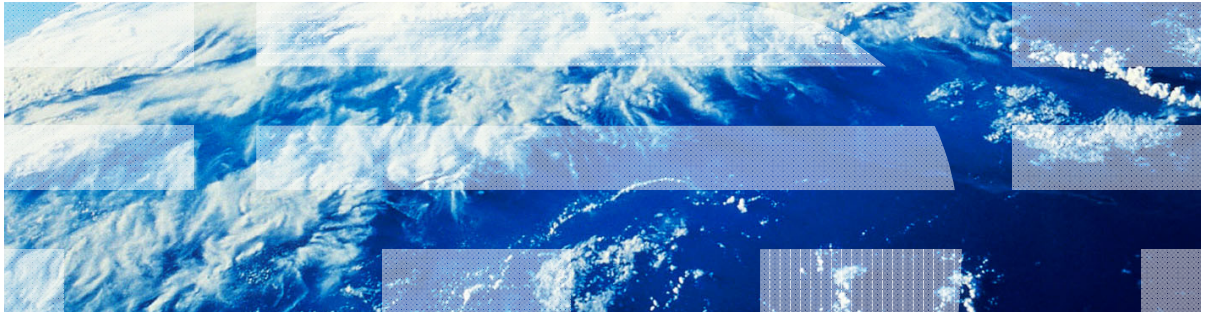


IBM Worklight V5.0.5 Getting Started

Module 3 – Writing Your First Application



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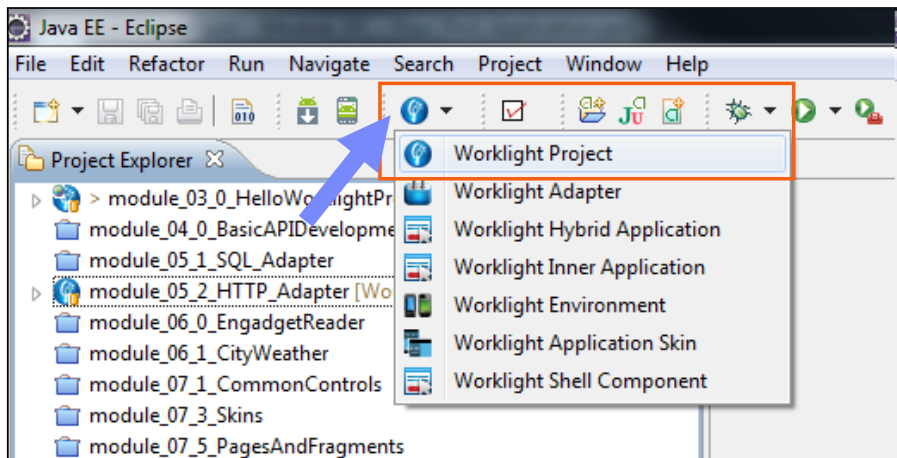
- See <http://www.ibm.com/ibm/us/en/>

Agenda

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

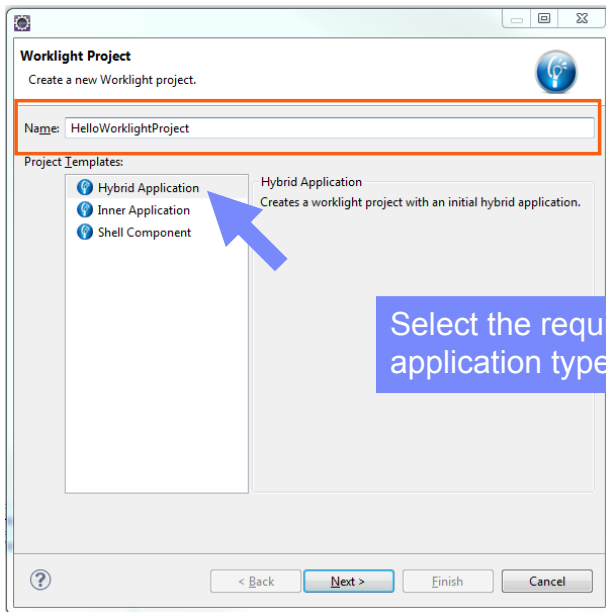
Hello Worklight Application

- Create a Worklight® Project



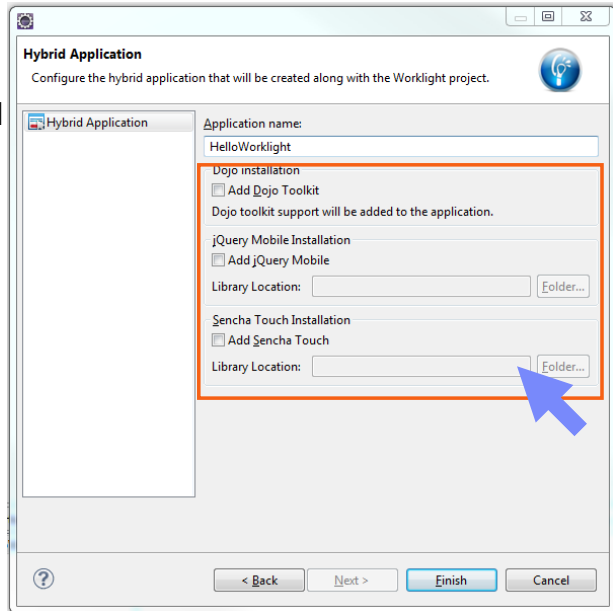
Hello Worklight Application

- Name it HelloWorklightProject and select a Hybrid Application template



Hello Worklight Application

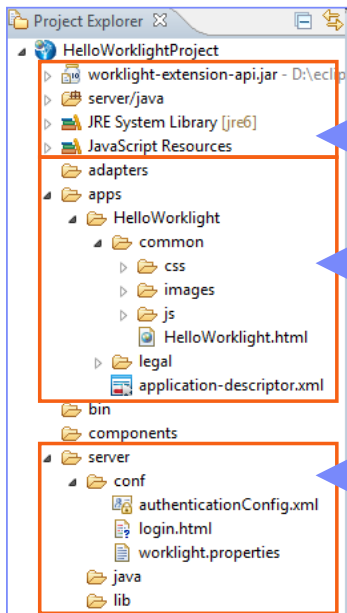
- Name your application
HelloWorklight
- JavaScript frameworks can be added to your project on this screen
- To use **jQuery Mobile** or **Sencha Touch**, you need to manually download them before adding to the application
- Click **Finish** when done



Agenda

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

Worklight Project Structure

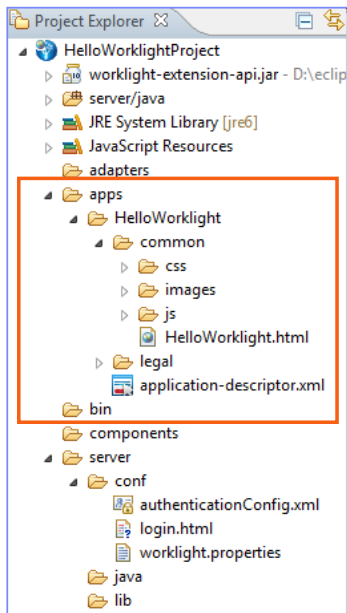


References required for application development and deployment

Project applications and adapters

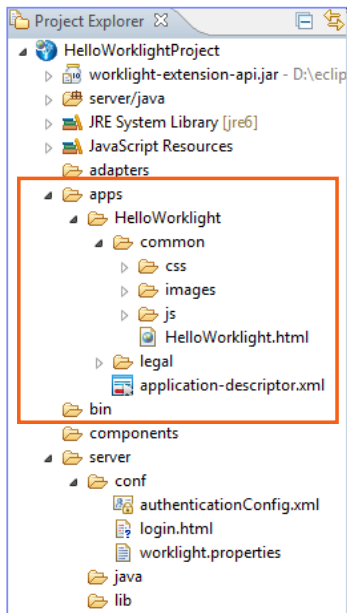
Server customization components

HelloWorklight - Project Structure



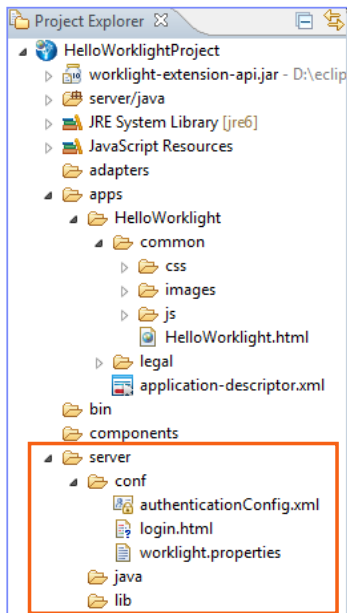
- The default environment is called **common**.
- The **common** environment contains all the resources that are shared between environments.
- Right-click **apps > New > Worklight environment** to add new environments:
 - A new environment is created.
 - The resources of the new environment have the 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 .wlappp and .wlapppr files that can be used to deploy to a remote Worklight Server.

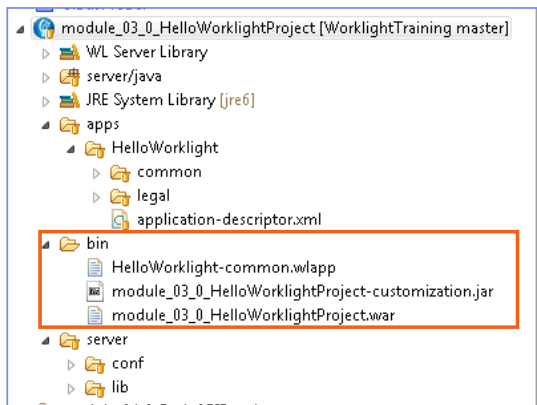
HelloWorklight - Project Structure



- The server folder contains files used for server-side customization of a project:
 - The conf folder contains:
 - worklight.properties, used to set up properties used by server.
 - authenticationConfig.xml, used to set up authentication realms.
 - login.html, used to present 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

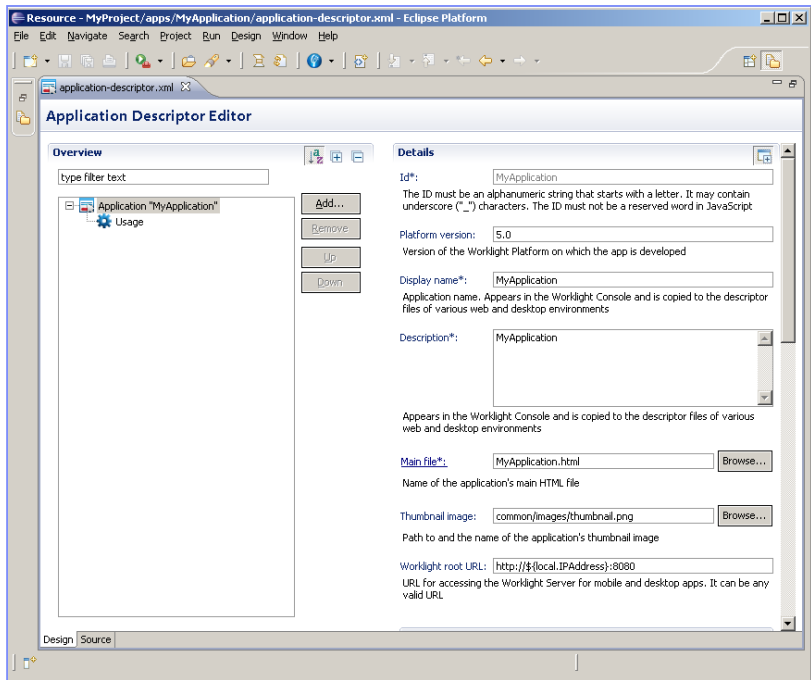
- The bin\ folder contains project artifacts that are deployed to a Worklight Server
- The evaluation version of Worklight Studio deploys those artifacts to the embedded Worklight Server automatically as a part of Build process



- **.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/xmlns/1.0"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://www.worklight.com/xmlns/1.0 http://www.worklight.com/xmlns/1.0/worklight-app-descriptor.xsd">
```

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

```
<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>
```

HelloWorklight - Application Descriptor

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

```
<application id="HelloWorklight" platformVersion="5.0.2"
  xmlns="http://www.worklight.com/application-descriptor"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">

  <displayName>HelloWorklight</displayName>
  <description>HelloWorklight</description>
  <author>
    <name>application's author</name>
    <email>application author's email</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>
```

Application dimensions in the descriptor are required for the Desktop and iGoogle environments

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://${local.fullHost}
  <worklightServerRootURL>http://${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.html

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

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="utf-8" />
    <meta name="viewport" content="width=device-width, initial-scale=1" />
    <title>HelloWorklight</title>
    <link rel="shortcut icon" href="img/favicon.ico" />
    <link rel="apple-touch-icon" href="img/apple-touch-icon.png" />
    <link rel="stylesheet" href="css/zzz.css" />
  </head>
  <body id="content" style="display: none">
    <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 run time, the main HTML document cannot be replaced by another HTML document.

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="utf-8" />
    <meta name="viewport" content="width=device-width, height=device-height" />
    <title>HelloWorklight</title>
    <link rel="shortcut icon" href="images/favicon.png" />
    <link rel="apple-touch-icon" href="images/apple-touch-icon.png" />
    <link rel="stylesheet" href="css/zzz.css" />
  </head>
  <body id="content" style="display: none">
    <script src="js/initOptions.js"></script>
    <script src="js/HelloWorklight.js"></script>
    <script src="js/messages.js"></script>
  </body>
</html>
```

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

HelloWorklight.html

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

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="utf-8" />
    <meta name="viewport" content="width=device-width, initial-scale=1.0,
    <title>HelloWorklight</title>
    <link rel="shortcut icon" href="images/favicon.png" />
    <link rel="apple-touch-icon" href="images/apple-touch-icon.png" />
    <link rel="stylesheet" href="css/zzz.css" />
  </head>
  <body id="content" style="display: none">
    <script src="js/initOptions.js"></script>
    <script src="js/HelloWorklight.js"></script>
    <script src="js/messages.js"></script>
  </body>
</html>
```

The blue arrow indicates where to insert your html code

initOptions.js

- The **initOptions.js** file contains Worklight framework initialization settings.
- It is also responsible for initializing 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

- 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.

```
// Worklight comes with the jQuery 1.8.1 framework bundled inside. If  
window.$ = window.jQuery = WLJQ;
```

- Remove this line in case your application doesn't require jQuery, or if you wish to use your own version of jQuery.

HelloWorklight.js

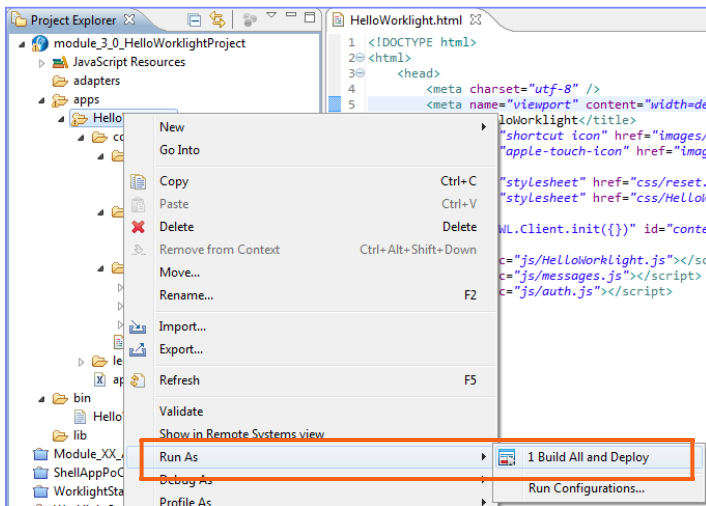
- As described before, by default Worklight application is started in offline mode.
- In order to begin communicating with Worklight Server, you need to follow instructions in a default **wlCommonInit()** function.

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

Worklight Console

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

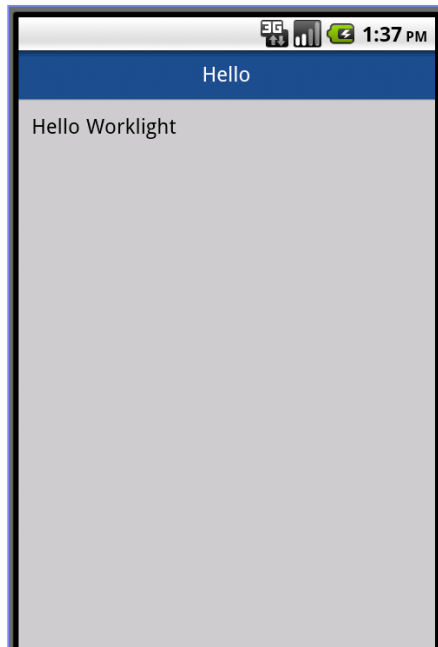
The screenshot shows the IBM Worklight Console interface. At the top left, the text "IBM Worklight Console" is displayed. At the top right, there is a user greeting "Welcome, Guest" followed by links for "Logout" and "About". Below this is a navigation bar with two tabs: "Catalog" (which is active) and "Push Notifications". Under the "Catalog" tab, there is a section for "Deploy application or adapter" with a "Choose File" button, the text "No file chosen", and a "Submit" button. Below this 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 console, there is a copyright notice: "© Copyright IBM Corp. 2008, 2012. All Rights Reserved."

Agenda

- Write your first application
- Get familiar with the application files & HTML structure
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- Exercise

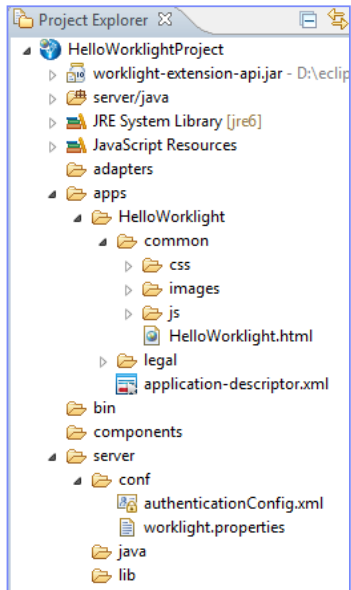
Exercise

- HelloWorldlight 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



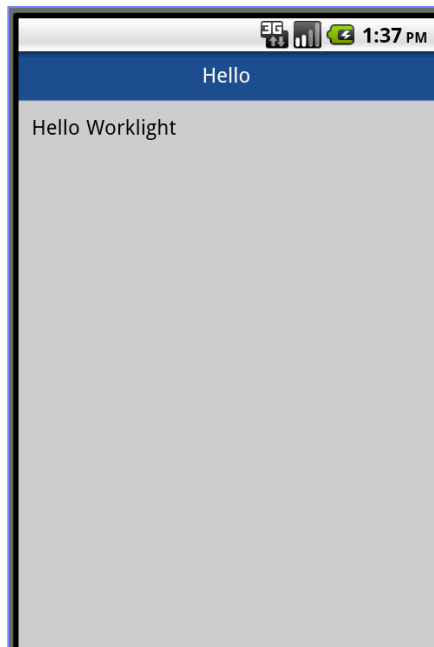
Exercise solution

- 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

- Next chapters demonstrate the simplicity of running your application on various desktop and mobile platforms at a basic level. This subject is discussed 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 a part of Worklight Project?
 - Source code of custom server-side Java classes
 - Properties that are used by 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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