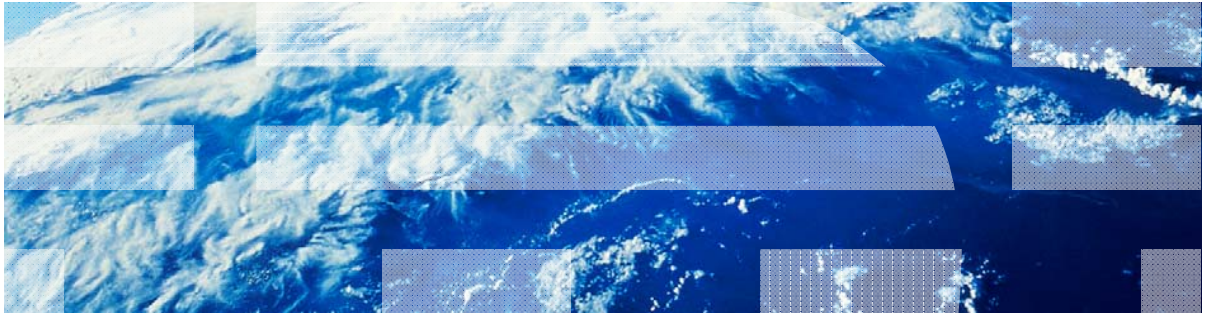


IBM Worklight V6.0.0 Getting Started

Using LDAP Login Module to authenticate users with
LDAP server



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Agenda

- LdapLoginModule overview
- Configuring authenticationConfig.xml
- Creating the client-side authentication components
- Examining the result

LdapLoginModule overview

- **LdapLoginModule** can be used to authenticate users with LDAP servers such as OpenLDAP, Active Directory etc.
- LDAP login module implements **UserNamePasswordLoginModule** interface, therefore it must be used in conjunction with an authenticator that implements **UsernamePasswordAuthenticator** interface, e.g. **FormBasedAuthenticator**
- For better understanding how to implement **UsernamePasswordAuthenticator** interface please refer to a **Custom Authenticator and Login Module** tutorial
- In the following slides you will learn how to configure and use **LdapLoginModule** to protect various Worklight entities

Agenda

- LdapLoginModule overview
- **Configuring authenticationConfig.xml**
- Creating the client-side authentication components
- Examining the result

Configuring the authenticationConfig.xml (1 of 10)

- Add an authentication realm to the <realms> section of the **authenticationConfig.xml** file and call it **LDAPRealm**.

```
<realms>
  <realm loginModule="LDAPLoginModule" name="LDAPRealm">
    <className>com.worklight.core.auth.ext.FormBasedAuthenticator</className>
    <onLoginUrl>/console</onLoginUrl>
  </realm>
</realms>
```

- Use **FormBasedAuthenticator** as a className as it implements required **UsernamePasswordAuthenticator** interface
- This realm uses the **LDAPLoginModule** login module that you define later.

Configuring the authenticationConfig.xml (2 of 10)

- Add a login module to the **<loginModules>** section and call it **LDAPLoginModule**

```
<loginModules>
  <loginModule name="LDAPLoginModule">
    <className>com.worklight.core.auth.ext.LdapLoginModule</className>
    <parameter name="ldapProviderUrl" value="ldap://9.148.227.10"/>
    <parameter name="ldapTimeoutMs" value="2000"/>
    <parameter name="ldapSecurityAuthentication" value="simple"/>
    <parameter name="validationType" value="searchPattern"/>
    <parameter name="ldapSecurityPrincipalPattern" value="{username}@worklight.lan"/>
    <parameter name="ldapSearchFilterPattern" value="( & (objectClass=user) (sAMAccountName=
    <parameter name="ldapSearchBase" value="dc=worklight,dc=lan"/>
  </loginModule>
</loginModules>
```

- Use **com.worklight.core.auth.ext.LdapLoginModule** in className

Configuring the authenticationConfig.xml (3 of 10)

- Add a login module to the **<loginModules>** section and call it **LDAPLoginModule**

```
<loginModules>
  <loginModule name="LDAPLoginModule">
    <className>com.worklight.core.auth.ext.LdapLoginModule</className>
    <parameter name="ldapProviderUrl" value="ldap://9.148.227.10"/>
    <parameter name="ldapTimeoutMs" value="2000"/>
    <parameter name="ldapSecurityAuthentication" value="simple"/>
    <parameter name="validationType" value="searchPattern"/>
    <parameter name="ldapSecurityPrincipalPattern" value="{username}@worklight.lan"/>
    <parameter name="ldapSearchFilterPattern" value="(&(objectClass=user)(sAMAccountName=
    <parameter name="ldapSearchBase" value="dc=worklight,dc=lan"/>
  </loginModule>
</loginModules>
```

- **ldapProviderUrl** is a mandatory parameter. It defines the URL of your LDAP server.

Configuring the authenticationConfig.xml (4 of 10)

- Add a login module to the **<loginModules>** section and call it **LDAPLoginModule**

```
<loginModules>
  <loginModule name="LDAPLoginModule">
    <className>com.worklight.core.auth.ext.LdapLoginModule</className>
    <parameter name="ldapProviderUrl" value="ldap://9.148.227.10"/>
    <parameter name="ldapTimeoutMs" value="2000"/>
    <parameter name="ldapSecurityAuthentication" value="simple"/>
    <parameter name="validationType" value="searchPattern"/>
    <parameter name="ldapSecurityPrincipalPattern" value="{username}@worklight.lan"/>
    <parameter name="ldapSearchFilterPattern" value="(&(objectClass=user)(sAMAccountName=
    <parameter name="ldapSearchBase" value="dc=worklight,dc=lan"/>
  </loginModule>
</loginModules>
```

- **ldapTimeoutMs** is a mandatory parameter. It defines the timeout for LDAP server requests

Configuring the authenticationConfig.xml (5 of 10)

- Add a login module to the **<loginModules>** section and call it **LDAPLoginModule**

```
<loginModules>
  <loginModule name="LDAPLoginModule">
    <className>com.worklight.core.auth.ext.LdapLoginModule</className>
    <parameter name="ldapProviderUrl" value="ldap://9.148.227.10"/>
    <parameter name="ldapTimeoutMs" value="2000"/>
    <parameter name="ldapSecurityAuthentication" value="simple"/>
    <parameter name="validationType" value="searchPattern"/>
    <parameter name="ldapSecurityPrincipalPattern" value="{username}@worklight.lan"/>
    <parameter name="ldapSearchFilterPattern" value="(&(objectClass=user)(sAMAccountName=
    <parameter name="ldapSearchBase" value="dc=worklight,dc=lan"/>
  </loginModule>
</loginModules>
```

- **ldapSecurityAuthentication** is a mandatory parameter. It defines the type of authentication required by LDAP server. Usually it is “simple”, but you might need to contact LDAP administrator for a correct value.

Configuring the authenticationConfig.xml (6 of 10)

- Add a login module to the **<loginModules>** section and call it **LDAPLoginModule**

```
<loginModules>
  <loginModule name="LDAPLoginModule">
    <className>com.worklight.core.auth.ext.LdapLoginModule</className>
    <parameter name="ldapProviderUrl" value="ldap://9.148.227.10"/>
    <parameter name="ldapTimeoutMs" value="2000"/>
    <parameter name="ldapSecurityAuthentication" value="simple"/>
    <parameter name="validationType" value="searchPattern"/>
    <parameter name="ldapSecurityPrincipalPattern" value="{username}@worklight.lan"/>
    <parameter name="ldapSearchFilterPattern" value="(&(objectClass=user)(sAMAccountName=
    <parameter name="ldapSearchBase" value="dc=worklight,dc=lan"/>
  </loginModule>
</loginModules>
```

- **validationType** is a mandatory parameter. It defines the type of validation that is performed. LdapLoginModule supports three types of validation – **exists**, **searchPattern** and **custom**.

Configuring the authenticationConfig.xml (7 of 10)

- **validationType** property can have three values
 - **exists** - Login module tries to establish the LDAP binding using supplied credentials. Credential validation is considered successful when binding is successfully established.
 - **searchPattern** - Login module will try to run the **exists** validation, and after success issues a search query to the LDAP server context according to **ldapSearchFilterPattern** and **ldapSearchBase** parameters. Credential validation is considered successful if a search query returns one or more entries.
 - **custom** – Allows implementing custom validation logic. Login module will try to do the **existing** validation and after success calls a **public boolean doCustomValidation(LdapContext ldapCtx, String username)** method, which can be overridden by creating a custom Java class in your Worklight project and extending from **com.worklight.core.auth.ext.UserNamePasswordLoginModule**. See the IBM Worklight InfoCenter for more details on custom LDAP validation type

Configuring the authenticationConfig.xml (8 of 10)

- Add a login module to the **<loginModules>** section and call it **LDAPLoginModule**

```
<loginModules>
  <loginModule name="LDAPLoginModule">
    <className>com.worklight.core.auth.ext.LdapLoginModule</className>
    <parameter name="ldapProviderUrl" value="ldap://9.148.227.10"/>
    <parameter name="ldapTimeoutMs" value="2000"/>
    <parameter name="ldapSecurityAuthentication" value="simple"/>
    <parameter name="validationType" value="searchPattern"/>
    <parameter name="ldapSecurityPrincipalPattern" value="{username}@worklight.lan"/>
    <parameter name="ldapSearchFilterPattern" value="(amp;(objectclass=user)(sAMAccountName=
    <parameter name="ldapSearchBase" value="dc=worklight,dc=lan"/>
  </loginModule>
</loginModules>
```

- **ldapSecurityPrincipalPattern** is a mandatory parameter. It defines the pattern in which LDAP security principal is sent to the LDAP server. You can use a {username} placeholder to inject a username received from the Authenticator

Configuring the authenticationConfig.xml (9 of 10)

- Add a login module to the **<loginModules>** section and call it **LDAPLoginModule**

```
<loginModules>
  <loginModule name="LDAPLoginModule">
    <className>com.worklight.core.auth.ext.LdapLoginModule</className>
    <parameter name="ldapProviderUrl" value="ldap://9.148.227.10"/>
    <parameter name="ldapTimeoutMs" value="2000"/>
    <parameter name="ldapSecurityAuthentication" value="simple"/>
    <parameter name="validationType" value="searchPattern"/>
    <parameter name="ldapSecurityPrincipalPattern" value="{username}@worklight.lan"/>
    <parameter name="ldapSearchFilterPattern" value="( & (objectClass=user)(sAMAccountName=
    <parameter name="ldapSearchBase" value="dc=worklight,dc=lan"/>
  </loginModule>
</loginModules>
```

- **ldapSearchFilterPattern** and **ldapSearchBase** are optional parameters. They are required only in case **searchPattern validationType** is used.

Configuring the authenticationConfig.xml (10 of 10)

- Add a security test to the <securityTests> section of the **authenticationConfig.xml** file.
- You use this security test to protect the adapter procedure, so make it a **<customSecurityTest>**.

```
<customSecurityTest name="LDAPSecurityTest">  
  <test isInternalUserID="true" realm="LDAPRealm"/>  
</customSecurityTest>
```

- Remember the security test name to use in the following slides.

Agenda

- LdapLoginModule overview
- Configuring authenticationConfig.xml
- Creating the client-side authentication components
- Examining the result

Creating the client-side authentication components (1 of 14)

- Create a Worklight application.
- The application consists of two main `<div>` elements:
 - The **`<div id="AppBody">`** element is used to display the application content.
 - The **`<div id="AuthBody">`** element is used for authentication form purposes.
- When the authentication is required, the application hides the AppBody and shows the AuthBody.
- When the authentication is complete, it does the opposite.

Creating the client-side authentication components (2 of 14)

- Start by creating an AppBody.
- It has a basic structure and functions.

```
<div id="AppDiv">
  <div class="header">
    <h1>LDAPApp</h1>
  </div>
  <div class="wrapper">
    <input type="button" value="Call protected adapter proc" onclick="getSecretData()" />
    <input type="button" value="Logout"
      onclick="WL.Client.logout('LDAPRealm',{onSuccess: WL.Client.reloadApp})" />
  </div>
  <div id="resultDiv"></div>
</div>
```

- The buttons are used to invoke the **getSecretData** procedure and to log out.

Creating the client-side authentication components (3 of 14)

- The AuthBody contains the following elements:

```
<div id="AuthDiv" style="display:none">  
  <div id="loginForm">  
    Username:<br/>  
    <input type="text" id="usernameInputField" value=""/><br />  
    Password:<br/>  
    <input type="password" id="passwordInputField" value=""/><br/>  
    <input type="button" id="loginButton" value="Login" />  
    <input type="button" id="cancelButton" value="Cancel" />  
  </div>  
</div>
```

- A Username and a Password input fields.
- A Login and a Cancel buttons.
- The AuthBody is styled as **display:none**, because it must not be displayed before the authentication is requested by server.

Creating the client-side authentication components (4 of 14)

- Finally, create a challenge handler.
- Use the following API to create this handler and implement its functionality.

```
var myChallengeHandler = WL.Client.createChallengeHandler("realm-name");  
  
myChallengeHandler.isCustomResponse = function (response){  
    return false;  
};  
  
myChallengeHandler.handleChallenge = function (response){  
};
```

Use the **WL.Client.createChallengeHandler()** to create a challenge handler object. A realm name must be supplied as a parameter.

Creating the client-side authentication components (5 of 14)

- Finally, create a challenge handler.
- Use the following API to create this handler and implement its functionality.

```
var myChallengeHandler = WL.Client.createChallengeHandler("realm-name");  
myChallengeHandler.isCustomResponse = function (response){  
    return false;  
};  
myChallengeHandler.handleChallenge = function (response){  
};
```

The **isCustomResponse** function of the challenge handler is invoked each time a response is received from the server. It is used to detect whether response contains data that are related to this challenge handler. It must return **true** or **false**.

Creating the client-side authentication components (6 of 14)

- Finally, create a challenge handler.
- Use the following API to create this handler and implement its functionality.

```
var myChallengeHandler = WL.Client.createChallengeHandler("realm-name");  
myChallengeHandler.isCustomResponse = function (response){  
    return false;  
};  
myChallengeHandler.handleChallenge = function (response){  
};
```

If the `isCustomResponse` returns **true**, the framework invokes the `handleChallenge()` function. This function is used to perform required actions, such as hide application screen and show login screen.

Creating the client-side authentication components (7 of 14)

- In addition to the methods that the developer must implement, the challenge handler contains functionality that the developer might want to use:
 - The **myChallengeHandler.submitLoginForm()** is used to send collected credentials to a specific URL. Developer can also specify request parameters, headers, and callback.
 - The **myChallengeHandler.submitSuccess()** notifies the Worklight framework that the authentication successfully finished. The Worklight framework then automatically issues the original request that triggered the authentication.
 - The **myChallengeHandler.submitFailure()** notifies the Worklight framework that the authentication process completed with failure. The Worklight framework then disposes of the original request that triggered the authentication.
- You will use these functions during the implementation of the challenge handler in the next slides.

Creating the client-side authentication components (8 of 14)

- Create a challenge handler.

```
var LDAPRealmChallengeHandler = WL.Client.createChallengeHandler("LDAPRealm");

LDAPRealmChallengeHandler.isCustomResponse = function(response) {
    if (!response || !response.responseText) {
        return false;
    }
    var idx = response.responseText.indexOf("j_security_check");

    if (idx >= 0){
        return true;
    }
    return false;
};

LDAPRealmChallengeHandler.handleChallenge = function(response) {
    $('#AppDiv').hide();
    $('#AuthDiv').show();
    $('#passwordInputField').val('');
};
```

The default login form that is returned from the Worklight server contains the "j_security_check" string. If the challenge handler detects it in the response, return **true**.

Creating the client-side authentication components (9 of 14)

- Create a challenge handler.

```
var LDAPRealmChallengeHandler = WL.Client.create({
  LDAPRealmChallengeHandler.isCustomResponse = function(response) {
    if (!response || !response.responseText) {
      return false;
    }
    var idx = response.responseText.indexOf('');
    if (idx >= 0){
      return true;
    }
    return false;
  };

  LDAPRealmChallengeHandler.handleChallenge = function(response){
    $('#AppDiv').hide();
    $('#AuthDiv').show();
    $('#passwordInputField').val('');
  };
});
```

After the client application detects that the server sent a login form, which means that the server is requesting authentication, the application hides the AppBody, shows the AuthBody, and cleans up the **passwordInputField**.

Creating the client-side authentication components (10 of 14)

- Create a challenge handler.


```
$('#loginButton').bind('click', function () {  
    var reqURL = '/j_security_check';  
    var options = {};  
    options.parameters = {  
        j_username : $('#usernameInputField').val(),  
        j_password : $('#passwordInputField').val()  
    };  
    options.headers = {};  
    LDAPRealmChallengeHandler.submitLoginForm(reqURL, options,  
        LDAPRealmChallengeHandler.submitLoginFormCallback);  
});  
  
$('#cancelButton').bind('click', function () {  
    $('#AppDiv').show();  
    $('#AuthDiv').hide();  
    LDAPRealmChallengeHandler.submitFailure();  
});
```

Clicking a login button triggers a function that collects the user name and password from the HTML input fields, and submits them to the server. It is possible to set request headers here, and specify callback.

Creating the client-side authentication components (11 of 14)

- Create a challenge handler.

```
$('#loginButton').bind('click', function () {  
    var reqURL = '/j_security_check';  
    var options = {};  
    options.parameters = {  
        j_username : $('#usernameInputField').val(),  
        j_password : $('#passwordInputField').val()  
    };  
    options.headers = {};  
    LDAPRealmChallengeHandler.submitLoginForm(reqURL, options,  
        LDAPRealmChallengeHandler.submitLoginFormCallback);  
});  
  
$('#cancelButton').bind('click', function () {  
    $('#AppDiv').show();  
    $('#AuthDiv').hide();  
    LDAPRealmChallengeHandler.submitFailure;  
});
```



The form-based Authenticator uses hardcoded `j_security_check` URL component. You cannot have more than one instance of it.

Creating the client-side authentication components (12 of 14)

- Create a challenge handler.

```
$('#loginButton').bind('click', function () {  
    var reqURL = '/j_security_check';  
    var options = {};  
    options.parameters = {  
        j_username : $('#usernameInput').val(),  
        j_password : $('#passwordInput').val()  
    };  
    options.headers = {};  
    LDAPRealmChallengeHandler.submitLoginForm(options);  
    LDAPRealmChallengeHandler.submitLoginFormFeedback();  
});  
  
$('#cancelButton').bind('click', function () {  
    $('#AppDiv').show();  
    $('#AuthDiv').hide();  
    LDAPRealmChallengeHandler.submitFailure();  
});
```

Clicking a cancel button hides the authBody, shows the appBody, and notifies the Worklight framework that authentication failed.

Creating the client-side authentication components (13 of 14)

- Create a challenge handler.

```
LDAPRealmChallengeHandler.submitLoginFormCallback = function(response) {  
    var isLoginFormResponse = LDAPRealmChallengeHandler.isCustomResponse(response);  
    if (isLoginFormResponse){  
        LDAPRealmChallengeHandler.handleChallenge(response);  
    } else {  
        $('#AppDiv').show();  
        $('#AuthDiv').hide();  
        LDAPRealmChallengeHandler.submitSuccess();  
    }  
};
```

The callback function checks the response for the containing server challenge again. If a challenge is found, the `handleChallenge()` function is invoked again.

Creating the client-side authentication components (14 of 14)

- Create a challenge handler.

```
LDAPRealmChallengeHandler.submitLoginFormCallback = function(response) {  
    var isLoginFormResponse = LDAPRealmChallengeHandler.isCustomResponse(response);  
    if (isLoginFormResponse){  
        LDAPRealmChallengeHandler.handleChallenge(response);  
    } else {  
        $('#AppDiv').show();  
        $('#AuthDiv').hide();  
        LDAPRealmChallengeHandler.submitSuccess();  
    }  
};
```

No challenge present in the server response means that the authentication successfully completed. In this case, AppBody is shown, AuthBody is hidden, and the IBM Worklight framework is notified about the authentication success.

Agenda

- LdapLoginModule overview
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Examining the result

- The sample for this training module can be found in the Getting Started page of the IBM® Worklight documentation website at <http://www.ibm.com/mobile-docs>

The image displays three sequential screenshots of the LDAPApp mobile application interface, illustrating the login process.

Left Screenshot: The app title is "LDAPApp". Below the title bar, there are two buttons: "Call protected adapter proc" and "Logout". The main content area is empty.

Middle Screenshot: The app title is "LDAPApp". Below the title bar, there are two buttons: "Call protected adapter proc" and "Logout". The main content area displays a login form with the following fields and controls:

- Username:
- Password:
- Buttons: "Login" and "Cancel"

Right Screenshot: The app title is "LDAPApp". Below the title bar, there are two buttons: "Call protected adapter proc" and "Logout". The main content area displays the following information:

- Sat Feb 23 2013 15:59:52 GMT+0200 (IST)
- Secret data :: 1234

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