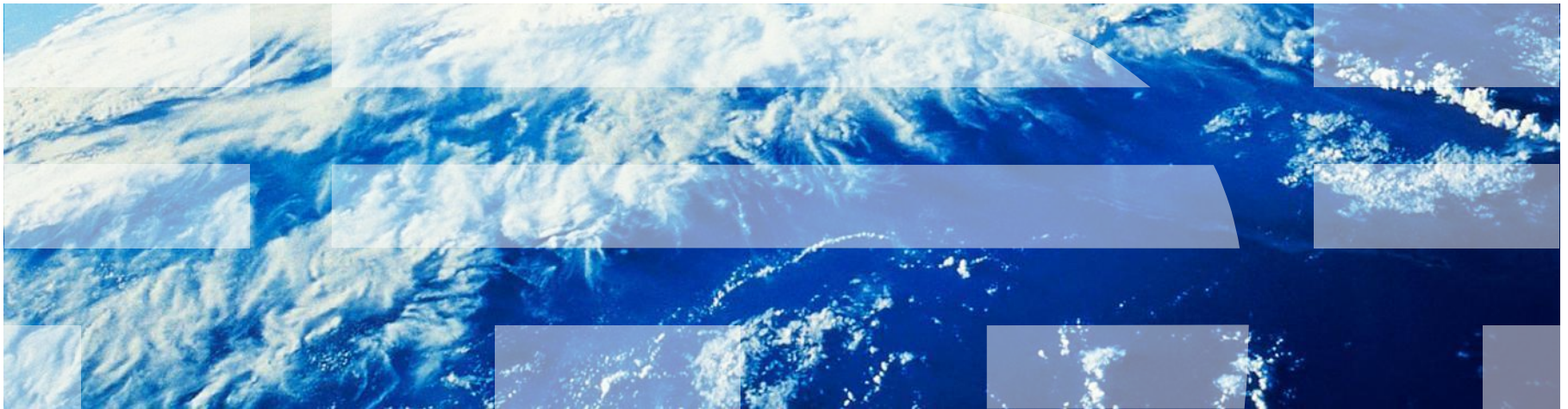


IBM Worklight Foundation V6.2.0 Getting Started

Debugging your applications



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Agenda

- About
- Debugging on a desktop browser
- Debugging with Mobile Browser Simulator
- Debugging with iOS Remote Web Inspector
- Debugging with Chrome Remote Web Inspector
- Debugging with Weinre
- Debugging with IBM Worklight Logger
- Testing the adapter procedures
- Debugging with WireShark

About Client-side Debugging

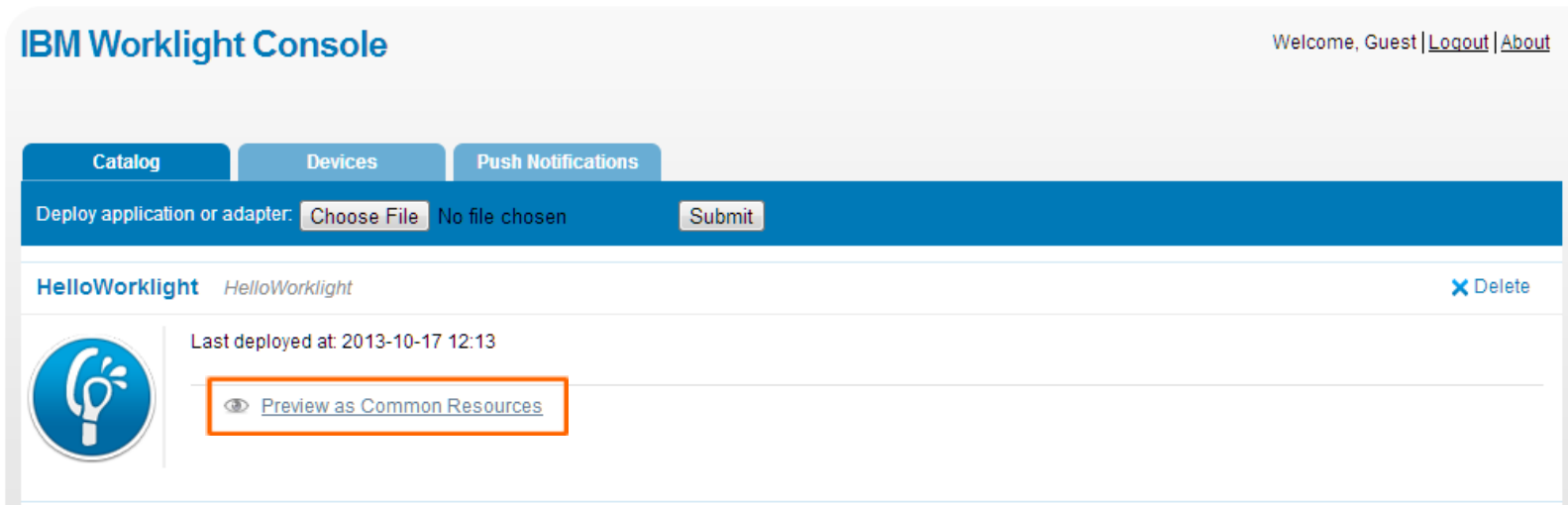
- Debugging is part of the application development process.
- Debugging is a process that consists of finding the cause of defects in the application code and UI.
- Worklight applications consist of web-based resources and optional native code (such as Java, Objective-C, and C#).
- You can debug native code by using standard tools that are provided by the platform SDK, such as XCode, Android LogCat/ADB, or Microsoft Visual Studio.
- The module presents how to debug web-based resources.

Agenda

- About
- Debugging on a desktop browser
- Debugging with Mobile Browser Simulator
- Debugging with iOS Remote Web Inspector
- Debugging with Chrome Remote Web Inspector
- Debugging with Weinre
- Debugging with IBM Worklight Logger
- Testing the adapter procedures
- Debugging with WireShark

Debugging on a Desktop Browser

- Modern browsers, such as Chrome, Firefox, Safari or Opera, provide an easy and convenient way to debug web apps.
- As seen in the previous modules, during development you can preview applications in a desktop browser by using the Worklight Console.

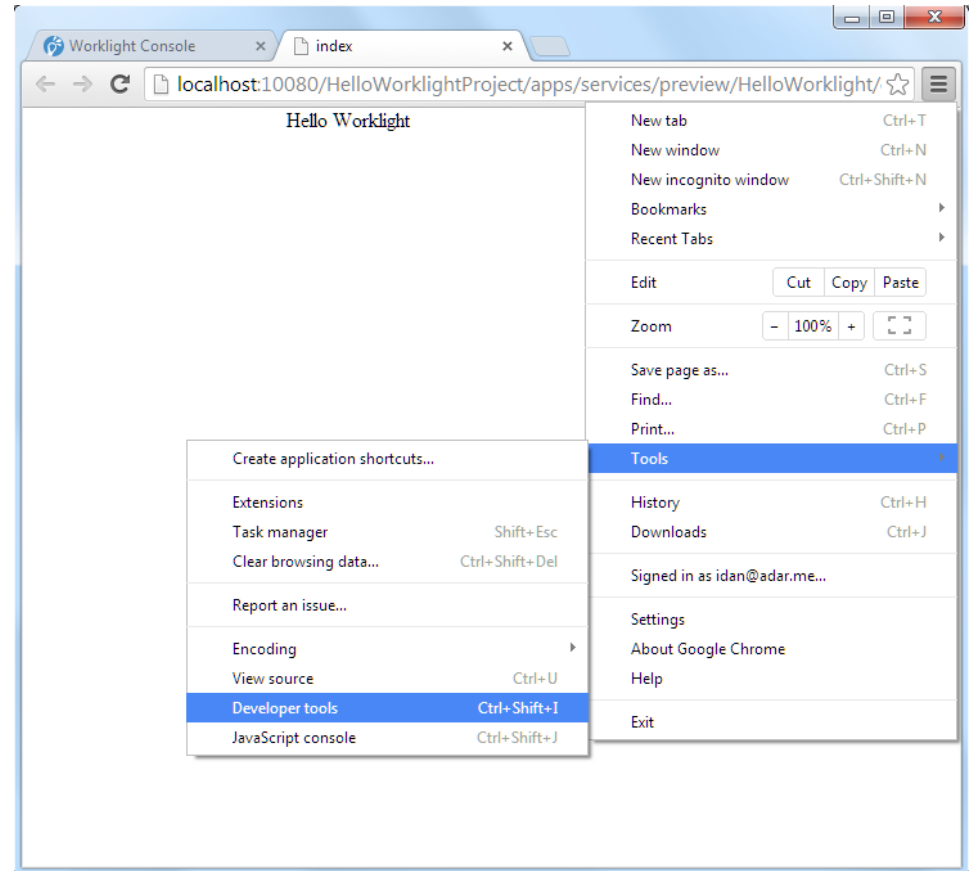


The screenshot displays the IBM Worklight Console interface. At the top left, the text "IBM Worklight Console" is visible. On the top right, there is a user greeting "Welcome, Guest" followed by links for "Logout" and "About". Below this is a navigation bar with three tabs: "Catalog", "Devices", and "Push Notifications". A blue bar contains the text "Deploy application or adapter:" followed by a "Choose File" button, the text "No file chosen", and a "Submit" button. Below this bar, the application name "HelloWorklight" is shown with a "Delete" link. A lightbulb icon is on the left, and the text "Last deployed at: 2013-10-17 12:13" is on the right. A link "Preview as Common Resources" is highlighted with an orange box.

Debugging on a Desktop Browser

There are many web tools for debugging on various desktop browsers, for example:

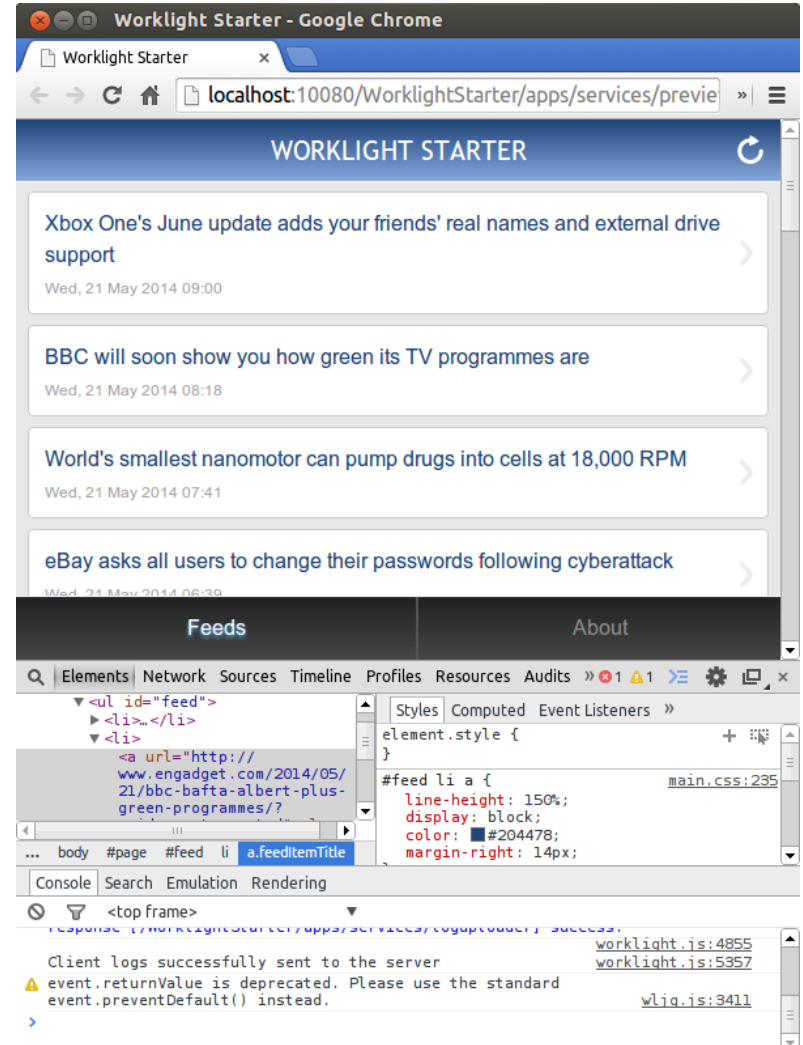
- FireBug
- Chrome Developer Tools
- Internet Explorer Developer Tools
- Dragonfly for Opera
- Safari Web Inspector



Debugging on a Desktop Browser

In early application development stages, you use these tools to debug your application just like a regular website. You are not required to install them on a mobile device.

You can also preview changes in HTML and CSS in real time, by modifying the values in the inspector.

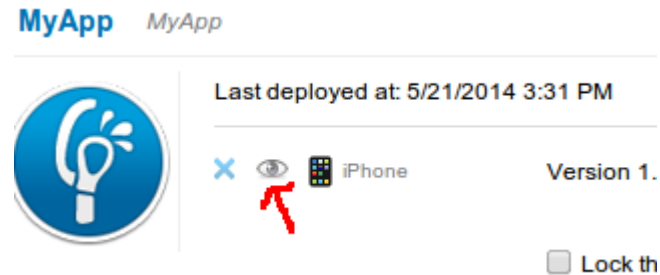


Agenda

- About
- Debugging on a desktop browser
- **Debugging with Mobile Browser Simulator**
- Debugging with iOS Remote Web Inspector
- Debugging with Chrome Remote Web Inspector
- Debugging with Weinre
- Debugging with IBM Worklight Logger
- Testing the adapter procedures
- Debugging with WireShark

Debugging with Mobile Browser Simulator

- You can also use the Worklight Mobile Browser Simulator to preview and debug Worklight applications.
- You can access the Mobile Browser Simulator from the Worklight Console



Debugging with Mobile Browser Simulator

The Mobile Browser Simulator has several added values over Preview as Common Resources, for example:

- Preview environment-specific resources
- Emulate different devices and skins.
- Emulate some Cordova features such as access to sensors and other hardware.

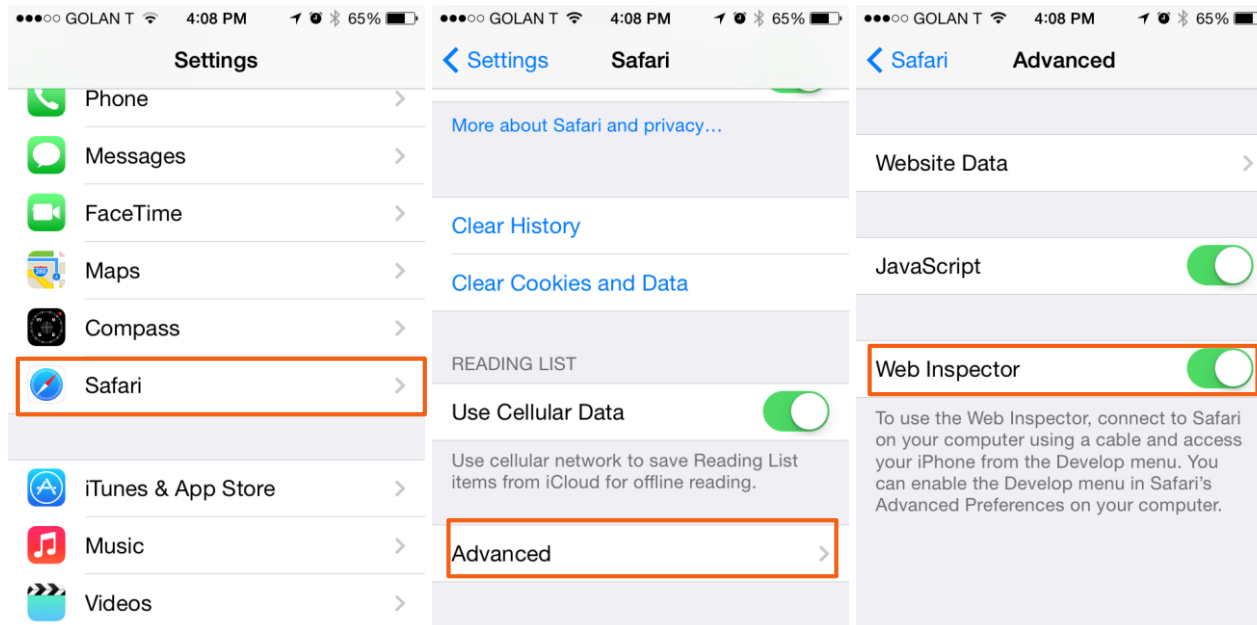


Agenda

- About
- Debugging on a desktop browser
- Debugging with Mobile Browser Simulator
- Debugging with iOS Remote Web Inspector
- Debugging with Chrome Remote Web Inspector
- Debugging with Weinre
- Debugging with IBM Worklight Logger
- Testing the adapter procedures
- Debugging with WireShark

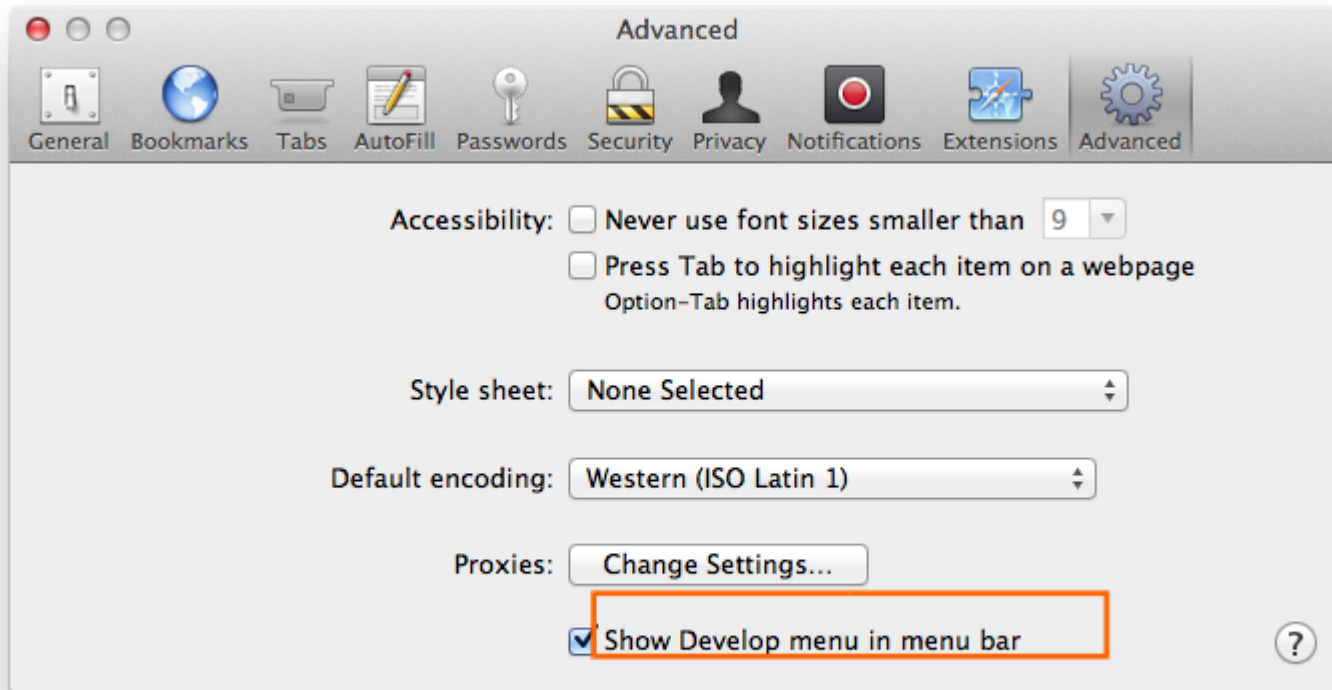
Debugging with iOS Remote Web Inspector

- In iOS 6, Apple introduced a remote web inspector for debugging web applications on iOS devices.
- Make sure your device (or simulator) has “Private Browsing” turned off.
- Enable Web Inspector on your device: **Settings > Safari > Advanced > Web Inspector.**



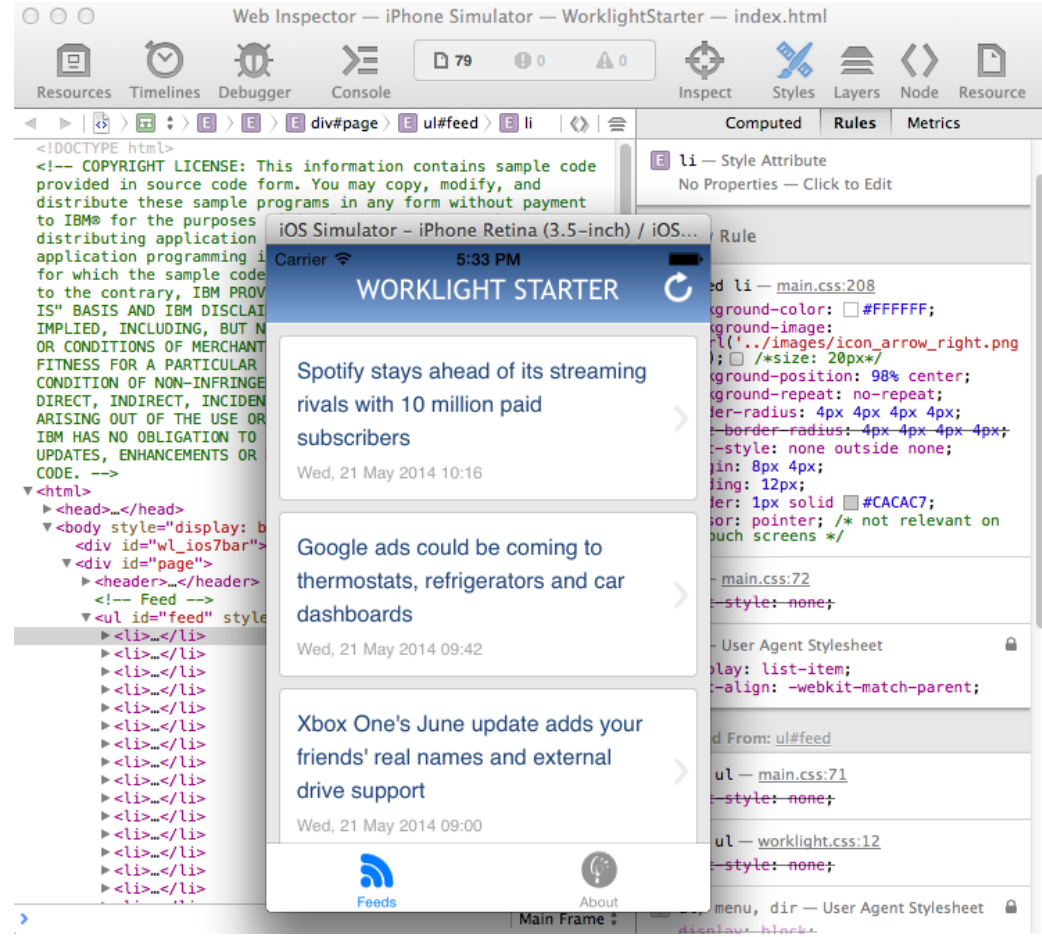
Debugging with iOS Remote Web Inspector

- Connect the iOS device to a Mac, or start the simulator. You must have Safari 6.0 or higher.
- In Safari, go to **Preferences > Advanced**, and select the **Show Develop menu in menu bar** check box.



Debugging with iOS Remote Web Inspector

- Go to **Safari > Develop > [your device ID] > [your application HTML file]**.
- You can now inspect the DOM. You can change the CSS and run JavaScript commands, just like in the desktop inspector.



Agenda

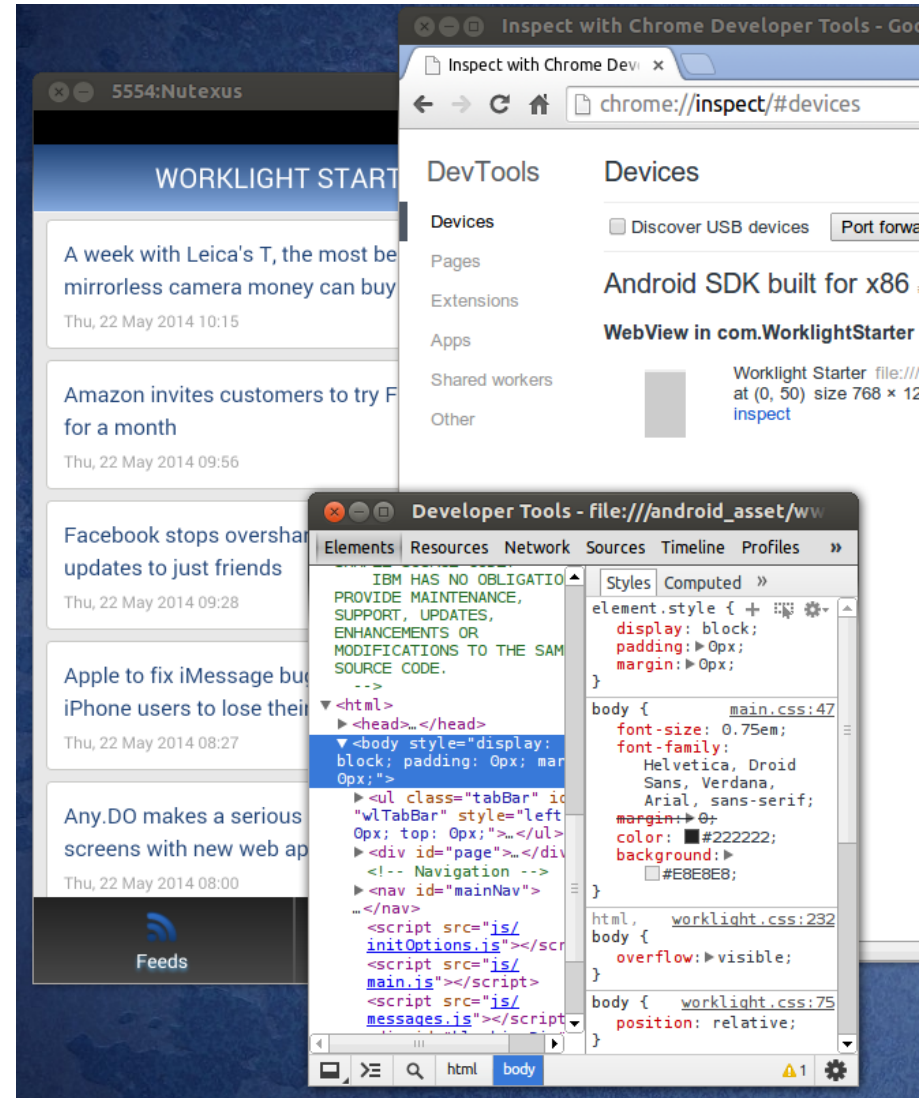
- About
- Debugging on a desktop browser
- Debugging with Mobile Browser Simulator
- Debugging with iOS Remote Web Inspector
- Debugging with Chrome Remote Web Inspector
- Debugging with Weinre
- Debugging with IBM Worklight Logger
- Testing the adapter procedures
- Debugging with WireShark

Debugging with Chrome Remote Web Inspector

- With Google Chrome, you can remotely inspect web applications on Android devices.
- This action requires Android 4.4 or later, Chrome 32 or later and IBM Worklight Foundation V6.2.0 or later.
- In the **AndroidManifest.xml** file, make sure that your **targetSdkVersion** is 19 or above.
- In **project.properties**, make sure that your **target** is 19 or above.

Debugging with Chrome Remote Web Inspector

- Start your application in the Android Emulator or a connected device.
- In Chrome, enter the following URL: **about:inspect**
- You see your application with an “**Inspect**” link.
- You can now use all the features of the Chrome Inspector to inspect your Android application.



Agenda

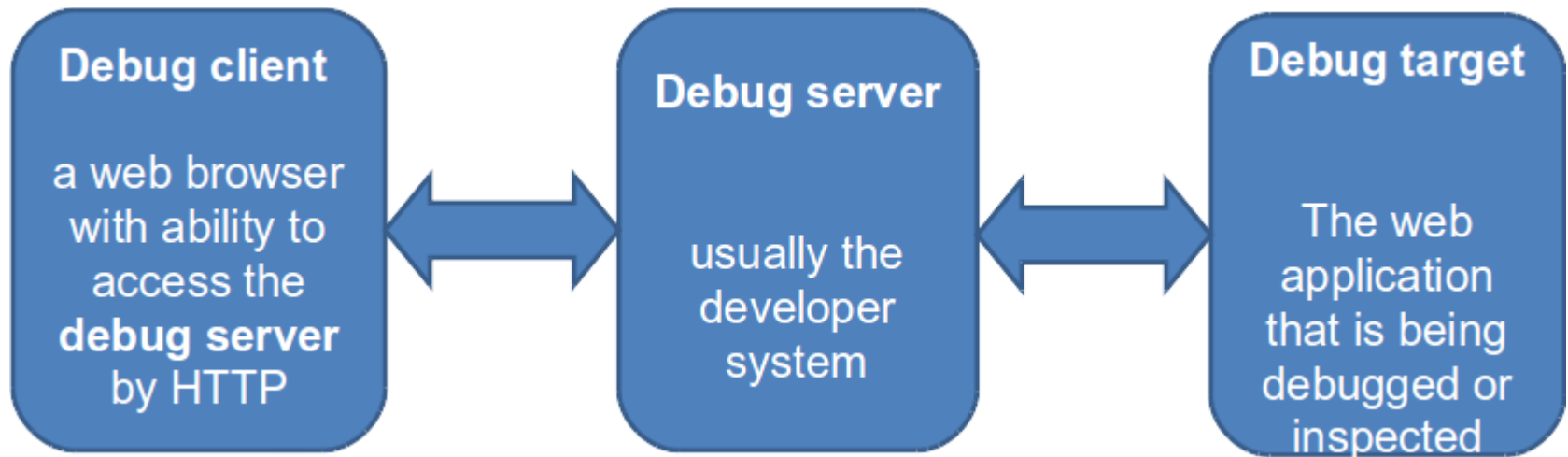
- About
- Debugging on a desktop browser
- Debugging with Mobile Browser Simulator
- Debugging with iOS Remote Web Inspector
- Debugging with Chrome Remote Web Inspector
- **Debugging with Weinre**
- Debugging with IBM Worklight Logger
- Testing the adapter procedures
- Debugging with WireShark

Debugging with Weinre

- Weinre stands for **Web Inspector Remote**.
 - See <http://people.apache.org/~pmuellr/weinre/>
- Weinre is a debugger for web pages, like Firebug or other Web Inspectors, except that Weinre is designed to work remotely.
- You can use Weinre to inspect and debug web resources such as HTML, JavaScript, CSS, and network traffic on mobile handsets.

Debugging with Weinre

- Download Weinre from <http://people.apache.org/~pmuellr/weinre/>
- The Weinre architecture includes the following components:



- The Weinre debug server requires a node.js runtime.
- To install Weinre, follow the instructions at:
 - <http://people.apache.org/~pmuellr/weinre/docs/latest/Installing.html>

Debugging with Weinre: debug server

- When the Weinre server is installed, run it with the following command:
weinre --httpPort 8888 --boundHost -all-
- This command starts a Weinre server on port 8888. You can choose another port.
- Make sure to not use a port number that collides with another server. By default, Worklight Server uses the port number 10080.

Debugging with Weinre: target

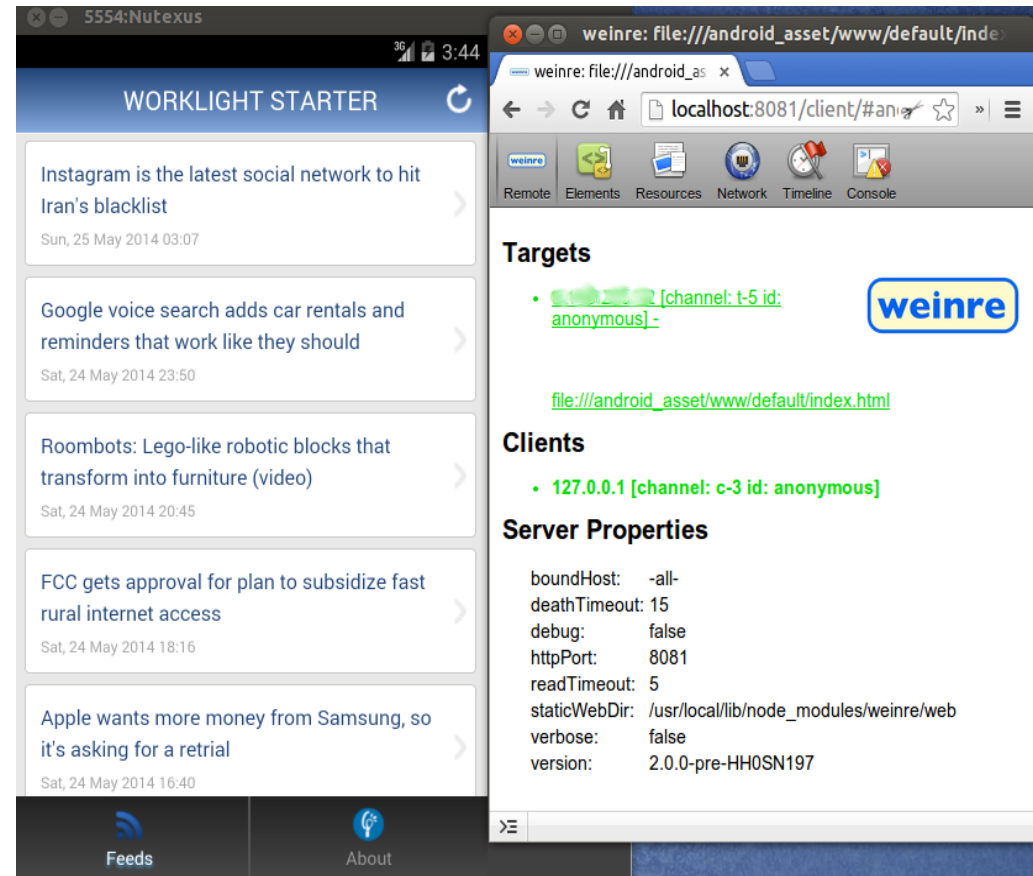
- Make sure that the Weinre server is accessible from the device that you are using for debugging.
- Add the following line to your web application:

```
<script src="http://a.b.c:8888/target/target-script-min.js"></script>
```

Where *a.b.c* is the hostname or IP of your Weinre server.

Debugging with Weinre: client

- Go to <http://a.b.c:8888/client>
- Open the web application that you want to debug, to which you previously added the `<script>` element.
- Wait for the **Debug Target** to connect, and start debugging with Weinre.



Agenda

- About
- Debugging on a desktop browser
- Debugging with Mobile Browser Simulator
- Debugging with iOS Remote Web Inspector
- Debugging with Chrome Remote Web Inspector
- Debugging with Weinre
- Debugging with IBM Worklight Logger
- Testing the adapter procedures
- Debugging with WireShark

Debugging with IBM Worklight Logger

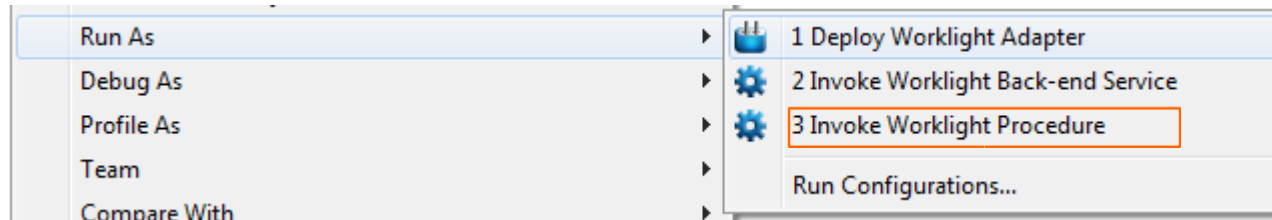
- IBM Worklight Foundation provides a `WL.Logger` object that you use to print log messages to the log for the environment used.
- Two of its methods are `WL.Logger.debug()` and `WL.Logger.error()`.
- Those APIs are multiplatform. The output destination changes according to the platform on which that application runs on:
 - **Developer console** when it is running on a **desktop browser**
 - **LogCat** when it is running on **Android** device
 - **Visual Studio Output** when it is running on a **Windows Phone 8** device and **Windows 8 App**.
 - **XCode console** when it is running on an **iOS** device.
- `WL.Logger` contains more methods. See the `WL.Logger` topic in the IBM Worklight Foundation user documentation.

Agenda

- About
- Debugging on a desktop browser
- Debugging with Mobile Browser Simulator
- Debugging with iOS Remote Web Inspector
- Debugging with Chrome Remote Web Inspector
- Debugging with Weinre
- Debugging with IBM Worklight Logger
- **Testing the adapter procedures**
- Debugging with WireShark

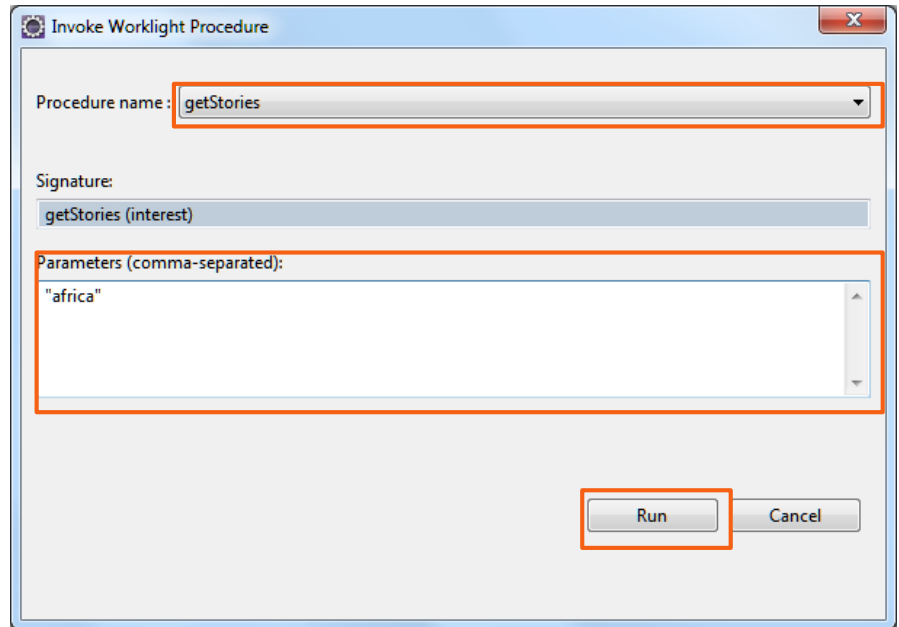
Testing the Adapter Procedures

- It is possible to test adapter procedures by using Worklight Studio.
- To test a procedure, click **Run As > Invoke Worklight Procedure**.



Testing the Adapter Procedures

- Select the procedure that you want to test.
- Enter the comma-separated procedure parameters.
- Click **Run**.
- Examine the result:



Invocation Result of procedure: 'getStories' from the Worklight Server:

```

},
"responseTime": 268,
"rss": {
  "channel": {
    "copyright": "Copyright 2013 Cable News Network LP, LLLP.",
    "description": "CNN.com delivers up-to-the-minute news and information on the latest top stories, weather, entertainment, politics and
more.",
    "image": {
      "description": "CNN.com delivers up-to-the-minute news and information on the latest top stories, weather, entertainment, politics and
more.",
      "height": "33",
      "link": "http://edition.cnn.com/AFRICA/index.html?eref=rss_africa",
      "title": "CNN.com - Africa",
      "url": "http://1.odn.turner.com/cnn/.e/img/1.0/logo/cnn.logo.rss.gif",
      "width": "144"
    },
    "info": {
      "uri": "rss/edition_africa"
    },
    "item": [

```

Agenda

- About
- Debugging on a desktop browser
- Debugging with Mobile Browser Simulator
- Debugging with iOS Remote Web Inspector
- Debugging with Chrome Remote Web Inspector
- Debugging with Weinre
- Debugging with IBM Worklight Logger
- Testing the adapter procedures
- **Debugging with WireShark**

Debugging with Wireshark

- Wireshark is a network protocol analyzer that you can use to see what happens on your network.
- You can filter the range of traffic that you want to follow.
- For more information, see <http://www.wireshark.org/>

Wireshark 1.8.1 (SVN Rev 43946 from /trunk-1.8)

Filter: `http && tcp.port == 10080`

No.	Time	Source	Destination	Protocol	Length	Info
11007	300.268344	9.148.225.225	9.148.23.122	HTTP	518	HTTP/1.1 403 Forbidden (application/json)
11228	349.498153	9.148.23.122	9.148.225.225	HTTP	482	GET /zzz/apps/services/api/zzz/android/an
11230	349.507158	9.148.225.225	9.148.23.122	HTTP	71	HTTP/1.1 403 Forbidden (text/html)
11282	358.387361	9.148.23.122	9.148.225.225	HTTP	385	POST /PushNotificationsProject/apps/servi
11288	358.405062	9.148.225.225	9.148.23.122	HTTP	523	HTTP/1.1 200 OK
11806	459.279102	9.148.23.122	9.148.225.225	HTTP	447	GET /PushNotificationsProject/apps/servi
11807	459.281675	9.148.225.225	9.148.23.122	HTTP	497	HTTP/1.1 200 OK (text/html)
11810	459.321210	9.148.23.122	9.148.225.225	HTTP	188	POST /PushNotificationsProject/apps/servi
11814	459.331828	9.148.225.225	9.148.23.122	HTTP	3419	HTTP/1.1 200 OK
12019	467.480230	9.148.23.122	9.148.225.225	HTTP	94	POST /PushNotificationsProject/apps/servi
12021	467.543998	9.148.225.225	9.148.23.122	HTTP	417	HTTP/1.1 200 OK (application/json)
12026	467.625773	9.148.23.122	9.148.225.225	HTTP	188	POST /PushNotificationsProject/apps/servi
12028	467.628632	9.148.225.225	9.148.23.122	HTTP	621	HTTP/1.1 401 unauthorized (application/j
12031	467.686034	9.148.23.122	9.148.225.225	HTTP	190	POST /PushNotificationsProject/apps/servi
12034	467.715583	9.148.225.225	9.148.23.122	HTTP	2230	HTTP/1.1 200 OK (application/json)

Frame 10706: 385 bytes on wire (3080 bits), 385 bytes captured (3080 bits) on interface 1
 Ethernet II, Src: Cisco_bf:16:3f (00:22:55:bf:16:3f), Dst: wistronI_ce:b2:ca (f0:de:f1:ce:b2:ca)
 Internet Protocol Version 4, Src: 9.148.23.122 (9.148.23.122), Dst: 9.148.225.225 (9.148.225.225)
 Transmission Control Protocol, Src Port: 56781 (56781), Dst Port: amanda (10080), Seq: 751, Ack: 1, Len: 319
 [2 Reassembled TCP segments (1069 bytes): #10705(750), #10706(319)]
 Hypertext Transfer Protocol
 Line-based text data: application/x-www-form-urlencoded

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