

eXo Platform 3.0 - Knowledge Functions

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Chapter 1. Prerequisites

<http://wiki.exoplatform.org/xwiki/bin/view/Portal/Portal%20Manual#HDevelopment>

<http://wiki.exoplatform.org/xwiki/bin/view/WS/>

Chapter 2. Applications

2.1. Portlets

2.1.1. Forum Portlet

2.1.1.1. Overview

Portlet name	War name	Description
ForumPortlet	forum.war	The Forum portlet is the application for users to post and read messages on different topics.

- Declaration template

```
<portlet-application>
  <portlet>
    <application-ref>forum</application-ref>
    <portlet-ref>ForumPortlet</portlet-ref>
  </portlet>
</portlet-application>
```

2.1.1.2. Portlet.xml

- See the portlet.xml file in the project following this path: forum/WEB-INF/portlet.xml.

2.1.1.3. Preferences

Preference name	Possible value	Default value	Description
useAjax	true, false	true	To define if links in the Forum will be plain hrefs or javascript ajax (better for SEO) or not.
showForumActionBar	true, false	true	This is the UIForumActionBar. If the value is set true, the UIForumActionBar will be shown. If false, the UIForumActionBar will be hidden.
forumNewPost	day number	1	To specify if a post is new. If the post is created within the set period, it is

Preference name	Possible value	Default value	Description
			new in the Forum.
enableIPLogging	true, false	true	To enable the IP logging function in the Forum. IP addresses of all posts will be collected.
enableIPFiltering	true, false	true	To enable the IP filter function in Forum, enabling IP addresses to be blocked in the Forum.
invisibleCategories	id categories	empty	To hide some categories. If the value is set empty, all categories of the Forum will be shown.
invisibleForums	id forums	empty	To hide some Forums. All Forums will be shown if the value is set empty.
uploadFileSizeLimitMB	integer	20	To limit the size of uploaded files in MB in the Forum.
isShowForumJump	true, false	true	To specify if the Forum jump panel is shown or not.
isShowIconsLegend	true, false	true	To specify if the icon legends panel is shown or not.
isShowModerators	true, false	true	To specify if the moderators panel is shown or not.
isShowPoll	true, false	true	To specify if the poll panel is shown or not.
isShowQuickReply	true, false	true	To specify if the quick reply panel is shown or not.
isShowRules	true, false	true	To specify if the forum rules panel is shown or not.
isShowStatistics	true, false	true	To specify if the statistics panel is shown or not.

2.1.1.4. Events

Name	Description
ForumLinkEvent	To set the render for UIForumLinkPortlet and set values for UIForumLinks.
ReLoadPortletEvent	To reload UIForumPortlet.
OpenLink	To update values for UIForumLinks.
ForumPollEvent	To setRender for UIForumPollPortlet.
ForumModerateEvent	To setRender for UIForumModeratorPortlet.
ForumRuleEvent	To setRender for UIForumRulePortlet.
QuickReplyEvent	To setRender for UIForumQuickReplyPortlet.

2.1.1.4.1. ForumLinkEvent

This event is fired through UIForumLinkPortlet.

To receive ForumLinkEvent, you must use the *ForumParameter* class with two properties:

Name	Type	Possible value	Description
isRenderForumLink	boolean	true/false	If the value is set to true or false, the Forum link is rendered or not respectively.
path	string	The absolute path of the class node (including types: category, forum, topic) defined by JCR	To set data for the UIForumLinkPortlet.

- **Example:**

```
PortletRequestContext pcontext = (PortletRequestContext) WebuiRequestContext.getCurrentInstance();
ActionResponse actionRes = (ActionResponse) pcontext.getResponse();
ForumParameter param = new ForumParameter();
String path = forum.getPath();
    if ( ...condition to render the UIForumLinkPortlet... ) {
        param.setRenderForumLink(true);
        param.setPath(path);
    } else {
        param.setRenderForumLink(false);
    }
    actionRes.setEvent(new QName("ForumLinkEvent"), param) ;
```

2.1.1.4.2. ReLoadPortletEvent

This event is fired through UIForumPortlet.

To receive ReLoadPortletEvent, you must use the *ForumParameter* class with two properties:

Name	Type	Possible value	Description
topicId	string	id of topic	To return the id of topic for UIForumPortlet
isRenderPoll	boolean	true/false	If the value is set to true or false, the <i>UITopicPoll</i> component is rendered or not respectively.

- **Example:**

```
....
ActionResponse actionRes = pcontext.getResponse() ;
ForumParameter param = new ForumParameter() ;
param.setRenderPoll(true);
param.setTopicId(topic.get());
actionRes.setEvent(new QName("ReloadPortletEvent"), param) ;
```

2.1.1.4.3. OpenLink

This event is fired through UIForumPortlet.

To receive OpenLink, you must use the *ForumParameter* class with one property:

Name	Type	Possible value	Description
path	string	The absolute path of the node defined by JCR	To set data for the UIForumPortlet.

- **Example:**

```
....
ActionResponse actionRes = pcontext.getResponse() ;
ForumParameter param = new ForumParameter() ;
param.setPath(path);
actionRes.setEvent(new QName("OpenLink"), param) ;
```

2.1.1.4.4. ForumPollEvent

This event is fired through UIForumPollPortlet.

To receive ForumPollEvent, you must use the *ForumParameter* class with four properties:

Name	Type	Possible value	Description
isRenderPoll	boolean	true/false	If the value is set to true or false, the <i>UIForumPollPortlet</i> portlet is rendered or not respectively.
categoryId	string	id of category	To return id of category

Name	Type	Possible value	Description
			for UIForumPollPortlet
forumId	string	id of forum	To return id of forum for UIForumPollPortlet
topicId	string	id of topic	To return id of topic for UIForumPollPortlet

- **Example:**

```
....
ActionResponse actionRes = pcontext.getResponse() ;
ForumParameter param = new ForumParameter() ;
param.setCategoryId(categoryId) ;
param.setForumId(forumId);
param.setTopicId(topicId);
param.setRenderPoll(topic.getIsPoll());
actionRes.setEvent(new QName("ForumPollEvent"), param);
```

2.1.1.4.5. ForumModerateEvent

This event is fired through UIForumModeratePortlet.

To receive ForumModerateEvent, you must use the *ForumParameter* class with two properties:

Name	Type	Possible value	Description
isRenderModerator	boolean	true/false	If the value is set to true or false, the <i>UIForumModeratePortlet</i> portlet is rendered or not respectively.
moderator	list of strings	list of user name	To set data for UIForumModeratePortlet.

- **Example:**

```
....
List<String> moderators = Arrays.asList(forum.getModerators());
ActionResponse actionRes = pcontext.getResponse() ;
ForumParameter param = new ForumParameter() ;
param.setModerators(moderators);
param.setRenderModerator(true);
actionRes.setEvent(new QName("ForumPollEvent"), param);
```

2.1.1.4.6. ForumRuleEvent

This event is fired through UIForumRulePortlet.

To receive ForumRuleEvent, you must use the *ForumParameter* class with two properties:

Name	Type	Possible value	Description
isRenderRule	boolean	true/false	If the value is set to true or false, the <i>UIForumRulePortlet</i> portlet is rendered or not respectively.
infoRules	list of strings	The list of states: can create topic, can add post and topic has lock	To set permissions for users in <i>UIForumRulePortlet</i> .

- **Example:**

```

....
ActionResponse actionRes = pcontext.getResponse() ;
ForumParameter param = new ForumParameter() ;
List<String> list = param.getInfoRules();
if(forum.getIsClosed() || forum.getIsLock()) {
    list.set(0, "true");
}
else {
    list.set(0, "false");
}
list.set(1, String.valueOf(canCreateTopic));
list.set(2, String.valueOf(isCanPost));
param.setInfoRules(list);
param.setRenderRule(true);
actionRes.setEvent(new QName("ForumRuleEvent"), param) ;

```

2.1.1.4.7. QuickReplyEvent

This event is fired through *UIQuickReplyPortlet*.

To receive *QuickReplyEvent*, you must use the *ForumParameter* class with five properties:

Name	Type	Possible value	Description
isRenderQuickReply	boolean	true/false	If the value is set to true or false, the <i>UIQuickReplyPortlet</i> portlet is rendered or not respectively.
isModerator	boolean	true/false	To specify if the user is moderator of forum containing the topic with quick reply or not.
categoryId	string	id of category	To return id of category for <i>UIQuickReplyPortlet</i> .
forumId	string	id of forum	To return id of forum for <i>UIQuickReplyPortlet</i> .
topicId	string	id of topic	To return id of topic for <i>UIQuickReplyPortlet</i> .

- **Example:**

```

.....
ActionResponse actionRes = pcontext.getResponse() ;
ForumParameter param = new ForumParameter() ;
param.setRenderQuickReply(isCanPost);
param.setModerator(isMod);
param.setCategoryId(categoryId) ;
param.setForumId(forumId);
param.setTopicId(topicId);
actionRes.setEvent(new QName("QuickReplyEvent"), param) ;;

```

2.1.2. Answers Portlet

2.1.2.1. Overview

Portlet name	War name	Description
AnswersPortlet	faq.war	The Answers portlet is the application to create answers, to reply and manage questions.

2.1.2.2. Portlet.xml

- See the portlet.xml file in the project following this path: /webapps/faq/WEB-INF/portlet.xml

2.1.2.3. Portlet Preferences

The Answers portlet consists of preferences as follows:

Preference name	Possible value	Default value	Description
enableViewAvatar	true, false	true	To enable users to view the avatar of owner posting the question.
enableAutomaticRSS	true, false	true	To enable users to get RSS automatically.
enableVotes AndComments	true, false	true	To enable users to give votes and comments for the question.
enableAnonymous SubmitQuestion	true, false	true	To enable anonymous users to submit questions.
display	approved, both	both	To enable administrators to view unapproved questions in the questions list in UIQuestions.
SendMailAdd NewQuestion	string	empty	To display the content of sent email when a new question is added.

Preference name	Possible value	Default value	Description
SendMailEditResponseQuestion	string	empty	To display the email content when a response is edited.
emailMoveQuestion	string	empty	To display the email content when a question is moved.
orderBy	alphabet, created	alphabet	To arrange questions in the alphabet or created date order.
orderType	asc, desc	asc	To display questions in the ascending or descending order.
isDiscussForum	true, false	false	To enable the DiscussQuestions function.
idNameCategoryForum	CategoryName, ForumName	empty	To select categories and forums for the DiscussionQuestions function.
uploadFileSizeLimitMB	integer	20	To set the maximum size of uploaded files in MB.

2.1.3. FAQ Portlet

2.1.3.1. Overview

Portlet name	War name	Description
FAQPortlet	faq.war	The FAQ portlet is the application to show questions and answers.

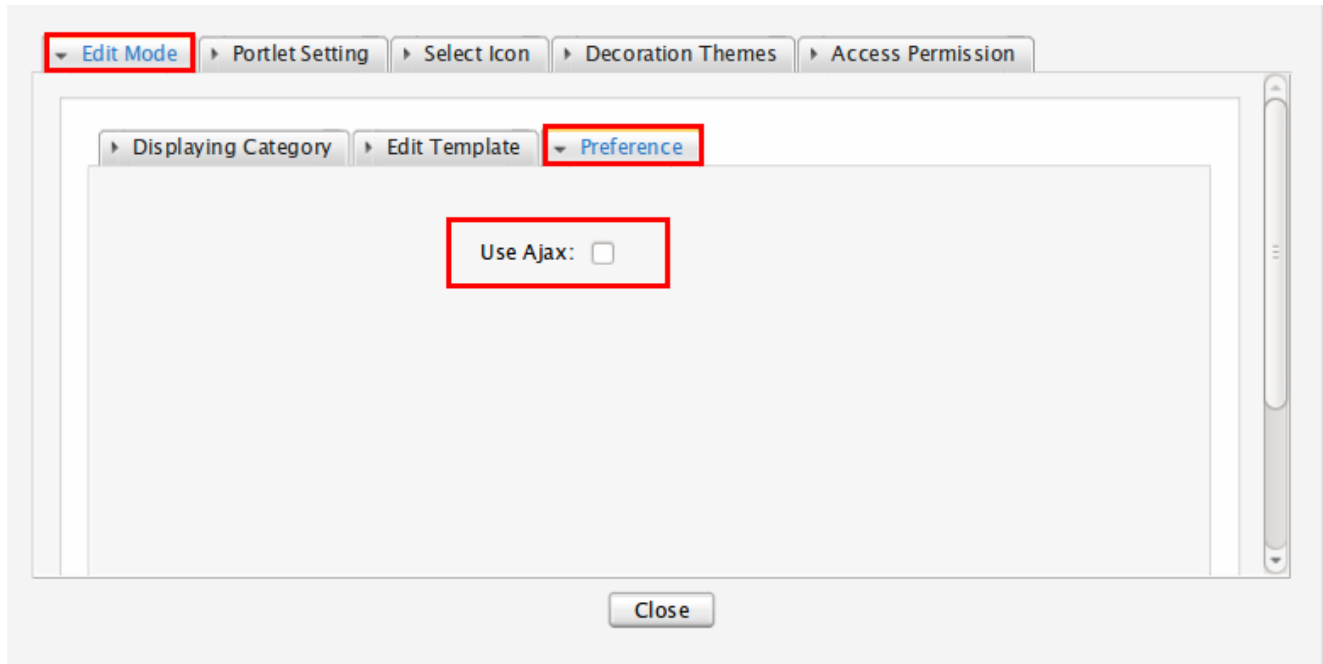
2.1.3.2. Portlet.xml

- See the portlet.xml file in the project following this path: /webapps/faq/WEB-INF/portlet.xml

2.1.3.3. Portlet Preferences

The FAQ portlet includes some portlet preferences that you can configure to alter the behavior.

At runtime, you can use the EDIT mode portlet to set the preferences:



Alternatively, you can configure the portlet in the *portlet-preferences.xml* file.

Preference name	Possible value	Default value	Description
useAjax	true, false	false	To specify if the ajax load or href load is used.

2.1.4. Polls Portlet

2.1.4.1. Overview

Portlet name	War name	Description
PollPortlet	poll.war	The Polls portlet is the application for users to vote any ideas, or activities.

2.1.4.2. Portlet.xml

- See the portlet.xml file in the project following this path: poll/WEB-INF/portlet.xml.

```
<portlet-preferences>
  <preference>
    <name>pollIdShow</name>
    <value/> <!-- PollId -->
    <read-only>false</read-only>
  </preference>
</portlet-preferences>
```

2.1.4.3. Portlet Preferences

Preference name	Possible value	Default value	Description
pollIdShow	string	empty	The id of poll is displayed in the Polls portlet.

2.2. Gadgets

2.2.1. Overview

eXo provides a gadget which enables users to see a poll. The Poll Gadget is developed on the combination of Gagget by GateIn and Polls Service. The Poll Gadget enables users to apply functions of Polls, such as viewing and voting Polls.

Gadget name	War name	Description
pollslist	poll.war	The list of Polls

2.2.2. Preferences

Preference name	Description
pollId	The id of Polls which is displayed in the Polls gadget

2.2.3. Links to used REST services

- [portal/rest/private/ks/poll/viewpoll/pollId](#)
- [portal/rest/private/ks/poll/votepoll/pollId/indexVote](#)

Chapter 3. Configuration

3.1. Components

3.1.1. Components of eXo Knowledge

Key	Data type	Description
org.exoplatform.ks.common.jcr.KSDataLocation	org.exoplatform.ks.common.jcr.KSDataLocation	To hold the JCR storage location for KS data.
org.exoplatform.services.scheduler.JobSchedulerService	org.exoplatform.services.scheduler.impl.JobSchedulerServiceImpl	To define a job to execute a given number of times during a given period. It is used to monitor jobs automatically and continuously, to schedule event-driven jobs and reports, and to control performance.

- Init-params of org.exoplatform.ks.common.jcr.KSDataLocation:

Name	Possible value	Default value
repository	string	repository
workspace	string	knowledge

3.1.2. Components of Forum

Key	Data type	Description
org.exoplatform.ks.bbcode.api.BBCodeService	org.exoplatform.ks.bbcode.core.BBCodeServiceImpl	To manage CRUD operations on BBCodes.
org.exoplatform.forum.service.DataStorage	org.exoplatform.forum.service.impl.JCRDataStorage	To store data of Forum via the JCR system.
org.exoplatform.forum.service.ForumService	org.exoplatform.forum.service.impl.ForumServiceImpl	To include all public APIs to interact with the UI component and database.
org.exoplatform.forum.service.ForumStatisticsService	org.exoplatform.forum.service.impl.ForumStatisticsServiceImpl	To include all public APIs to interact with the database of Statistics system.

3.1.3. Components of Answers

Key	Data type	Description
org.exoplatform.faq.service.FAQService	org.exoplatform.faq.service.impl.FAQServiceImpl	To include all public APIs to interact with the UI component and database.
org.exoplatform.faq.service.DataStorage	org.exoplatform.faq.service.impl.JCRDataStorage	To store data of FAQ via the JCR system.

3.1.4. Components of Polls

Key	Data type	Description
org.exoplatform.poll.service.DataStorage	org.exoplatform.poll.service.impl.JCRDataStorage	To include all public APIs to interact with the UI component and database.
org.exoplatform.poll.service.PollService	org.exoplatform.poll.service.impl.PollServiceImpl	To store data of Polls via the JCR system.

3.2. External-component-plugin

3.2.1. Init data configuration

3.2.1.1. Init data

Application	Component	Description
Forum	KSDataLocation, ForumServiceImpl	To initialize default data of the Forum portlet.
Answers	KSDataLocation, AnswerServiceImpl	To initialize default data of the Answers portlet.
Polls	KSDataLocation, PollServiceImpl	To initialize default data of the Polls portlet.

The Init data plug-in is used to define the default data in the *.xml* file. It includes nodes (node of jcr).

When the component *org.exoplatform.services.jcr.config.RepositoryServiceConfiguration* is initialized, the component *org.exoplatform.services.jcr.impl.config.RepositoryServiceConfigurationPlugin* will be get and the function *addConfig* is called. Then, the */ks-extension/jcr/repository-configuration.xml* file is loaded and the component *org.exoplatform.ks.common.jcr.KSDataLocation* will be initialized. Next, the *setLocation* function is called, setting up the workspace and repository for KS. After that, the *addPlugin* function will be run, generating the DataLocation (some parent nodes) for KS.

3.2.1.2. Configuration

3.2.1.2.1. Initialize the conf-part for loading *repository-configuration.xml*.

When the server starts, the *jcr-configuration.xml* file is initialized. The component-plugin named addConfig will be referred to `org.exoplatform.services.jcr.impl.config.RepositoryServiceConfigurationPlugin` to load the *war:/ks-extension/jcr/repository-configuration.xml* file.

```
<component-plugin>
  <!-- The name of the plugin -->
  <name>Sample RepositoryServiceConfiguration Plugin</name>
  <!-- The name of the method to call on the RepositoryServiceConfiguration
        in order to add the RepositoryServiceConfigurations -->
  <set-method>addConfig</set-method>
  <!-- The full qualified name of the RepositoryServiceConfigurationPlugin -->
  <type>org.exoplatform.services.jcr.impl.config.RepositoryServiceConfigurationPlugin</type>
  <init-params>
    <value-param>
      <name>conf-path</name>
      <description>JCR configuration file</description>
      <value>war:/ks-extension/jcr/repository-configuration.xml</value>
    </value-param>
  </init-params>
</component-plugin>
```

- In which:

Name	Set-method	Type	Description
RepositoryService ConfigurationPlugin	addConfig	org.exoplatform.services.jcr.impl.config.RepositoryServiceConfigurationPlugin	To read configuration of JCR data to initialize data

- Init-params

Name	Possible value	Default value	Description
conf-path	string	war:/ks-extension/jcr/repository-configuration.xml	The path to the <i>repository-configuration.xml</i> file

3.2.1.2.2. Initialize workspace name and repository name in *storage-configuration.xml*.

In details:

Once the *war:/ks-extension/jcr/repository-configuration.xml* file has been initialized, the server will load the *storage-configuration.xml* file, and the `setLocation` function in the `org.exoplatform.ks.common.conf.DataLocationPlugin` component will run.

```
<external-component-plugins>
  <target-component>org.exoplatform.ks.common.jcr.KSDataLocation</target-component>
  <component-plugin>
    <name>ks.data.location</name>
    <set-method>setLocation</set-method>
    <type>org.exoplatform.ks.common.conf.DataLocationPlugin</type>
    <init-params>
      <value-param>
```

```

    <name>repository</name>
    <description>JCR repository for KS data</description>
    <value>repository</value>
  </value-param>
  <value-param>
    <name>workspace</name>
    <description>workspace for KS data</description>
    <value>knowledge</value>
  </value-param>
</init-params>
</component-plugin>
</external-component-plugins>

```

In which,

Value-param	Possible value	Default value	Description
repository	string	repository	The JCR repository for KS data.
workspace	string	knowledge	The workspace for KS data.

3.2.1.2.3. Initialize data

Once the workspace name and repository name are registered, the server will load `org.exoplatform.services.jcr.ext.hierarchy.NodeHierarchyCreator` and the `addPaths` function in `org.exoplatform.services.jcr.ext.hierarchy.impl.AddPathPlugin` is called. Then, the data location will be built.

```

<component-plugin>
  <name>addPaths</name>
  <set-method>addPlugin</set-method>
  <type>org.exoplatform.services.jcr.ext.hierarchy.impl.AddPathPlugin</type>
  <init-params>
    <object-param>
      <name>ks.storage</name>
      <description>ks data storage tree</description>
      <object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig">
        <field name="repository"><string>repository</string></field>
        <field name="workspaces">
          <collection type="java.util.ArrayList">
            <value><string>knowledge</string></value>
          </collection>
        </field>
        <field name="jcrPaths">
          <collection type="java.util.ArrayList">
            <value>
              <object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$JcrPath">
                <field name="alias"><string>exoApplications</string></field>
                <field name="path"><string>/exo:applications</string></field>
                <field name="permissions">
                  <collection type="java.util.ArrayList">
                    <value>
                      <object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$Permissions">
                        <field name="identity"><string>*/platform/administrators</string></field>
                        <field name="read"><string>true</string></field>
                        <field name="addNode"><string>true</string></field>
                        <field name="setProperty"><string>true</string></field>
                        <field name="remove"><string>true</string></field>
                      </object>
                    </value>
                  </collection>
                </field>
              </object>
            </value>
          </collection>
        </field>
      </object>
    </value>
    <value>
      <object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$JcrPath">
        <field name="alias"><string>ksUserAvatar</string></field>

```

```

<field name="path"><string>/exo:applications/ksUserAvatar</string></field>
<field name="nodeType"><string>nt:unstructured</string></field>
<field name="permissions">
  <collection type="java.util.ArrayList">
    <value>
      <object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$Permissions">
        <field name="identity"><string>*:/platform/administrators</string></field>
        <field name="read"><string>true</string></field>
        <field name="addNode"><string>true</string></field>
        <field name="setProperty"><string>true</string></field>
        <field name="remove"><string>true</string></field>
      </object>
    </value>
  </collection>
</field>
</object>
</value>

<value>
  <object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$JcrPath">
    <field name="alias"><string>ForumService</string></field>
    <field name="path"><string>/exo:applications/ForumService</string></field>
    <field name="nodeType"><string>exo:forumHome</string></field>
    <field name="permissions">
      <collection type="java.util.ArrayList">
        <value>
          <object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$Permissions">
            <field name="identity"><string>*:/platform/administrators</string></field>
            <field name="read"><string>true</string></field>
            <field name="addNode"><string>true</string></field>
            <field name="setProperty"><string>true</string></field>
            <field name="remove"><string>true</string></field>
          </object>
        </value>
      </collection>
    </field>
  </object>
</value>

<value>
  <object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$JcrPath">
    <field name="alias"><string>ForumSystem</string></field>
    <field name="path"><string>/exo:applications/ForumService/ForumSystem</string></field>
    <field name="nodeType"><string>exo:forumSystem</string></field>
    <field name="permissions">
      <collection type="java.util.ArrayList">
        <value>
          <object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$Permissions">
            <field name="identity"><string>*:/platform/administrators</string></field>
            <field name="read"><string>true</string></field>
            <field name="addNode"><string>true</string></field>
            <field name="setProperty"><string>true</string></field>
            <field name="remove"><string>true</string></field>
          </object>
        </value>
      </collection>
    </field>
  </object>
</value>

<value>
  <object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$JcrPath">
    <field name="alias"><string>UserProfileHome</string></field>
    <field name="path"><string>/exo:applications/ForumService/ForumSystem/UserProfileHome</string></field>
    <field name="nodeType"><string>exo:userProfileHome</string></field>
    <field name="permissions">
      <collection type="java.util.ArrayList">
        <value>
          <object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$Permissions">
            <field name="identity"><string>*:/platform/administrators</string></field>
            <field name="read"><string>true</string></field>
            <field name="addNode"><string>true</string></field>
            <field name="setProperty"><string>true</string></field>
            <field name="remove"><string>true</string></field>
          </object>
        </value>
      </collection>
    </field>
  </object>
</value>

```

```

</value>

<value>
  <object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$JcrPath">
    <field name="alias"><string>StatisticHome</string></field>
    <field name="path"><string>/exo:applications/ForumService/ForumSystem/StatisticHome</string></field>
    <field name="nodeType"><string>exo:statisticHome</string></field>
    <field name="permissions">
      <collection type="java.util.ArrayList">
        <value>
          <object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$Permissions">
            <field name="identity"><string>*:/platform/administrators</string></field>
            <field name="read"><string>true</string></field>
            <field name="addNode"><string>true</string></field>
            <field name="setProperty"><string>true</string></field>
            <field name="remove"><string>true</string></field>
          </object>
        </value>
      </collection>
    </field>
  </object>
</value>

<value>
  <object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$JcrPath">
    <field name="alias"><string>forumStatistic</string></field>
    <field name="path"><string>/exo:applications/ForumService/ForumSystem/StatisticHome/forumStatisticHome</string></field>
    <field name="nodeType"><string>exo:forumStatistic</string></field>
    <field name="permissions">
      <collection type="java.util.ArrayList">
        <value>
          <object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$Permissions">
            <field name="identity"><string>*:/platform/administrators</string></field>
            <field name="read"><string>true</string></field>
            <field name="addNode"><string>true</string></field>
            <field name="setProperty"><string>true</string></field>
            <field name="remove"><string>true</string></field>
          </object>
        </value>
      </collection>
    </field>
  </object>
</value>

<value>
  <object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$JcrPath">
    <field name="alias"><string>AdministrationHome</string></field>
    <field name="path"><string>/exo:applications/ForumService/ForumSystem/AdministrationHome</string></field>
    <field name="nodeType"><string>exo:administrationHome</string></field>
    <field name="permissions">
      <collection type="java.util.ArrayList">
        <value>
          <object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$Permissions">
            <field name="identity"><string>*:/platform/administrators</string></field>
            <field name="read"><string>true</string></field>
            <field name="addNode"><string>true</string></field>
            <field name="setProperty"><string>true</string></field>
            <field name="remove"><string>true</string></field>
          </object>
        </value>
      </collection>
    </field>
  </object>
</value>

<value>
  <object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$JcrPath">
    <field name="alias"><string>BanIPHome</string></field>
    <field name="path"><string>/exo:applications/ForumService/ForumSystem/BanIPHome</string></field>
    <field name="nodeType"><string>exo:banIPHome</string></field>
    <field name="permissions">
      <collection type="java.util.ArrayList">
        <value>
          <object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$Permissions">
            <field name="identity"><string>*:/platform/administrators</string></field>
            <field name="read"><string>true</string></field>
            <field name="addNode"><string>true</string></field>
            <field name="setProperty"><string>true</string></field>
            <field name="remove"><string>true</string></field>
          </object>
        </value>
      </collection>
    </field>
  </object>
</value>

```

```

        </object>
    </value>
</collection>
</field>
</object>
</value>

<value>
<object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$JcrPath">
  <field name="alias"><string>ForumBanIP</string></field>
  <field name="path"><string>/exo:applications/ForumService/ForumSystem/BanIPHome/forumBanIP</string></field>
  <field name="nodeType"><string>exo:banIP</string></field>
  <field name="permissions">
    <collection type="java.util.ArrayList">
      <value>
        <object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$Permissions">
          <field name="identity"><string>*:/platform/administrators</string></field>
          <field name="read"><string>true</string></field>
          <field name="addNode"><string>true</string></field>
          <field name="setProperty"><string>true</string></field>
          <field name="remove"><string>true</string></field>
        </object>
      </value>
    </collection>
  </field>
</object>
</value>

<value>
<object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$JcrPath">
  <field name="alias"><string>ForumData</string></field>
  <field name="path"><string>/exo:applications/ForumService/ForumData</string></field>
  <field name="nodeType"><string>exo:forumData</string></field>
  <field name="permissions">
    <collection type="java.util.ArrayList">
      <value>
        <object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$Permissions">
          <field name="identity"><string>*:/platform/administrators</string></field>
          <field name="read"><string>true</string></field>
          <field name="addNode"><string>true</string></field>
          <field name="setProperty"><string>true</string></field>
          <field name="remove"><string>true</string></field>
        </object>
      </value>
    </collection>
  </field>
</object>
</value>

<value>
<object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$JcrPath">
  <field name="alias"><string>TopicTypeHome</string></field>
  <field name="path"><string>/exo:applications/ForumService/ForumData/TopicTypeHome</string></field>
  <field name="nodeType"><string>exo:topicTypeHome</string></field>
  <field name="permissions">
    <collection type="java.util.ArrayList">
      <value>
        <object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$Permissions">
          <field name="identity"><string>*:/platform/administrators</string></field>
          <field name="read"><string>true</string></field>
          <field name="addNode"><string>true</string></field>
          <field name="setProperty"><string>true</string></field>
          <field name="remove"><string>true</string></field>
        </object>
      </value>
    </collection>
  </field>
</object>
</value>

<value>
<object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$JcrPath">
  <field name="alias"><string>CategoryHome</string></field>
  <field name="path"><string>/exo:applications/ForumService/ForumData/CategoryHome</string></field>
  <field name="nodeType"><string>exo:categoryHome</string></field>
  <field name="permissions">
    <collection type="java.util.ArrayList">
      <value>
        <object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$Permissions">

```

```

        <field name="identity"><string>*:/platform/administrators</string></field>
        <field name="read"><string>>true</string></field>
        <field name="addNode"><string>>true</string></field>
        <field name="setProperty"><string>>true</string></field>
        <field name="remove"><string>>true</string></field>
    </object>
</value>
</collection>
</field>
</object>
</value>

<value>
    <object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$JcrPath">
        <field name="alias"><string>TagHome</string></field>
        <field name="path"><string>/exo:applications/ForumService/ForumData/TagHome</string></field>
        <field name="nodeType"><string>exo:tagHome</string></field>
        <field name="permissions">
            <collection type="java.util.ArrayList">
                <value>
                    <object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$Permissions">
                        <field name="identity"><string>*:/platform/administrators</string></field>
                        <field name="read"><string>>true</string></field>
                        <field name="addNode"><string>>true</string></field>
                        <field name="setProperty"><string>>true</string></field>
                        <field name="remove"><string>>true</string></field>
                    </object>
                </value>
            </collection>
        </field>
    </object>
</value>

<value>
    <object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$JcrPath">
        <field name="alias"><string>forumBBCode</string></field>
        <field name="path"><string>/exo:applications/ForumService/ForumData/forumBBCode</string></field>
        <field name="nodeType"><string>exo:forumBBCodeHome</string></field>
        <field name="permissions">
            <collection type="java.util.ArrayList">
                <value>
                    <object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$Permissions">
                        <field name="identity"><string>*:/platform/administrators</string></field>
                        <field name="read"><string>>true</string></field>
                        <field name="addNode"><string>>true</string></field>
                        <field name="setProperty"><string>>true</string></field>
                        <field name="remove"><string>>true</string></field>
                    </object>
                </value>
            </collection>
        </field>
    </object>
</value>

<value>
    <object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$JcrPath">
        <field name="alias"><string>faqApp</string></field>
        <field name="path"><string>/exo:applications/faqApp</string></field>
        <field name="nodeType"><string>exo:faqHome</string></field>
        <field name="permissions">
            <collection type="java.util.ArrayList">
                <value>
                    <object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$Permissions">
                        <field name="identity"><string>*:/platform/administrators</string></field>
                        <field name="read"><string>>true</string></field>
                        <field name="addNode"><string>>true</string></field>
                        <field name="setProperty"><string>>true</string></field>
                        <field name="remove"><string>>true</string></field>
                    </object>
                </value>
            </collection>
        </field>
    </object>
</value>

<value>
    <object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$JcrPath">
        <field name="alias"><string>settingHome</string></field>
        <field name="path"><string>/exo:applications/faqApp/settingHome</string></field>
    </object>
</value>

```

```

<field name="nodeType"><string>exo:faqSettingHome</string></field>
<field name="permissions">
  <collection type="java.util.ArrayList">
    <value>
      <object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$Permissions">
        <field name="identity"><string>*:/platform/administrators</string></field>
        <field name="read"><string>true</string></field>
        <field name="addNode"><string>true</string></field>
        <field name="setProperty"><string>true</string></field>
        <field name="remove"><string>true</string></field>
      </object>
    </value>
  </collection>
</field>
</object>
</value>
<value>
  <object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$JcrPath">
    <field name="alias"><string>userSettingHome</string></field>
    <field name="path"><string>/exo:applications/faqApp/settingHome/userSettingHome</string></field>
    <field name="nodeType"><string>exo:faqUserSettingHome</string></field>
    <field name="permissions">
      <collection type="java.util.ArrayList">
        <value>
          <object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$Permissions">
            <field name="identity"><string>*:/platform/administrators</string></field>
            <field name="read"><string>true</string></field>
            <field name="addNode"><string>true</string></field>
            <field name="setProperty"><string>true</string></field>
            <field name="remove"><string>true</string></field>
          </object>
        </value>
      </collection>
    </field>
  </object>
</value>

  <value>
    <object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$JcrPath">
      <field name="alias"><string>categories</string></field>
      <field name="path"><string>/exo:applications/faqApp/categories</string></field>
      <field name="nodeType"><string>exo:faqCategory</string></field>
      <field name="mixInTypes">
        <collection type="java.util.ArrayList">
          <value><string>mix:faqSubCategory</string></value>
        </collection>
      </field>
      <field name="permissions">
        <collection type="java.util.ArrayList">
          <value>
            <object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$Permissions">
              <field name="identity"><string>*:/platform/administrators</string></field>
              <field name="read"><string>true</string></field>
              <field name="addNode"><string>true</string></field>
              <field name="setProperty"><string>true</string></field>
              <field name="remove"><string>true</string></field>
            </object>
          </value>
        </collection>
      </field>
    </object>
  </value>

  <value>
    <object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$JcrPath">
      <field name="alias"><string>templateHome</string></field>
      <field name="path"><string>/exo:applications/faqApp/templateHome</string></field>
      <field name="nodeType"><string>exo:templateHome</string></field>
      <field name="permissions">
        <collection type="java.util.ArrayList">
          <value>
            <object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$Permissions">
              <field name="identity"><string>*:/platform/administrators</string></field>
              <field name="read"><string>true</string></field>
              <field name="addNode"><string>true</string></field>
              <field name="setProperty"><string>true</string></field>
              <field name="remove"><string>true</string></field>
            </object>
          </value>
        </collection>
      </field>
    </object>
  </value>

```

```

        </value>
      </collection>
    </field>
  </object>
</value>

<value>
  <object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$JcrPath">
    <field name="alias"><string>eXoPolls</string></field>
    <field name="path"><string>/exo:applications/eXoPolls</string></field>
    <field name="nodeType"><string>nt:unstructured</string></field>
    <field name="permissions">
      <collection type="java.util.ArrayList">
        <value>
          <object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$Permissions">
            <field name="identity"><string>*:/platform/administrators</string></field>
            <field name="read"><string>true</string></field>
            <field name="addNode"><string>true</string></field>
            <field name="setProperty"><string>true</string></field>
            <field name="remove"><string>true</string></field>
          </object>
        </value>
      </collection>
    </field>
  </object>
</value>

<value>
  <object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$JcrPath">
    <field name="alias"><string>groupsPath</string></field>
    <field name="path"><string>/Groups</string></field>
    <field name="permissions">
      <collection type="java.util.ArrayList">
        <value>
          <object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$Permissions">
            <field name="identity"><string>*:/platform/administrators</string></field>
            <field name="read"><string>true</string></field>
            <field name="addNode"><string>true</string></field>
            <field name="setProperty"><string>true</string></field>
            <field name="remove"><string>true</string></field>
          </object>
        </value>
        <value>
          <object type="org.exoplatform.services.jcr.ext.hierarchy.impl.HierarchyConfig$Permissions">
            <field name="identity"><string>any</string></field>
            <field name="read"><string>true</string></field>
            <field name="addNode"><string>false</string></field>
            <field name="setProperty"><string>true</string></field>
            <field name="remove"><string>false</string></field>
          </object>
        </value>
      </collection>
    </field>
  </object>
</value>

</collection>
</field>
</object-param>
</init-params>
</component-plugin>

```

3.2.2. Roles Configuration

3.2.2.1. Overview

The roles plug-in component defines roles in eXo Platform 3 Knowledge Forum. This convenient application defines access to a set of functions within the application. Currently, it only defines the person who has the *administrator* role. Administrators can get access to administration functions. At runtime, the application gets data from the roles plug-in to decide whether the logged user has the administrative role or not.

3.2.2.2. Configuration

The plug-in is configured in the *roles-configuration.xml* file.

When the user signs in, his or her username, group and membership will be compared with the user roles defined in the *.xml* file that is provided by the roles plug-in component.

In particular, at runtime of ForumService, the roles plug-in component is called. The role plug-in is configured in the *roles-configuration.xml* file. The plug-in component named *add.role.rules.plugin* will be referred to *org.exoplatform.ks.common.conf.RoleRulesPlugin* to create users for Forum corresponding to users who exist in the organization database. In addition, the list of users who have *administration* roles are also defined.

```
<component-plugin>
  <name>add.role.rules.plugin</name>
  <set-method>addRolePlugin</set-method>
  <type>org.exoplatform.ks.common.conf.RoleRulesPlugin</type>
  <description>add role rules</description>
  <init-params>
    <value-param>
      <name>role</name>
      <description>name of the role</description>
      <value>ADMIN</value>
    </value-param>
    <values-param>
      <name>rules</name>
      <description>rules of the role</description>
      <value>root</value>
      <!--value>admin</value -->
      <!--value>member:/demo</value-->
      <!--value>/forums/admin</value-->
      <!--value>*/forum/admin</value-->
      <!--value>/platform/administrators</value-->
      <!--value>manager:/platform/users</value-->
      <!--value>*/somegroup/somesubgroup</value-->
      <!--value>manager:/somegroup/someothergroup</value-->
    </values-param>
  </init-params>
</component-plugin>
```

In which:

Name	Set-method	Type	Description
add.role.rules.plugin	addRolePlugin	org.exoplatform.ks.common.conf. RoleRulesPlugin	To add role rules.

- Init-params:

Name	Possible value	Default value	Description
role	string	ADMIN	The name of role
rules	string	root	The rules of role

- When the *role-configuration.xml* file is executed, the administration role (with ADMIN value) will be checked and assigned to a matrix of users/groups/memberships defined inside "value" tags as below:

```
<value>...</value>
```

For example:

```
...
    <value>root</value>
    <value>john</value>
    <value>/platform/administrators</value>
    <value>member:/VIP</value>
    <value>validator:/VIP</value>
...
```

In the example above, the default administrators of Forum include *root*, *john*, users in */platform/administrators* group and users who have *member/validator* memberships in the VIP group.

When *root*, *john* or any users who belong to the */platform/administrators* group or users who have *member/validator* memberships in the VIP group sign in the Forum, he or she will be identified as the default administrator of Forum.

To add or remove the default administrator of the Forum, simply edit the *roles-configuration.xml* file, add or remove the relevant "value" tags.

```
...
    <values-param>
        ...
    <value>...</value>
    ...
</values-param>
...
```

The default administrators of the Forum can only change their roles by editing in the *roles-configuration.xml* file.

At runtime, modifications in the *roles-configuration.xml* file will be read and database will be updated. Normal users of the Forum and default administration will be created correspondingly.

3.2.3. ProfileProvider Configuration

3.2.3.1. Overview

Forum and FAQ applications are to show some information about posters. The way we retrieve that information is pluggable through the *ContactProvider* component.

For public internet websites, users can provide personal information, such as personal email address and location. To enable, simply override the *ContactProvider* component in your configuration.

3.2.3.2. Configuration

Configure the *profile-configuration.xml* file as shown below:

```
<component>
    <key>org.exoplatform.ks.common.user.ContactProvider</key>
    <type>org.exoplatform.ks.common.user.DefaultContactProvider</type>
</component>
```

3.2.3.3. Using ContactProvider

When you start the Tomcat, the *DefaultContactProvider* class will be initialized and the *OrganizationService* component is set within the *DefaultContactProvider* component.

The *DefaultContactProvider* class enables you to get user information via the *OrganizationService* component.

```
public CommonContact getCommonContact(String userId) {
    CommonContact contact = new CommonContact();
    try {
        User user = orgService.getUserHandler().findUserByName(userId);
        UserProfile profile = orgService.getUserProfileHandler().findUserProfileByName(userId);
        contact.setEmailAddress(user.getEmail());
        contact.setFirstName(user.getFirstName());
        contact.setLastName(user.getLastName());
        if(profile.getUserInfoMap() != null) {
            contact.setAvatarUrl(profile.getAttribute("user.other-info.avatar.url"));
            contact.setBirthday(profile.getAttribute("user.bdate"));
            contact.setCity(profile.getAttribute("user.home-info.postal.city"));
            contact.setCountry(profile.getAttribute("user.home-info.postal.country"));
            contact.setGender(profile.getAttribute("user.gender"));
            contact.setJob(profile.getAttribute("user.jobtitle"));
            contact.setMobile(profile.getAttribute("user.home-info.telecom.mobile.number"));
            contact.setPhone(profile.getAttribute("user.business-info.telecom.telephone.number"));
            contact.setWebSite(profile.getAttribute("user.home-info.online.uri"));
        }
    } catch (Exception e) {
        log.error("Could not retrieve forum user profile for " + userId + ": ", e);
    }
    return contact;
}
```

- The information which is get by the user includes:

Name	Type	Description
email	String	Email of user.
firstName	String	First name of user.
lastName	String	Last name of user.

- The information which is get via *UserProfile* includes:

Attribute	Type	Description
user.other-info.avatar.url	String	The path containing the user's avatar.
user.bdate	String	The user's birthday
user.home-info.postal.city	String	The home city of user.
user.home-info.postal.country	String	The home country of user.
user.gender	String	The user's gender.
user.jobtitle	String	The user's job.
user.home-info.telecom.mobile.number	String	The home phone number of user.

Attribute	Type	Description
user.business-info.telecom.telephone.number	String	The mobile number of user.
user.home-info.online.uri	String	The individual websites of user.

- You can get the *ContactProvider* as follows:

```

public CommonContact getPersonalContact(String userId) throws Exception {
    try {
        if(userId.indexOf(Utils.DELETED) > 0) return new CommonContact();
        ContactProvider provider = (ContactProvider) PortalContainer.getComponent(ContactProvider.class);
        return provider.getCommonContact(userId);
    } catch (Exception e) {
        return new CommonContact();
    }
}

```

3.2.4. Forum Configuration

3.2.4.1. BBCode Configuration

3.2.4.1.1. Overview

The BBCode plug-in component defines default BBCode data in the *.xml* file, including BBCode tags, for example, I, B, U, SIZE, COLOR.

When the BBCode Service runs, it will get values returned from the BBCode plug-in component to initialize default BBCode data.

3.2.4.1.2. Configuration

3.2.4.1.2.1. Default BBCode data

The default BBCode data is configured in the *bbcodes-configuration.xml* file.

In particular, at runtime of BBCode Service, the BBCode plug-in component is called. Then, the *bbcodes-configuration.xml* file will be executed, and the component-plugin named *registerBBCodePlugin* will be referred to *org.exoplatform.ks.bbcode.spi.BBCodePlugin* to execute some objects that will generate default data.

```

<component-plugin>
  <name>forum.default.bbcodes</name>
  <set-method>registerBBCodePlugin</set-method>
  <type>org.exoplatform.ks.bbcode.spi.BBCodePlugin</type>
  <description>default supported BBCodes</description>
  <init-params>
    <object-param>
      <name>I</name>
      <description>set text in italic</description>
      <object type="org.exoplatform.ks.bbcode.spi.BBCodeData">
        <field name="tagName">
          <string>I</string>
        </field>
        <field name="replacement">
          <string><![CDATA[<i>{param}</i>]]></string>
        </field>
      </object>
    </object-param>
  </init-params>
</component-plugin>

```

```

    <field name="description">
      <string>Set text in italic</string>
    </field>
    <field name="example">
      <string>[I]This text is italic[/I]</string>
    </field>
    <field name="isOption">
      <string>>false</string>
    </field>
    <field name="isActive">
      <string>>true</string>
    </field>
  </object>
</object-param>

<object-param>
  <name>B</name>
  <description></description>
  <object type="org.exoplatform.ks.bbcode.spi.BBCodeData">
    <field name="tagName">
      <string>B</string>
    </field>
    <field name="replacement">
      <string><![CDATA[<b>{param}</b>]]></string>
    </field>
    <field name="description">
      <string>Set text in bold</string>
    </field>
    <field name="example">
      <string>[B]This text is bold[/B]</string>
    </field>
    <field name="isOption">
      <string>>false</string>
    </field>
    <field name="isActive">
      <string>>true</string>
    </field>
  </object>
</object-param>

<object-param>
  <name>U</name>
  <description></description>
  <object type="org.exoplatform.ks.bbcode.spi.BBCodeData">
    <field name="tagName">
      <string>U</string>
    </field>
    <field name="replacement">
      <string><![CDATA[<u>{param}</u>]]></string>
    </field>
    <field name="description">
      <string>Set text in underline</string>
    </field>
    <field name="example">
      <string>[U]This text is underline[/U]</string>
    </field>
    <field name="isOption">
      <string>>false</string>
    </field>
    <field name="isActive">
      <string>>true</string>
    </field>
  </object>
</object-param>

<object-param>
  <name>COLOR</name>
  <description></description>
  <object type="org.exoplatform.ks.bbcode.spi.BBCodeData">
    <field name="tagName">
      <string>COLOR</string>
    </field>
    <field name="replacement">
      <string><![CDATA[<font color="{option}">{param}</font>]]></string>
    </field>
    <field name="description">
      <string>The [color=option] tag allows you to change the color of your text.</string>
    </field>
  </object>
</object-param>

```

```

    <field name="example">
      <string>[COLOR=blue]This text is blue[/COLOR]</string>
    </field>
    <field name="isOption">
      <string>true</string>
    </field>
    <field name="isActive">
      <string>true</string>
    </field>
  </object>
</object-param>

<object-param>
  <name>SIZE</name>
  <description></description>
  <object type="org.exoplatform.ks.bbcode.spi.BBCodeData">
    <field name="tagName">
      <string>SIZE</string>
    </field>
    <field name="replacement">
      <string><![CDATA[<font size="{option}">{param}</font>]]></string>
    </field>
    <field name="description">
      <string>The [size=option] tag allows you to change the size of your text.</string>
    </field>
    <field name="example">
      <string>[size=+2]this text is two sizes larger than normal[/size]</string>
    </field>
    <field name="isOption">
      <string>true</string>
    </field>
    <field name="isActive">
      <string>true</string>
    </field>
  </object>
</object-param>

<object-param>
  <name>FONT</name>
  <description></description>
  <object type="org.exoplatform.ks.bbcode.spi.BBCodeData">
    <field name="tagName">
      <string>FONT</string>
    </field>
    <field name="replacement">
      <string><![CDATA[<font face="{option}">{param}</font>]]></string>
    </field>
    <field name="description">
      <string>The [font=option] tag allows you to change the font of your text.</string>
    </field>
    <field name="example">
      <string>[font=courier]this text is in the courier font[/font]</string>
    </field>
    <field name="isOption">
      <string>true</string>
    </field>
    <field name="isActive">
      <string>true</string>
    </field>
  </object>
</object-param>

<object-param>
  <name>HIGHLIGHT</name>
  <description></description>
  <object type="org.exoplatform.ks.bbcode.spi.BBCodeData">
    <field name="tagName">
      <string>HIGHLIGHT</string>
    </field>
    <field name="replacement">
      <string><![CDATA[<span style="font-weight: bold; color: blue;">{param}</span>]]></string>
    </field>
    <field name="description">
      <string>The [highlight] tag allows you to make highlight of your text.</string>
    </field>
    <field name="example">
      <string>[highlight]this text is highlighted[/highlight]</string>
    </field>
  </object>
</object-param>

```

```

    <field name="isOption">
      <string>false</string>
    </field>
    <field name="isActive">
      <string>true</string>
    </field>
  </object>
</object-param>

<object-param>
  <name>LEFT</name>
  <description></description>
  <object type="org.exoplatform.ks.bbcode.spi.BBCodeData">
    <field name="tagName">
      <string>LEFT</string>
    </field>
    <field name="replacement">
      <string><![CDATA[<div align="left">{param}</div>]]></string>
    </field>
    <field name="description">
      <string>The [left] tag allows alignment text to left. </string>
    </field>
    <field name="example">
      <string>[LEFT]This text is left-aligned[/LEFT]</string>
    </field>
    <field name="isOption">
      <string>false</string>
    </field>
    <field name="isActive">
      <string>true</string>
    </field>
  </object>
</object-param>

<object-param>
  <name>RIGHT</name>
  <description></description>
  <object type="org.exoplatform.ks.bbcode.spi.BBCodeData">
    <field name="tagName">
      <string>RIGHT</string>
    </field>
    <field name="replacement">
      <string><![CDATA[<div align="right">{param}</div>]]></string>
    </field>
    <field name="description">
      <string>The [right] tag allows alignment text to right.</string>
    </field>
    <field name="example">
      <string>[RIGHT]example[/RIGHT]</string>
    </field>
    <field name="isOption">
      <string>[RIGHT]this text is right-aligned[/RIGHT]</string>
    </field>
    <field name="isActive">
      <string>true</string>
    </field>
  </object>
</object-param>

<object-param>
  <name>CENTER</name>
  <description></description>
  <object type="org.exoplatform.ks.bbcode.spi.BBCodeData">
    <field name="tagName">
      <string>CENTER</string>
    </field>
    <field name="replacement">
      <string><![CDATA[<div align="center">{param}</div>]]></string>
    </field>
    <field name="description">
      <string>The [center] allows alignment text to center.</string>
    </field>
    <field name="example">
      <string>[CENTER]this text is center-aligned[/CENTER]</string>
    </field>
    <field name="isOption">
      <string>false</string>
    </field>
  </object>
</object-param>

```

```

    <field name="isActive">
      <string>true</string>
    </field>
  </object>
</object-param>

<object-param>
  <name>JUSTIFY</name>
  <description></description>
  <object type="org.exoplatform.ks.bbcode.spi.BBCodeData">
    <field name="tagName">
      <string>JUSTIFY</string>
    </field>
    <field name="replacement">
      <string><![CDATA[<div align="justify">{param}</div>]]></string>
    </field>
    <field name="description">
      <string>The [justify] tag allows alignment text to justify.</string>
    </field>
    <field name="example">
      <string>[JUSTIFY]this text is justify-aligned[/JUSTIFY]</string>
    </field>
    <field name="isOption">
      <string>>false</string>
    </field>
    <field name="isActive">
      <string>true</string>
    </field>
  </object>
</object-param>

<object-param>
  <name>EMAIL</name>
  <description></description>
  <object type="org.exoplatform.ks.bbcode.spi.BBCodeData">
    <field name="tagName">
      <string>EMAIL</string>
    </field>
    <field name="replacement">
      <string><![CDATA[<a href="mailto:{param}">{param}</a>]]></string>
    </field>
    <field name="description">
      <string>The [email] tag allows you to link to an email address.</string>
    </field>
    <field name="example">
      <string>[email]demo@example.com[/email]</string>
    </field>
    <field name="isOption">
      <string>>false</string>
    </field>
    <field name="isActive">
      <string>true</string>
    </field>
  </object>
</object-param>

<object-param>
  <name>EMAIL-OPT</name>
  <description></description>
  <object type="org.exoplatform.ks.bbcode.spi.BBCodeData">
    <field name="tagName">
      <string>EMAIL</string>
    </field>
    <field name="replacement">
      <string><![CDATA[<a href="mailto:{option}">{param}</a>]]></string>
    </field>
    <field name="description">
      <string>The [email=option] tag allows link to an email address and use an optional parameter to 'r
    </field>
    <field name="example">
      <string>[email=demo@example.com]Click Here to Email me[/email] </string>
    </field>
    <field name="isOption">
      <string>true</string>
    </field>
    <field name="isActive">
      <string>true</string>
    </field>
  </object>

```

```

    </object>
  </object-param>

  <object-param>
    <name>URL</name>
    <description></description>
    <object type="org.exoplatform.ks.bbcode.spi.BBCodeData">
      <field name="tagName">
        <string>URL</string>
      </field>
      <field name="replacement">
        <string><![CDATA[<a target='_blank' href="{param}">{param}</a>]]></string>
      </field>
      <field name="description">
        <string>The [url] tag allows link to other websites and files.</string>
      </field>
      <field name="example">
        <string>[URL]http://www.exoplatform.com[/URL]</string>
      </field>
      <field name="isOption">
        <string>>false</string>
      </field>
      <field name="isActive">
        <string>>true</string>
      </field>
    </object>
  </object-param>

  <object-param>
    <name>URL-OPT</name>
    <description></description>
    <object type="org.exoplatform.ks.bbcode.spi.BBCodeData">
      <field name="tagName">
        <string>URL</string>
      </field>
      <field name="replacement">
        <string><![CDATA[<a target='_blank' href="{option}">{param}</a>]]></string>
      </field>
      <field name="description">
        <string>The [url=option] tag allows link to other websites and files and usean optional parameter
      </field>
      <field name="example">
        <string>[URL=http://www.exoplatform.com]Click goto exoplatform website.[/URL]</string>
      </field>
      <field name="isOption">
        <string>>true</string>
      </field>
      <field name="isActive">
        <string>>true</string>
      </field>
    </object>
  </object-param>

  <object-param>
    <name>GOTO</name>
    <description></description>
    <object type="org.exoplatform.ks.bbcode.spi.BBCodeData">
      <field name="tagName">
        <string>GOTO</string>
      </field>
      <field name="replacement">
        <string><![CDATA[<a href="{option}">{param}</a>]]></string>
      </field>
      <field name="description">
        <string>Allows goto directly to link instead of open a new window or a new tab. </string>
      </field>
      <field name="example">
        <string>[goto=http://www.exoplatform.com]Goto this link.[/goto]></string>
      </field>
      <field name="isOption">
        <string>>true</string>
      </field>
      <field name="isActive">
        <string>>true</string>
      </field>
    </object>
  </object-param>

```

```

<object-param>
  <name>LIST</name>
  <description></description>
  <object type="org.exoplatform.ks.bbcode.spi.BBCodeData">
    <field name="tagName">
      <string>LIST</string>
    </field>
    <field name="replacement">
      <string>You can not define this bbcode tag. It is defined by the developer.</string>
    </field>
    <field name="description">
      <string>The [list] tag allows create simple, each bullet is denoted by the [*] tag.</string>
    </field>
    <field name="example">
      <string>[list][*]list item 1[*]list item 2[/list]</string>
    </field>
    <field name="isOption">
      <string>>false</string>
    </field>
    <field name="isActive">
      <string>>true</string>
    </field>
  </object>
</object-param>

<object-param>
  <name>LIST-OPT</name>
  <description></description>
  <object type="org.exoplatform.ks.bbcode.spi.BBCodeData">
    <field name="tagName">
      <string>LIST</string>
    </field>
    <field name="replacement">
      <string>You can not define this bbcode tag. It is defined by the developer.</string>
    </field>
    <field name="description">
      <string>The [list=option] tag allows create bulleted lists specifying an option. Within the value
    </field>
    <field name="example">
      <string>[list=1][*]list item 1[*]list item 2[/list]</string>
    </field>
    <field name="isOption">
      <string>true</string>
    </field>
    <field name="isActive">
      <string>true</string>
    </field>
  </object>
</object-param>

<object-param>
  <name>IMG</name>
  <description></description>
  <object type="org.exoplatform.ks.bbcode.spi.BBCodeData">
    <field name="tagName">
      <string>IMG</string>
    </field>
    <field name="replacement">
      <string><![CDATA[]]></string>
    </field>
    <field name="description">
      <string>The [img] tag allows you to shows the image indicated by {url}</string>
    </field>
    <field name="example">
      <string>[url=http://www.google.com.vn] [img]http://groups.google.com.vn/groups/img/3nb/groups_medi
    </field>
    <field name="isOption">
      <string>>false</string>
    </field>
    <field name="isActive">
      <string>true</string>
    </field>
  </object>
</object-param>

<object-param>
  <name>QUOTE</name>
  <description></description>

```

```

<object type="org.exoplatform.ks.bbcode.spi.BBCodeData">
  <field name="tagName">
    <string>QUOTE</string>
  </field>
  <field name="replacement">
    <string><![CDATA[<div style="background:#ededf7; border:1px solid #d8d8d8; padding:6px 6px 6px 15px">
  </field>
  <field name="description">
    <string>The [quote] tag allows attribute content of post.</string>
  </field>
  <field name="example">
    <string>[quote]Lorem ipsum dolor sit amet[/quote]</string>
  </field>
  <field name="isOption">
    <string>>false</string>
  </field>
  <field name="isActive">
    <string>>true</string>
  </field>
</object>
</object-param>

<object-param>
  <name>QUOTE-OPT</name>
  <description></description>
  <object type="org.exoplatform.ks.bbcode.spi.BBCodeData">
    <field name="tagName">
      <string>QUOTE</string>
    </field>
    <field name="replacement">
      <string><![CDATA[<div style="background:#ededf7; border:1px solid #d8d8d8; padding:6px 6px 6px 15px">
    </field>
    <field name="description">
      <string>The [quote=option] tag allows attribute content and user name of poster.</string>
    </field>
    <field name="example">
      <string>[quote=John Doe]Lorem ipsum dolor sit amet[/quote]</string>
    </field>
    <field name="isOption">
      <string>>true</string>
    </field>
    <field name="isActive">
      <string>>true</string>
    </field>
  </object>
</object-param>

<object-param>
  <name>CODE</name>
  <description></description>
  <object type="org.exoplatform.ks.bbcode.spi.BBCodeData">
    <field name="tagName">
      <string>CODE</string>
    </field>
    <field name="replacement">
      <string><![CDATA[<div style="background:#ededed; border:1px inset #7b7b7b; margin:5px; overflow:auto">
    </field>
    <field name="description">
      <string>The [code] tag allows you to view source code html.</string>
    </field>
    <field name="example">
      <string><![CDATA[[code]<div>some text or code html</div>[/code]]]></string>
    </field>
    <field name="isOption">
      <string>>false</string>
    </field>
    <field name="isActive">
      <string>>true</string>
    </field>
  </object>
</object-param>

<object-param>
  <name>CSS</name>
  <description></description>
  <object type="org.exoplatform.ks.bbcode.spi.BBCodeData">
    <field name="tagName">
      <string>CSS</string>

```

```

</field>
<field name="replacement">
  <string><![CDATA[<span class="{option}">{param}</span>]]></string>
</field>
<field name="description">
  <string>The [css=option] tag allows you to add div tag and set class Name for this it.</string>
</field>
<field name="example">
  <string>[css=highlight]Text is highlight[/css]</string>
</field>
<field name="isOption">
  <string>true</string>
</field>
<field name="isActive">
  <string>true</string>
</field>
</object>
</object-param>

<object-param>
  <name>SLIDESHARE</name>
  <description></description>
  <object type="org.exoplatform.ks.bbcode.spi.BBCodeData">
    <field name="tagName">
      <string>SLIDESHARE</string>
    </field>
    <field name="replacement">
      <string>
        <![CDATA[<div style="width:425px; height:355px;" align="center">
          <object style="margin:0px" width="425" height="355">
            <param name="movie" value="http://static.slidesharecdn.com/swf/ssplayer2.swf?doc={option}&rel=0">
            <param name="allowFullScreen" value="true"/>
            <param name="allowScriptAccess" value="always"/>
            <embed src="http://static.slidesharecdn.com/swf/ssplayer2.swf?doc={option}&rel=0" type="application/x-shockwave-flash"/>
          </object>
        </div>]]>
      <b>{param}</b></div>]]>
      </string>
    </field>
    <field name="description">
      <string>The [SLIDESHARE=option] tag allows you to run slide in slidesharecdn.com site.</string>
    </field>
    <field name="example">
      <string>[SLIDESHARE=slideId]My slide[/SLIDESHARE]</string>
    </field>
    <field name="isOption">
      <string>true</string>
    </field>
    <field name="isActive">
      <string>true</string>
    </field>
  </object>
</object-param>
</init-params>
</component-plugin>

```

- In which,

Name	Set method	Type	Description
forum.default.bbcodes	registerBBCodePlugin	org.exoplatform.ks.bbcode.spi.BBCodePlugin	To define formats for data displayed on UI.

- The BBCode array is defined by the *org.exoplatform.ks.bbcode.spi.BBCodeData* object as below:

```

<object type="org.exoplatform.ks.bbcode.spi.BBCodeData">
  <field name="tagName">
    <string>I</string>
  </field>

```

```

<field name="replacement">
  <string><![CDATA[<i>{param}</i>]]></string>
</field>
<field name="description">
  <string>Set text in italic</string>
</field>
<field name="example">
  <string>[I]This text is italic[/I]</string>
</field>
<field name="isOption">
  <string>>false</string>
</field>
<field name="isActive">
  <string>>true</string>
</field>
</object>

```

- The BBCode includes basic data which are defined in the field tag with a specific name as below:

```

<field name="tagName">
  <string>I</string>
</field>
<field name="replacement">
  <string><![CDATA[<i>{param}</i>]]></string>
</field>
<field name="description">
  <string>Set text in italic</string>
</field>
<field name="example">
  <string>[I]This text is italic[/I]</string>
</field>
<field name="isOption">
  <string>>false</string>
</field>
<field name="isActive">
  <string>>true</string>
</field>

```

In which:

Field name	Value	Description
tagName	string	This is the text for the BBCode, which is put between two square brackets ([]). For example, for the bold tag, if you type [b], the BBCode tag will be b without any square brackets ([]).
replacement	string	This is the HTML code that replaces the BBCode entered by the user. Make sure that you include '{param}' (without quotes) to insert the text between opening and closing BBCode tags, and '{option}' for the parameter within the BBCode tag. You can only use <i>option</i> if 'Use Option' is selected.
description	string	This is a piece of text to describe the BBCode tag, including HTML tags if you want.

Field name	Value	Description
example	string	This is a sample piece of BBCode to use as an example for the particular BBCode. For example, to demonstrate the usage of [b] tag, enter [b]text[/b].
isOption	true, false	To select the [tag=option] [/tag] style tag, rather than just a [tag][[/tag]style tag. This function will be created if you select this option.
isActive	true, false	To activate the BBCode tag.

3.2.4.2. Forums_INITIALIZER

3.2.4.2.1. Overview

The Initialization plug-in component defines the default Forum data in the *.xml* file, including categories, forums, topics and posts.

When the Forum Service runs, it will get values which are returned from the Initialization plug-in component to initialize default data of the Forum.

3.2.4.2.2. Configuration

3.2.4.2.2.1. Default forum data

The default Forum data is configured in the *war:webapp/WEB-INF/conf/ksdemo/ks/services-configuration.xml* file.

In particular, at runtime of ForumService, the Initialization plug-in component will be called. Next, the *services-configuration.xml* file is executed. The component-plugin named *addInitialDataPlugin* will refer to *org.exoplatform.forum.service.conf.InitializeForumPlugin* to execute some objects to create default data for the Forum application.

```
<component-plugin>
  <name>default.data</name>
  <set-method>addInitialDataPlugin</set-method>
  <type>org.exoplatform.forum.service.conf.InitializeForumPlugin</type>
  <description>description</description>
  <init-params>
    <object-param>
      <name>livedemo.default.configuration</name>
      <description>initial data for live demo</description>
      <object type="org.exoplatform.forum.service.conf.ForumInitialData">
        <field name="categories">
          <collection type="java.util.ArrayList">
            <value>
              <object type="org.exoplatform.forum.service.conf.CategoryData">
                <field name="owner">
                  <string>root</string>
                </field>
                <field name="name">
                  <string>Knowledge Suite</string>
                </field>
                <field name="description">
                  <string>All about exo KS</string>
                </field>
              </object>
            </value>
          </collection>
        </field>
      </object>
    </object-param>
  </init-params>
</component-plugin>
```

```

</field>
<field name="forums">
  <collection type="java.util.ArrayList">
    <value>
      <object type="org.exoplatform.forum.service.conf.ForumData">
        <field name="owner"><string>root</string></field>
        <field name="name"><string>Live demo</string></field>
        <field name="description"><string>Questions about this demo</string></field>
        <field name="topics">
          <collection type="java.util.ArrayList">
            <value>
              <object type="org.exoplatform.forum.service.conf.TopicData">
                <field name="name"><string>Demo data policy</string></field>
                <field name="icon"><string>Shield</string></field>
                <field name="owner"><string>root</string></field>
                <field name="content"><string>
Welcome to eXo Knowledge Suite live demo!
We hope you enjoy discovering eXo Forum and FAQ applications features.
You don't need to be logged in to see the applications in action.
But the power of KS lies in the rich set of admin/moderation features.
We didn't want you to miss them so, when you [b][url="/portal/public/classic
create a demo account[/url][b], you will be granted full permissions.
Anybody can become an administrator or a moderator and play in the sandbox!
As a consequence, the data for this forum (including the accounts) is not me
[b][center]WE MAY RESET FORUMS AND FAQS ANYTIME[/center][b]
Enjoy and don't forget to send feedback at [email]ks@exoplatform.com[/email]
                </string>
              </object>
            </value>
          </collection>
        </field>
      </object>
    </value>
  </collection>
</field>
</object-param>
</init-params>
</component-plugin>

```

- In which,

Name	Set-method	Type	Description
default.data	addInitialDataPlugin	org.exoplatform.forum. service.conf. InitializeForumPlugin	The initial default data of Forum.

- Init-param

Name	Possible value	Default value	Description
livedemo.default.configuration	object	org.exoplatform.forum. service.conf. ForumInitialData	The initial data for live demo.

- Category array

After the `org.exoplatform.forum.service.conf.InitializeForumPlugin` object has been executed, the

`org.exoplatform.forum.service.conf.ForumInitialData` object will be called. It returns a category array. The value of category array is defined by the `org.exoplatform.forum.service.conf.CategoryData` object as below:

```
<object-param>
  <name>livedemo.default.configuration</name>
  <description>initial data for live demo</description>
  <object type="org.exoplatform.forum.service.conf.ForumInitialData">
    <field name="categories">
      <collection type="java.util.ArrayList">
        <value>
          <object type="org.exoplatform.forum.service.conf.CategoryData">
            <field name="owner">
              <string>root</string>
            </field>
            <field name="name">
              <string>Knowledge Suite</string>
            </field>
            <field name="description">
              <string>All about eXo KS</string>
            </field>
            ...
          </object>
        </value>
      </collection>
    </field>
  </object>
</object-param>
```

1. Category includes some basic data which are defined in the *field* tag with a specific name as below:

```
<field name="owner">
  <string>root</string>
</field>
<field name="name">
  <string>Knowledge Suite</string>
</field>
<field name="description">
  <string>All about eXo KS</string>
</field>
```

In which:

Field	Possible value	Default value	Description
owner	user id	root	The creator of Category
name	string	Knowledge Suite	The title of Category
description	string	All about eXo KS	The brief description of Category

- Modify values of Category

Values of the default Category can be changed by editing text values in the string tag of each field by the other one. In the sample code above, the `org.exoplatform.forum.service.conf.CategoryData` object is called. It means that only one default Category is defined. If you want to define more default Categories, repeat calling `org.exoplatform.forum.service.conf.CategoryData` object and define values for the new Category with the sample code as below:

```
<value>
  <object type="org.exoplatform.forum.service.conf.CategoryData">
```

```

    <field name=" ">
      ...
    </field>
  </object>
</value>

```

3.2.4.2.2. Forum array

1. Category may contain one or more Forums. The value of the Forum is defined in the *forums* field. It returns a forum array. The value of forum array is defined by the *org.exoplatform.forum.service.conf.ForumData* object as below:

```

<field name="forums">
  <collection type="java.util.ArrayList">
    <value>
      <object type="org.exoplatform.forum.service.conf.ForumData">
        <field name="owner"><string>root</string></field>
        <field name="name"><string>Live demo</string></field>
        <field name="description"><string>Questions about this demo</string></field>
        ...
      </object>
    </value>
  </collection>
</field>

```

- Basic Forum data

Forum includes some basic data which are defined in the field tag with the specific name as above.

In which:

Field	Possible value	Default value	Description
owner	user id	root	The creator of default Forum.
name	string	Live demo	The name or title of default Forum.
description	string	Questions about this demo	The brief description of default Forum.

The default Forum values can be changed by editing text values in string tag of each field by the other one.

In the sample code above, the *org.exoplatform.forum.service.conf.ForumData* object is called only one time. It means that only one default Forum is defined inside the default Category named Knowledge Suite. If you want to define more default Forums, repeat calling the *org.exoplatform.forum.service.conf.ForumData* object and define values for the new Forum with the sample code as below:

```

<value>
  <object type="org.exoplatform.forum.service.conf.ForumData">
    <field name=" ">
      ...
    </field>
  </object>
</value>

```

3.2.4.2.2.3. Forum topics

1. Forum may contain one or more topics. The value of topic is defined in the *topics* field. It returns a topic array. The value of topic array is defined by the *org.exoplatform.forum.service.conf.TopicData* object as below:

```
<field name="topics">
  <collection type="java.util.ArrayList">
    <value>
      <object type="org.exoplatform.forum.service.conf.TopicData">
        <field name="name"><string>Demo data policy</string></field>
        <field name="icon"><string>Tux</string></field>
        <field name="owner"><string>root</string></field>
        <field name="content"><string>Welcome to eXo Forum live demo. ... at anytime.</string></field>
        ...
      </object>
    </value>
  </collection>
</field>
```

A topic includes some basic data which are defined in the field tag with a specific name as above.

In which:

Field	Possible value	Default value	Description
name	string	Demo data policy	The name or title of default topic.
icon	string	Tux	The default icon of default topic.
owner	user id	root	The creator of default topic.
content	string	Welcome to eXo Forum live demo...at anytime.	The main content of default topic.

The values of default topic can be changed by editing text values in string tag of each field.

With the sample code above, the *org.exoplatform.forum.service.conf.TopicData* object is called only one time. It means that only one default topic is defined inside the default Forum named Live demo. If you want to define more default topics, repeat calling the *org.exoplatform.forum.service.conf.TopicData* object and define values for the new topic with the sample code as below:

```
<value>
  <object type="org.exoplatform.forum.service.conf.TopicData">
    <field name=" ">
      ...
    </field>
  </object>
</value>
```

1. Topic may contain one or more posts. The value of the post is defined in *posts* field. It returns a post array. The value of the post array is defined by the *org.exoplatform.forum.service.conf.PostData* object as below:

```

<field name="posts">
  <collection type="java.util.ArrayList">
    <value>
      <object type="org.exoplatform.forum.service.conf.PostData">
        <field name="name"><string>Reply: Demo data policy</string></field>
        <field name="icon"><string>IconsView</string></field>
        <field name="owner"><string>root</string></field>
        <field name="content"><string>Enjoy and don't forget to send feedback at ks@exoplatform.com</string></fi
        ...
      </object>
    </value>
  </collection>
</field>

```

A post includes some basic data which are defined in the *field* tag with a specific name as above.

In which:

Field	Possible value	Default value	Description
name	string	Reply: Demo data policy	The name or title of default post.
icon	string	IconsView	The default icon of default post.
owner	user id	root	The creator of default post.
content	string	Enjoy and don't forget to send feedback at ks@exoplatform.com	The main content of default post.

The default post values can be changed by editing text values in *string* tag of each *field*.

With the sample code above, the *org.exoplatform.forum.service.conf.PostData* object is called only one time. It means that only one default post is defined inside the default topic named *Demo data policy*. If you want to define more default posts, repeat calling the *org.exoplatform.forum.service.conf.PostData* object and define values for the new post with the sample code as below:

```

<value>
  <object type="org.exoplatform.forum.service.conf.PostData">
    <field name=" ">
      ...
    </field>
  </object>
</value>

```

By fault, the default Forum data can only be changed by editing in the *services-configuration.xml* file.

At runtime, the new changes in the *services-configuration.xml* file will be executed and updated, the default Forum data will be created correspondingly.

3.2.4.3. Auto-prune

3.2.4.3.1. Overview

The Auto-prune component is to prune inactive topics which have not been viewed, edited or received for a given period. The "prune" operation does not denote to the physical removal of topics, but sets them invisible. The function helps you not clutter busy forums from outdated information.

When the Job Scheduler runs, it will get values returned from the Auto-prune plug-in component to identify topics which have to be inactivated in the Forum application. These topics will be invisible to users.

3.2.4.3.2. Configuration

The properties of Auto-prune plug-in are configured in the `war:webapp/WEB-INF/ks-extension/ks/forum/prune-configuration.xml` file.

In particular, at runtime of Job Scheduler, the Auto-prune plug-in component is called. Then, the `prune-configuration.xml` file will be executed. The component-plugin named `ForumDeactiveJob` will refer to `org.exoplatform.forum.service.conf.DeactivePeriodJob` to inactivate topics in the Forum which meets predefined inactivation properties.

```
<component-plugin>
  <name>ForumDeactiveJob</name>
  <set-method>addPeriodJob</set-method>
  <type>org.exoplatform.forum.service.conf.DeactivePeriodJob</type>
  <description>add a Deactive job to the JobSchedulerService</description>
  <init-params>
    <properties-param>
      <name>job.info</name>
      <description>save the monitor data periodically</description>
      <property name="jobName" value="DeactiveJob"/>
      <property name="groupName" value="KnowlegedSuite"/>
      <property name="job" value="org.exoplatform.forum.service.conf.DeactiveJob"/>
      <property name="repeatCount" value="0"/>
      <property name="period" value="7200000"/> <!-- 2 hours-->
      <property name="startTime" value="+0"/>
      <property name="endTime" value=""/>
    </properties-param>
    <properties-param>
      <name>deactive.info</name>
      <description/>
      <property name="inactiveDays" value="15"/>
      <property name="forumName" value="Live demo"/>
    </properties-param>
  </init-params>
</component-plugin>
```

- In which,

Name	Set-method	Type	Description
ForumDeactiveJob	addPeriodJob	org.exoplatform.forum.service.conf.DeactivePeriodJob	To add a DeactiveJob to the JobSchedulerService.

- The properties for the Auto-prune plug-in are defined in the `property` tag with the format as below:

```
...
  <property name="jobName" value="DeactiveJob"/>
  <property name="groupName" value="KnowlegedSuite"/>
  <property name="job" value="org.exoplatform.forum.service.conf.DeactiveJob"/>
  <property name="repeatCount" value="0"/>
  <property name="period" value="7200000"/> <!-- 2 hours-->
  <property name="startTime" value="+0"/>
```

```

<property name="endTime" value=""/>
...
<property name="inactiveDays" value="15"/>
<property name="forumName" value="Live demo"/>
...

```

In details:

Property name	Possible value	Default value	Description
jobname	String	DeactiveJob	The name of job which will be executed.
groupname	String	KnowlegedSuite	The name of application which will be executed.
job	Class path	org.exoplatform.forum.service.conf.DeactiveJob	The reference function of the job which will be executed.
repeatCount	Long	0	The repeating time for the job. It means that how many times the job will be executed. It means that <i>DecactiveJob</i> is called at runtime only. It does not repeat. If the value is set 2 or 3, <i>DecactiveJob</i> will be called two or three times correspondingly.
period	Long	72000000	The interval between job executions.
starttime	Integer	+0	The start time when the function executes. exampleexample the starttime is 0, <u>meaning that the time to start executing DecactiveJob is the runtime.</u>
endtime	Integer	null	The end time when the function stops executing. exampleexample endtime is blank, meaning that there is no limitation for the end time for <i>DecactiveJob</i> .

With start and end time, you can give a specific date in the format: yyyy-mm-dd HH:mm:ss.sss to define the start and end time for *DecactiveJob*. Besides, deactive information is also defined:

Property name	Possible value	Default value	Description
inactiveDays	Integer	15	The number of days the

Property name	Possible value	Default value	Description
			topic has not been activated. exampleexample <i>inactivateDays</i> is set 1 , meaning that all the topics, which have one inactivated day, will be set as inactivated status. They will be invisible.
forumname	String	Live Demo	The name of Forum which will be checked for Auto-prune. In case, <i>forumname</i> is blank. It means that all forums will be checked for the Auto-prune. The <i>forumname</i> is Live demo. It means that only the Forum named 'Live demo' is checked for the Auto-prune.

By fault, the default properties can only be changed by editing its value in the *prune-configuration.xml* file.

At the runtime, the new changes in the *prune-configuration.xml* file are executed and updated. After that, the Auto-prune plug-in will be executed, depending on its properties.

3.2.4.4. User Statistics

3.2.4.4.1. Overview

The Auto-count Active Users component is to calculate the number of active users automatically. A user is considered as the active user only when he/she often adds topic/post in the Forum and his/her last post date matches the predefined interval time.

For example, if one user does not have any new posts after 15 days, he/she is not considered as an active user.

When the Job Scheduler runs, it will get values returned from the Auto-count Active Users plug-in component to identify the number of active users. This value is updated to Active Members information when the user views Forum statistics.

3.2.4.4.2. Configuration

The properties of Auto-count Active Users plug-in is configured in the *war:webapp/WEB-INF/ks-extension/ks/forum/statistics-configuration.xml* file.

In details, at runtime of Job Scheduler, the Auto-count Active Users plug-in component is called. Then, the *statistics-configuration.xml* file is executed. The component-plugin named *RecountActiveUserJob* will refer to *org.exoplatform.forum.service.conf.RecountActiveUserPeriodJob* to calculate the number of active users.

```

<component-plugin>
  <name>RecountActiveUserJob</name>
  <set-method>addPeriodJob</set-method>
  <type>org.exoplatform.forum.service.conf.RecountActiveUserPeriodJob</type>
  <description>add a RecountActiveUser job to the JobSchedulerService</description>
  <init-params>
    <properties-param>
      <name>job.info</name>
      <description>save the monitor data periodically</description>
      <property name="jobName" value="RecountActiveUserJob"/>
      <property name="groupName" value="KnowlegedSuite"/>
      <property name="job" value="org.exoplatform.forum.service.conf.RecountActiveUserJob"/>
      <property name="repeatCount" value="0"/>
      <property name="period" value="7200000"/> <!-- 2 hours-->
      <property name="startTime" value="+0"/>
      <property name="endTime" value=""/>
    </properties-param>
    <properties-param>
      <name>RecountActiveUser.info</name>
      <description/>
      <property name="lastPost" value="15"/> <!-- users are active if have last posts in 15 day -->
    </properties-param>
  </init-params>
</component-plugin>

```

- In which,

Name	Method	Type	Description
RecountActiveUserJob	addPeriodJob	org.exoplatform.forum.service.conf.RecountActiveUserPeriodJob	To add a RecountActiveUser job to the JobSchedulerService.

- The properties for Auto-count Active Members plug-in are defined in the property tag as below:

```

...
  <property name="jobName" value="RecountActiveUserJob"/>
  <property name="groupName" value="KnowlegedSuite"/>
  <property name="job" value="org.exoplatform.forum.service.conf.RecountActiveUserJob"/>
  <property name="repeatCount" value="0"/>
  <property name="period" value="7200000"/> <!-- 2 hours-->
  <property name="startTime" value="+0"/>
  <property name="endTime" value=""/>
...
  <property name="lastPost" value="15"/>
...

```

In which:

Property name	Possible value	Default value	Description
jobname	String	RecountActiveUserJob	The name of job which will be executed.
groupname	String	KnowlegedSuite	The name of application which will be executed.
job	Class path	org.exoplatform.forum.service.conf.RecountActiveUserJob	The reference function of job which will be executed.

Property name	Possible value	Default value	Description
repeatCount	Long	0	The number of times the job is repeated. If repeatCount is set 0 , <code>RecountActiveUserJob</code> is called at runtime only. It does not repeat. If the number is set to 2 or 3 , <code>RecountActiveUserJob</code> will be called two or three times.
period	Long	7200000 (millisecond) exampleexample (equal to two hours)	The interval time to execute the job.
starttime	Integer	0	The start time when the function executes. exampleexample <u>starttime is 0, meaning that the time to start executing RecountActiveUserJob is the runtime.</u>
endtime	Integer	null	The end time when the function stops executing. exampleexample <i>endtime</i> is blank, meaning that there is no limitation for the end time for <code>RecountActiveUserJob</code> .

With start and end time, you can give a specific date in the format: yyyy-mm-dd HH:mm:ss.sss to define the start and end time for `RecountActiveUserJob`. The information of active time is also defined:

Property name	Possible value	Default value	Description
lastPost	Integer	15	The number of days that the user has added the last post. exampleexample <i>lastPost</i> is 15, meaning that all users, who have any new posts within 15 days as from their last post date, are active members.

By default, the default properties can only be changed by editing its values in the *statistics-configuration.xml* file.

At runtime, the new changes in the *statistics-configuration.xml* file will be executed and updated. The Auto-count Active Users plug-in will be executed, depending on its properties.

3.2.4.5. Default User Profile

3.2.4.5.1. Overview

The default Forum settings are a set of settings for a new account. It contains declarations of time zone, short date format, long date format, time format, maximum topics per page, maximum posts per page and flag for showing forum jump or not. The settings are simple, and users can change such settings to UI-based functions later.

3.2.4.5.2. Configuration

This configuration is declared in the file named "ks-configuration.xml". Its path is "[tomcat source]/webapps/ks-extension/WEB-INF/ks-extension/ks/ks-configuration.xml" if you are running the tomcat and "[project source]/extension/webapp/src/main/webapp/WEB-INF/ks-extension/ks/ks-configuration.xml" if you are in the development phrase.

```
...
<external-component-plugins>
  <target-component>org.exoplatform.services.organization.OrganizationService</target-component>
  <component-plugin>
    ...
    <init-params>
      <properties-param>
        <name>user.profile.setting</name>
        <description>set default user profile</description>
        <property name="timeZone" value="GMT"/>
        <property name="shortDateFormat" value="MM/dd/yyyy"/>
        <property name="longDateFormat" value="DDD,MMM dd,yyyy"/>
        <property name="timeFormat" value="hh:mm a"/>
        <property name="maxTopic" value="10"/>
        <property name="maxPost" value="10"/>
        <property name="isShowForumJump" value="true"/>

      </properties-param>
    </init-params>

  </component-plugin>
</external-component-plugins>
...
```

In which:

Parameter	Possible value	Default value	Description
timeZone	Time zone id	GMT	Time zone set by user. For example: GMT, GMT-05:00, GMT+07:00, GMT+08:30 ... exampleexample Visit the website: http://java.sun.com/j2se/1.4.2/docs/api for more details.
shortDateFormat	Valid Java Date	MM/dd/yyyy	The format to display

Parameter	Possible value	Default value	Description
	format		short information of date exampleexample Visit the website: http://java.sun.com/j2se/1.4.2/docs/api to ensure the exact format.)
longDateFormat	Valid Java Date format	DDD, MMM dd, yyyy	The format to display a date with more information exampleexample Visit the website http://java.sun.com/j2se/1.4.2/docs/api to ensure the exact format.
timeFormat	valid Java Date format	hh:mm a	The format to view time (for example, hour, minute,) exampleexample Visit the website: http://java.sun.com/j2se/1.4.2/docs/api to ensure the exact format.
maxTopic	Integer	10	The maximum number of topics per page.
maxPost	Integer	10	The maximum number of posts per page.
isShowForumJump	true / false	true	To show the forum jump or not.

3.2.5. Answer Configuration

3.2.5.1. Answers Initializer

3.2.5.1.1. Overview

The Initialization plug-in component is to define the default answers data in the *.xml* or *.zip* file. It includes categories of question that should be exported from the Answers application.

When the Answers Service starts, it will get values returned from the Initialization plug-in component to initialize the default Answers data.

3.2.5.1.2. Configuration

- Default Answers data

The default Answers data is configured in the *services-configuration.xml* file.

In details, at runtime of Answers Service, the Initialization plug-in component is called, the *services-configuration.xml* file will be executed. The component-plugin named *addInitialDataPlugin* will refer to *org.exoplatform.faq.service.InitializeDataPlugin* to execute some objects to create default data.

The default data in the .zip file is initialized as follows:

```
<component-plugin>
  <name>technical-faq</name>
  <set-method>addInitialDataPlugin</set-method>
  <type>org.exoplatform.faq.service.InitialDataPlugin</type>
  <description>Initialize</description>
  <init-params>
    <value-param>
      <name>location</name>
      <description>location where Answers export format file is stored</description>
      <value>war:/data/Technical-FAQ.zip</value>
    </value-param>
  </init-params>
</component-plugin>
```

- In which,

Name	Set-Method	Type	Description
technical-faq	addInitialDataPlugin	org.exoplatform.faq.service.InitialDataPlugin	To initialize the data plug-in.

- Init-param

Name	Possible value	Default value	Description
location	string	war:/data/Technical-FAQ.zip	The location where the Answers export format file is stored.

If the default data is in the xml format:

```
<value>war:/data/Technical-FAQ.xml</value>
```

By default, the default Answers data can only import if the importing categories does not exist in database.

To initialize default data in multiple files, it is required to declare them in multiple plug-ins.

```
<component-plugin>
  ....
</component-plugin>
```

3.2.5.2. Answers Email Templates Configuration

3.2.5.2.1. Overview

Answers is configured mainly in the file:

- Portlet preferences: `/webapps/faq/WEB-INF/portlet.xml`



Note

For general information of eXo Knowledge configuration, refer to [KS Configuration](#) section.

3.2.5.2.2. Configuration

The Mail templates use a specific syntax, enabling you to create a customized email message in the Edit mode via three templates: New question, Edit/answer, and Move question.

here for more details.' Below the editor are 'Save' and 'Close' buttons."/>

Parameters are used in templates consist of:

Parameter	Description
<code>&categoryName</code>	To load the name of Category.
<code>&questionContent</code>	To load the question's content.
<code>&questionResponse</code>	To load the question's answer.
<code>&questionLink</code>	To load the link to question in the Answers portlet.

Chapter 4. Developer reference

4.1. Extension points

There are some extension points in eXo Knowledge, so that you can control how these components work by implementing or extending default implementations, then reconfigure these new components in the *configuration.xml* file.

4.1.1. ForumEventLifeCycle

4.1.1.1. Overview

ForumEventLifeCycle enables you to listen to the lifecycle of a forum. By implementing ForumEventLifeCycle, you can be notified of new posts and replies, categories and topics. This installation will be injected when the data flow is called to save data.

4.1.1.2. Configuration plug-in

You can find the configuration file of this component at: *ext/social-integration/src/main/resources/conf/portal/configuration.xml*.

For example, to add a Forum to a space of the Social application and keep new activities of Forum (such as new posts and topics) updated to the activities of space, do as follows:

```
<external-component-plugins>
  <target-component>org.exoplatform.forum.service.ForumService</target-component>
  <component-plugin>
    <name>ForumEventListener</name>
    <set-method>addListenerPlugin</set-method>
    <type>org.exoplatform.ks.ext.impl.ForumSpaceActivityPublisher</type>
  </component-plugin>
</external-component-plugins>
```

4.1.1.3. Tutorial

To use **ForumEventLifeCycle** class, do the following steps:

Step 1: Create a new class that extends *ForumEventListener*. Example: class *ABCActivityPublisher*

```
public class ABCActivityPublisher extends ForumEventListener {
    .....
}
```

Step 2: Override functions in this created class. In each function, you can write anythings to meet your needs:

```
public class ABCActivityPublisher extends ForumEventListener {

    public void saveCategory(Category category){
        ....
    }

    public void saveForum(Forum forum){
        ....
    }
}
```

```

        public void addTopic(Topic topic, String categoryId, String forumId)){
            ....
        }

        public void updateTopic(Topic topic, String categoryId, String forumId){
            ....
        }

        public void addPost(Post post, String categoryId, String forumId, String topicId){
            ....
        }

        public void updatePost(Post post, String categoryId, String forumId, String topicId){
            ....
        }
    }

```

- The function *saveCategory* is called when a category is added and/or edited.
- The function *saveForum* is called when a forum is added and/or edited.
- The function *addTopic* is called when a topic is added.
- The function *updateTopic* is called when a topic is updated.
- The function *addPost* is called when a post is added.
- The function *updatePost* is called when a post is updated.

Step 3: Add a new configuration in *configuration.xml* file with the type that is the class created in the **Step 1**:

```

<external-component-plugins>
  <target-component>org.exoplatform.forum.service.ForumService</target-component>
  <component-plugin>
    <name>ForumEventListener</name>
    <set-method>addListenerPlugin</set-method>
    <type>{package}.{class name}</type>
    <!-- example
    <type>org.exoplatform.ks.ext.impl.ABCActivityPublisher</type>
    -->
  </component-plugin>
</external-component-plugins>

```

4.1.2. AnswerEventLifeCycle

4.1.2.1. Overview

AnswerEventLifeCycle installs event updates for the Answers data that is injected while saving answers, saving questions or posting comments.

4.1.2.2. Configuration plug-in

You can find the configuration file of this component at: `_ext/social-integration/src/main/resources/conf/portal/configuration.xml_`.

For example, to add Answers to a space of the Social application and keep new activities of Answers updated to the activities of space, do as follows:

```
<external-component-plugins>
  <target-component>org.exoplatform.faq.service.FAQService</target-component>
  <component-plugin>
    <name>AnswerEventListener</name>
    <set-method>addListenerPlugin</set-method>
    <type>org.exoplatform.ks.ext.impl.AnswersSpaceActivityPublisher</type>
  </component-plugin>
</external-component-plugins>
```

In which, `AnswersSpaceActivityPublisher` is the class to implement `ForumEventLifeCycle`.

4.1.2.3. Tutorial

To use **AnswerEventLifeCycle** class, do the following steps:

Step 1: Create a new class that extends *AnswerEventListener*. Example: *ABCActivityPublisher*

```
public class ABCActivityPublisher extends AnswerEventListener {
    .....
}
```

Step 2: Override functions in this created class. In each function, you can write anything to meet your needs:

```
public class ABCActivityPublisher extends AnswerEventListener {

    public void saveQuestion(Question question, boolean isNew){
        ....
    }

    public void saveAnswer(String questionId, Answer answer, boolean isNew){
        ....
    }

    public void saveAnswer(String questionId, Answer[] answers, boolean isNew){
        ....
    }

    public void saveComment(String questionId, Comment comment, boolean isNew){
        ....
    }

}
```

- The function *saveQuestion* is called when a question is added and/or edited.
- The function *saveAnswer* is called when an answer is added and/or edited.
- The function *saveAnswer* is called when answers are added and/or edited.
- The function *saveComment* is called when a comment is added and/or edited.

Step 3: Add a new configuration in the *configuration.xml* file with the type that is the class created in the **Step 1**:

```
<external-component-plugins>
  <target-component>org.exoplatform.faq.service.FAQService</target-component>
  <component-plugin>
    <name>AnswerEventListener</name>
```

```

        <set-method>addListenerPlugin</set-method>
        <type>{package}.{class name}</type>
    <!-- example
    <type>org.exoplatform.ks.ext.impl.ABCActivityPublisher</type>
    -->
    </component-plugin>
</external-component-plugins>

```

4.1.3. BBCodeRenderer

BBCodeRenderer is used in the core of eXo Knowledge to render BB Codes. In which, the data input is text, containing BBCode tags. The data output will be BBCode tags which have been encrypted into HTML tags.

You can find the configuration file of this component at: *extension/webapp/src/main/webapp/WEB-INF/ks-extension/ks/forum/bbcodes-configuration.xml*.

For example, to register BBCodeRenderer, do as follows:

```

<external-component-plugins>
  <target-component>org.exoplatform.ks.rendering.MarkupRenderingService</target-component>
  <component-plugin>
    <name>BBCodeRenderer</name>
    <set-method>registerRenderer</set-method>
    <type>org.exoplatform.ks.rendering.spi.RendererPlugin</type>
    <description>BBCode renderer</description>
    <init-params>
      <object-param>
        <name>renderer</name>
        <description>Extended BBCodeRenderer</description>
        <object type="org.exoplatform.ks.bbcode.core.BBCodeRenderer">
          <field name="bbCodeProvider">
            <object type="org.exoplatform.ks.bbcode.core.ExtendedBBCodeProvider"/>
          </field>
        </object>
      </object-param>
    </init-params>
  </component-plugin>
</external-component-plugins>

```

Explanation: ExtendedBBCodeProvider is the class to implement BBCodeProvider

4.2. Internal API

Applications of eXo Knowledge, such as Forum, Answers and Polls, use REST services to communicate with the server. This section describes REST Services of internal APIs.

4.2.1. Forum application

The Forum application of eXo Knowledge uses the ForumWebservice to provide all APIs to work with Forum, such as filtering IPs, viewing RSS, and more.

Service name	Service URL	Description	Location
ForumWebservice	\$portalName/ \$restcontextname/ ks/forum/	To call extended services of the Forum application.	* Maven groupId: org.exoplatform.ks * ArtifactId:

Service name	Service URL	Description	Location
			exo.ks.web.webservice

• APIs Usage

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

Name	Description	Service URL endpoint	Parameters	Expected values
getMessage	To get all new posts with the number based on the <i>maxcount</i> value.	\$portalName/ \$restcontextname/ ks/forum/getmessage/	String maxcount	integer
filterIps	To ban IPs with no access to Forum.	\$portalName/ \$restcontextname/ ks/forum/filter/	String str	String in the IP format.
filterIpBanForum	To ban IPs with no access to a specific Forum.	\$portalName/ \$restcontextname/ ks/forum/ filterIpBanforum/	String forumId String str	string in the IP format, string in the Forum format
filterTagNameForum	To do quick search for tags that returns the list of tags.	\$portalName/ \$restcontextname/ ks/forum/ filterTagNameForum/	String str String userAndTopicId	Tag name id of user and topic
viewrss	To process the request by the user when he/she wants to view RSS.	\$portalName/ \$restcontextname/ ks/forum/rss/	String resourceid	category id forum id topic id
userrss	To process the request by users when they want to view their own collected RSS.	\$portalName /\$restcontextname/ ks/forum/rss/user/	String resourceid	username id

4.2.2. Answers application

The Answers application of eXo Knowledge uses the FAQWebservice to view RSS.

Service name	Service URL	Description	Location
FAQWebservice	\$portalName/	To call extended services	

Service name	Service URL	Description	Location
	\$restcontextname/ ks/faq	of the Answers application.	* Maven groupId: org.exoplatform.ks * ArtifactId: exo.ks.eXoApplication.faq.service

• APIs Usage

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

Name	Description	Service URL endpoint	Parameters	Expected values
viewrss	To view RSS	\$portalName/ \$restcontextname/ ks/faq/rss/	String resourceid	category id, question id

4.2.3. Polls application

The Polls application of eXo Knowledge uses the PollWebservice to create and interact with the Polls gadget.

Service name	Service URL	Description	Location
PollWebservice	\$portalName/ \$restcontextname/ private/ks/poll	To call extended services of the Polls application.	* Maven groupId: org.exoplatform.ks * ArtifactId: exo.ks.eXoApplication.poll.service

• APIs Usage

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

Name	Description	Service URL endpoint	Parameters	Expected values
viewPoll	To return data of the Polls system	\$portalName/ \$restcontextname/ private/ks/poll/ viewpoll/	String pollId	id of poll
votePoll	To update data for the Polls with the	\$portalName/ \$restcontextname/	String pollId	id of poll

Name	Description	Service endpoint	URL	Parameters	Expected values
	returned id	private/ks/poll/votepoll/		String indexVote	integer

4.3. FAQ Template Configuration

4.3.1. Configuration plug-in

Configuration plug-in is used to automatically set up a default template for the FAQ portlet. When the FAQ service starts, it will get values which are returned from the *TemplatePlugin* component to initialize the template for the FAQ portlet.

The template configuration plug-in is configured in the *templates-configuration.xml* file.

In details:

At the run time of the FAQ Service, *FAQService* component is called, then *templates-configuration.xml* file is executed. The component-plugin named *addTemplatePlugin* will be referred to *org.exoplatform.faq.service.TemplatePlugin* to execute some objects and create default data for the **Forum** application.

```
<external-component-plugins>
  <target-component>org.exoplatform.faq.service.FAQService</target-component>
  <component-plugin>
    <name>faq.default.template</name>
    <set-method>addTemplatePlugin</set-method>
    <type>org.exoplatform.faq.service.TemplatePlugin</type>
    <init-params>
      <value-param>
        <name>viewerTemplate</name>
        <value>war:/ks-extension/ks/faq/templates/FAQViewerPortlet.gtmpl</value>
      </value-param>
    </init-params>
  </component-plugin>
</external-component-plugins>
```

The properties of template configuration plug-in are defined in *init-params* tag as follows:

```
<init-params>
  <value-param>
    <name>viewerTemplate</name>
    <value>war:/ks-extension/ks/faq/templates/FAQViewerPortlet.gtmpl</value>
  </value-param>
</init-params>
```

Name	Description	Value
viewerTemplate	Path of file template	war:/ks-extension/ks/faq/templates/FAQViewerPortlet.gtmpl

4.3.2. How to change look and feel

You can use two ways to change the template FAQ viewer:

- By using Plug-in
- By using **edit mode** to edit template

4.3.2.1. Using Plug-in

- **Step 1:** Create a file named **FAQViewerPortlet.gtmpl** . The content of the file is the template of the FAQ viewer.
- **Step 2:** Copy this file and paste into *ks-extension/WEB-INF/ks-extension/ks/faq/templates/* that is in the **webapps** folder of the server (tomcat, jboss).
- **Step 3:** When the server runs, *FAQViewerPortlet.gtmpl* will initialize the template of the FAQ viewer.

4.3.2.2. By using Edit Mode

- **Step 1:** Run the server and open the FAQ Portlet.
- **Step 2:** Go to **edit mode** and open the **Edit Template** tab.
- **Step 3:** Edit the content of **text-area-input** and click **Save**.

4.3.3. API provided by the UIComponent (UIViewer.java)

- UIViewer is the child of the component *UIFAQPortlet*. It shows the main content of FAQ portlet.
- List of APIs:

Function name	Param	Return	Description
getCategoryInfo	Empty	CategoryInfo object	Get the object CategoryInfo
arrangeList	(List< String > list): List of path	A new list is arranged	Arrange a list of path
render	(String): The content of answers or comments	A new string is converted by function render	Render the content of answers or comments

- The **CategoryInfo** class:

```
...
    private String id;
    private String path;
    private String name;
    private List<String> pathName;
```

```
private List<QuestionInfo> questionInfos = new ArrayList<QuestionInfo>();
private List<SubCategoryInfo> subCateInfos = new ArrayList<SubCategoryInfo>();
...
```

Param	Type	Description
id	String	The jcr node name of the category node
path	String	The jcr node path of the category node
name	String	The name of the category
pathName	List<String>	The path to the category includes a list of category names.
questionInfos	List<QuestionInfo>	The list of QuestionInfo object
subCateInfos	List<SubCategoryInfo>	The list of SubCategoryInfo object

- The **QuestionInfo** class:

```
...
    private String id;
    private String question;
    private String detail;
    private List<String> answers = new ArrayList<String>();
...
```

Param	Type	Description
id	String	The jcr node name of the question node
question	String	The content of the question
details	String	The question details
answers	List<String>	The list of the answers for the question

- The **SubCategoryInfo** class:

The params of this class are the same as the CategoryInfo class. See [here](#) for more information.