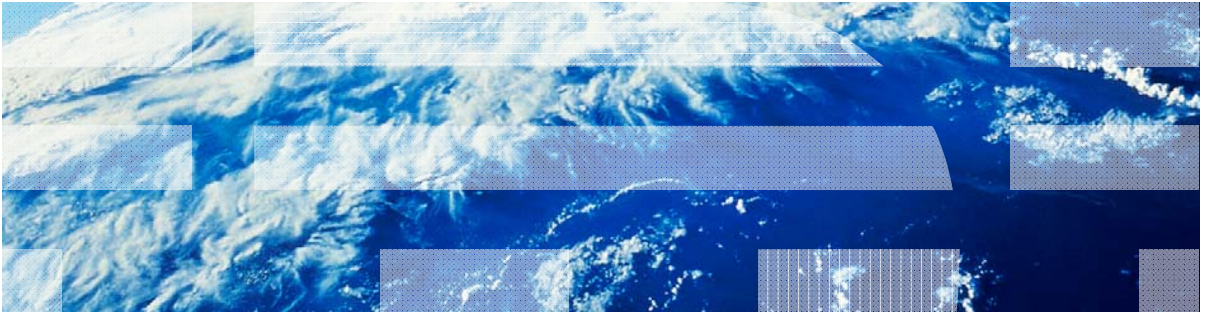# IBM Worklight V5.0.6
Getting Started

Android shell development

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Agenda

- **Overview**
- Adding an Android environment to a shell component
- Adding custom Java™ code to a shell component
- Using the NativeEmptyApp Project

Overview

- This module is a continuation of the module **Shell Development Concepts**.

- In this module, you learn how to add an Android environment to your shell component, test application, and inner application.

Agenda

- Overview

- Adding an Android environment to a shell component

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Adding an Android environment to a shell component

- Start by adding a new Android environment to your shell component by following the same procedure as for a standard Worklight® application.
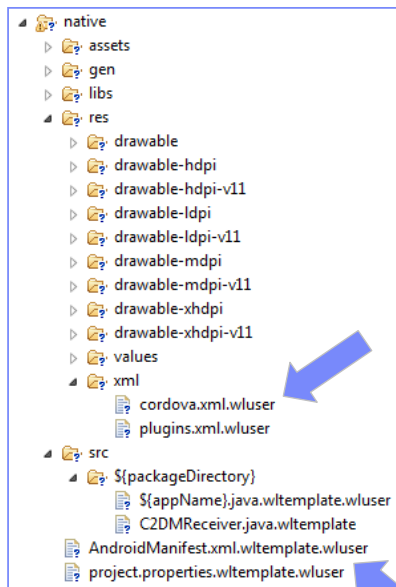
Adding an Android environment to a shell component

- The following folder structure is created:

  – **css, images, fragments** and **js** contain resources that override or extend resources from the shell component **common** folder.

  – The **native** folder contains an application template to be used when you create an Android project from an inner application.

  – The **nativeEmptyApp** folder contains application that is built from the shell component and an empty inner application as described in the **Shell Development Concepts module**.
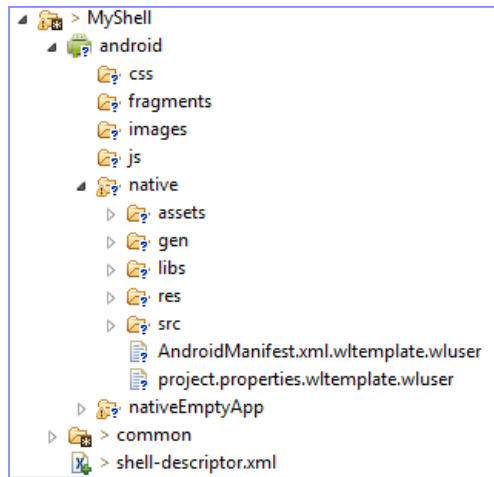
Adding an Android environment to a shell component

- The files in the **native** folder are templates that are going to be used to create the inner application Android project

- Some of the folder and file names contain placeholder elements that are populated during build.

- For example

  - **${packageDirectory}** placeholder is populated with a package name used in the application.

  - **${appName}** placeholder is populated with the application name, thus creating the main application activity.

- Files with the `.wluser` extension are template files that shell developers can modify.

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Adding custom Java code to Shell component

- Because the `android\native` folder of a shell component is not an Android project, Eclipse does not provide advanced features such as auto-complete when you work on it directly.

- The solution is to use Android environment to create, modify, and debug Java™ code.

- The generated Android project is added to your workspace.

- Use it to work with your Java code.
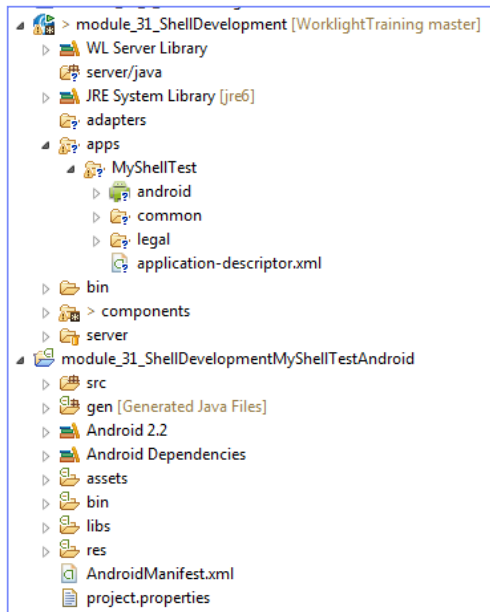
Adding custom Java code to a shell component

- Add the com.mycustomcode package to the generated Android project.

- Add MyCustomToaster.java class under this package.

- Add a static method to this class:

```java
public class MyCustomToaster {
    public static void showToastAlert(Activity context, String text){
        Toast.makeText(context, text, 2000).show();
    }
}
```

- Open your main application activity

- Invoke MyCustomToast.showToastAlert():

```java
public class MyShellTest extends WLDroidGap {
    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        //DeviceAuthManager.getInstance().setProvisioningDelegate(<replace with y
        super.loadUrl(getWebMainFilePath());
        MyCustomToaster.showToastAlert(this, "Hello from native Android Shell");
    }
}
```

Adding custom Java code to a shell component

- Run your application to see the implemented functions

Here is the JavaScript™ alert that you implemented in the Shell Development Concepts module.

Here is a MyCustomToaster that you implemented as native Java code in previous slides.

Adding custom Java code to a shell component

- Finally, copy your Java code from the Android project that you used to develop it back to the shell component.
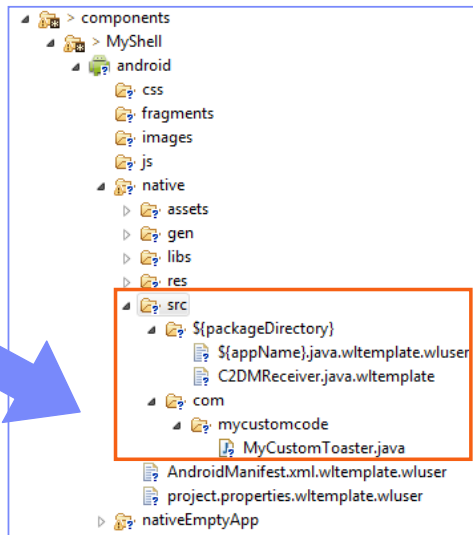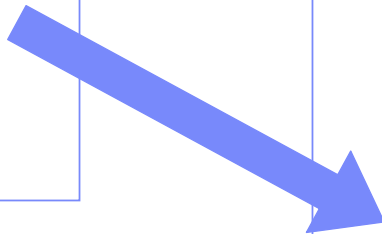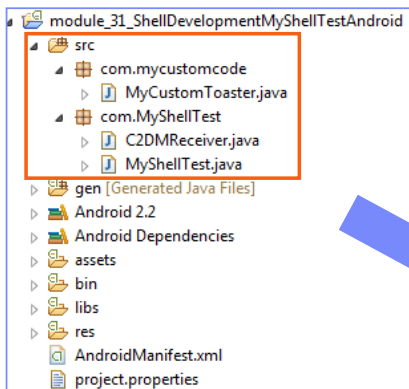
Adding custom Java code to a shell component

- Finally, copy your Java code from the Android project that you used to develop it back to the shell component.

The custom Java classes that were added to the Android project can be copied to keep the package structure intact.
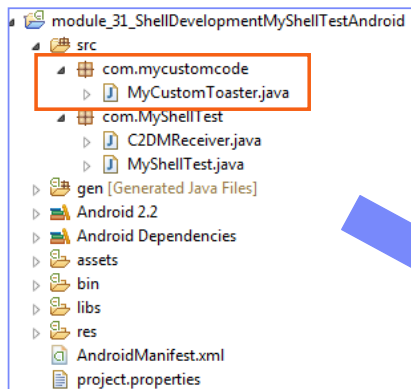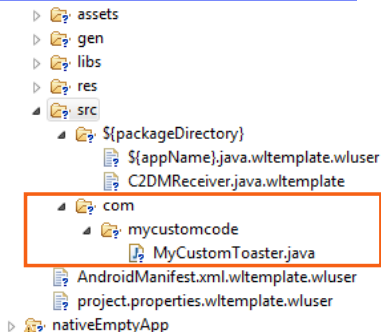
Adding custom Java code to a shell component

- Finally, copy your Java code from the Android project that you used to develop it back to the shell component.
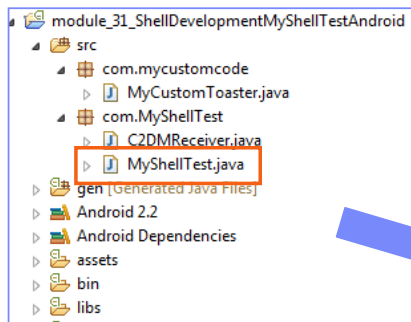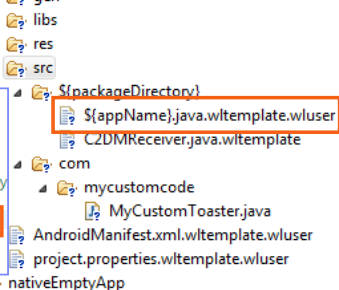
Modifications that are made to the predefined files created by Worklight Studio, however, must be copied manually to the corresponding template files. In this specific case, a highlighted line from the `MyShellTest.java` must be copied to `${appName}.java.wltemplate.wluser`.

```
module_31_ShellDevelopmentMyShellTestAndroid
    src
        com.mycustomcode
            MyCustomToaster.java
        com.MyShellTest
            C2DMReceiver.java
            MyShellTest.java
    gen [Generated Java Files]
    Android 2.2
    Android Dependencies
    assets
    bin
    libs
```

```java
public class MyShellTest extends WLDroidGap {
    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        //DeviceAuthManager.getInstance().setProvisioningDelegate(<replace with y
        super.loadUrl(getWebMainFilePath());
        MyCustomToaster.showToastAlert(this, "Hello from native Android Shell");
    }
}
```

```
    gen
    libs
    res
    src
        ${packageDirectory}
            ${appName}.java.wltemplate.wluser
            C2DMReceiver.java.wltemplate
        com
            mycustomcode
                MyCustomToaster.java
    AndroidManifest.xml.wltemplate.wluser
    project.properties.wltemplate.wluser
    nativeEmptyApp
```

Adding custom Java code to a shell component

- The `native` folder of the test application is not being rebuilt from the shell component each time you build the Android application.

- Doing so avoids overwriting the test application native code with the one in the shell component on each build, thus allowing shell developers to debug their code conveniently.

- If you do want your native folder to be fully re-created from a shell component, erase it in the test application, and then build and deploy the application.
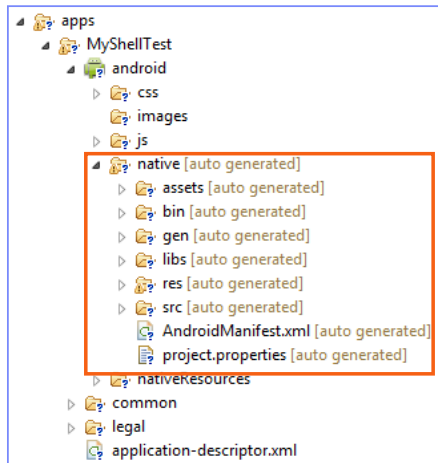
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Using the NativeEmptyApp Project

- **NativeEmptyApp** is a native application project that uses the Shell component, and has an empty Inner application.

- This project can be built as an APK or IPA by a shell developer, and sent to inner application developers to use for debugging their applications.

- After the NativeEmptyApp is installed on the device, an inner application developer can specify the URL of the Worklight Server to load the inner application from.

  – Doing so helps inner application developers to test their code without the need to have native SDKs installed.

  – For example: to develop and test iPhone application without a Mac.

- To use NativeEmptyApp, import its folder as a generic project in Eclipse.
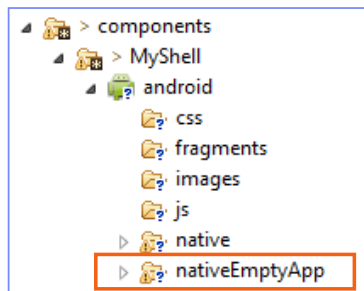
Using the NativeEmptyApp Project

- The native empty application is automatically recognized as an Android project.

- When the application is built and deployed to an Android device, click **Menu** and go to **Settings** to change the URL that this inner application content is loaded from.
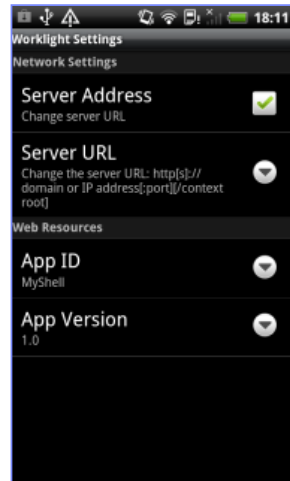
Using the NativeEmptyApp Project

- **Important:**

  – NativeEmptyApp cannot load a remote inner application that has the device provisioning enabled.

  – NativeEmptyApp can be used only in the development environment.

Sample

- 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

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