

## IlabServiceBroker Deployment

[IlabServiceBrokerDeployment.htm - uqlpayne 22 Aug 2013]

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### Requirements

- The *GlassFish Server Open Source Edition 4.0* is installed and running.
- The *UQ-iLab-ServiceBroker-Java* GitHub repository has been downloaded as a ZIP file from:  
<https://github.com/uqlpayne/UQ-iLab-ServiceBroker-Java>
- The *IlabServiceBroker Database* has been created and configured (see *IlabServiceBrokerDatabase.pdf*).
- The *ExperimentStorage Database* has been created and configured (see *ExperimentStorageDatabase.pdf*).
- The folder *D:\iLabs* has been created for the *IlabServiceBroker* project and *ExperimentStorage* project application files.

### GlassFish Server Administration Console

- Run the *GlassFish Server Administration Console* by entering the following URL in a web browser.

`http://localhost:4848/`

If prompted, log in to the Administration Console.

- There are two web applications that need to be deployed to the GlassFish Server.

#### IlabServiceBroker

Packaged File: *UQ-iLab-ServiceBroker-Java/Builds/iLabServiceBroker.war*

Local Folder: *D:\iLabs\iLabServiceBroker*

Context Path: */iLabServiceBroker*

#### ExperimentStorage

Packaged File: *UQ-iLab-ServiceBroker-Java/Builds/ExperimentStorage.war*

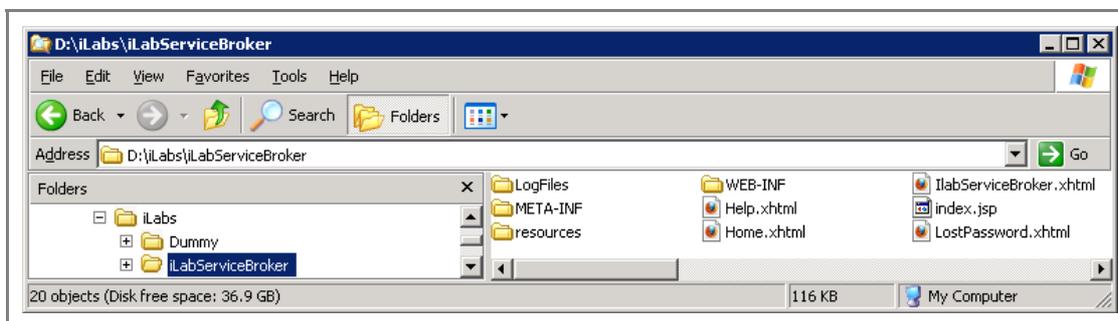
Local Folder: *D:\iLabs\ExperimentStorage*

Context Path: */ExperimentStorage*

### Deploy IlabServiceBroker

- Create the folder *iLabServiceBroker* in the folder *D:\iLabs* so that the folder *D:\iLabs\iLabServiceBroker* exists.

Extract the web archive file *Builds/iLabServiceBroker.war* to the folder *D:\iLabs\iLabServiceBroker*.



- Go to the *GlassFish Server Administration Console*. In the *Common Tasks* panel, click on *Applications*.

**Applications**

Applications can be enterprise or web applications, or various kinds of modules. Restart an application or module by clicking the reload link, this action will apply only to the targets that the application or module is enabled on.

**Deployed Applications (8)**

Select	Name	Deployment Order	Enabled	Engines	Action
<input type="checkbox"/>	DummyServiceBroker	100	✓	ejb, webservices, web	Launch   Rede
<input type="checkbox"/>	RadioactivityLabClient	100	✓	ejb, webservices, web	Launch   Rede
<input type="checkbox"/>	RadioactivityLabClientRest	100	✓	ejb, webservices, web	Launch   Rede
<input type="checkbox"/>	RadioactivityLabEquipment	100	✓	ejb, webservices, web	Launch   Rede
<input type="checkbox"/>	RadioactivityLabServer	100	✓	ejb, webservices, web	Launch   Rede
<input type="checkbox"/>	TemplateLabClient	100	✓	ejb, webservices, web	Launch   Rede
<input type="checkbox"/>	TemplateLabEquipment	100	✓	ejb, webservices, web	Launch   Rede
<input type="checkbox"/>	TemplateLabServer	100	✓	ejb, webservices, web	Launch   Rede

In the *Applications* panel, click the *Deploy...* button.

**Deploy Applications or Modules**

Specify the location of the application or module to deploy. An application can be in a packaged file or specified as a directory. \* Indicates

**Location:**  **Packaged File to Be Uploaded to the Server**  
 No file selected.

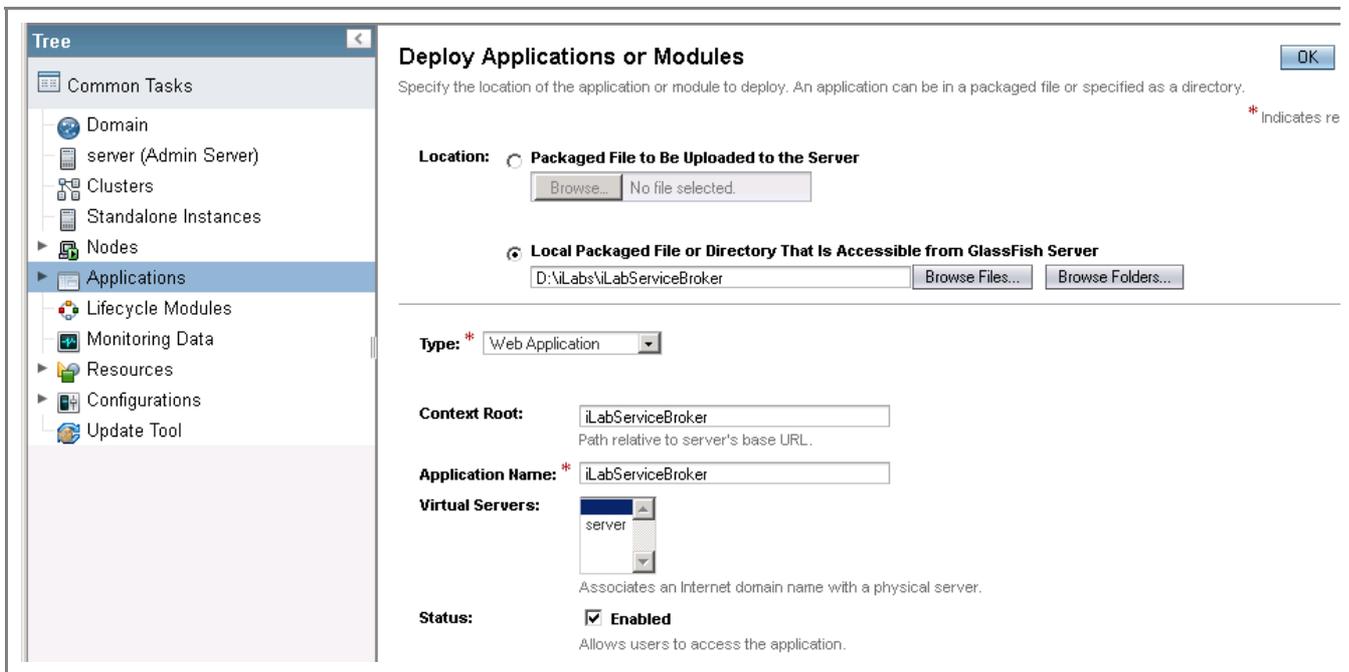
**Local Packaged File or Directory That Is Accessible from GlassFish Server**

**Type:** \*

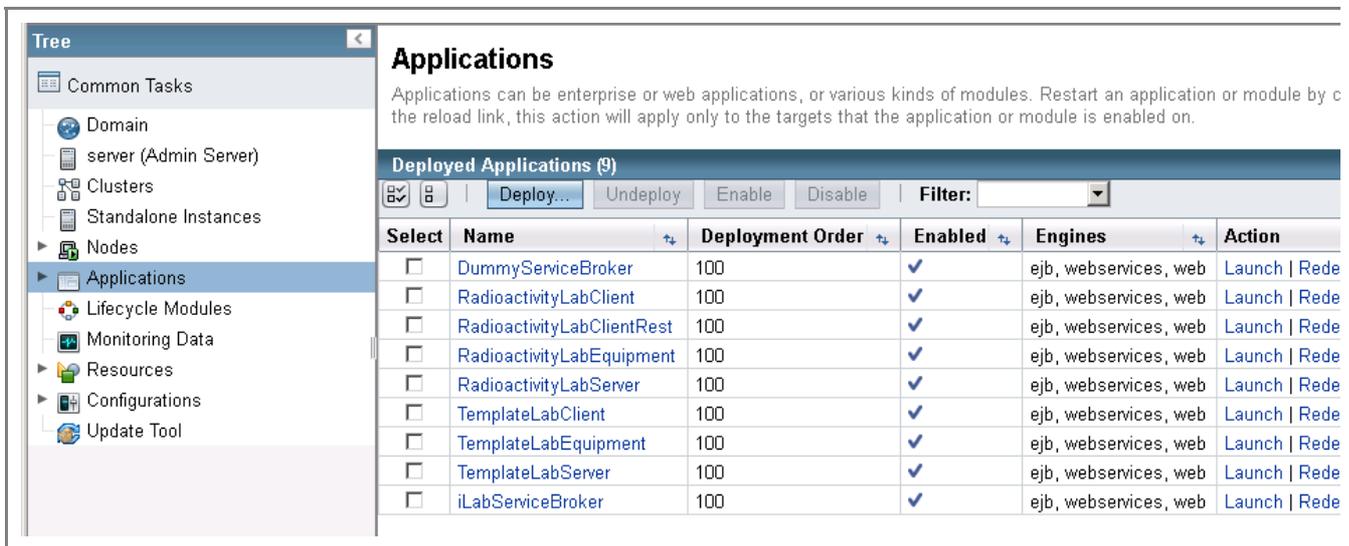
- In the *Deploy Applications or Modules* panel, select *Local Packaged File or Directory That Is Accessible from GlassFish Server* and enter `D:\iLabs\iLabServiceBroker` in the field.

Alternatively, click the *Browse Folders...* button to select the folder.

- For *Type*: select *Web Application* from the dropdown list. More fields are then displayed.
- For *Context Root*: enter `iLabServiceBroker` in the field.
- Also for *Application Name*: enter `iLabServiceBroker` in the field.
- Leave the other fields with their default values.

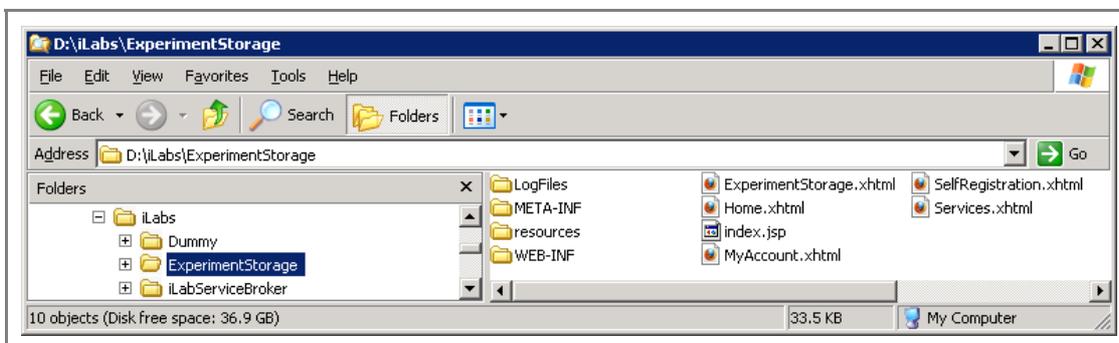


Click the *OK* button to deploy the application.



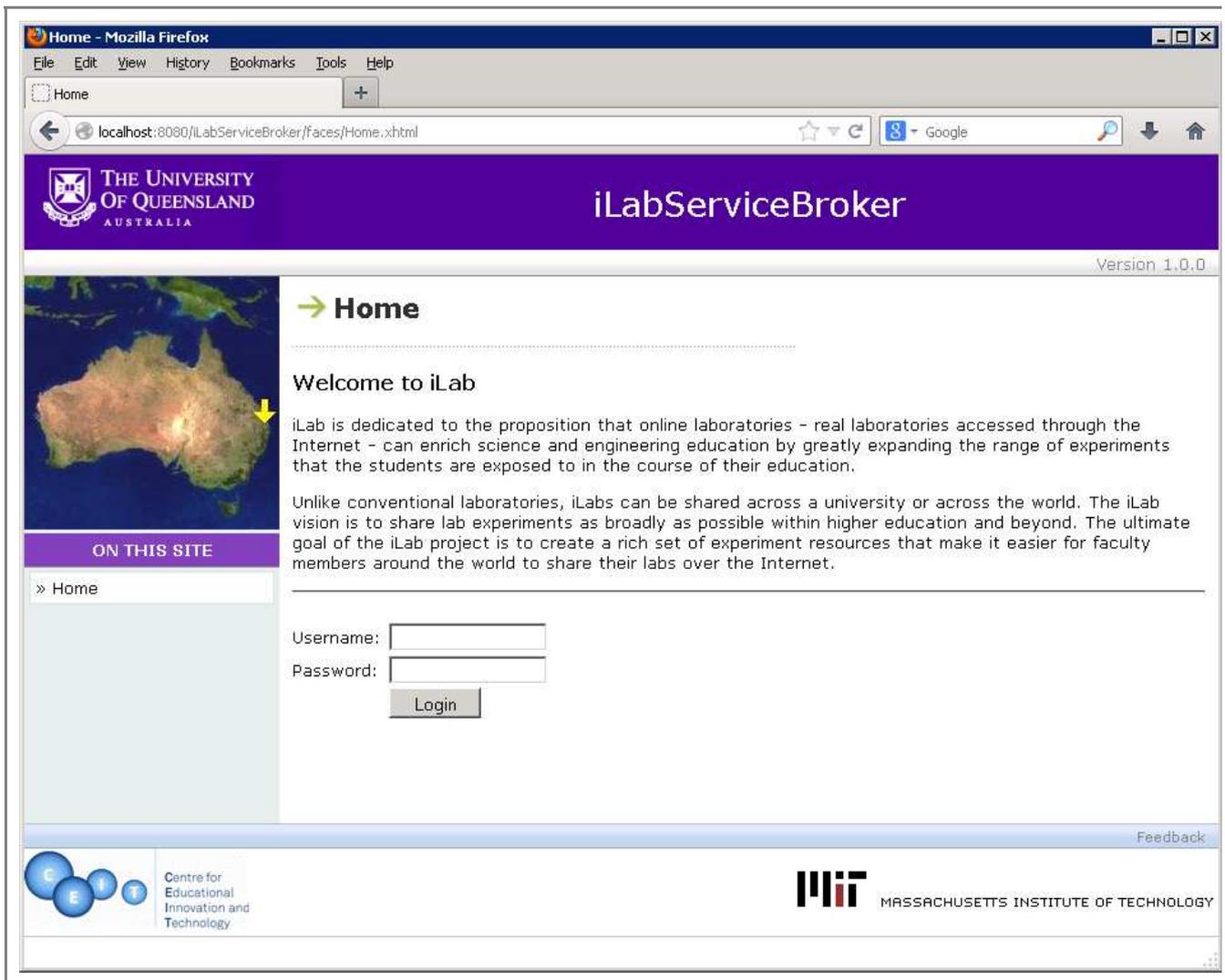
### Deploy ExperimentStorage

- Create the folder *ExperimentStorage* in the folder *D:\iLabs* so that the folder *D:\iLabs\ExperimentStorage* exists.  
Extract the web archive file *Builds/ExperimentStorage.war* to the folder *D:\iLabs\ExperimentStorage*.



- Go to the *GlassFish Server Administration Console*. In the *Applications* panel, click the *Deploy...* button.
  - In the *Deploy Applications or Modules* panel, select *Local Packaged File or Directory That Is Accessible from GlassFish Server* and enter *D:\iLabs\ExperimentStorage* in the field.  
Alternatively, click the *Browse Folders...* button to select the folder.
  - For *Type*: select *Web Application* from the dropdown list. More fields are then displayed.
  - For *Context Root*: enter *ExperimentStorage* in the field.





- Log in to the IlabServiceBroker with the following username and password:

Username: **superuser**

Password: **ilab**

The menu provides some items to configure the IlabServiceBroker.

- Self Registration - Configure the IlabServiceBroker by specifying the name, guid, service URL and email address.
- My Account - Specify the IlabServiceBroker Superuser's account information.
- Logout - Log out of the IlabServiceBroker.



- Select the *My Account* menu item.

## → My Account

---

**User Information:**

Username:	<input type="text" value="superuser"/>
First Name:	<input type="text" value="Super"/>
Last Name:	<input type="text" value="User"/>
Contact Email:	<input type="text" value="superuser@your.email.domain"/>
Password:	<input type="password"/>
Confirm Password:	<input type="password"/>

- Change the *Contact Email* to your email address or some other appropriate email address.
  - Change the *Password* to something else especially if the IlabServiceBroker is deployed on a networked server.
  - Click the *Update* button to save the changes.
- Select the *Self Registration* menu item.

## → Self Registration

---

**Service Information:**

Service Name:	<input type="text" value="iLabServiceBroker"/>
Service Guid:	<input type="text"/> <input type="button" value="Create"/>
Service Url:	<input type="text" value="http://localhost:8080/iLabServiceBroker/iLabServiceBrokerService"/>
Service Passkey:	<input type="text"/> <input type="button" value="Create"/>
Client Url:	<input type="text" value="http://localhost:8080/iLabServiceBroker"/>
Service Email:	<input type="text" value="ilabservicebroker@your.email.domain"/>

**Optional Information**

Description:	<input type="text"/>
Location:	<input type="text"/>
Info Url:	<input type="text"/>
Contact Name:	<input type="text" value="iLab Administrator"/>

Service is not registered yet!

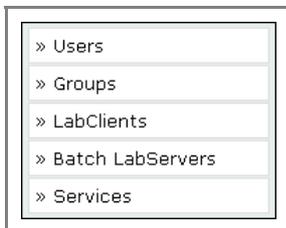
A message is displayed stating that the IlabServiceBroker has not been registered yet. That's because the *Service Guid* and *Service Passkey* fields are empty and cannot be prefilled.

- Click the *Create* button adjacent to the *Service Guid* field to create a new guid.
- Click the *Create* button adjacent to the *Service Passkey* field to create a new passkey.
- Change the *Service Email* to your email address or some other appropriate email address. This is the IlabServiceBroker's email address and not the IlabServiceBroker Superuser's email address although they could be the same.
- Leave the *Service Name*, *Service Url* and *Client Url* fields with their default values.
- Click the *Save* button to save the changes.
- Click the *Test* button to get the IlabServiceBroker status. This makes a web service call to the specified *Service Url*. If the service is accessible, a message is displayed stating that the service is online and a version number is shown.

After successfully completing the self registration, the *Manage ...* item appears in the menu.



- Hover the mouse over the *Manage ...* menu item to display a popup menu.



- Select the *Users* menu item.

Select *Experiments* from the dropdown list under *Select a Group:* and click the adjacent *Select* button.

Now select *testuser* from the dropdown list under *Select a User:* and click the adjacent *Select* button. Information about the user *testuser* is displayed.

## → Manage Users

---

**Select a Group:**

Experiments

**Select a User:**

testuser

**User Information:**

Username:

First Name:

Last Name:

Contact Email:

Password:

Confirm Password:

Affiliation:

Lock Account:

**Group Membership:**

Experiments

**Available Groups:**

– Make Selection –

Change the *Contact Email* to your email address or some other appropriate email address.

Click the *Update* button to save the changes.

- Select the *Groups* menu item from the *Manage ...* popup menu.

Select *Experiments* from the dropdown list under *Select a Group:* and click the adjacent *Select* button.

Information about the group *Experiments* is displayed.

**→ Manage Groups**

---

**Select a Group:**

**Group Information:**

Group Name:

Group Type:

Description:

**Optional Information**

Contact Email:

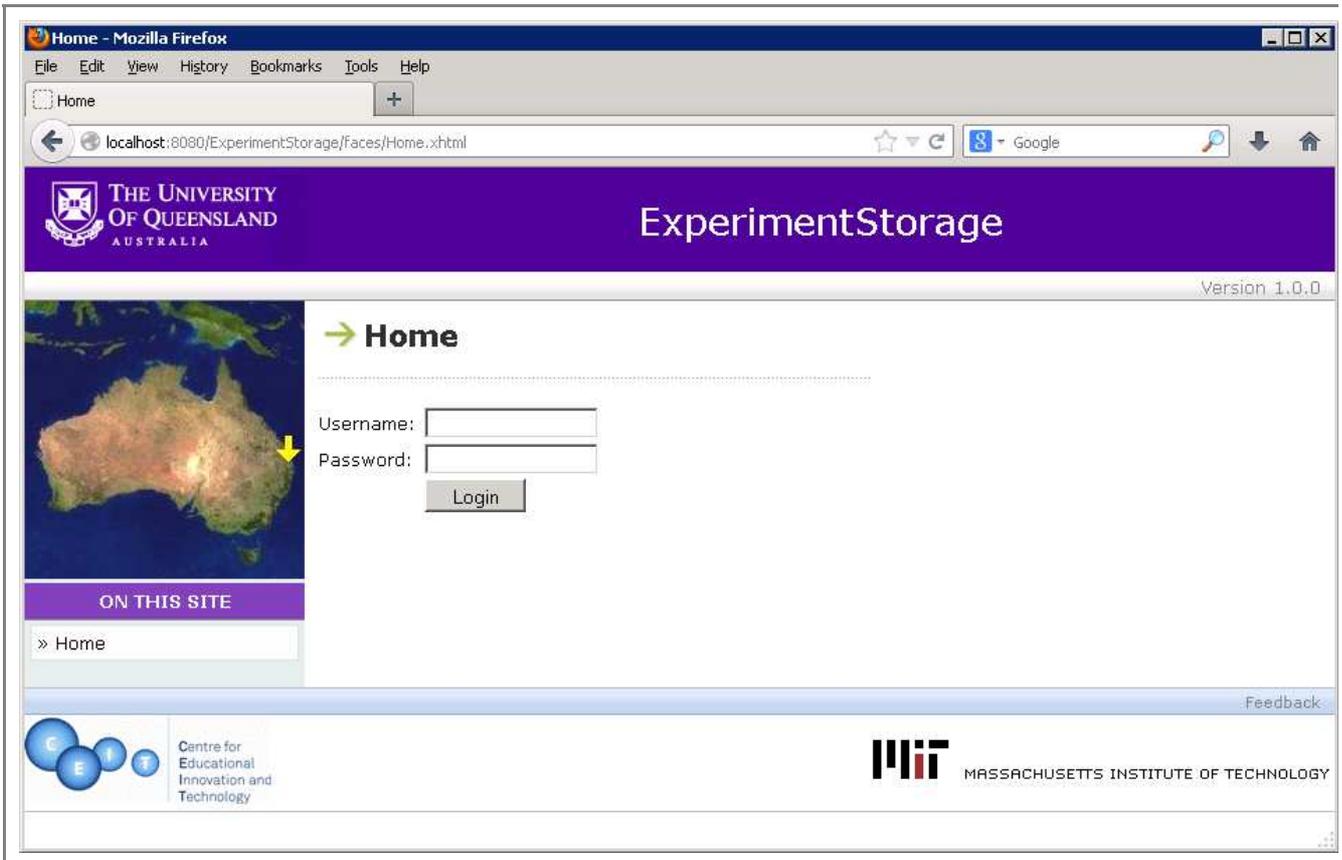
No changes need to be made.

### Launch ExperimentStorage

- Launch the ExperimentStorage client by entering the following URL in a web browser:

`http://localhost:8080/ExperimentStorage/`

The web page displays the *ExperimentStorage* login. This is sufficient to show that the ExperimentStorage application has been deployed correctly. At this point in time, the ExperimentStorage service has not been invoked.



- Log in to the ExperimentStorage with the following username and password:

Username: **manager**

Password: **ilab**

The menu provides some items to configure the ExperimentStorage.

- Self Registration - Configure the ExperimentStorage by specifying the name, guid, service URL and email address.

- Services - Information about the iLab services registered with the ExperimentStorage.
- My Account - Specify the ExperimentStorage Manager's account information.
- Logout - Log out of the ExperimentStorage.



- Select the *My Account* menu item.

A screenshot of the "My Account" page. At the top, there is a green arrow icon followed by the text "My Account". Below this is a section titled "User Information:". The form contains six input fields: "Username:" (with "manager" entered), "First Name:" (with "ExperimentStorage" entered), "Last Name:" (with "Manager" entered), "Contact Email:" (with "manager@your.email.domain" entered), "Password:" (empty), and "Confirm Password:" (empty). At the bottom of the form is a button labeled "Update".

- Change the *Contact Email* to your email address or some other appropriate email address.
- Change the *Password* to something else especially if the ExperimentStorage is deployed on a networked server.
- Click the *Update* button to save the changes.

- Select the *Self Registration* menu item.

A screenshot of the "Self Registration" page. At the top, there is a green arrow icon followed by the text "Self Registration". Below this is a section titled "Service Information:". The form contains six input fields: "Service Name:" (with "ExperimentStorage" entered), "Service Guid:" (empty), "Service Url:" (with "http://localhost:8080/ExperimentStorage/ExperimentStorageService" entered), "Service Passkey:" (empty), "Client Url:" (with "http://localhost:8080/ExperimentStorage" entered), and "Service Email:" (with "experimentstorage@your.email.domain" entered). There are "Create" buttons next to the "Service Guid:" and "Service Passkey:" fields. Below the "Service Information:" section is a section titled "Optional Information" with four input fields: "Description:" (empty), "Location:" (empty), "Info Url:" (empty), and "Contact Name:" (with "iLab Services Manager" entered). At the bottom of the form is a button labeled "Save".

Below the form, there is a pink-bordered box containing the text: "Service is not registered yet!"

A message is displayed stating that the ExperimentStorage has not been registered yet. That's because the *Service Guid* and *Service Passkey* fields are empty and cannot be prefilled.

- Click the *Create* button adjacent to the *Service Guid* field to create a new guid.
- Click the *Create* button adjacent to the *Service Passkey* field to create a new passkey.
- Change the *Service Email* to your email address or some other appropriate email address. This is the ExperimentStorage's email address and not the ExperimentStorage Manager's email address although they could be the same.
- Leave the *Service Name*, *Service Url* and *Client Url* fields with their default values.
- Click the *Save* button to save the changes.
- Click the *Test* button to get the ExperimentStorage status. This makes a web service call to the specified *Service Url*. If the service is accessible, a message is displayed stating that the service is online and a version number is shown.

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## Register ExperimentStorage with IlabServiceBroker

If you are logged out of the IlabServiceBroker, log in again as superuser.

- Select the *Services* menu item from the *Manage ...* popup menu.

- Copy the *Service Url* from the ExperimentStorage *Self Registration* web page and paste it into the *Service Url* field of the IlabServiceBroker *Manage Services* web page.
- Also, copy the *Service Passkey* from the ExperimentStorage *Self Registration* web page and paste it into the *Service Passkey* field of the IlabServiceBroker *Manage Services* web page.
- Click the *Register* button to register the ExperimentStorage service with the IlabServiceBroker.
- A message should be displayed stating that the service was registered successfully.

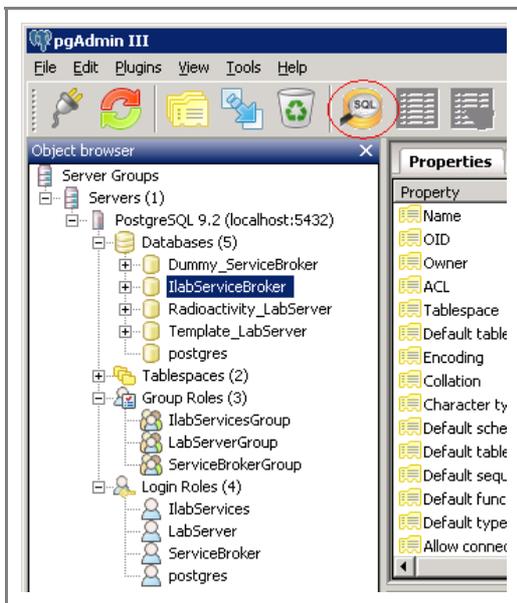
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## Add LabServers and LabClients

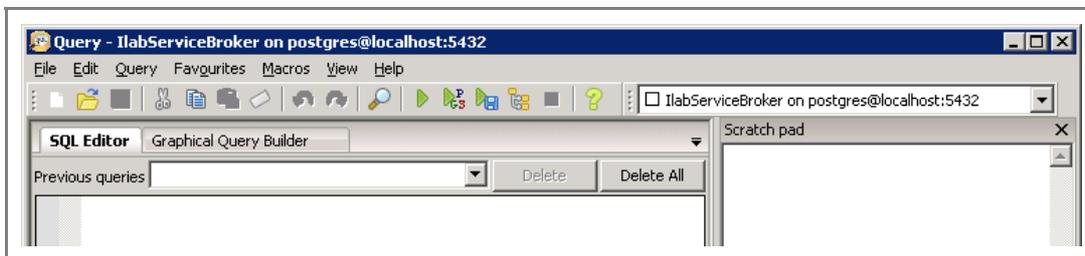
The *UQ-iLab-BatchLabServer-Java* GitHub repository provides projects for the Template and Radioactivity Batch LabServers and LabClients. Adding information to the IlabServiceBroker database will enable an IlabServiceBroker user to run Template and Radioactivity experiments. SQL scripts have been provided to add information directly to the database and avoid entering the information in manually.

The Template and Radioactivity projects are provided in the *UQ-iLab-BatchLabServer-Java* GitHub repository. If these projects have not been deployed yet, see *Documents/GettingStarted.pdf* of the *UQ-iLab-BatchLabServer-Java* GitHub repository.

- In the *Object browser* panel, under *Databases*, click *IlabServiceBroker* and then click the *Execute arbitrary SQL queries* toolbar button to open a *Query* window.



Check that the *IlabServiceBroker* database is selected in the dropdown list. If not, query execution will fail.



For each of the following SQL scripts in the *UQ-iLab-ServiceBroker-Java/Database/PostgreSQL* folder, execute the query by selecting *Query->Execute* from the menu.

1. *Template\_Defaults.sql*
2. *Radioactivity\_Defaults.sql*

- If you are logged out of the *IlabServiceBroker*, log in again as superuser.
- Select the *Lab Clients* menu item from the *Manage ...* popup menu.

Select *Radioactivity JLC* from the dropdown list under *Select a LabClient:* and click the adjacent *Select* button. Information about the *LabClient Radioactivity JLC* is displayed.

## → Manage LabClients

---

**Select a LabClient:**

- Make Selection -

Select

**LabClient Information:**

Name:	<input type="text" value="Radioactivity JLC"/>	
Guid <sup>1</sup> :	<input type="text"/>	<span style="border: 1px solid gray; padding: 2px 5px;">Create</span>
Title:	<input type="text" value="Radioactivity"/>	
Version:	<input type="text" value="4.1"/>	
Description:	<input type="text" value="JavaServer Faces version of the Radioactivity LabClient using SOAP communication"/>	
Client Type:	<input type="text" value="Batch Redirect"/>	
Loader Script:	<input type="text" value="http://localhost:8080/RadioactivityLabClient/LabClient.do?serviceUrl=http://localhost:8080/iLabServiceBroker/iLabServiceBrokerService&amp;labServerId=FF464E3507564f28A64F156282BB912E"/>	

**Optional Information**

Contact Name:	<input type="text"/>	
Contact Email:	<input type="text"/>	
Documentation Url:	<input type="text"/>	
Notes:	<input type="text"/>	

**Associated Services**

LabServer:	<input type="text" value="Radioactivity JLS"/>	<span style="border: 1px solid gray; padding: 2px 5px;">Remove</span>
Ess:	<input type="text" value="ExperimentStorage"/>	<span style="border: 1px solid gray; padding: 2px 5px;">Remove</span>

**Associated Groups**

Groups:	<input type="text" value="Experiments"/>	<span style="border: 1px solid gray; padding: 2px 5px;">Remove</span>
Available:	<input type="text"/>	<span style="border: 1px solid gray; padding: 2px 5px;">Add</span>

Update
Delete
New

1. Not required for Batch LabClients.

Also view the LabClient information for *Radioactivity JLCR* and *Template JLC* and compare the differences.

No changes need to be made.

- Select the *Batch LabServers* menu item from the *Manage ...* popup menu.

Select *Radioactivity JLS* from the dropdown list under *Select a LabServer:* and click the adjacent *Select* button. Information about the Batch LabServer *Radioactivity JLS* is displayed.

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## → Manage Batch LabServers

Select a LabServer:

LabServer Information:

LabServer Name:	Radioactivity JLS	
LabServer Guid:	FF464E3507564f28A64F156282BB912E	<input type="button" value="Create"/>
WebService Url:	http://localhost:8080/RadioactivityLabServer/LabServerWebService	
Outgoing Passkey:	fd3cf16cc855484fb06801379f475837	
Incoming Passkey:	<input type="text"/>	

**Optional Information**

Description:

Location:

Information Url:

Contact Name:

Contact Email:

Also view the Batch LabServer information for *Template JLS* and compare the differences.

No changes need to be made.

### Configure Template LabServer

- The Template LabServer needs to be informed that the IlabServiceBroker will require access to run experiments.

Launch the Template LabServer client by entering the following URL in a web browser:

`http://localhost:8080/TemplateLabServer/`

- Log in to the Template LabServer with the following username and password:

Username: **manager**

Password: **ilab**

- Select the *ServiceBrokers* menu item.

## → Manage ServiceBrokers

---

**Select a ServiceBroker:**

- Make Selection -

Select

**ServiceBroker Information:**

ServiceBroker Name:

ServiceBroker Guid:

Outgoing Passkey<sup>1</sup>:  Create

Allow Access:

**Optional Information**

Service Url:

Incoming Passkey<sup>2</sup>:

Save
New

*Notes:*

1. Passkey sent by the ServiceBroker to the LabServer.
2. Passkey sent by the LabServer to the ServiceBroker.

- Copy the *Service Name* from the *IlabServiceBroker Self Registration* web page and paste it into the *ServiceBroker Name* field of the Template LabServer *Manage ServiceBrokers* web page.
- Copy the *Service Guid* from the *IlabServiceBroker Self Registration* web page and paste it into the *ServiceBroker Guid* field of the Template LabServer *Manage ServiceBrokers* web page.
- Check the *Allow Access* checkbox.
- Copy the *Service Url* from the *IlabServiceBroker Self Registration* web page and paste it into the *Service Url* field of the Template LabServer *Manage ServiceBrokers* web page.
- Leave the *Incoming Passkey* field blank.
- Go to the *IlabServiceBroker* and select the *Batch LabServers* menu item from the *Manage ...* popup menu.  
 Select *Template JLS* from the dropdown list under *Select a LabServer:* and click the adjacent *Select* button.  
 Copy the *Outgoing Passkey* from the *IlabServiceBroker Manage Batch LabServers* web page and paste it into the *Outgoing Passkey* field of the Template LabServer *Manage ServiceBrokers* web page.
- Click the *Save* button to save the changes.
- Log out of the Template LabServer.

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### Configure Radioactivity LabServer

- The Radioactivity LabServer needs to be informed that the *IlabServiceBroker* will require access to run experiments.

Launch the Radioactivity LabServer client by entering the following URL in a web browser:

**http://localhost:8080/RadioactivityLabServer/**

- Log in to the Radioactivity LabServer with the following username and password:

Username: **manager**

Password: **ilab**

- Select the *ServiceBrokers* menu item.

## → Manage ServiceBrokers

---

**Select a ServiceBroker:**

**ServiceBroker Information:**

ServiceBroker Name:

ServiceBroker Guid:

Outgoing Passkey<sup>1</sup>:

Allow Access:

**Optional Information**

Service Url:

Incoming Passkey<sup>2</sup>:

*Notes:*

1. Passkey sent by the ServiceBroker to the LabServer.
2. Passkey sent by the LabServer to the ServiceBroker.

- Copy the *Service Name* from the *IlabServiceBroker Self Registration* web page and paste it into the *ServiceBroker Name* field of the Radioactivity LabServer *Manage ServiceBrokers* web page.
- Copy the *Service Guid* from the *IlabServiceBroker Self Registration* web page and paste it into the *ServiceBroker Guid* field of the Radioactivity LabServer *Manage ServiceBrokers* web page.
- Check the *Allow Access* checkbox.
- Copy the *Service Url* from the *IlabServiceBroker Self Registration* web page and paste it into the *Service Url* field of the Radioactivity LabServer *Manage ServiceBrokers* web page.
- Leave the *Incoming Passkey* field blank.
- Go to the *IlabServiceBroker* and select the *Batch LabServers* menu item from the *Manage ...* popup menu.  
Select *Radioactivity JLS* from the dropdown list under *Select a LabServer*; and click the adjacent *Select* button.  
Copy the *Outgoing Passkey* from the *IlabServiceBroker Manage Batch LabServers* web page and paste it into the *Outgoing Passkey* field of the Radioactivity LabServer *Manage ServiceBrokers* web page.
- Click the *Save* button to save the changes.
- Log out of the Radioactivity LabServer.

### Launch Template LabClient

- Launch the *IlabServiceBroker* client by entering the following URL in a web browser:

`http://localhost:8080/iLabServiceBroker/`

- Log in to the *IlabServiceBroker* with the following username and password:

Username: **testuser**

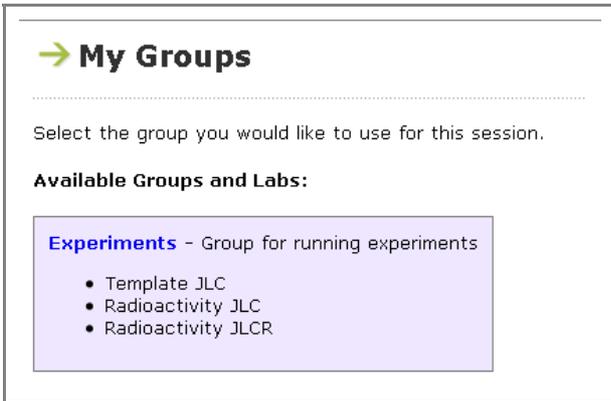
Password: **ilab**

The menu provides some items available to the user.

- My Groups - Select an available group for running experiments.
- My Account - Specify the user's account information.
- Logout - Log out of the *IlabServiceBroker*.



- The *My Groups* web page is displayed by default.



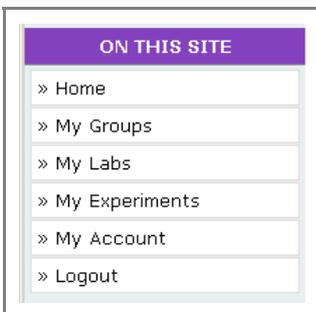
This web page is also displayed when the *My Account* menu item is selected.

Click on the *Experiments* hyperlink to choose one of the experiment LabClients to launch.

The *My Labs* web page is displayed by default.

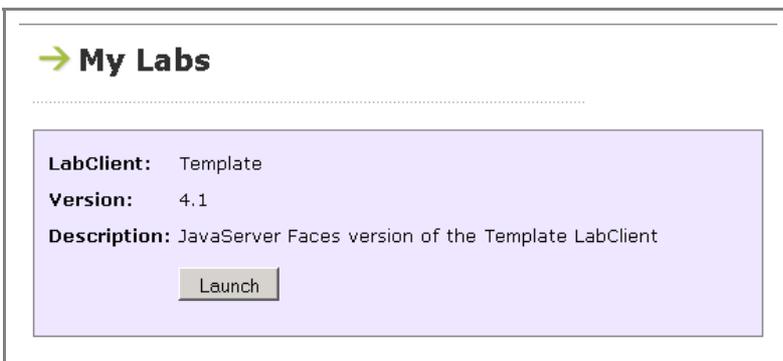


- The menu changes to provide some additional items available to the user.
  - My Labs - Select an available LabClient to run an experiment.
  - My Experiments - View experiment data of previously run experiments.



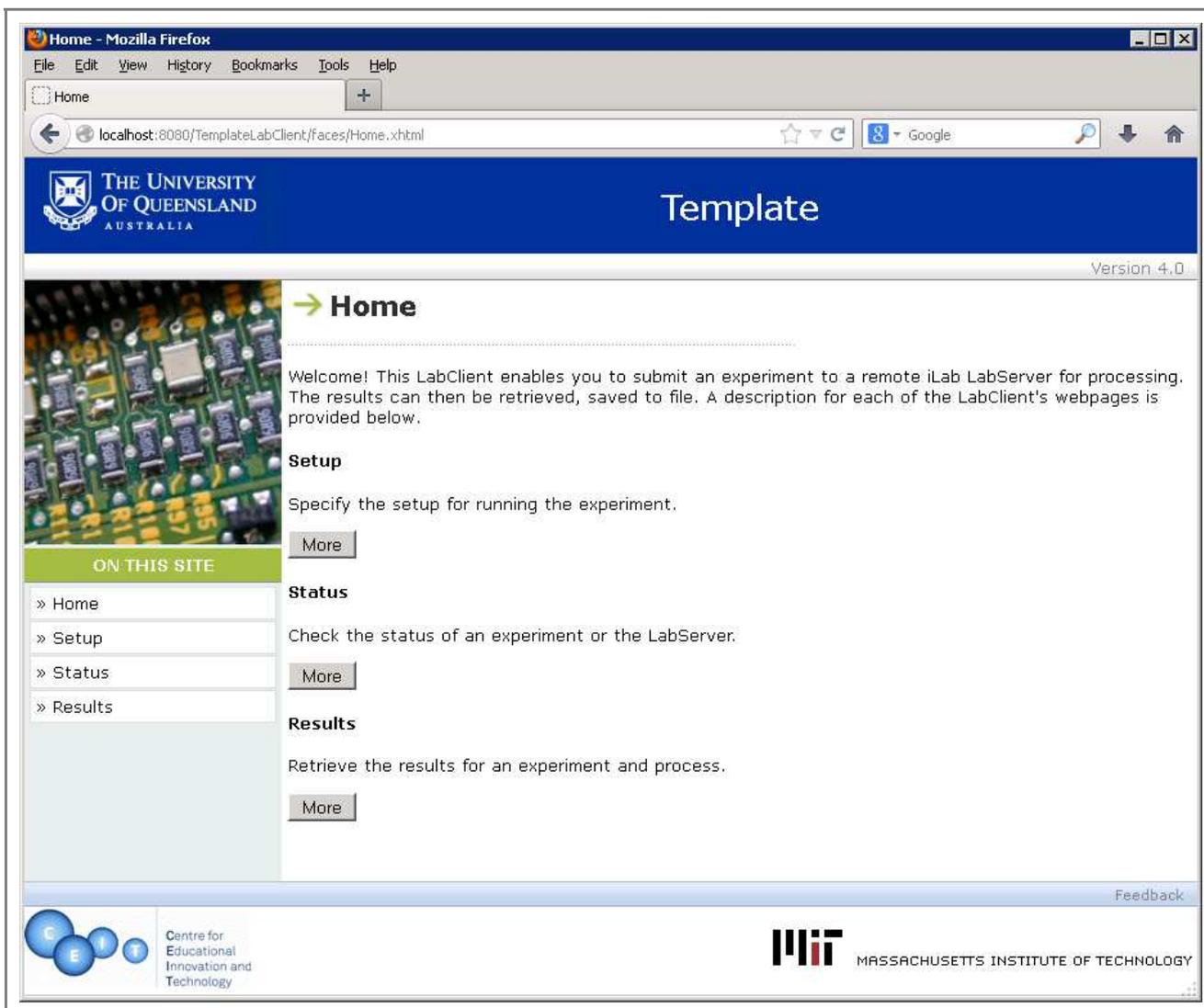
Click on the *Template JLC* hyperlink from the *My Labs* web page to choose the *Template* LabClient for running the *Template* experiment.

The *My Labs* web page changes to show a summary about the *Template LabClient*.



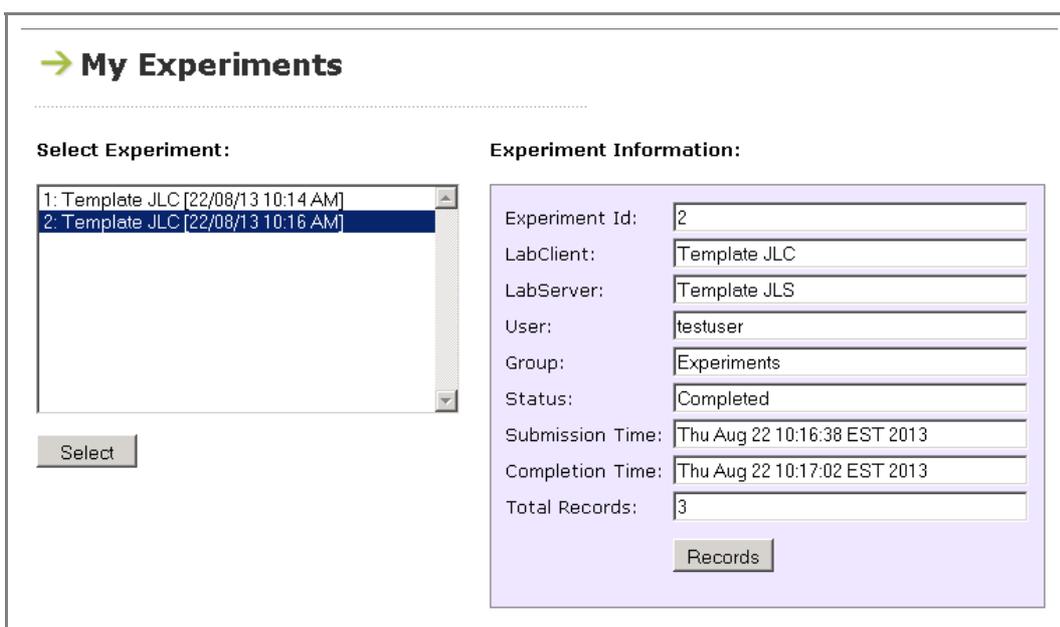
Click the *Launch* button to launch the *Template LabClient*.

A new web browser tab or window opens displaying the *Template LabClient*.



- The *Template Project Deployment* tutorial (see *TemplateProjectDeployment.pdf*) in the *UQ-iLab-BatchLabServer-Java* GitHub repository provides the necessary information to run the experiment.
- When the experiment has been run and the results retrieved, select the *Experiments* menu item of the *IlabServiceBroker*.

The *My Experiments* web page is displayed. Select the experiment that was just run in the listbox under *Select an Experiment:* and click the *Select* button. A summary of the experiment information is displayed.



Click the *Records* button to display the XML formatted records that are stored on *ExperimentStorage*.

The experiment results are best viewed in the *LabClient* rather than the way they are displayed here.

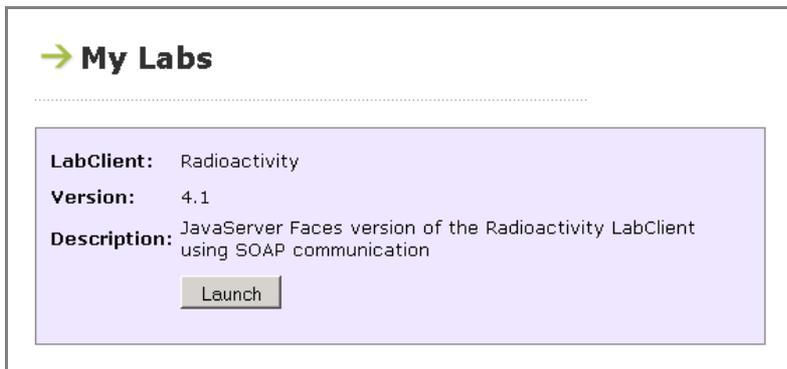
- Close the *Template LabClient* web page.

### Launch Radioactivity LabClient

- Select the *My Labs* menu item of the *IlabServiceBroker*.

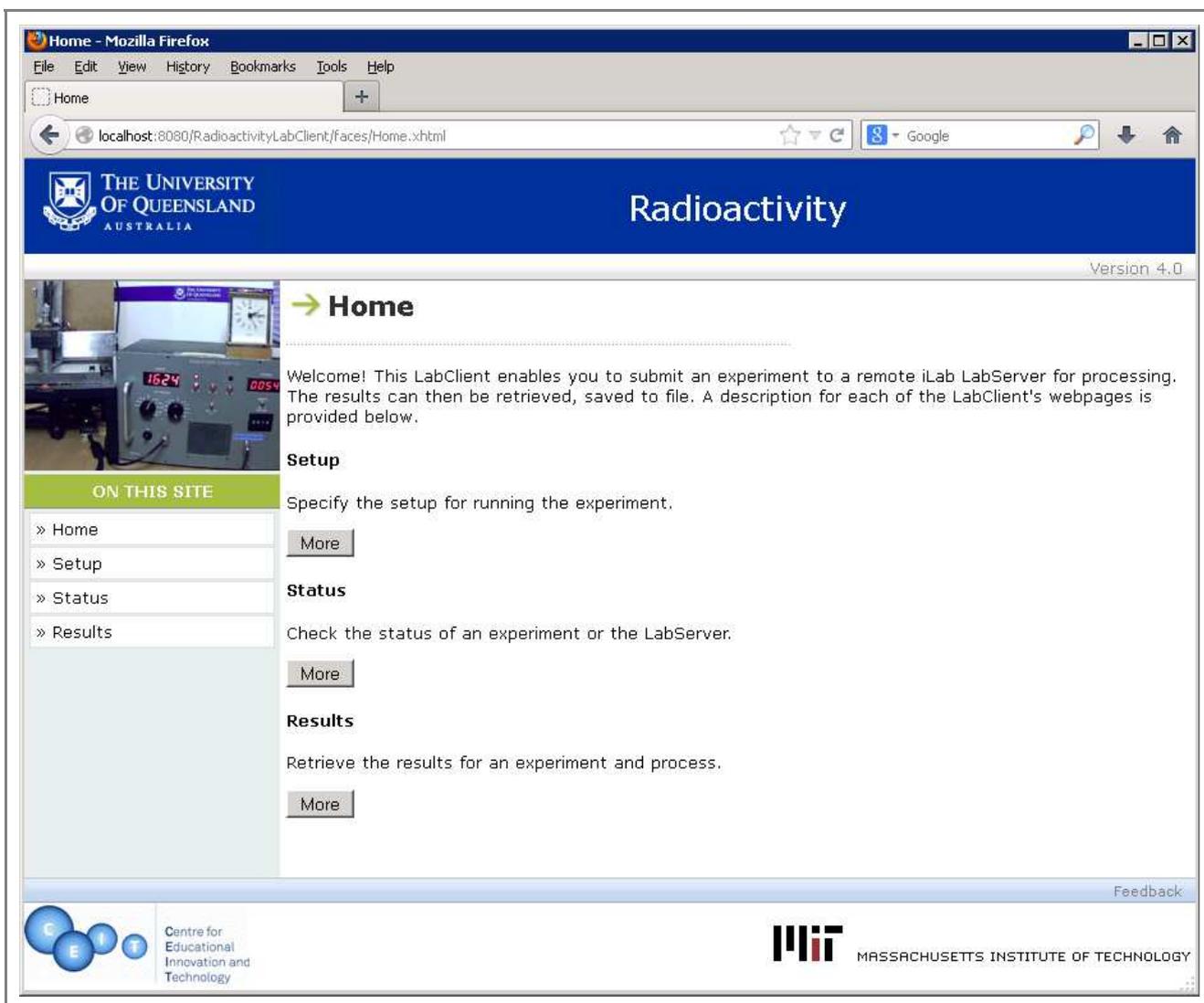
Click on the *Radioactivity JLC* hyperlink from the *My Labs* web page to choose the *Radioactivity LabClient* for running the *Radioactivity* experiment.

The *My Labs* web page changes to show a summary about the *Radioactivity LabClient*.



Click the *Launch* button to launch the *Radioactivity LabClient*.

A new web browser tab or window opens displaying the *Radioactivity LabClient*.



- The *Radioactivity Project Deployment* tutorial (see *RadioactivityProjectDeployment.pdf*) in the *UQ-iLab-BatchLabServer-Java* GitHub repository provides the necessary information to run the experiment.
- When finished running *Radioactivity* experiments, close the *Radioactivity LabClient* web page.
- Log out of the *IlabServiceBroker*.

### What's Next

- If the ILabServiceBroker is on a network and being accessed from another computer, then the *Loader Script* for each LabClient needs to be changed.

Change `localhost:8080` to the computer's Url. For example, `machine.your.domain:8080` and the *Loader Script* for the Template LabClient becomes:

```
http://machine.your.domain:8080/TemplateLabClient/LabClient.do?serviceUrl=http://machine.your.domain:8080/iLabServiceBroker/iLabServiceBrokerService&labServerId=2CD01113C51C4ca997B059531CD9469D
```

- That's it.
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