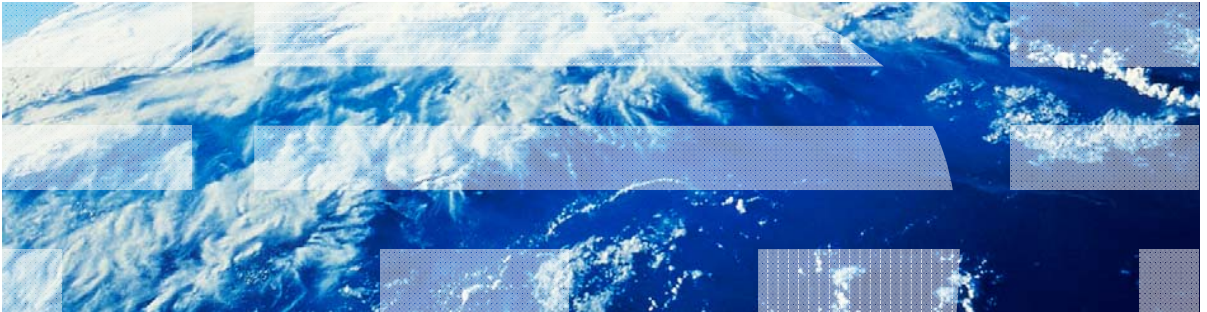


IBM Worklight V6.0.0 Getting Started

Creating your first Worklight application



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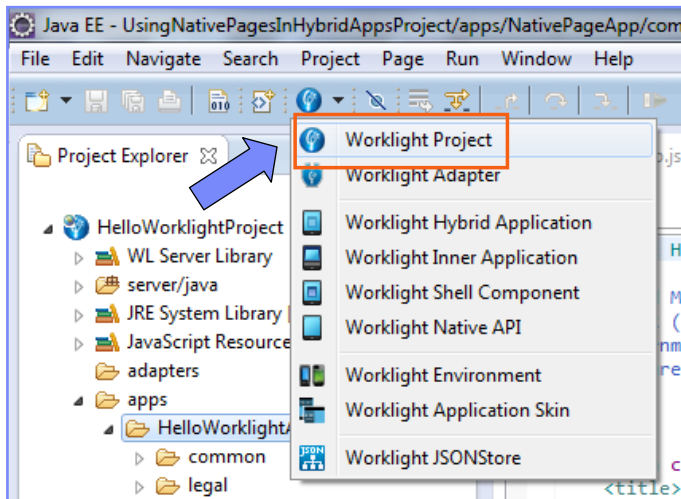
- See <http://www.ibm.com/ibm/us/en/>

Agenda

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

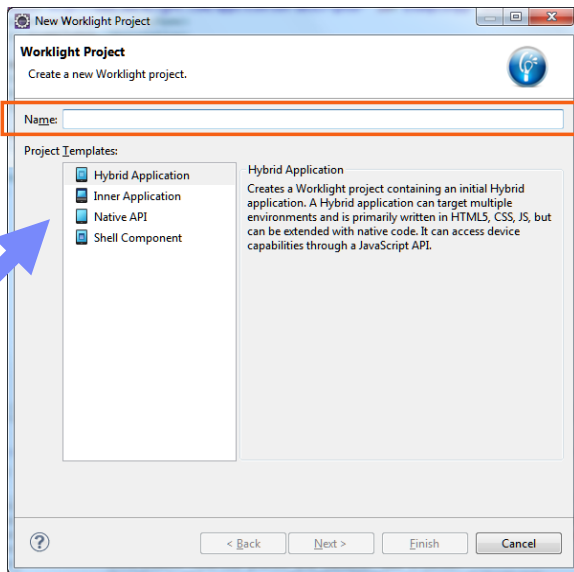
Hello Worklight Application

- Create an IBM Worklight® project.



Hello Worklight Application

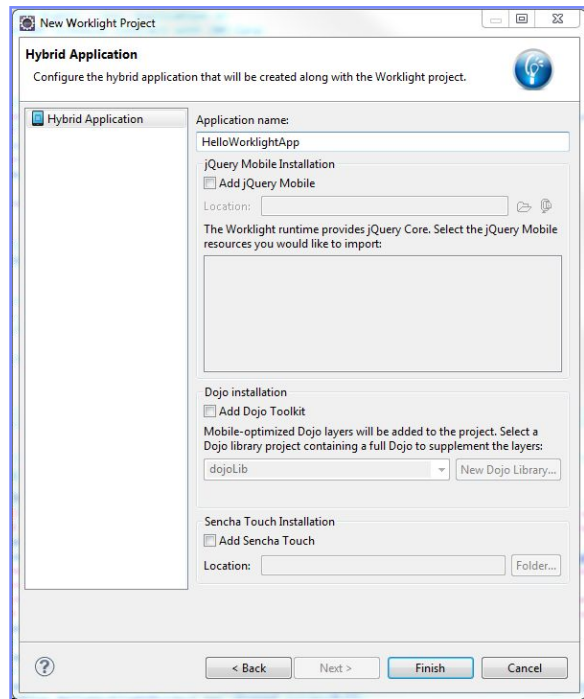
- Name it HelloWorklightProject and select a Hybrid Application template.



Select the required application type.

Hello Worklight Application

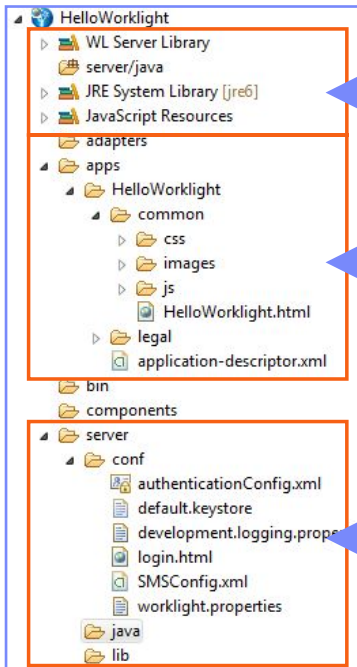
- Name your application **HelloWorklight**.
- JavaScript™ frameworks can be added to your project on this screen.
- Click **Finish** when done.



Agenda

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Worklight Project Structure

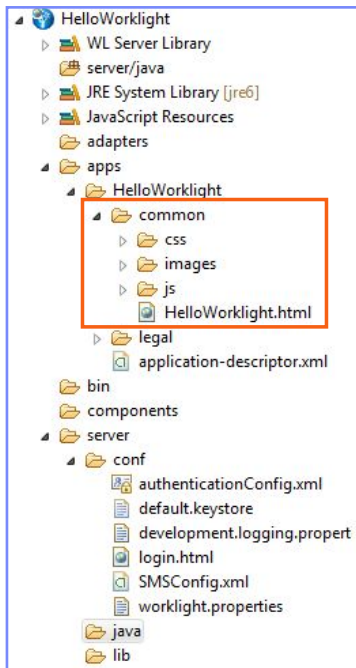


References required for application development and deployment

Project applications and adapters

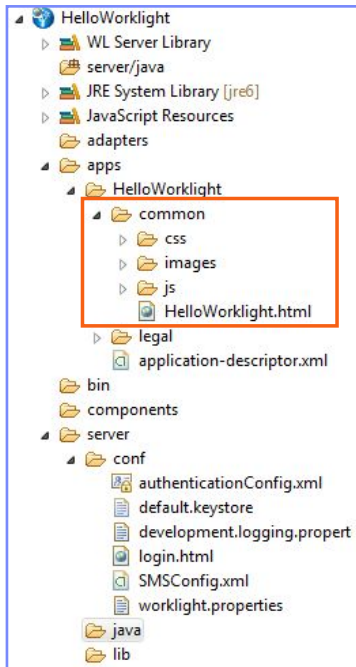
Server customization components

HelloWorklight - Project Structure



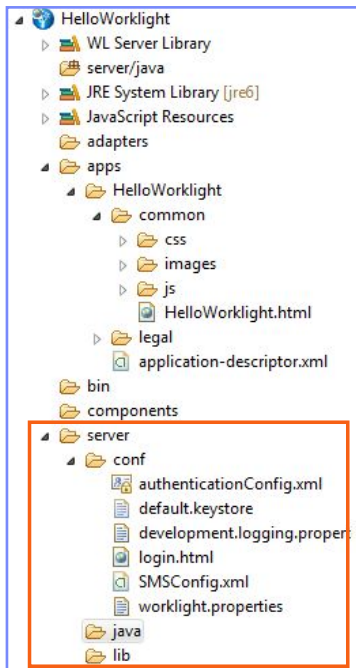
- The default environment is called **common**.
- The **common** environment contains all the resources that are shared between environments.
- Right-click **apps > New > Worklight environment** to add new environments:
 - A new environment is created.
 - The resources of the new environment have the 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.
- The **legal** folder holds all legal related docs.
- The **application-descriptor.xml** file contains the application metadata.
- The **bin** folder contains generated **.wlappp** and **.wladapter** files that can be used to deploy to a remote Worklight Server.

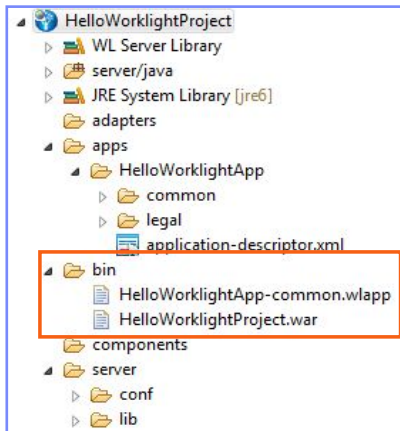
HelloWorklight - Project Structure



- 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

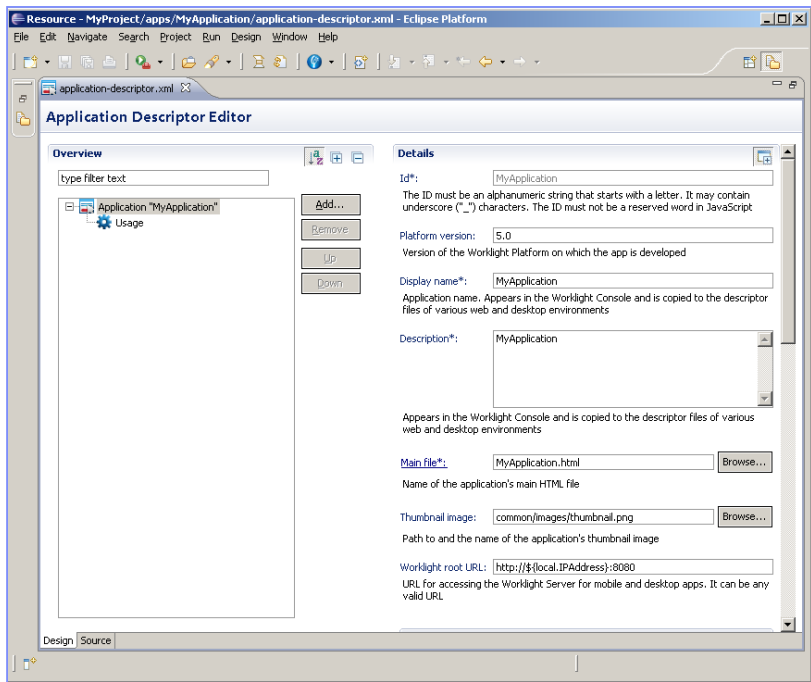
- The **bin** folder contains project artifacts that are deployed to a Worklight Server.
- The evaluation version of Worklight Studio deploys those artifacts to the embedded Worklight Server automatically as a part of the build process.



- **.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 an IBM Worklight application.
- This file can be edited with the Design or Source editors.



HelloWorklight - Application Descriptor

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

```
<application xmlns="http://www.worklight.com/application-descriptor" id="HelloWorklight"  
  <displayName>HelloWorklight</displayName>  
  <description>HelloWorklight</description>  
  <author>  
    <name>application's author</name>  
    <email>application author's e-mail</email>  
  </author>  
  <mainFile>HelloWorklight.html</mainFile>  
  <features>  
    <JSONStore/>  
  </features>  
  <thumbnailImage>common/images/thumbnail.png</thumbnailImage>  
</application>
```

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

```
<iphone bundleId="com.test1" version="1.0">
  <worklightSettings include="true"/>
  <security>
    <encryptWebResources enabled="false"/>
    <testWebResourcesChecksum enabled="false" ignoreFileExtensions="png, jpg, jpeg, gif, mp4, mp3"/>
  </security>
</iphone>
<android version="1.0">
  <worklightSettings include="true"/>
  <security>
    <encryptWebResources enabled="false"/>
    <testWebResourcesChecksum enabled="false" ignoreFileExtensions="png, jpg, jpeg, gif, mp4, mp3"/>
    <publicSigningKey>Replace this text with the p
  </security>
</android>
```

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

HelloWorklight – Single DOM model

- IBM Worklight hybrid applications use 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.
 - You must do so because the main application HTML file loads Worklight client-side JavaScript framework files, so after the browser navigates from one HTML file to another the JavaScript context and loaded scripts are lost.
- Most JavaScript UI frameworks available today (for example, jQuery Mobile, Sencha Touch, Dojo Mobile) 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 later modules.

HelloWorklight.html

- During application run time, 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 run time, 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 if your application does not require jQuery, or if you want to use your own version of jQuery.

HelloWorklight.html

- During application run time, 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/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>
```

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

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

- When creating an application, an **<app name>.js** file is created and holds 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

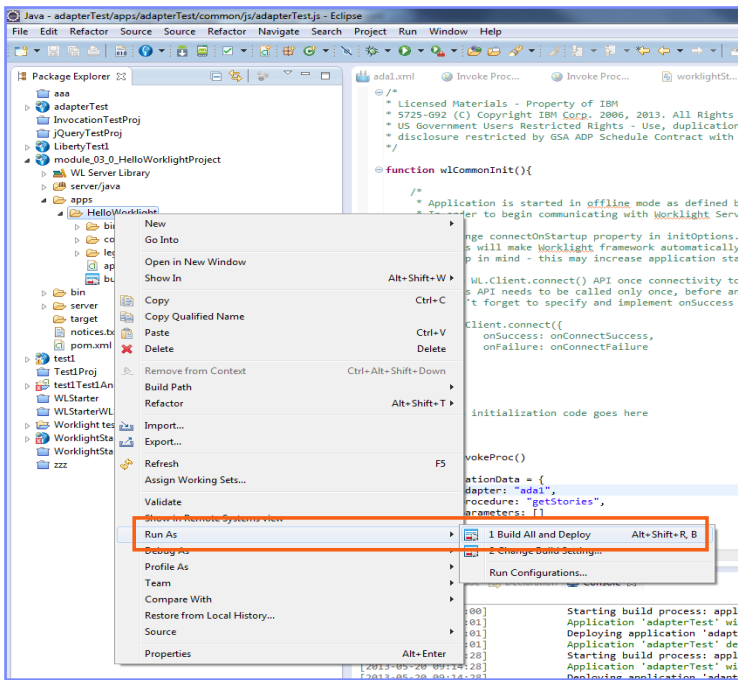
- As described previously, the Worklight application starts in offline mode by default.
- To begin communicating with Worklight Server, you need to follow the instructions in the default **wlCommonInit()** function.

```
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
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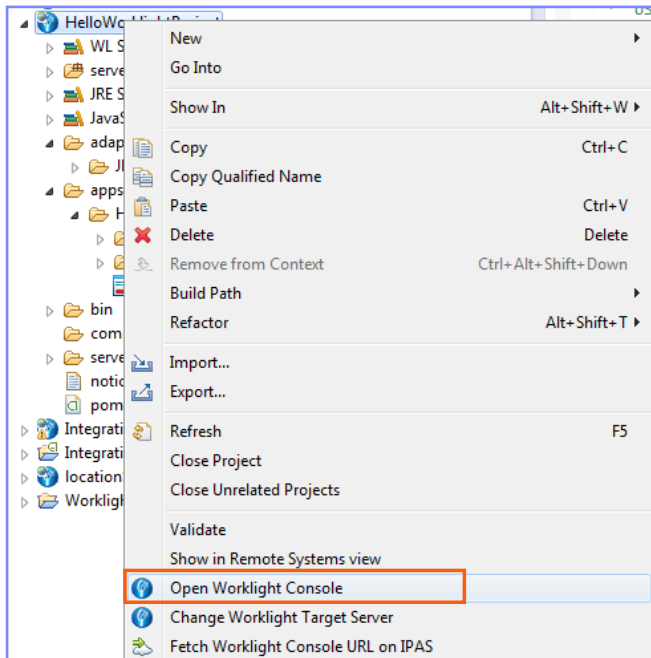
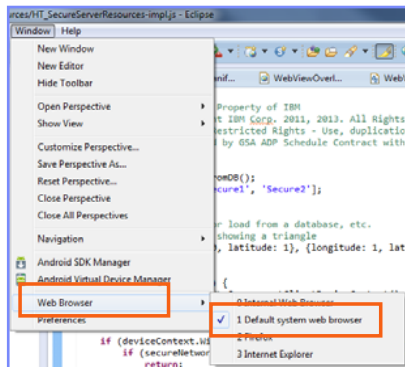
Building an Application



- 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.
- IBM Worklight default port is **10080**, and the context root will be the project name by default.

Worklight Console

- To run the console, right-click the project name and select **Open Worklight Console**.
- To view the Worklight Console in the browser window go to **Window > Web Browser > Default system web browser**.

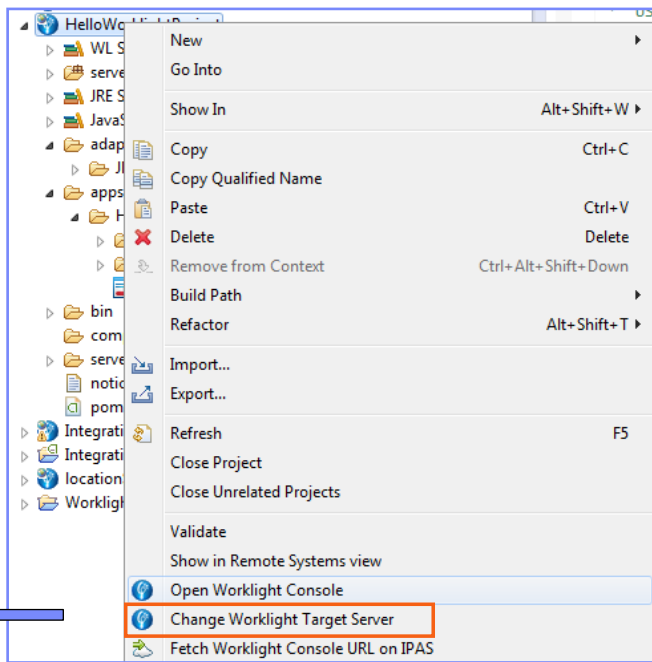
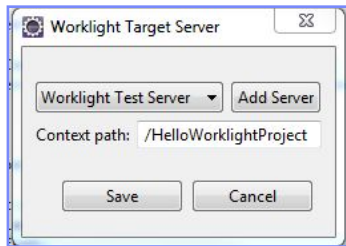


Worklight Console

- In IBM Worklight V6.0.0, the console URL has changed:
 - The port is changed from **8080** to **10080**.
 - The URL also now contains the project context root.
 - For example: **`http://localhost:10080/MyProject/console`**

Worklight Target Server

- To change the target server, right-click the project name and select **Change Worklight Target Server**.
- Now you can select a server, add another target server, and change the context root.
- Note:** Only local servers are supported. Only Tomcat and Liberty are supported.

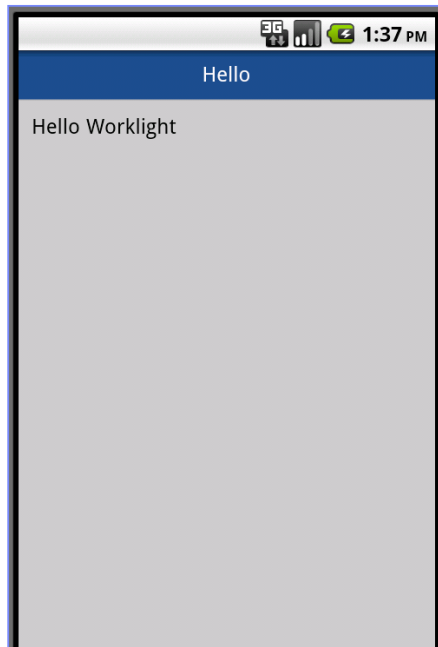


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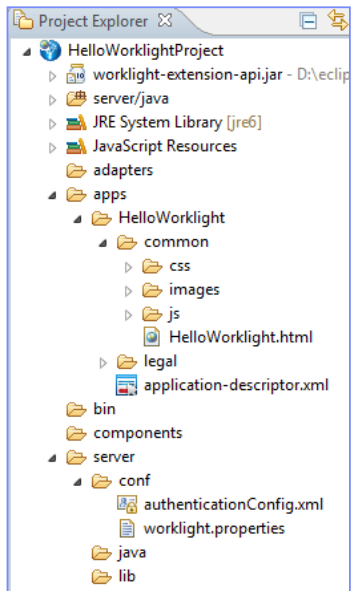
Exercise

- HelloWorldlight Application
 - Use the wizard to create a **HelloWorklightProject** project.
 - Use the wizard to create an application; name it **HelloWorklight**.
 - Use Worklight Studio to deploy your application.
 - Use 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>.



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

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