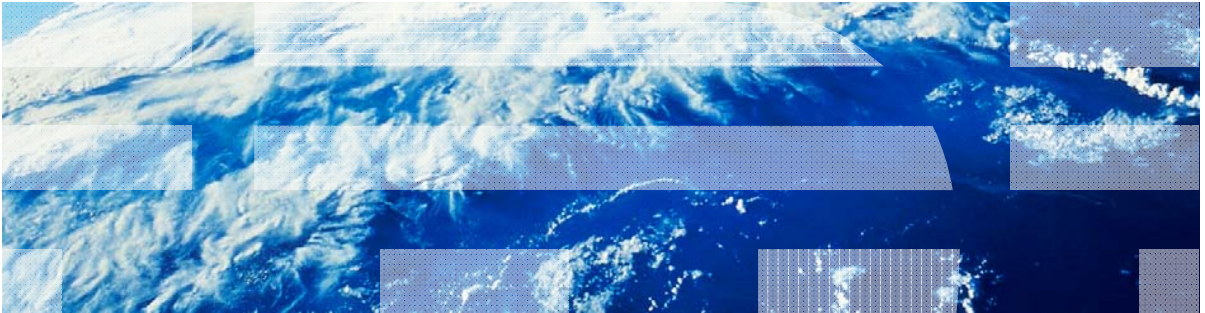


# ***IBM Worklight V6.0.0 Getting Started***

## **Android shell development**



## ***Trademarks***

- IBM, the IBM logo, and ibm.com are trademarks or registered trademarks of International Business Machines Corporation, registered in many jurisdictions worldwide. Worklight is a trademark or registered trademark of Worklight, an IBM Company. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the Web at “[Copyright and trademark information](#)” at [www.ibm.com/legal/copytrade.shtml](http://www.ibm.com/legal/copytrade.shtml).
- Java and all Java-based trademarks and logos are trademarks or registered trademarks of Oracle and/or its affiliates.
- Other company products or service names may be trademarks or service marks of others.
- This document may not be reproduced in whole or in part without the prior written permission of IBM.

## ***About IBM®***

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

# 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
- Adding custom Java code to a shell component
- Using the NativeEmptyApp Project

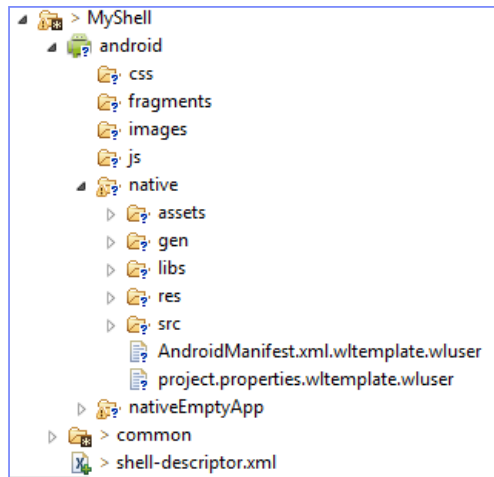
## Adding an Android environment to a shell component

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



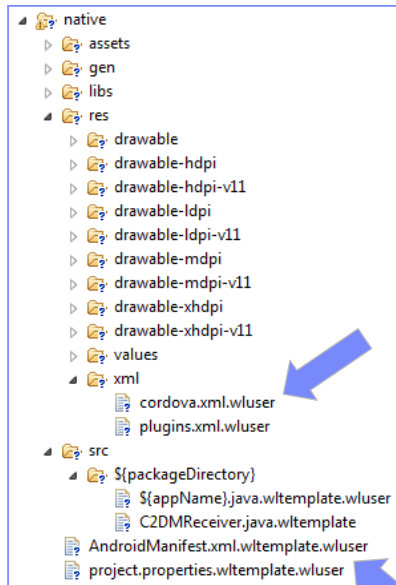
## Adding an Android environment to a shell component

- 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 `.wuser` extension are template files that shell developers can modify.



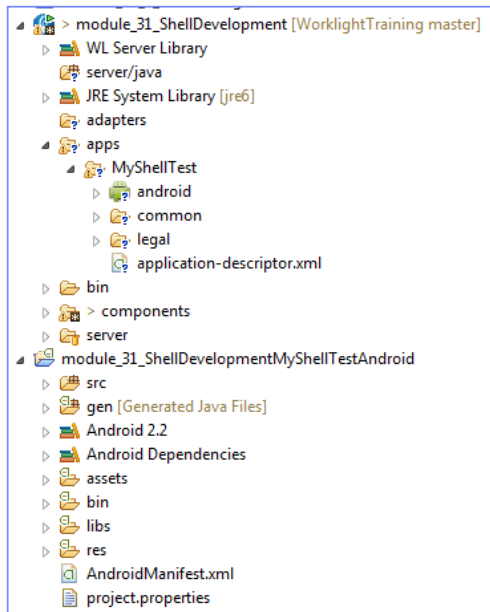


## Agenda

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

## 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:

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

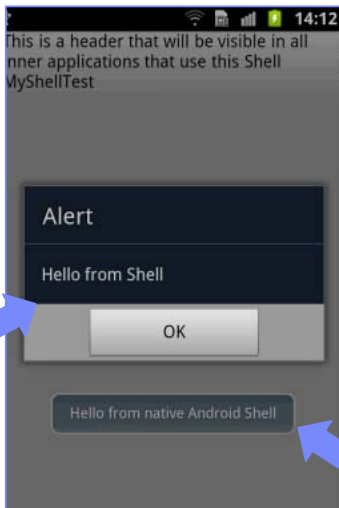
- Open your main application activity
- Invoke MyCustomToast.showToastAlert():

```
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

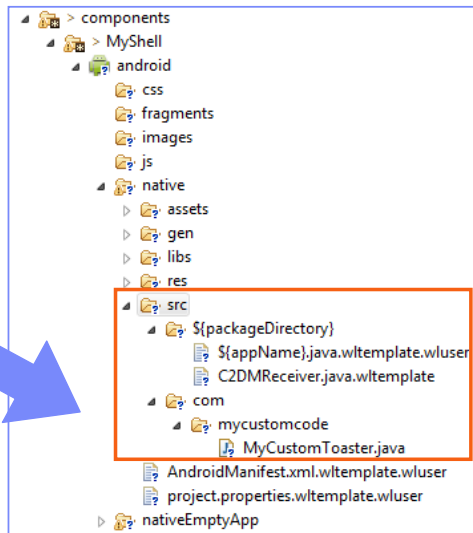
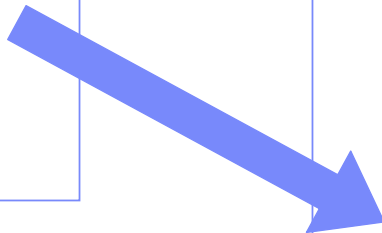
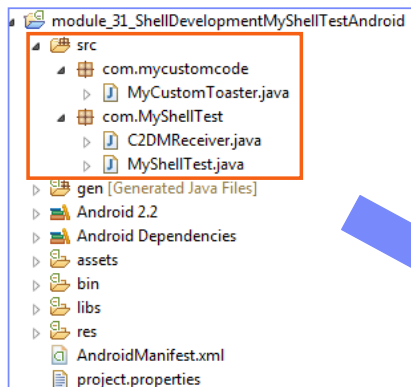
Here is the JavaScript alert that you implemented in the Shell Development Concepts module.



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

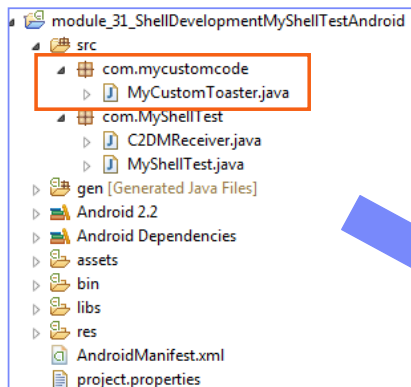
## Adding custom Java code to a shell component

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

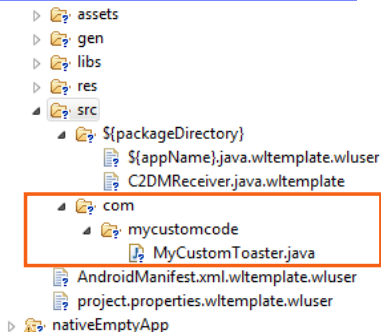


## Adding custom Java code to a shell component

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

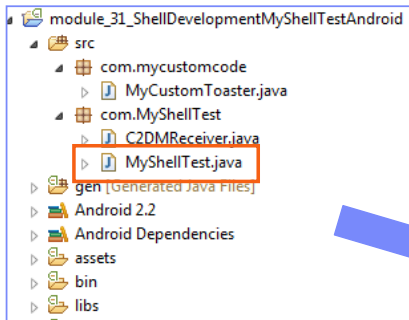


The custom Java classes that were added to the Android project can be copied to keep the package structure intact.



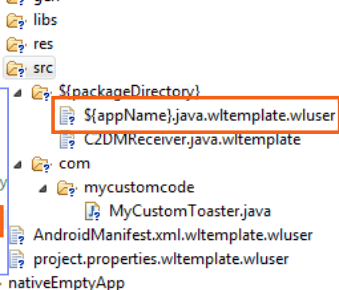
## Adding custom Java code to a shell component

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



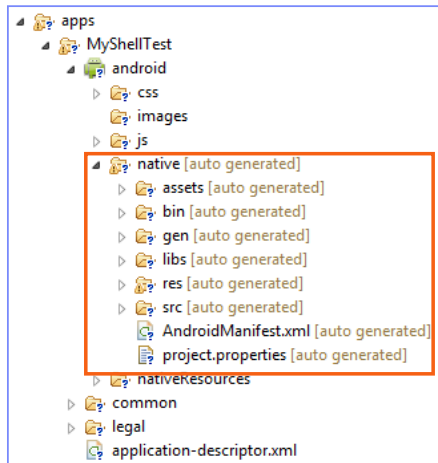
Modifications that are made to the predefined files created by Worklight Studio, however, must be copied manually to the corresponding template files. In this specific case, a highlighted line from the `MyShellTest.java` must be copied to `_${appName}.java.wltemplate.wluser`.

```
public class MyShellTest extends WLAndroidGap {
    @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

- 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.



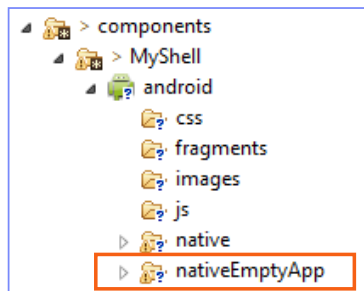


## Agenda

- Overview
- Adding an Android environment to Shell component
- Adding custom Java code to Shell component
- Using the NativeEmptyApp Project

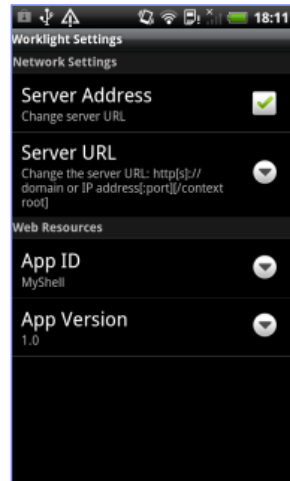
## Using the NativeEmptyApp Project

- **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>

# Notices

- Permission for the use of these publications is granted subject to these terms and conditions.
- This information was developed for products and services offered in the U.S.A.
- IBM may not offer the products, services, or features discussed in this document in other countries. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-IBM product, program, or service.
- IBM may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not grant you any license to these patents. You can send license inquiries, in writing, to:
  - IBM Director of Licensing  
IBM Corporation  
North Castle Drive  
Armonk, NY 10504-1785  
U.S.A.
- For license inquiries regarding double-byte character set (DBCS) information, contact the IBM Intellectual Property Department in your country or send inquiries, in writing, to:
  - Intellectual Property Licensing  
Legal and Intellectual Property Law  
IBM Japan Ltd.  
1623-14, Shimotsuruma, Yamato-shi  
Kanagawa 242-8502 Japan
- **The following paragraph does not apply to the United Kingdom or any other country where such provisions are inconsistent with local law: INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.**
- This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.
- Any references in this information to non-IBM Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this IBM product and use of those Web sites is at your own risk.
- IBM may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.
- Licensees of this program who wish to have information about it for the purpose of enabling: (i) the exchange of information between independently created programs and other programs (including this one) and (ii) the mutual use of the information which has been exchanged, should contact:
  - IBM Corporation  
Dept F6, Bldg 1  
294 Route 100  
Somers NY 10589-3216  
USA

- Such information may be available, subject to appropriate terms and conditions, including in some cases, payment of a fee.
- The licensed program described in this document and all licensed material available for it are provided by IBM under terms of the IBM Customer Agreement, IBM International Program License Agreement or any equivalent agreement between us.
- Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not tested those products and cannot confirm the accuracy of performance, compatibility or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

## COPYRIGHT LICENSE:

- This information contains sample application programs in source language, which illustrate programming techniques on various operating platforms. You may copy, modify, and distribute these sample programs in any form without payment to IBM, for the purposes of developing, using, marketing or distributing application programs conforming to the application programming interface for the operating platform for which the sample programs are written. These examples have not been thoroughly tested under all conditions. IBM, therefore, cannot guarantee or imply reliability, serviceability, or function of these programs.
- Each copy or any portion of these sample programs or any derivative work, must include a copyright notice as follows:
  - © (your company name) (year). Portions of this code are derived from IBM Corp. Sample Programs. © Copyright IBM Corp., enter the year or years. All rights reserved.

## Privacy Policy Considerations

- IBM Software products, including software as a service solutions, ("Software Offerings") may use cookies or other technologies to collect product usage information, to help improve the end user experience, to tailor interactions with the end user or for other purposes. In many cases no personally identifiable information is collected by the Software Offerings. Some of our Software Offerings can help enable you to collect personally identifiable information. If this Software Offering uses cookies to collect personally identifiable information, specific information about this offering's use of cookies is set forth below.
- Depending upon the configurations deployed, this Software Offering may use session cookies that collect session information (generated by the application server). These cookies contain no personally identifiable information and are required for session management. Additionally, persistent cookies may be randomly generated to recognize and manage anonymous users. These cookies also contain no personally identifiable information and are required.
- If the configurations deployed for this Software Offering provide you as customer the ability to collect personally identifiable information from end users via cookies and other technologies, you should seek your own legal advice about any laws applicable to such data collection, including any requirements for notice and consent. For more information about the use of various technologies, including cookies, for these purposes, see IBM's Privacy Policy at <http://www.ibm.com/privacy>; and IBM's Online Privacy Statement at <http://www.ibm.com/privacy/details>; the sections entitled "Cookies, Web Beacons and Other Technologies" and the "IBM Software Products and Software-as-a-Service Privacy Statement" at <http://www.ibm.com/software/info/product-privacy>.

# Support and comments

- For the entire IBM Worklight documentation set, training material and online forums where you can post questions, see the IBM website at:
  - <http://www.ibm.com/mobile-docs>
- **Support**
  - Software Subscription and Support (also referred to as Software Maintenance) is included with licenses purchased through Passport Advantage and Passport Advantage Express. For additional information about the International Passport Advantage Agreement and the IBM International Passport Advantage Express Agreement, visit the Passport Advantage website at:
    - <http://www.ibm.com/software/passportadvantage>
  - If you have a Software Subscription and Support in effect, IBM provides you assistance for your routine, short duration installation and usage (how-to) questions, and code-related questions. For additional details, consult your IBM Software Support Handbook at:
    - <http://www.ibm.com/support/handbook>
- **Comments**
  - We appreciate your comments about this publication. Please comment on specific errors or omissions, accuracy, organization, subject matter, or completeness of this document. The comments you send should pertain to only the information in this manual or product and the way in which the information is presented.
  - For technical questions and information about products and prices, please contact your IBM branch office, your IBM business partner, or your authorized remarketer.
  - When you send comments to IBM, you grant IBM a nonexclusive right to use or distribute your comments in any way it believes appropriate without incurring any obligation to you. IBM or any other organizations will only use the personal information that you supply to contact you about the issues that you state.
  - Thank you for your support.
  - Submit your comments in the IBM Worklight Developer Edition support community at:
    - <https://www.ibm.com/developerworks/mobile/worklight/connect.html>
  - If you would like a response from IBM, please provide the following information:
    - Name
    - Address
    - Company or Organization
    - Phone No.
    - Email address

***Thank You***

