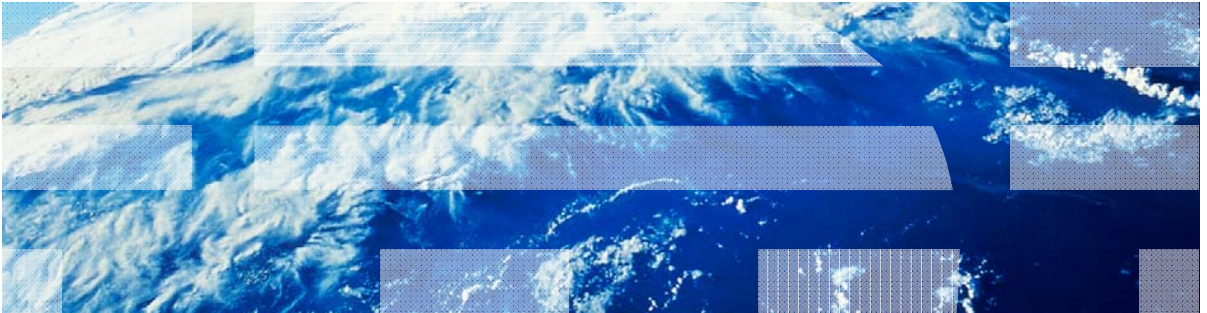


# ***IBM Worklight V6.0.0 Getting Started***

## **WebSphere LTPA based authentication**



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## *Using this module*

- This module is intended for use with either the IBM® Worklight® Consumer Edition or the IBM Worklight Enterprise Edition.
  - The functionality that this module demonstrates is not available in the free IBM Worklight Developer Edition.
  - To use this module, Worklight Server must be installed on WebSphere® Application Server Full Profile, or on WebSphere Application Server Liberty Profile.

# Agenda

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## ***WebSphere LTPA-based authentication introduction***

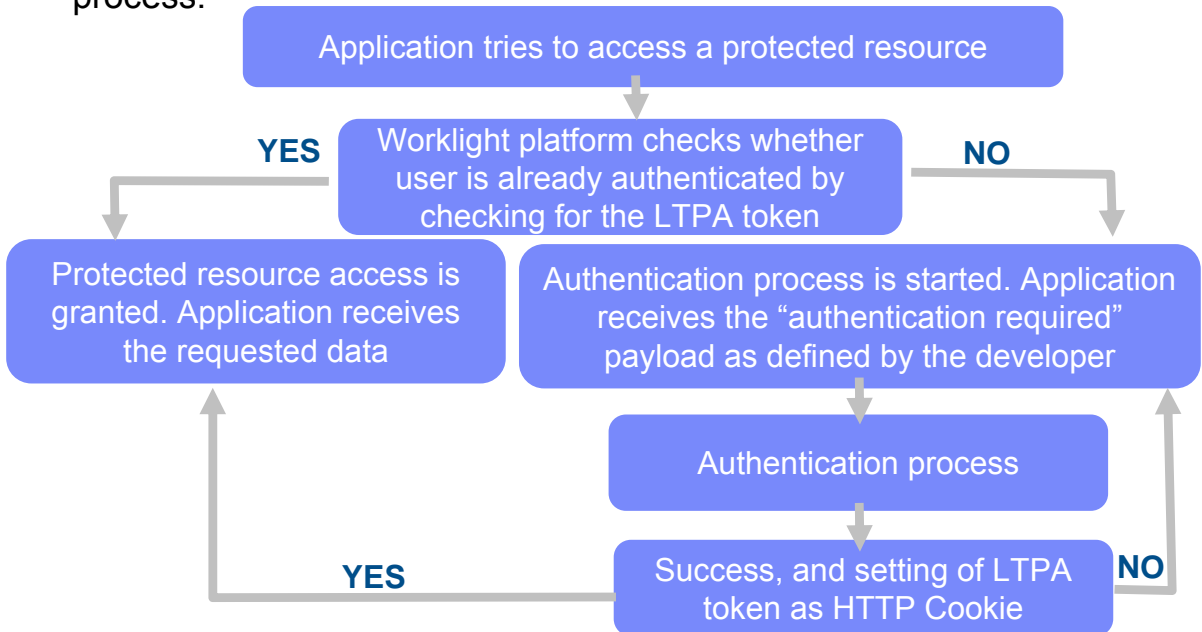
- WebSphere Application Server uses a secure token in a Lightweight Third-Party Authentication (LTPA) cookie to verify authenticated users, and to use this mechanism to trust users across a secure WebSphere Application server domain.
- When you run IBM Worklight on WebSphere Application Server, you can use the **WebSphereFormBasedAuthenticator** and the **WebSphereLoginModule** to authenticate to the Worklight app by using an LTPA token.
- There are two options in support of WebSphere LTPA-based authentication for Worklight apps, referred to as **Option 1** and **Option 2**.

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## Understanding server-side authentication options

- This diagram illustrates the WebSphere LTPA-based authentication process.



# ***Understanding server-side authentication options***

## ***Option 1***

- If the enterprise policy requires WAR files to be protected on secured WebSphere Application Servers, then Option 1 can be used to handle this situation.
- Secure the web resources in the Worklight project WAR file by specifying the resource and the user role.
  - The authenticator and loginmodule that are defined as part of this configuration authenticate the user (based on the provided credential) by using the underlying WebSphere Application Server Security API. This means that if the user provides user name and password on initial login, then this data is used to authenticate the user against the underlying registry that the WebSphere Application Server is configured against. Otherwise, if a valid LTPA token is provided on subsequent access, then this LTPA credential is used.



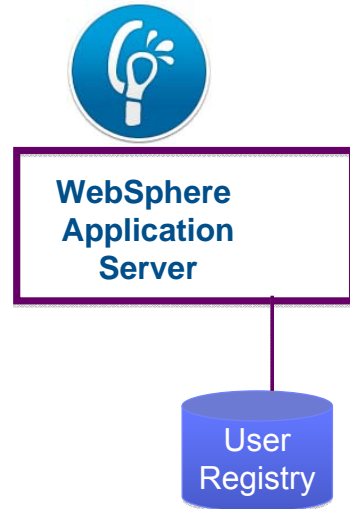
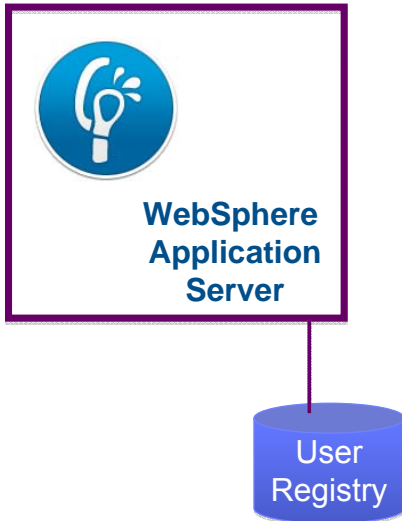
## ***Understanding server-side authentication options***

### ***Option 2***

- Option 2 is for the IBM Worklight security configuration to handle user authentication at the Worklight platform level, by using the security configuration of the underlying WebSphere Application Server.
  - The Worklight project that is deployed as a WAR file on the WebSphere Application Server is not secured. This means that the web.xml file of this WAR file does not reference any security constraints that protect the web resources.
  - The authenticator and loginmodule that are defined as part of this configuration authenticate the user (based on the provided credential) by using the underlying WebSphere Application Server Security API. This means that if the user provides user name and password on initial login, then this data is used to authenticate the user against the underlying registry that WebSphere Application Server is configured against. Otherwise, if a valid LTPA token is provided on subsequent access, then this LTPA credential is used.

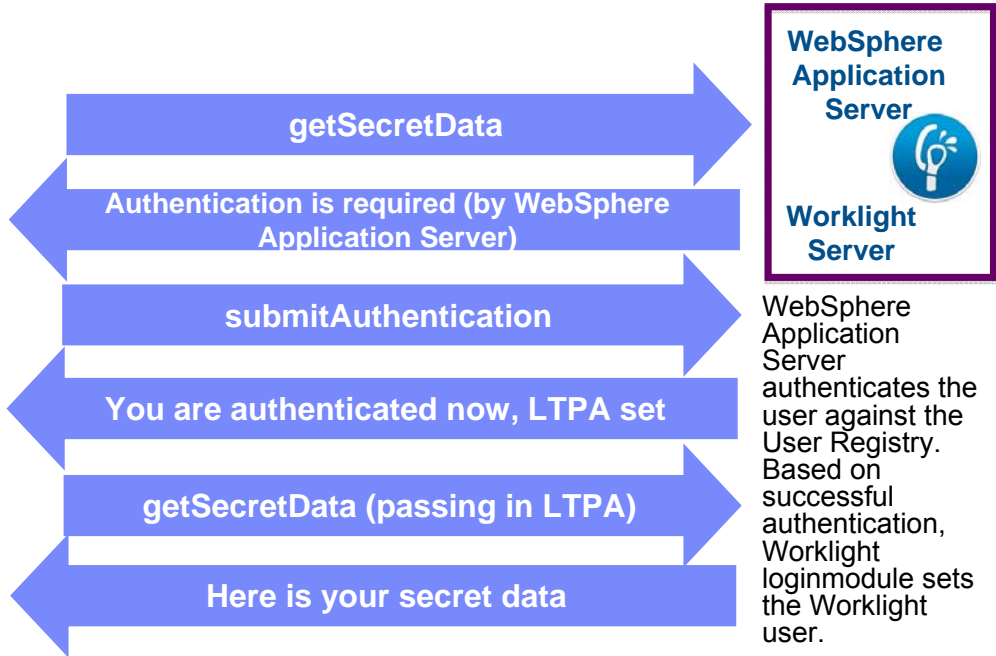
## Understanding server-side authentication options

- Option 1: Authentication is enforced by WebSphere Application Server
- Option 2: Worklight Server enforces the authentication by relying on WebSphere Application Server configuration



# Understanding server-side authentication options

- Option 1



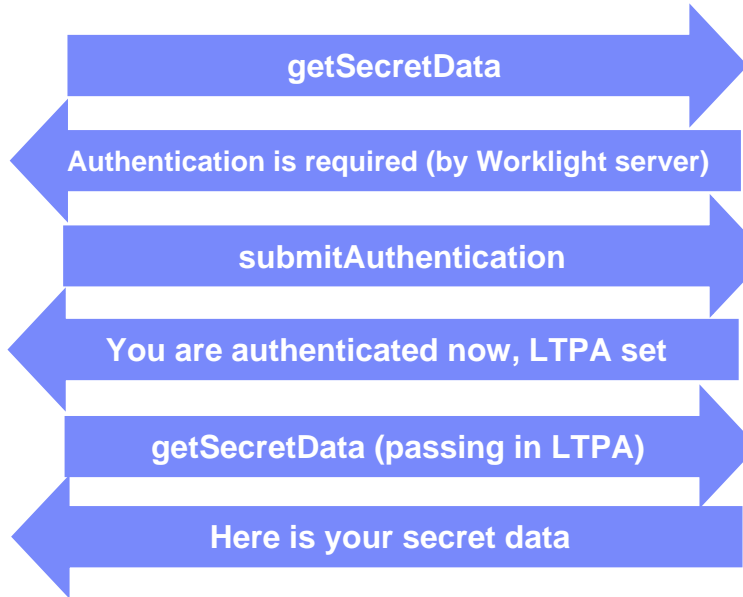
# Understanding server-side authentication options

- Option 2



**Application**

**Worklight  
Server**



Worklight invokes WebSphere Application Server security by using the loginmodule to authenticate the user against the User Registry of WebSphere Application Server.

## Understanding server-side authentication options

- Option 1 and Option 2 both present benefits and have different usages:

	Option 1	Option 2
<b>Benefits</b>	<p>This option uses the traditional WebSphere Application Server authentication and trust model.</p> <p>The container enforces all security, therefore can reuse existing investments in securing the Java Enterprise Edition (Java EE) container by using third-party SSO products.</p>	<p>This option uses the traditional WebSphere Application Server authentication and trust model without the impact of modifying the IBM Worklight project WAR file.</p> <p>The container enforces all security, therefore can reuse existing investments in securing the Java™ Enterprise Edition (Java EE) container by using third-party SSO product.</p> <p>The layered authentication of device, application, application instance, and user works as intended.</p> <p>Flexibility in configuring specific security settings that are IBM Worklight runtime specific without being hindered by the underlying container security.</p>
<b>Usage</b>	<p>This option is suitable for scenarios where the devices can be trusted and access for rogue applications is restricted.</p>	<p>This option is suitable for scenarios where the devices or the apps on the devices cannot be trusted.</p> <p>The multi-step authenticity checking that is built into IBM Worklight platform ensures denial of services to jail-broken devices, rogue applications, and unauthorized users.</p>

- Based on the these benefits, if your business needs do not require the use of Option 1, then Option 2 is best.

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# Configurations for WebSphere Application Server

## Step 1: Enable WebSphere Application Server security

- To compare the two options, you must first define the following settings on WebSphere Application Server:

For option 1:

- Enable administrative security
- Enable application security

For option 2:

- Enable administrative security

The screenshot displays the WebSphere Administration Console interface. On the left is a navigation tree with categories like 'Welcome', 'Enabled Activities', 'Servers', 'Applications', 'Services', 'Resources', 'Security', 'Environment', 'System administration', 'Users and Groups', 'Monitoring and Tuning', 'Troubleshooting', 'Service integration', and 'Tools'. The 'Security' category is expanded, showing sub-items: 'Global security', 'Security domains', 'Administrative Authorization Groups', 'SSL, certificate and key management', 'Security auditing', and 'Bus security'. The main content area shows the 'Global security' configuration page. It includes a title bar, a description, and two buttons: 'Security Configuration Wizard' and 'Security Configuration Report'. Below this are three sections: 'Administrative security' (with 'Enable administrative security' checked and highlighted in an orange box, and links for 'Administrative user roles', 'Administrative group roles', and 'Administrative authentication'), 'Application security' (with 'Enable application security' checked and highlighted in an orange box), and 'Java 2 security' (with 'Use java 2 security to restrict application access to local resources' unchecked and sub-options for 'Warn if applications are granted custom permissions' and 'Restrict access to resource authentication data'). At the bottom, there is a 'User account repository' section.

## Configurations for WebSphere Application Server

### Step 2: Configuring authenticationConfig.xml realm and authenticator

- Uncomment the realm under the “For websphere” comment in the authenticationConfig.xml found in {WAS\_HOME}/profiles/{your profile}/installedApps/{your node}/{worklight EAR}/{worklight WAR}/WEB-INF/classes/conf, so as to obtain the following text:

```
<!-- For websphere -->
<realm name="WASLTPARealm" loginModule="WASLTPAModule">
  <className>com.worklight.core.auth.ext.WebSphereFormBasedAuthenticator</className>
  <parameter name="login-page" value="/login.html"/>
  <parameter name="error-page" value="/loginError.html"/>
</realm>
```

- Optionally, you can include the parameters cookie-domain, cookie-name, and httponly-cookie. For more information, see the section about the LTPA authenticator in the product documentation
- Uncomment the loginModule under the “For websphere” comment:

```
<!-- For websphere -->
<loginModule name="WASLTPAModule">
  <className>com.worklight.core.auth.ext.WebSphereLoginModule</className>
</loginModule>
```

- Note: The above lines may already be uncommented



## Configurations for WebSphere Application Server

### Step 3: Configuring authenticationConfig.xml security tests

- Add security tests to authenticationConfig.xml for desired environments:
  - Add webSecurityTest if you plan to develop for web environments
  - Add mobileSecurityTest if you plan to develop for mobile environments

```
<securityTests>
  <webSecurityTest name="wasWebSecurity">
    <testUser realm="WASLTPARealm"/>
  </webSecurityTest>
  <mobileSecurityTest name="wasMobileSecurity">
    <testAppAuthenticity/>
    <testDeviceId provisioningType="none" />
    <testUser realm="WASLTPARealm" />
  </mobileSecurityTest>
</securityTests>
```

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## ***Additional steps required for Option 1***

### ***Step 1: Creating login.html***

- Create a file named login.html and save it to the root of your WAR file:  
{WAS\_HOME}/profiles/{your profile}/installedApps/{your node}/{worklight EAR}/{worklight WAR}
- Set its content as follows:

```
<html>
  <head></head>
  <body>
    <form action="j_security_check" method="post">
      Username: <input type="text" name="j_username" size="20"><br>
      Password: <input type="password" name="j_password" size="20"><br>
      <input type="submit" value="Login">
    </form>
  </body>
</html>
```

## ***Additional steps required for Option 1***

### ***Step 2: Creating loginError.html***

- Create the loginError.html error page and place it in the root of your WAR file: {WAS\_HOME}/profiles/{your profile}/installedApps/{your node}/{worklight EAR}/{worklight WAR}. The loginError.html page is used when login fails.
- Set its content as follows:

```
<html>
<head></head>
<body>
    Login invalid.
</body>
</html>
```

## Additional steps required for Option 1

### Step 3: Configuring web.xml

- Locate the web.xml file:  
 {WAS\_HOME}/profiles/{your profile}/installedApps/{your node}/{worklight EAR}/{worklight WAR}/WEB-INF/web.xml
- Add the following tag inside the root tag (copy and paste the text on the right, if preferred)
- This lets WebSphere Application Server know what configuration the WAR expects

```

    • <security-constraint id="SecurityConstraint_1">
    •   <web-resource-collection id="WebResourceCollection_1">
    •     <web-resource-name>Snoop Servlet</web-resource-name>
    •     <description>Protection area for Snoop Servlet.</description>
    •     <url-pattern>/*</url-pattern>
    •     <http-method>GET</http-method>
    •     <http-method>POST</http-method>
    •   </web-resource-collection>
    •   <auth-constraint id="AuthConstraint_1">
    •     <description>Snoop Servlet Security:++All Authenticated users
    •       for Snoop Servlet.</description>
    •     <role-name>Role 3</role-name>
    •   </auth-constraint>
    •   <user-data-constraint id="UserDataConstraint_1">
    •     <transport-guarantee>NONE</transport-guarantee>
    •   </user-data-constraint>
    • </security-constraint>
    • <security-role id="SecurityRole_1">
    •   <description>All Authenticated Users Role.</description>
    •   <role-name>Role 3</role-name>
    • </security-role>
    • <login-config>
    •   <auth-method>FORM</auth-method>
    •   <form-login-config>
    •     <form-login-page>/login.html</form-login-page>
    •     <form-error-page>/loginError.html</form-error-page>
    •   </form-login-config>
    • </login-config>
  
```

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## Optional: Protecting the Worklight Console

- To protect the Worklight Console with WebSphere Application Server authentication credentials, modify authenticationConfig.xml as follows:
- Uncomment the <staticResources> element to enable protection of static resources:

```
<!-- Uncomment the next element to protect the worklight console and the first section in securityTests below. -->
<staticResources>
  <resource id="worklightConsole" securityTest="WorklightConsole">
    <urlPatterns>/console*/</urlPatterns>
  </resource>
</staticResources>
```

- Add a <customSecurityTest> element to your existing security tests:

```
<securityTests>
  <customSecurityTest name="WorklightConsole">
    <test realm="WASLTPARealm" isInternalUserID="true"/>
  </customSecurityTest>
</securityTests>
```

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## Creating client-side authentication components

- Use an existing Worklight application that is from one of the Authentication modules.
- To implement security for an app, follow the same methods as for any other type of realm, and then configure the challenge handler to use your realm:

```
var sampleAppRealmChallengeHandler = WL.Client.createChallengeHandler("WASLTPARealm");
```

- In the `applicationDescriptor.xml` file, specify the security test that your app must use for the appropriate environments.

– For example:

```
<common securityTest="WAS-securityTest" />  
<android version="1.0" securityTest="WAS-securityTest" >  
  <pushSender key="keyTest" senderId="senderIdTest" />  
</android>
```

- Deploy and test the application by using Option 2. The authentication requires a valid user name and password from the underlying user registry that the WebSphere Application Server is configured against. When the authentication is successful, the Worklight app is authenticated.

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## Examining the result

The diagram illustrates the state of a web application during form-based authentication. It consists of three overlapping gray rectangular panels:

- Left Panel:** A login form with labels "Username:" and "Password:" above two input fields, and a "Login" button below them.
- Middle Panel:** A panel titled "Form based authentication" with a blue header. Below the header, it says "You're currently in the AppBody" and contains two buttons: "Call protected adapter proc" and "Logout".
- Bottom-Right Panel:** A box containing a JSON response: 

```
getSecretData_Callback response :: {"status": 200,"invocationContext":null,"invocationResult":{"responseID":"2","isSuccessful":true,"secretData":"123456"}}
```

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## ***Exercise***

- Examine the Authentication sample that is used for Option 2
- Implement Option 1 by securing the Worklight project WAR as shown in the Option 1 steps:
  - Update the web.xml file of the WAR file
  - Repackage the WAR file and redeploy it to the WebSphere Application Server
- The user experience should be identical

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