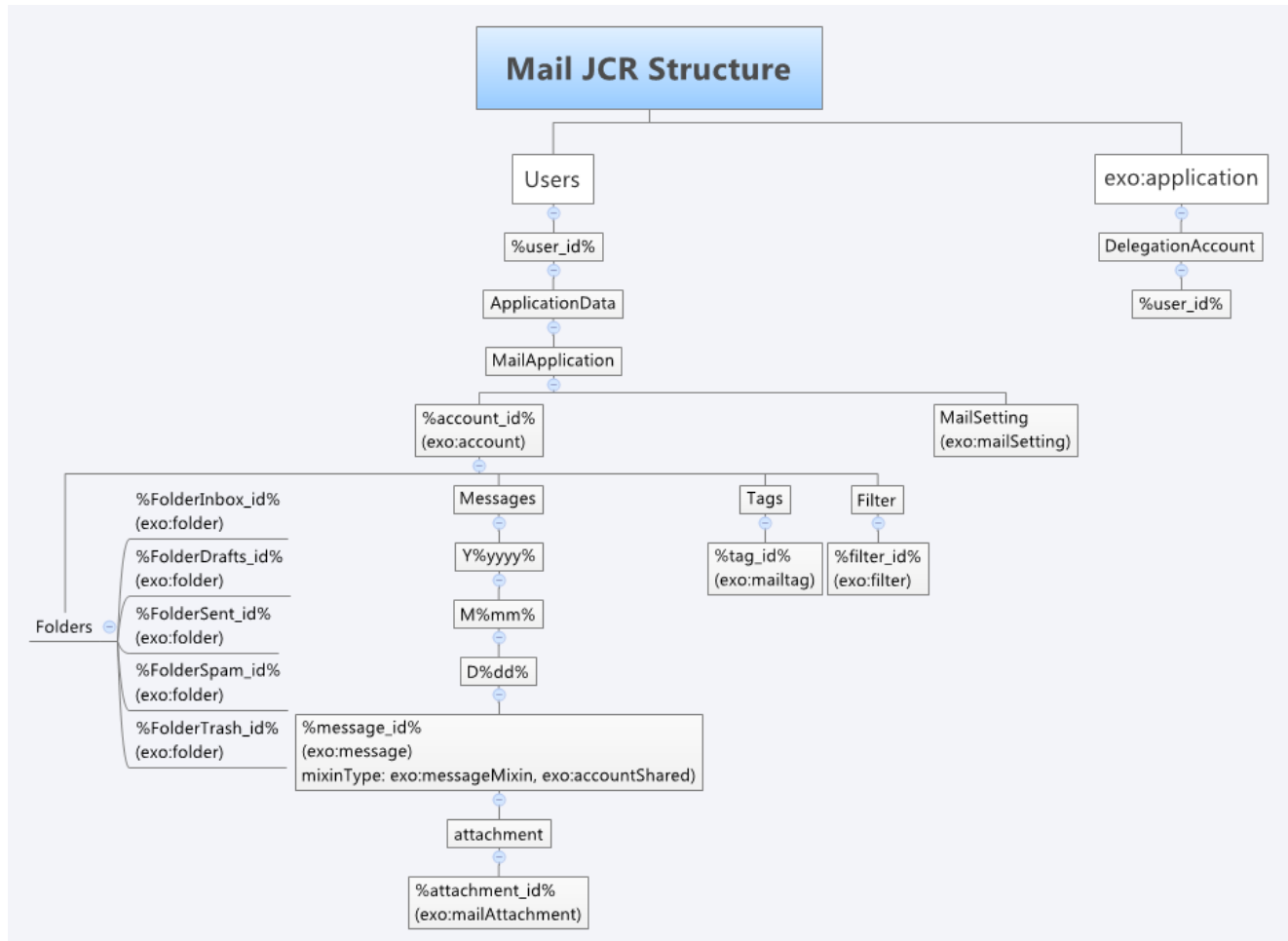
properties:

Property name	Required type	Description
exo:id	String	Id of the tag.
exo:name	String	Name of the tag.
exo:description	String	Brief description of the tag.
exo:color	String	Color of the tag which is defined in the <i>org.exoplatform.webui.form.ext.UIColorPicker</i> class.

The node type **exo:contactShared** contains references to each shared contact. It has the following properties:

Property name	Required type	Description
exo:sharedUserId	String	Name of the user sharing the contact.
exo:sharedId	Reference	List of the references to shared contacts/address books.

4.4. Mail JCR Structure



The node type **exo:account** has the following properties:

Property name	Required type	Description
exo:id	String	Id of the account.
exo:label	String	Name of the account.
exo:userDisplayName	String	Screen name of the user.
exo:emailAddress	String	Email address of the account.
exo:emailReplyAddress	String	Email address of the account receiving replies.
exo:signature	String	Signature of the account.
exo:description	String	Brief description of the account.
exo:checkMailAuto	Boolean	Define if the mail is automatically checked after a given period or not.
exo:emptyTrash	Boolean	Define if the trash needs to be cleaned up when exiting from the Mail application or not.
exo:serverProperties	String	Information of the POP/IMAP server configuration.
exo:smtpServerProperties	String	Information of the SMTP server configuration.
exo:lastCheckedTime	Date	Time when the account was last checked.
exo:checkAll	Boolean	Define if all folders of the mail are checked or not.
exo:checkFromDate	Date	Get mails as from the given date only if the value of <code>exo:serverProperties</code> is set for configuring the IMAP server.
exo:isSavePassword	Boolean	Define if the password is saved or not.
exo:secureAuthsIncoming	String	Type of the incoming connection for security. Its values include <code>starttls</code> , <code>ssl/tls</code> .
exo:secureAuthsOutgoing	String	Type of the outgoing connection for security. Its values include <code>starttls</code> , <code>ssl/tls</code> .
exo:authMechsIncoming	String	Authentication mechanism of the incoming connections. Its values consist of <code>ntlm</code> , <code>plain</code> , <code>login</code> , <code>digest-md5</code> , <code>kerberos/gssapi</code> , <code>cram-md5</code> .

Property name	Required type	Description
exo:authMechsOutgoing	String	Authentication mechanism of the outgoing connections. Its values consist of ntlm, plain, login, digest-md5, kerberos/gssapi, cram-md5.
exo:permissions	String	Permissions of delegators.

The node type **exo:folder** has the following properties:

Property name	Required type	Description
exo:id	String	Id of the folder.
exo:name	String	Name of the folder.
exo:label	String	Absolute path referring to the folder on the Mail server.
exo:unreadMessages	Long	Number of unread messages in the folder.
exo:totalMessages	Long	Total number of messages in the folder.
exo:personal	Boolean	Define if the folder is created by one user or the Mail system.
exo:folderType	Long	Type of folder, which is defined in the javax.mail.Folder class.
exo:lastStartCheckingTime	Date	Start time of the last check in the folder.
exo:lastCheckedTime	Date	End time of the last check in the folder.

The node type **exo:message** has the following properties:

Property name	Required type	Description
exo:id	String	Id of the message.
exo:uid	String	Id of the message on the IMAP server.
exo:inReplyToHeader	String	Id of the first message in the matching thread.
exo:path	String	Absolute path of the exo:message type.
exo:account	String	Id of the account.
exo:from	String	Value given in the From field in

Property name	Required type	Description
		the email message, containing information of the sender, such as full name and email.
exo:to	String	Value given in the To field in the email message, containing information of the receiver, such as full name and email.
exo:cc	String	Value given in the CC field in the email message, containing information of the receivers, such as full name and email.
exo:replyto	String	Value given in the Reply-To field in the email message, such as emails.
exo:isUnread	Boolean	Define if the email has been read or not.
exo:subject	String	Subject of the email message that can be read from the Subject field.
exo:body	String	Main content of the email message.
exo:sendDate	Date	Date when the email message was sent.
exo:receivedDate	Date	Date when the email message was received.
exo:size	Long	Capacity of the email message in bytes.
exo:contentType	String	Content type of the email message, for example: text/plain and text/html.
exo:folders	String	List of folder Ids containing the email message.
exo:tags	String	List of tag Ids marked in the email message.
exo:star	Boolean	Define if the email message is starred or not.
exo:hasAttach	Boolean	Define if any files are attached with the email message or not.
exo:priority	Long	Preference order of the message with 3 default values: 1 = High, 3 = Normal, 5 = Low.
exo:lastUpdateTime	Date	Time when the message was last

Property name	Required type	Description
		updated.

The node type **exo:mailAttachment** has the following property:

Property name	Required type	Description
exo:fileName	String	Name of the file attached in the mail.

The node type **exo:mailtag** has the following properties:

Property name	Required type	Description
exo:id	String	Tag id of the mail.
exo:name	String	Name of the tag.
exo:description	String	Brief description of the mail tag.
exo:color	String	Color of the tag which is defined in the <i>org.exoplatform.webui.form.ext.UIColorPicker</i> class.

The node type **exo:filter** has the following properties:

Property name	Required type	Description
exo:id	String	Filter id which is a unique and randomized value.
exo:name	String	Name of the filter which is defined by the user.
exo:from exo:to exo:subject exo:body	String	Filter email messages by each field respectively: * From * To * Subject * Body
exo:fromCondition	Long	Filter emails by the condition types set in each property respectively:
		52

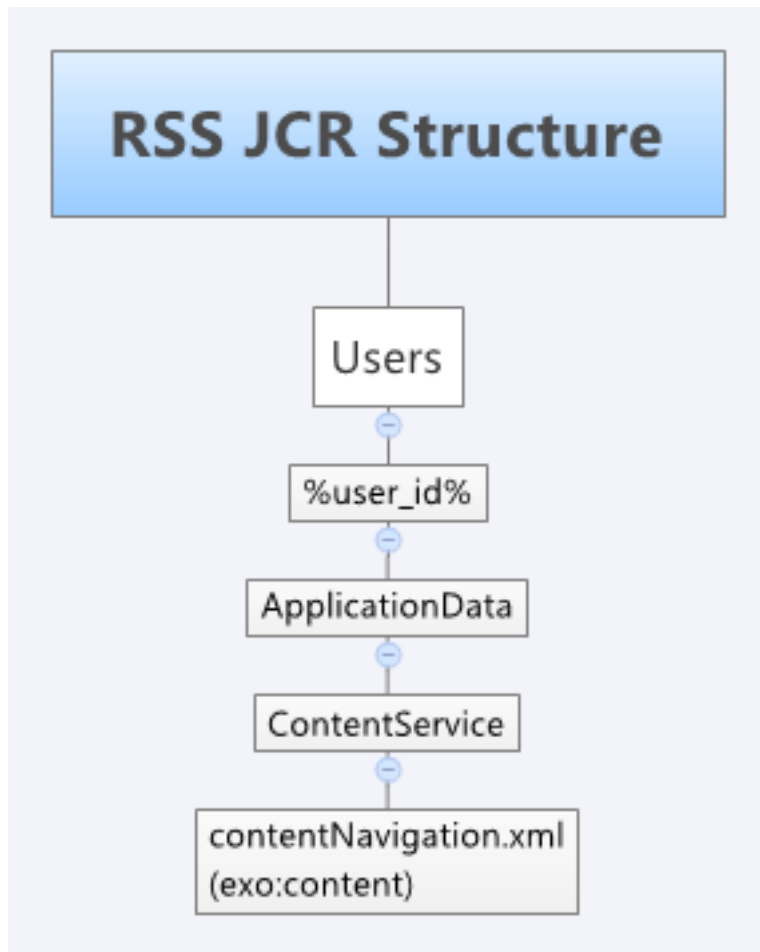
Property name	Required type	Description
exo:toCondition		* exo:from
exo:subjectCondition		* exo:to
exo:bodyCondition		* exo:subject
		* exo:body
		All these properties have two values:
		* 0 = returned messages contains the value set in the corresponding property.
		* 1 = do not contain the value set in the corresponding property.
exo:applyTag	String	Apply the tag for the filtered email messages.
exo:applyFolder	String	Apply the folder for the filtered email messages.
exo:keepInbox	Boolean	Define if the email message is still kept in the Inbox folder or not.
exo:applyForAll	Boolean	If the value is set to "true" into the exo:applyForAll property, the filter will be executed for all email messages.

The node type **exo:mailSetting** has the following properties:

Property name	Required type	Description
exo:numberMsgPerPage	Long	Number of messages displayed in one page.
exo:formatAsOriginal	Boolean	Define if the email message got from the mail server is kept in the original format or not.
exo:replyWithAttach	Boolean	Make the original message as the attachment before replying or not.
exo:forwardWithAttach	Boolean	Make the original message as the attachment before forwarding or not.

Property name	Required type	Description
exo:prefixMsgWith	String	Prefix for the message.
exo:periodCheckAuto	Long	Time interval to check the email messages automatically.
exo:defaultAccount	String	Id of the user account that is displayed by default when the user logged in the Mail application.
exo:useWysiwyg	String	Define the Wysiwyg editor is used or not.
exo:saveMsgInSent	Boolean	Define the sent email message is saved to the Sent folder or not.
exo:layout	Long	Type of layout which is displayed to the user.
exo:returnReceipt	Long	Action type of the user when receiving the "return receipt" to confirm the arrival of one email message, including: 0 = ask, 1 = never, 3 = always.

4.5. RSS JCR Structure



The node type **exo:content** has the following properties:

Property name	Required type	Description
id	String	Id of the content.
ownerType	String	Type of the owner. Its default value is user.
ownerId	String	User Id of owner.
dataType	String	Type of data.
data	String	XML string of the content navigation.
createdDate	Date	Created date of the content.
modifiedDate	Date	Modified date of the content.

Chapter 5. Developer reference

5.1. Extension points

There are some overridable components in eXo Collaboration so that you can control how these components work by implementing or extending default implementations and then reconfigure these new components in the file `configuration.xml`.

5.1.1. ContentDAO

ContentDAO is an overridable component used in the Content application (or called RSS reader) of eXo Collaboration.

You can find the configuration file at `WEB-INF/cs-extension/cs/content/content-service-configuration.xml` with the declaration as below:

```
<component>
  <key>org.exoplatform.content.service.ContentDAO</key>
  <type>org.exoplatform.content.service.impl.ContentDAOImpl</type>
</component>
```

The example below is an example of plugin configuration:

```
<external-component-plugins>
  <target-component>org.exoplatform.content.service.ContentDAO</target-component>
  <component-plugin>
    <name>rssreader.listener</name>
    <set-method>addPlugin</set-method>
    <type>org.exoplatform.content.service.RSSContentPlugin</type>
    <description>rss reader plugin</description>
  </component-plugin>

  <component-plugin>
    <name>description.listener</name>
    <set-method>addPlugin</set-method>
    <type>org.exoplatform.content.service.DescriptionPlugin</type>
    <description>Description plugin</description>
  </component-plugin>
</external-component-plugins>
```

5.1.2. ContactLifecycle

ContactLifecycle is an interface to extend the capabilities of eXo Platform. A ContactLifecycle lets you be notified during the lifecycle of an address book's contact when a contact is added or modified.

An example of ContactLifecycle has been implemented to integrate the Address Book application in the eXo Social's Spaces. See the following configuration at: `ext/social-integration/src/main/resources/conf/portal/configuration.xml`.

See the following example:

```
<external-component-plugins>
  <target-component>org.exoplatform.contact.service.ContactService</target-component>
  <component-plugin>
    <name>ContactEventListener</name>
```

```
<set-method>addListenerPlugin</set-method>
<type>org.exoplatform.cs.ext.impl.ContactSpaceActivityPublisher</type>
</component-plugin>
</external-component-plugins>
```

Details: `ContactSpaceActivityPublisher` implements `ContactLifeCycle`. This implementation publishes activities in the space activity stream to notify of new and updated contacts in the space address book.

5.1.3. Transport

Transport is an overridable component used in the Chat application of eXo Collaboration.

This overridable component is used to help users add the protocol to the Chat application, such as: ICQ, YAHOO, MSN, XMPP, AIM, GTALK.

The Chat application of eXo Collaboration only uses the XMPP protocol that is implemented in this object "XMPPTransport".

5.1.4. EventLifeCycle

`EventLifeCycle` is an extension point used in the Calendar application of eXo Collaboration. You can find the configuration file of this component at: *ext/social-integration/src/main/resources/conf/portal/configuration.xml*.

See the following example:

```
<external-component-plugins>
  <target-component>org.exoplatform.calendar.service.CalendarService</target-component>
  <component-plugin>
    <name>CalendarEventListener</name>
    <set-method>addEventListenerPlugin</set-method>
    <type>org.exoplatform.cs.ext.impl.CalendarSpaceActivityPublisher</type>
  </component-plugin>
</external-component-plugins>
```

Details: `CalendarSpaceActivityPublisher` implements `EventLifeCycle`. It writes activities in the space activity stream when events or tasks are added/modified.

5.2. Public REST APIs

eXo Collaboration implements and provides many public REST APIs to help built-in applications, such as Calendar, Chat and Mail to communicate and transfer data with the server. By using these public REST APIs, extended or 3rd party applications can make use of this to develop cool web applications faster without much implementation.

5.2.1. Calendar application

The Calendar application of eXo Collaboration uses `CalendarWebservice` to provide all APIs for working with calendars, such as creating personal/group calendars, sharing calendars, managing events/tasks.

The REST API of Calendar portlet is exposed by *org.exoplatform.services.cs.calendar.CalendarWebservice* class.

Service name	Service URL	Description	Location
CalendarWebservice	\$portalname/\$restcontextname/exoplatform/calendar	Call to extend services of the Calendar application.	- Maven groupId: org.exoplatform.cs - ArtifactId: exo.cs.web.webservice



Note

- \$portalname: The name of the portal
- \$restcontextname: The context name of rest webapplication which is deployed to the "\$portalname" portal.
- Private: is optional and used for the protected access only. Such calls will require authentication.

• APIs usage:

Use the following APIs to build all functions of the Calendar application:

Name	Description	Service URL endpoint	Parameters	Expected Values
checkpermission	Check the permission of a user to a calendar, aiming at defining if the user has the edit permission to the calendar or not.	/private/cs/calendar/checkPermission/{username}/{calendarId}/{type}	username calendarid type	user id calendar id INVALID_TYPE = -1 / PRIVATE_TYPE = 0 / SHARED_TYPE = 1 / PUBLIC_TYPE = 2
event	Return a feed RSS that lists links to access a specific event.	/private/cs/calendar/event/{username}/{eventFeedName}	username eventFeedName	user id string
feed	Show the content of a feed that is a list of events in the "filename" file.	/private/cs/calendar/feed/{username}/{feedname}/{filename}	username feedname filename	username string string

Name	Description	Service endpoint	URL	Parameters	Expected Values
publicProcess	Process the public calendar when having a remote access request.	/cs/calendar/subscribe	{username}/{calendarId}/{type}	username calendarId type	user id calendar id INVALID_TYPE = -1 / PRIVATE_TYPE = 0 / SHARED_TYPE = 1 / PUBLIC_TYPE = 2
privateProcess	Process the public calendar when having a remote access request. User must enter username and password to access.	/private/cs/calendar/private	{username}/{calendarId}/{type}	username calendarID type	user id calendar id INVALID_TYPE = -1 / PRIVATE_TYPE = 0 / SHARED_TYPE = 1 / PUBLIC_TYPE = 2
upcomingEvent	The list of upcoming events in a specific calendar.	/private/cs/calendar/getissues	{currentdatetime}/{type}/{limit}	currentdatetime type limit	valid time format INVALID_TYPE = -1 / PRIVATE_TYPE = 0 / SHARED_TYPE = 1 / PUBLIC_TYPE = 2 integer
updateStatus	Update the status of a task.	/private/cs/calendar/updatestatus	{taskId}	taskId	task id
getCalendars	Get a list of calendars.	/private/cs/calendar/getcalendars			

5.2.2. Mail application

The Mail application of eXo Collaboration uses MailWebservice to provide all APIs for working with mail, such as sending/checking/storing mail to JCR.

REST API of the Mail portlet is exposed by *org.exoplatform.services.cs.mail.MailWebservice* class.

Service name	Service URL	Description	Location
MailWebservice	<code>\$portalname/\$restcontext/this-service</code>	This service is used to call extended services of the Mail application.	- Maven groupId: <code>org.exoplatform.cs</code> - artifactId: <code>exo.cs.web.webservice</code>

- **APIs Usage:**

Use the following APIs to build all functions of the Mail application:

Name	Description	Service URL endpoint	Parameters	Expected Values
checkMail	Check mails when having a request.	<code>/checkmail/{username}/{accountId}/{folderId}/</code>	- username - accountId - folderId	- user id - account id - folder id
synchFolders	Synchronize the mail folders in the clients and those in the mail server.	<code>/synchfolders/{username}/{accountId}/</code>	- username - accountId	- user id - account id
stopCheckMail	Stop checking the mail.	<code>/stopcheckmail/{username}/{accountId}/</code>	- username - accountId	- user id - account id
getCheckMailJobInfo	The method to get information of the mail-checking job.	<code>/checkmailjobinfo/{username}/{accountId}/</code>	- username - accountId	- user id - account id
searchemail	Search information from emails.	<code>/searchemail/{keywords}</code>	keywords	string

5.2.3. Chat application

The Chat application uses some APIs to help users create a room, join a room, invite other users to room, or send files, and more.

The Chat application of eXo Collaboration uses two services: `RESTXMPPService` and `FileExchangeService` to do these tasks.

5.2.3.1. `RESTXMPPService`

REST API `RESTXMPPService` of the Chat portlet is exposed by `org.exoplatform.services.xmpp.rest.RESTXMPPService` class

Service name	Service URL	Description	Location
RESTXMPPService	<code>\$portalname/\$restcontextname/xmpp</code>	Implement all actions sent to the Chat server;	* Maven groupId: <code>org.exoplatform.cs</code> * <code>exo.cs.eXoApplication.chat.service</code>

• APIs Usage:

Use the following APIs to build all functions of the Chat application:

Name	Description	Service URL endpoint	Parameters	Expected Values
loadJsResourceBundle	Read the language files in the Chat server.	<code>/loadJsResourceBundle/{locale}/</code>	<code>{locale}</code>	locale id
createRoom	Create a chat room or a group chat	<code>/muc/createroom/{username}/</code>	username room nickname	user id room name display name
configRoom	Establish the configuration of a chat room.	<code>/muc/configroom/{username}/</code>	username room	user id room name
getRoomConfigForm	Get the configuration of a chat room created.	<code>/muc/getroomconfig/{username}/</code>	username room	user id room name
getRoomInfo	Get the information of a chat room created	<code>/muc/getroominfo/{username}/</code>	username	user id

Name	Description	Service endpoint	URL	Parameters	Expected Values
				room	string
getJoinedRooms	List chat rooms that a user has been joined.	/muc/joinedrooms/{username}/		username	user id
getRooms	Get a list of group chat or chat rooms created.	/muc/rooms/{username}/		username	user id
declineToRoom	Refuse the invitation to join the chat room.	/muc/decline/{username}/{inviter}/		username inviter room reason	user id user id room name string
destroyRoom	Delete a chat room created.	/muc/destroy/{username}/		username room reason altroom	user id room name string room id
inviteToRoom	Invite other users to join a chat room.	/muc/invite/{username}/{invitee}/		username invitee room reason	user id user id room name string
joinRoom	Join a chat room.	/muc/join/{username}/		username room nickname password	user id room name display name room password
leftRoom	Leave a chat room.	/muc/leaveroom/{username}/			

Name	Description	Service endpoint	URL	Parameters	Expected Values
				username	user id
				room	room name
changeNickname	Change the nickname of users	/muc/changenickname/	{username}/{nickname}/	username	user id
				nickname	display name
changeAvailabilityStatusInRoom	Change the status of a user in the chat room.	/muc/changesstatus/{username}/	{username}/{mode}/	username	user id
				mood	presence type
				room	room name
				status	presence type
changeSubject	Change the subject of a chat room.	muc/changesubject/{username}/	{username}/	username	user id
				room	room name
				subject	string
manageRoleRoom	Change the role of each user in a chat room.	/muc/managerole/{username}/	{username}/	username	user id
				room	room name
				nickname	display name
				role	Participant / moderator
				command	grant/revoke
manageAffiliationRoom	Change the ownership of a chat room.	/muc/manageaffiliation/	{username}/	{username}/	user id
				room	room name
				nickname	display name

Name	Description	Service endpoint	URL	Parameters	Expected Values
				affiliation	String affiliation
				command	grant / revoke
kickUserFromRoom	Remove a user from the chat room.	/muc/kick/{username}/		username	user id
				nickname	display name
				room	room name
				reason	string
banUserFromRoom	Ban a user in the chat room.	/muc/ban/{username}/		username	user id
				room	room name
				name	user id
				reason	string
addBoddyToRoster	Add a user into the contact list.	/roster/add/{username}/		{adduser} username	user id
				adduser	use id
				nickname	display name
				group	group id
updateBoddy	Update new users into the contact list.	/roster/update/{username}/		{upduser} username	user id
				upduser	user id
				nickname	display name
				group	group id
createGroup	Create a chat room.	/roster/group/{username}/		{group} username	user id
				group	group id

Name	Description	Service endpoint	URL	Parameters	Expected Values
askForSubscription	Change the presence type of a user into Subscription.	/askforsubscription/	{username}/{askuser}/ username	askuser nickname	user id user id display name
cleanBuddylist	Remove a user from the contact list.	/rosterclean/	{username}/	username	user id
getAllHistory	Get all the chat history of two users.	/history/getmessages/	{username}/{isGroupChat}/ username	isGroupChat usernamefrom	user id true / false user id
getHistoryBetweenDate	Get the chat history of two users in a specific period.	/history/getmessages/	{username}/{isGroupChat}/{from}/{to}/ username	isgroupchat from to usernamefrom	user id true / false valid date format valid date format user id
getHistoryFromDateToNow	Get the chat history of two users from a specific date to the current time.	/history/getmessages/	{username}/{isGroupChat}/{from}/ username	isGroupChat from usernamefrom	user id true / false valid date format valid date format user id
getAllHistoryFile	Download all the chat history file of two users.	/history/file/getmessages/	{username}/{isGroupChat}/{clientTimezoneOffset}/ username	isGroupChat clientTimezoneOffset	user id true / false Long

Name	Description	Service endpoint	URL	Parameters	Expected Values
				usernamefrom	user id
getHistoryFromDateToNow	Download the chat history file of two users from a specific date to the current time	/history/file/getmessages/	{usernamefrom}/{usernamefrom}	isGroupChat	user id
				isGroupChat	true / false
				from	valid date format
				clientTimezoneOffset	Long
				usernamefrom	user id
getHistoryBetweenDate	Download the chat history file of two users in the specific date.	/history/file/getmessages/	{usernamefrom}/{usernamefrom}	isGroupChat	user id
				isGroupChat	true / false
				from	valid date format
				to	valid date format
				clientTimezoneOffset	Long
				usernamefrom	user id
getUserInfo	Get the information of a user.	/getuserinfo/{username}	{needinfo}/username		user id
				needinfo	string
login2	Allow a user to log in the chat server.	/login2/{forcache}/		forcache	
logout	Allow a user to log out the chat server.	/logout/{username}/	{presencestatus}/username		user id
				presencestatus	presencestatus
messageReceive	Receive a message from other users.	/history/messagereceive/	{username}/{messageid}/username		user id
				messageid	message id
removeBuddy	Delete a contact from the contact list.	/roster/del/{username}	{removeboddy}/username		user id

Name	Description	Service endpoint	URL	Parameters	Expected Values
				removeboddy	user id
removeTransport	Reset the presence type at the service that is being used.	/removetransport/{username}/{transport}/	username	transport	user id transport serve (e.g: Yahoo, XMPP)
searchUsers	Search users in the chat server	/searchuser/{username}/	username	search	user id string
				byUsername	true / false
				byName	true /false
				byEmail	true / false
				searchService	string
sendMessage	Send an message to other users.	/sendmessage/{username}/	username	messageBean	usersr id object
sendMUCMessage	Send a message to multile users or a group.	/muc/sendmessage/{username}/	username	messageBean	user id object
setStatus	Change the status of a user.	/sendstatus/{username}/{status}/	username	status	user id available/ unavailabe / do not disturb / away / extend away
subscribeUser	Change presence type into Subcribed type.	/subscribeuser/{username}/{subsuser}/	username	subsuser	user id user id
unsubscribeUser	Change presence type into the Unsubscribed type.	/unsubscribeuser/{username}/{unsubsuser}/	username		user id

Name	Description	Service endpoint	URL	Parameters	Expected Values
				unsubsuser	user id
acceptFile	Accept getting a file sent from another user.	/fileexchange/accept/	{username}/{uuid}/	username uuid	user id string
rejectFile	Refuse getting a file sent from another user.	/fileexchange/reject/	{username}/{uuid}/	username uuid	user id string
getPreviousStatus	Get the tatus of a user in the last log-in.	/getprevstatus/	{username}/name	name	user id

5.2.3.2. FileExchangeService

REST API *FileExchangeService* for uploading files is defined in `org.exoplatform.services.xmpp.rest.FileExchangeService`.

Service name	Service URL	Description	Location
FileExchangeService	<code>\$portalname/\$restcontextname</code>	Upload a file to the server and inform the user that the file can be downloaded to the local computer.	- Maven groupId: <code>org.exoplatform.cs</code> - InterfactId: <code>exo.cs.eXoApplication.chat.service</code>

- APIs usage: Use the following APIs to upload and send files to other users:

Name	Description	Service endpoint	URL	Parameters	Expected Values
upload	Upload a file to the server.	<code>\$portalname/\$restcontextname/fileexchange</code>		description username requestor isroom	string user id user id true / false