Application Security Enhancements in Java EE 6

Java EE 6 Application Security Presentation Sample Application Instructions:

Presentation Title:
Application Security Enhancements in Java EE 6

Overview:
This sample application (Project Name: JavaEE6SecurityApp) shows how the new security enhancements in Java EE Version 6 Release. It's a simple java web application and you should be able to run it on your PC w/o much setup or configuration.

Contact Information:
You run into any problems in installing the tools or running the application or have any questions or suggestions for improvements, contact me at: srinipenchikala at gmail dot com.

Sample Application Details:

Use Case:

- Loan processing application
- Different user roles for different business functions

Architecture:
The application architecture of the Loan Processing application includes the following Java EE standards and specifications:

- Servlet 3.0
- CDI
- EJB 3.1
- Custom Annotations

Technologies:
Following are the technologies used to run the sample application.

- GlassFish Server v3.1
- LDAP authentication (OpenDS Server)

Tools:

- NetBeans 6.9 IDE
- Maven (optional; not needed if you will be doing the application build and deployments from within NetBeans IDE)

Instructions:

Below are the instructions to download and install the tools required to run the sample application.

Tool Installation:

1. **OpenDS Server:** Download (http://www.opends.org/) and install OpenDS LDAP Server. You can download the latest version available (version 2.2 at the time of this writing).
2. **NetBeans IDE:** Download (http://netbeans.org/) and install NetBeans IDE. You can download the latest version available (version 6.9.1 at the time of this writing).
3. **GlassFish Server:** This installation includes Glassfish Application Server so you don't need to install Glassfish server separately.

Run the Sample Application:

1. Start OpenDS LDAP server. Open a command prompt and run the following commands to launch the LDAP server.

```
set JAVA_HOME=YOUR_JDK_HOME_DIRECTORY
set PATH=%PATH%;% JAVA_HOME%\bin;
set OPEN_DS_HOME= YOUR_OPEN_DS_SERVER_HOME_DIRECTORY
cd % OPEN_DS_HOME %\bat
control-panel.bat
```

2. Once the server is started, it will display a login prompt. Enter the credentials to authenticate and open the Open DS server console.

```
User ID: cn=Directory Manager
Password: PASSWORD_CREATED_DURING_OPEN_DS_INSTALL
```

3. After starting the Open DS server, you will need to add some test users ids and roles to test the sample application. Here are the four user id's and the roles I used to setup the LDAP user data store.

```
1. Borrower User:
User Id: borruser
Role/Group: Borrower

2. Loan Officer User:
User Id: louser
Role/Group: LoanOfficer

3. Underwriter User
User Id: uwuser
Role/Group: Underwriter
```

```
4. Funding Processor User
User Id: funduser
Role/Group: FundingProcessor
```

Refer to the Security tutorial available at the following link, on how to add the users and groups/roles in Open DS server:
SecureJavaEE6App Tutorial - NetBeans Wiki (http://wiki.netbeans.org/SecureJavaEE6App)

The base DN used for the sample application is:
dc=jeesecurity,dc=org

4. Extract the contents of the sample application zip file (JavaEE6SecurityApp.zip) to a local directory.

5. Launch NetBeans IDE and open the project "JavaEE6SecurityApp".

6. Start Glassfish container from with NetBeans IDE. The server is on the “Services” tab under “Servers” node. Select GlassFish Server option, right-click and select “Start” option.

7. GlassFish Admin Console:
Launch GlassFish server administration console using the following URL:

```
http://localhost:4848/
```

8. Once the admin console screen is displayed, navigate to the Security Realms section on the console, and create a new LDAP security realm to configure GlassFish server to connect to Open DS server for retrieving the user profile and role information when authenticating and authorizing the users accessing the loan processing application. Refer to the same Java EE 6 Security tutorial on how to do this.

SecureJavaEE6App Tutorial - NetBeans Wiki (http://wiki.netbeans.org/SecureJavaEE6App)

9. Deploy the application. You can do this by navigating to “Projects” tab on top left, right-click on “JavaEE6SecurityApp” root node and select “Deploy” option. The build/deploy results are displayed in the “Output” pane at the bottom.

10. After configuring the above steps, use the following URL to launch the main page of the sample application. The main page (Home.jsp) has links to various Servlets that demonstrate the new security features of Java EE 6 specification.

```
http://localhost:8080/jeesecurityapp/Home.jsp
```