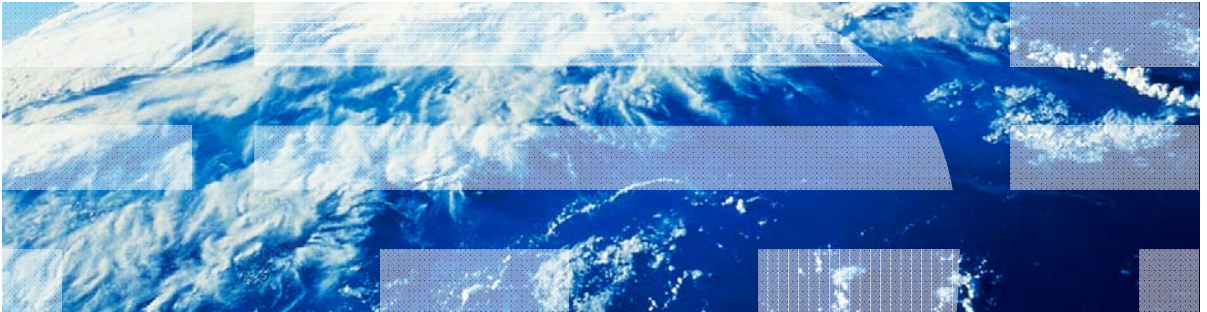


IBM Worklight V5.0.6 Getting Started

Creating your first Worklight application



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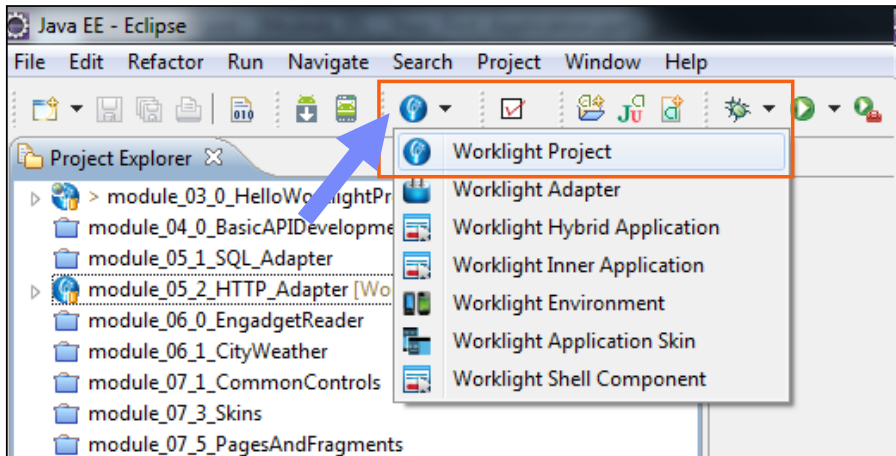
- See <http://www.ibm.com/ibm/us/en/>

Agenda

- Write your first application
- Become familiar with the application files & HTML structure
- Use the Worklight Studio to deploy the application
- Exercise

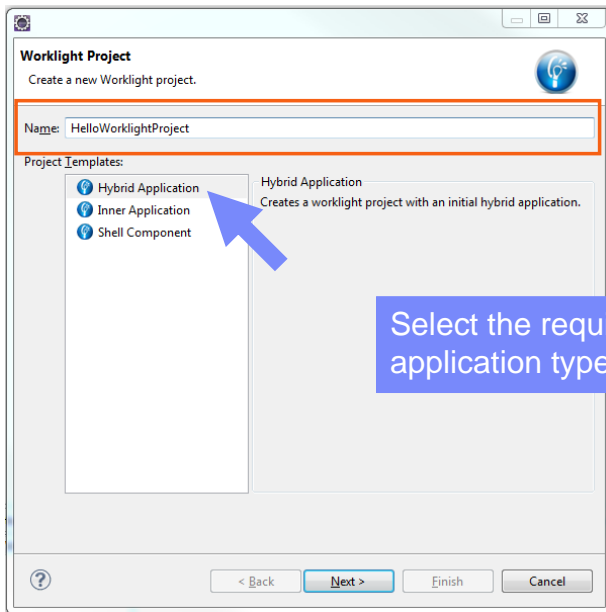
Hello Worklight Application

- Create a Worklight® Project



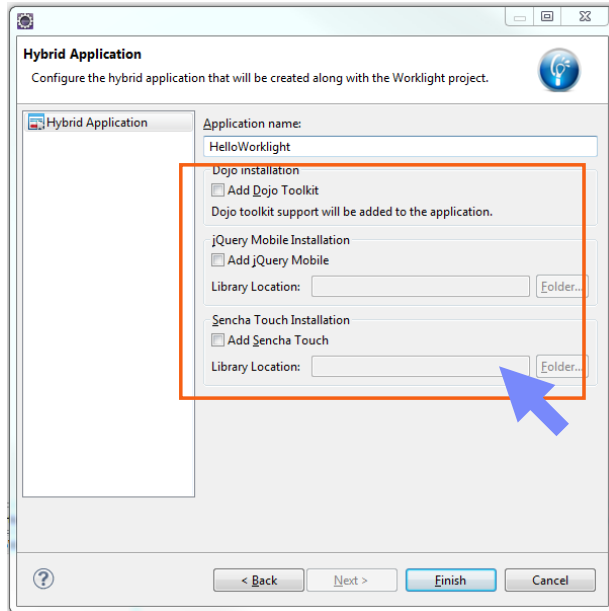
Hello Worklight Application

- Name it HelloWorklightProject and select a Hybrid Application template



Hello Worklight Application

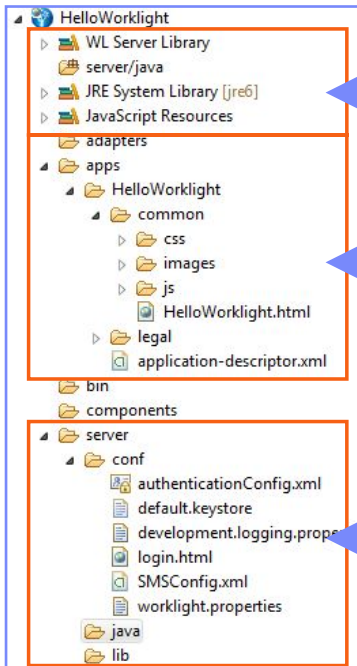
- Name your application
HelloWorklight
- JavaScript frameworks can be added to your project on this screen
- To use **jQuery Mobile** or **Sencha Touch**, you need to manually download them before adding to the application
- Click **Finish** when done
- **Note:** If you intend to add a Windows Phone 8 environment, note that **Dojo** is not yet supported on Windows Phone 8



Agenda

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- Become familiar with the application files & HTML structure
- Use the Worklight Studio to deploy the application
- Exercise

Worklight Project Structure

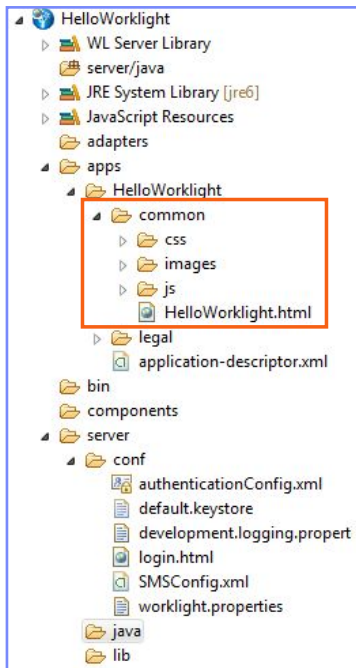


References required for application development and deployment

Project applications and adapters

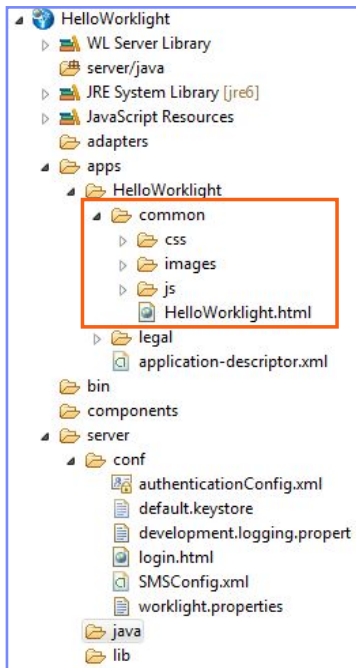
Server customization components

HelloWorklight - Project Structure



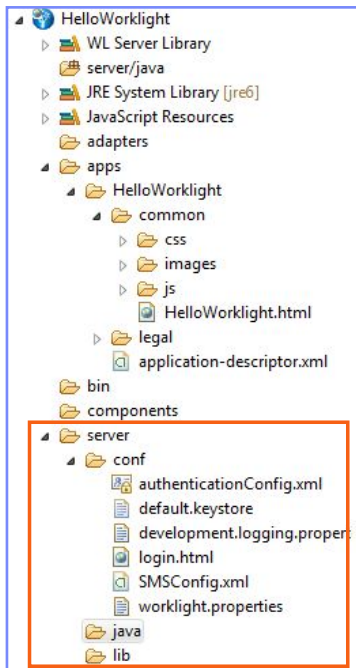
- The default environment is called **common**.
- The **common** environment contains all the resources that are shared between environments.
- Right-click **apps > New > Worklight environment** to add new environments:
 - A new environment is created.
 - The resources of the new environment have the following relationship with the common resources:
 - **images** - override the common images when both have the same name.
 - **css** – extend, override, or both, the common CSS files.
 - **js** - extend the common application instance JS object. The environment class extends the common app class.
 - **HTML** - override the common HTML code when both have the same name.

HelloWorklight - Project Structure



- Common Environment:
 - HelloWorklight.html**
 - The main HTML file.
 - css**
 - HelloWorklight.css** - main application CSS file.
 - images**
 - Default Worklight images for the common environment.
 - js**
 - initOptions.js**: Contains initialization options for the application.
 - HelloWorklight.js**: The main JavaScript file for the application.
 - messages.js**: JSON object that holds all app messages. Can be used as the source for translation.
- legal folder holds all legal related docs.
- application-descriptor.xml contains the application metadata.
- bin folder contains generated .wlappr and .wladapter files that can be used to deploy to a remote Worklight Server.

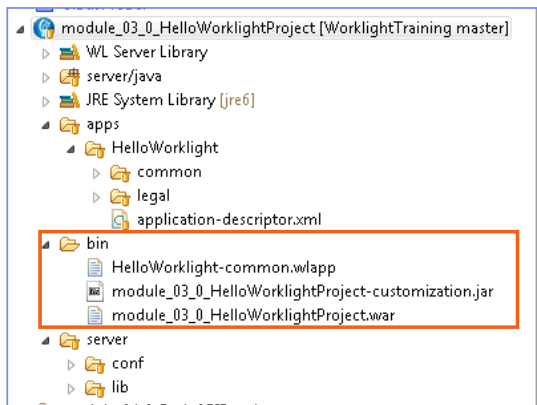
HelloWorklight - Project Structure



- The server folder contains files that are used for server-side customization of a project:
 - The conf folder contains:
 - worklight.properties, which defines properties used by server.
 - authenticationConfig.xml, which defines authentication realms.
 - login.html, which presents a login form for web environments and Worklight Console.
 - The java folder is used to hold Java classes that will be compiled and deployed to a Worklight Server after you build your application. You can put your custom Java code here.
 - The lib folder is used for JAR files that are deployed to a server.

HelloWorklight - Project Structure

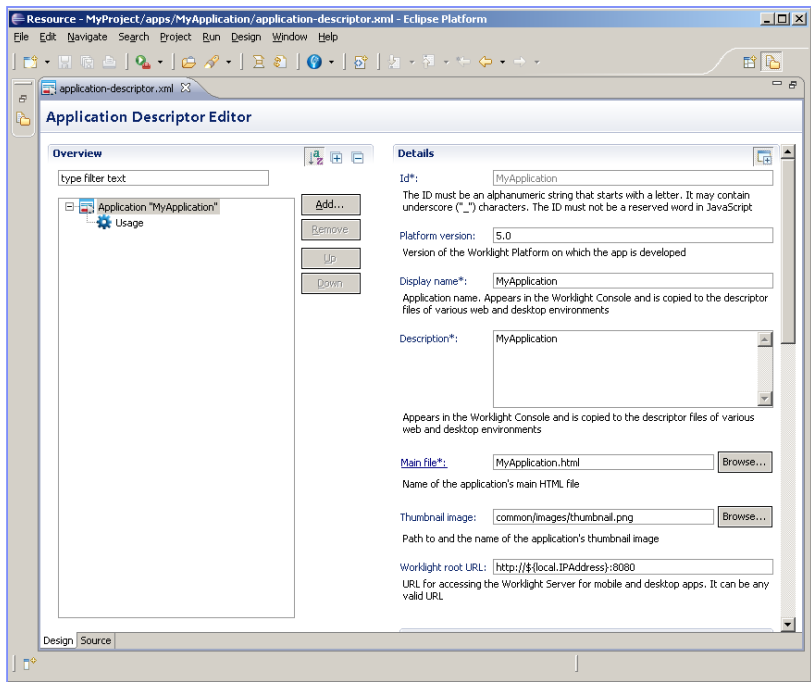
- The bin\ folder contains project artifacts that are deployed to a Worklight Server
- The evaluation version of Worklight Studio deploys those artifacts to the embedded Worklight Server automatically as a part of the Build process



- **.wlapp** files are application bundles
- **.wladapter** files are adapters
- **.jar** and **.war** files are server customization files that contain worklight.properties, authenticationConfig.xml, and custom Java code

HelloWorklight - Application Descriptor

- An Application Descriptor is an XML file that stores the metadata for a Worklight application
- This file can be edited with Design or Source editor



HelloWorklight - Application Descriptor

- Based on the W3C Widget Packaging and Configuration
- Contains application properties used at build time

```
<application id="HelloWorklight" platform="android"
  xmlns="http://www.worklight.com/apis/v0.10/widget"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://www.worklight.com/apis/v0.10/widget
    http://www.worklight.com/apis/v0.10/widget/widget.xsd">
  <displayName>HelloWorklight</displayName>
  <description>HelloWorklight</description>
  <author>
    <name>application's author</name>
    <email>application author's e-mail</email>
    <copyright>Copyright My Company</copyright>
    <homepage>http://mycompany.com</homepage>
  </author>
  <height>460</height>
  <width>320</width>
  <mainFile>HelloWorklight.html</mainFile>
  <thumbnailImage>common/images/thumbnail.png</thumbnailImage>
```

Specify the application name, description, and author details to be displayed in the Worklight Console

HelloWorklight - Application Descriptor

- Based on the W3C Widget Packaging and Configuration
- Contains application properties used at build time

```
<worklightServerRootURL>http://${local.IPAddress}:8080</worklightServerRootURL>
<!--
  Uncomment one of the following options to use a different value for the Worklight Server root URL
  <worklightServerRootURL>http://${local.hostname}:8080</worklightServerRootURL>
  <worklightServerRootURL>http://${local.fullhostname}:8080</worklightServerRootURL>
  <worklightServerRootURL>http://${local.IPAddress}:8080</worklightServerRootURL>
-->

<!--
<android version="1.0">
  Uncomment and update push sender ID in order to use push notifications for android
  <pushSender key="keyTest" senderId="senderIdTest" />
</android>
-->
</application>
```

worklightServerRootURL

The URL to be used as a root URL in generated mobile applications such as iOS and Android

HelloWorklight - Application Descriptor

- Based on the W3C Widget Packaging and Configuration
- Contains application properties used at build time

```
<worklightServerRootURL>http://${local.IPAddress}
<!--
  Uncomment one of the following options to use
  <worklightServerRootURL>http://${local.hostname}
  <worklightServerRootURL>http://${local.fullhostname}
  <worklightServerRootURL>http://${local.IPAddress}
-->

<!--
<android version="1.0">
  Uncomment and update push sender ID in order to use push notifications for android
  <pushSender key="keyTest" senderId="senderIdTest" />
</android>
-->
</application>
```

Environment-specific information inserted automatically as new environments are added to projects

HelloWorklight – Single DOM model

- IBM Worklight® hybrid application uses a single DOM model
- The single DOM model means that you should never navigate between various HTML files by using hyperlinks or changing **window.location** property
- Instead, multi-page interfaces should be implemented by loading external HTML file content using Ajax requests and injecting it into an existing DOM
- This is due to the fact that the main application HTML file loads Worklight client side JavaScript framework files and after the browser navigates from one HTML file to another, the JavaScript context and loaded scripts are lost
- Most JavaScript UI frameworks (e.g jQuery Mobile, Sencha Touch, Dojo Mobile) available today provide an extensive range of APIs to achieve the required multi-page navigation
- This module explains the principles of a single page application
- Principles of multi-page applications built with a single DOM model are explained in latter training modules

HelloWorklight.html

- During application runtime, the main HTML document cannot be replaced by another HTML document.

```
<!DOCTYPE HTML>
<html>
<head>
<script>window.$ = window.jQuery = WLJQ;<
<title>HelloWorklight</title>
<meta http-equiv="Content-Type" content="
<meta name="viewport"
content="width=device-width, initial-
<link rel="stylesheet" href="css/HelloWor
</head>
<body id="content" style="display: none;">

<!--application UI goes here-->
<script src="js/initOptions.js"></script>
<script src="js/HelloWorklight.js"></script>
<script src="js/messages.js"></script>
</body>
</html>
```

Default application HTML template complies with HTML5 standard markup, but any other DOCTYPE can be specified

`<body>` element must have an `id="content"` property

HelloWorklight.html

- During application runtime, the main HTML document cannot be replaced by another HTML document.

```
<!DOCTYPE HTML>
<html>
<head>
<script>window.$ = window.jQuery = WLJQ;</script>
<title>HelloWorklight</title>
<meta http-equiv="Content-Type" content=
<meta name="viewport"
  content="width=device-width, initial
<link rel="stylesheet" href="css/HelloWo
</head>
<body id="content" style="display: none;

  <!--application UI goes here-->
  <script src="js/initOptions.js"></sc
  <script src="js/Helloworklight.js"><
  <script src="js/messages.js"></scrip
</body>
</html>
```

Worklight client side framework uses jQuery library for internal functions. By default, the \$ char is assigned to the internal jQuery in the main JavaScript file.

Remove this line in case your application does not require jQuery, or if you wish to use your own version of jQuery.

HelloWorklight.html

- During application run time, the main HTML document cannot be replaced by another HTML document.

Worklight client framework initialization is bound to onload event in the `initOptions.js` file. For possible init options, see the IBM Worklight user documentation.

```
<!DOCTYPE HTML>
<html>
<head>
<script>window.$ = window.jQuery = WLJQ;</script>
<title>HelloWorklight</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8">
<meta name="viewport"
  content="width=device-width, initial-scale=1.0, maximum-scale=1.0, minimum-scale=1.0, user-scalable=0">
<link rel="stylesheet" href="css/HelloWorklight.css">
</head>
<body id="content" style="display: none;">
  <!-- application UI goes here -->
  <script src="js/initOptions.js"></script>
  <script src="js/HelloWorklight.js"></script>
  <script src="js/messages.js"></script>
</body>
</html>
```

HelloWorklight.html

- During application run time, the main HTML document cannot be replaced by another HTML document.

The blue arrow indicates where to insert your HTML code

```
<!DOCTYPE HTML>
<html>
<head>
<script>window.$ = window.jQuery = WLJQ
<title>HelloWorklight</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8">
<meta name="viewport"
  content="width=device-width, initial-scale=1.0, maximum-scale=1.0, minimum-scale=1.0, user-scalable=0">
<link rel="stylesheet" href="css/HelloWorklight.css">
</head>
<body id="content" style="display: none;">
  <!--application UI goes here-->
  <script src="js/initOptions.js"></script>
  <script src="js/HelloWorklight.js"></script>
  <script src="js/messages.js"></script>
</body>
</html>
```

initOptions.js

- The **initOptions.js** file contains Worklight framework initialization settings.
- It is also responsible for initializing the Worklight framework once the **<body>** element has finished loading.
- By default, the Worklight application starts in offline mode.

```
var wlInitOptions = {  
  connectOnStartup : false,  
  onConnectionFailure: function () {},  
  timeout: 30000,  
  enableLogger: false  
};  
  
if (window.addEventListener) {  
  window.addEventListener('load', function() { WL.Client.init(wlInitOptions); }, false);  
} else if (window.attachEvent) {  
  window.attachEvent('onload', function() { WL.Client.init(wlInitOptions); });  
}
```

HelloWorklight.js

- Application main **.js** file that contains its JavaScript portion.
- It contains a **wlCommonInit()** function that is invoked automatically after Worklight framework initialization finishes.
- You can add your application initialization code there.
- This function is used in environment-specific JavaScript files to have a common initialization start point. There are more details in subsequent training modules.

```
function wlCommonInit(){  
    // Common initialization code goes here  
}
```

HelloWorklight.js

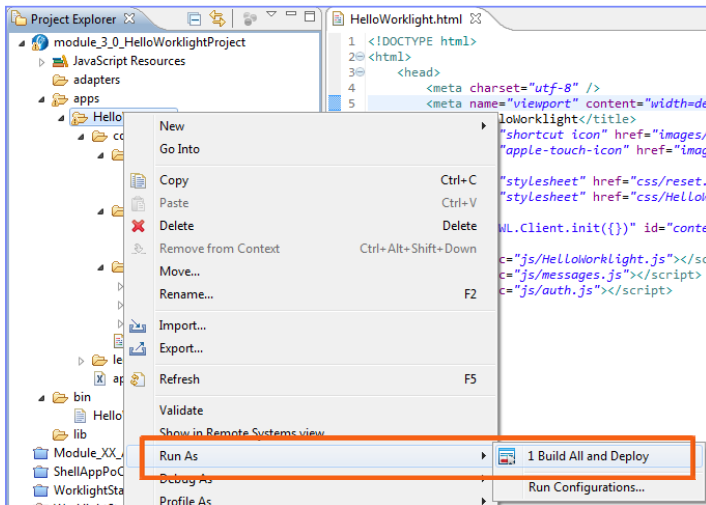
- As described previously, the Worklight application starts in offline mode by default.
- To begin communicating with Worklight Server, you need to follow the instructions in a default **wlCommonInit()** function.

```
function wlCommonInit(){
  /*
   * Application is started in offline mode as defined by a connectOnStartup p
   * In order to begin communicating with Worklight server you need to either:
   *
   * 1. Change connectOnStartup property in initOptions.js to true.
   *    This will make Worklight framework automatically attempt to connect to
   *    Keep in mind - this may increase application start-up time.
   *
   * 2. Use WL.Client.connect() API once connectivity to a Worklight server is
   *    This API needs to be called only once, before any other WL.Client meth
   *    Don't forget to specify and implement onSuccess and onFailure callback
   *
   *    WL.Client.connect({
   *      onSuccess: onConnectSuccess,
   *      onFailure: onConnectFailure
   *    });
   */
}
```


Agenda

- Write your first application
- Become familiar with the application files & HTML structure
- Use the Worklight Studio to deploy the application
- Exercise

Building an Application



- Select an app to build, and then right-click the app name
- Click **Run As > Build All and Deploy**
- After the build completes, the application is available for preview in the **catalog** tab of the Worklight Console

Worklight Console

- <http://localhost:8080/console>

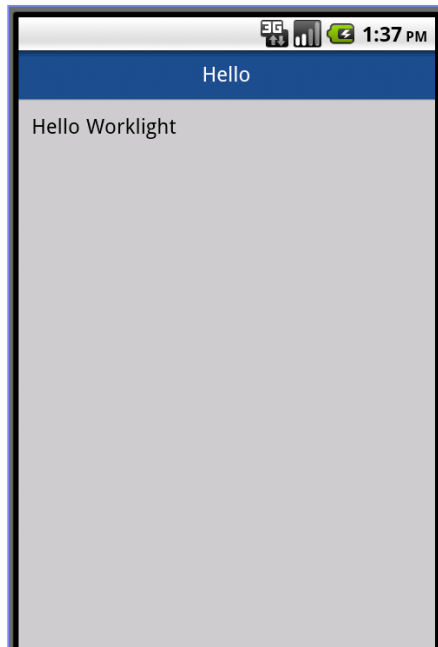
The screenshot shows the IBM Worklight Console interface. At the top left is the title "IBM Worklight Console" and at the top right is the user greeting "Welcome, Guest" with links for "Logout" and "About". Below this is a navigation bar with two tabs: "Catalog" (selected) and "Push Notifications". Under the "Catalog" tab, there is a deployment area with the text "Deploy application or adapter:" followed by a "Choose File" button, the text "No file chosen", and a "Submit" button. Below the deployment area, there is a list of applications. The first application is "HelloWorklight", which has a blue circular icon with a lightbulb. To the right of the icon is the text "HelloWorklight" and "Last updated at: 2012-05-01 14:15". To the right of the application name is a "Delete" button with a blue 'X' icon. Below the application name is a link "Preview as Common Resources" with an eye icon. At the bottom right of the interface is the copyright notice "© Copyright IBM Corp. 2008, 2012. All Rights Reserved."

Agenda

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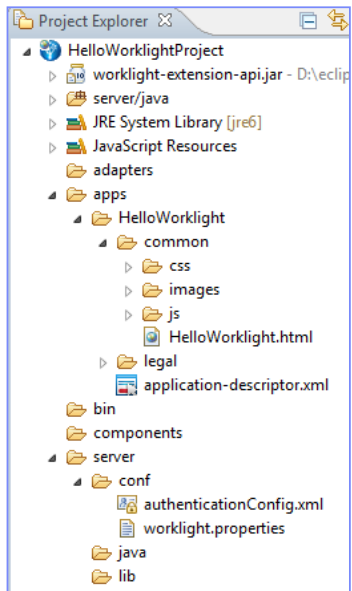
Exercise

- HelloWorklight Application
 - Use the wizard to create a Worklight Project
 - Use the wizard to create an application; name it **HelloWorklight**
 - Use the Worklight Studio to deploy your application
 - Use the Worklight Console to preview your application



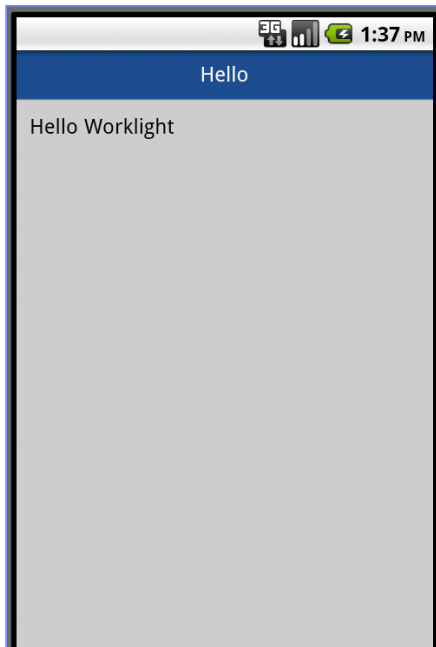
Exercise solution

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



Keep in Mind

- The following chapters demonstrate the simplicity of running your application on various desktop and mobile platforms at a basic level. This subject is explained in more detail in subsequent modules.



Check yourself questions

- What is the default application structure?
 - A single HTML file, and a number of CSS and JS files
 - A number of HTML and JS files, and a single CSS file
 - A number of HTML, JS, and CSS files
 - A single HTML, single CSS, and a single JS file
- Which of the following server-side components cannot be added as part of a Worklight Project?
 - Source code of custom server-side Java classes
 - Properties that are used by the server
 - JAR files that contain server-side Java code
 - JMeter application to test server performance
- The correct place to specify the URL that the application uses is:
 - authenticationConfig.xml
 - worklight.properties
 - application-descriptor.xml
 - This URL is set separately per platform in a dedicated settings file

Check yourself questions

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