Here is a **complete working example of Form-Based Authentication** in a **Java EE web application** running on **Apache Tomcat**.

**✅ Features**

* **Form-based login**
* User/role-based access control
* Uses tomcat-users.xml with MemoryRealm

**📁 Project Structure**

FormAuthApp/

├── index.html

├── login.html

├── error.html

├── secure/

│ └── dashboard.jsp

└── WEB-INF/

├── web.xml

**1️⃣ WEB-INF/web.xml – Enable Form Authentication**

<?xml version="1.0" encoding="UTF-8"?>

<web-app xmlns="http://xmlns.jcp.org/xml/ns/javaee"

version="3.1">

<display-name>FormAuthApp</display-name>

<security-constraint>

<web-resource-collection>

<web-resource-name>Protected Area</web-resource-name>

<url-pattern>/secure/\*</url-pattern>

</web-resource-collection>

<auth-constraint>

<role-name>admin</role-name>

</auth-constraint>

</security-constraint>

<login-config>

<auth-method>FORM</auth-method>

<realm-name>FormRealm</realm-name>

<form-login-config>

<form-login-page>/login.html</form-login-page>

<form-error-page>/error.html</form-error-page>

</form-login-config>

</login-config>

<security-role>

<role-name>admin</role-name>

</security-role>

</web-app>

**2️⃣ login.html – Custom Login Form**

<!DOCTYPE html>

<html>

<head><title>Login Page</title></head>

<body>

<h2>Login</h2>

<form method="POST" action="j\_security\_check">

<label>Username:</label>

<input type="text" name="j\_username" /><br><br>

<label>Password:</label>

<input type="password" name="j\_password" /><br><br>

<input type="submit" value="Login" />

</form>

</body>

</html>

**3️⃣ error.html – Login Failure Page**

<!DOCTYPE html>

<html>

<head><title>Login Failed</title></head>

<body>

<h2>Authentication Failed</h2>

<p>Invalid username or password.</p>

<a href="login.html">Try again</a>

</body>

</html>

**4️⃣ secure/dashboard.jsp – Protected Resource**

<%@ page session="true" %>

<html>

<head><title>Dashboard</title></head>

<body>

<h2>Welcome, <%= request.getRemoteUser() %></h2>

<p>You have successfully logged in!</p>

<p>This is a secure page.</p>

</body>

</html>

**5️⃣ index.html – Public Entry Page**

<!DOCTYPE html>

<html>

<head><title>Home</title></head>

<body>

<h2>Welcome to the App</h2>

<a href="secure/dashboard.jsp">Go to Dashboard (Login Required)</a>

</body>

</html>

**6️⃣ conf/tomcat-users.xml – Add Users & Roles (Tomcat)**

Edit Tomcat’s conf/tomcat-users.xml:

<tomcat-users>

<role rolename="admin"/>

<user username="admin" password="admin123" roles="admin"/>

</tomcat-users>

**✅ Deploy & Run**

1. Package this into a WAR: FormAuthApp.war
2. Deploy to TOMCAT\_HOME/webapps/
3. Restart Tomcat
4. Visit: <http://localhost:8080/FormAuthApp/>
5. Click on Dashboard → it will show the login form.

**🔐 How Form Auth Works**

1. User tries to access /secure/dashboard.jsp
2. Tomcat detects it's protected
3. Redirects to /login.html
4. Form submits to j\_security\_check
5. If valid, forwards to originally requested page