BlackBerry 10 Jam

BB10 and WebWorks 101 – Intro to building BB10 applications using Ripple and the WebWorks SDK

DEV144

@n_adam_stanley, @ken_wallis, @confusement

May 1-3, 2012

1. Intros and demo

What are we going to do today?

Lab requirements

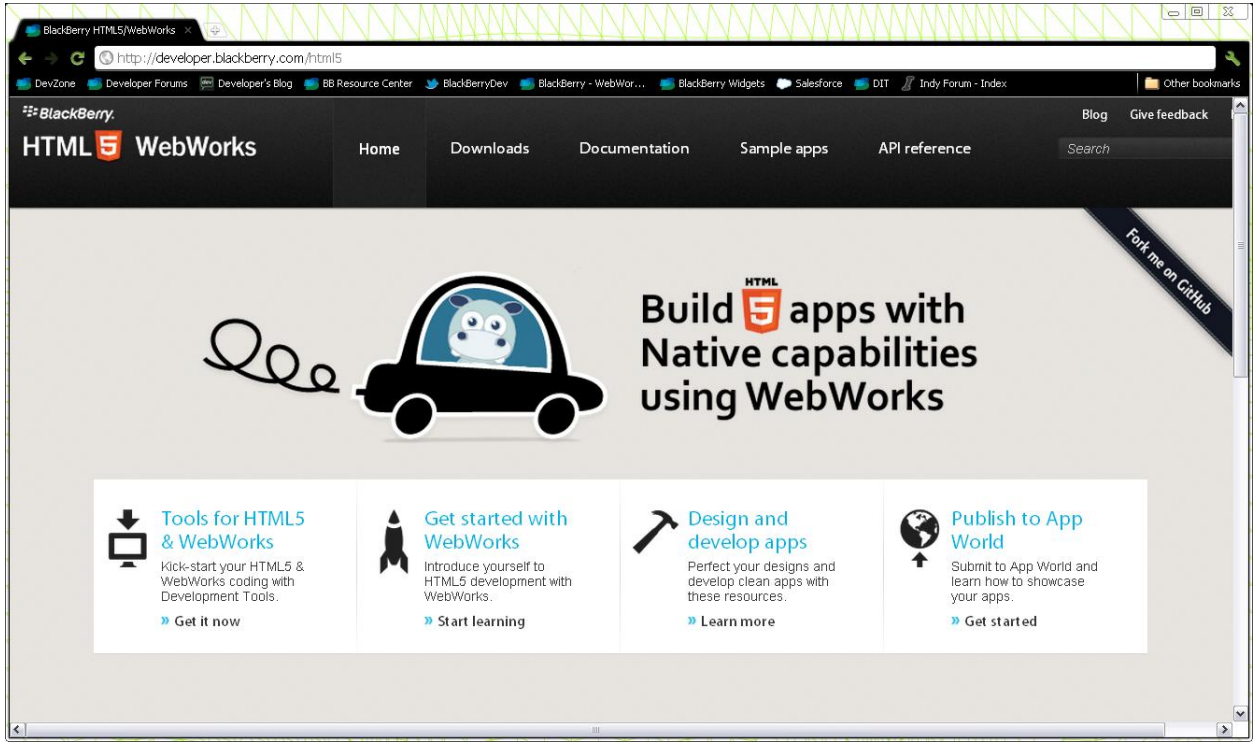
BlackBerry 10 Jam

- Must Have:
  - Laptop (Win XP, Win 7 or Mac OS)
  - Chrome browser
  - Ripple extension; WebWorks SDK for BB10
    - Available on USB Key
- Would be nice:
  - Internet connection
  - Work in groups if you prefer

Bookmark this page

BlackBerry 10 Jam

http://developer.blackberry.com/html5

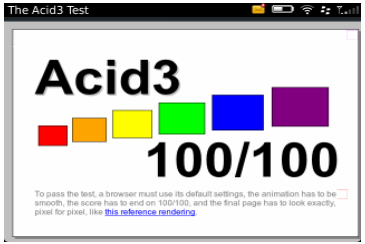


BlackBerry Web Platform

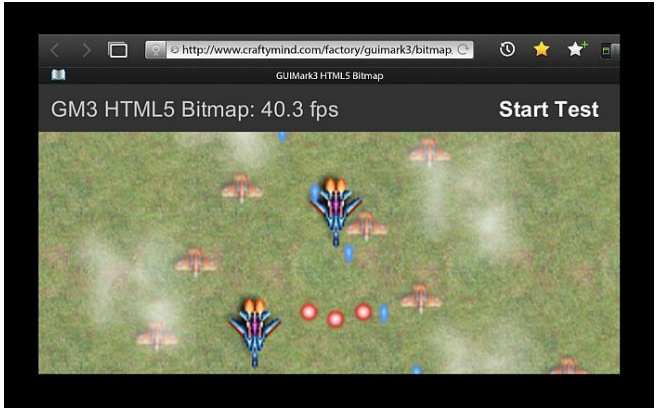
BlackBerry 10 Jam

- Driven by strong Web standards support
- Powered by WebKit
- HTML5 and CSS3
- Flash 11 and WebGL

http://html5test.com



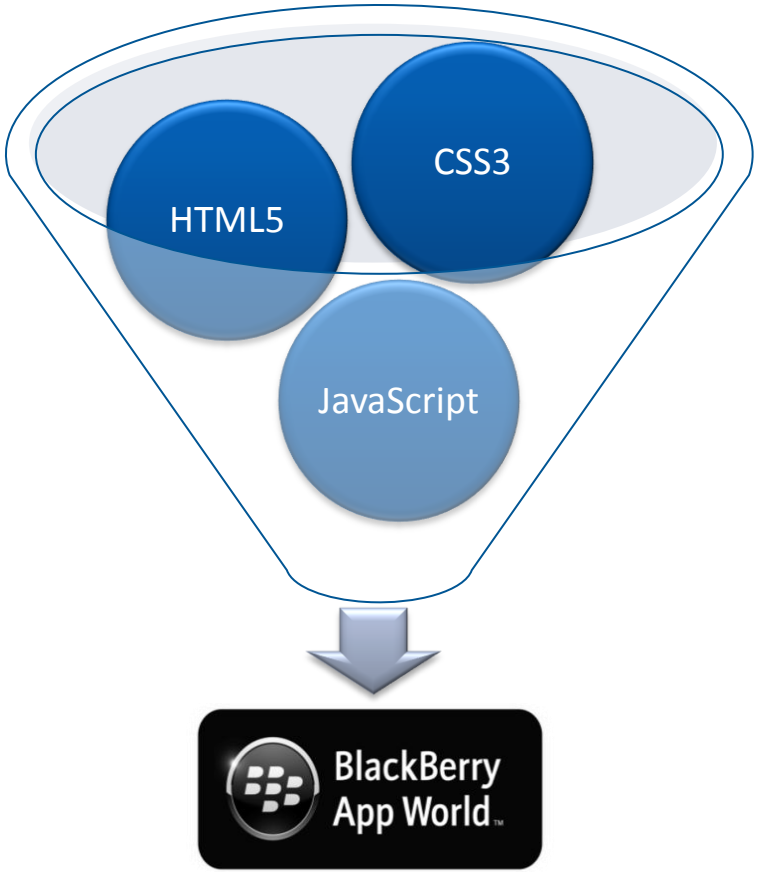
http://acid3.acidtests.org



http://www.craftymind.com/guimark3/

jQuery PhoneGap Sencha dojo

Application development



What if you could build a BlackBerry application using Web technologies?

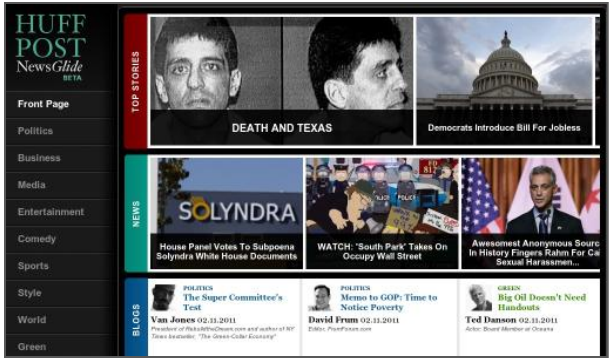
Real Examples in App World

BlackBerry 10 Jam

Rugby World Cup 2011

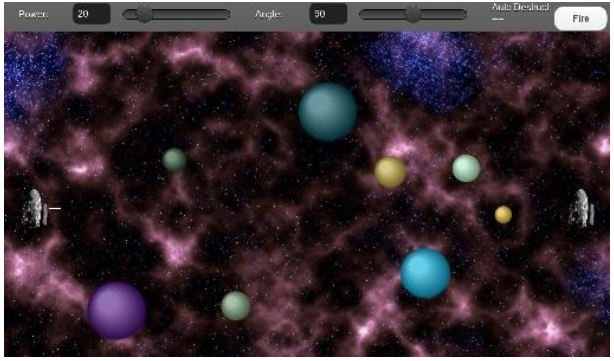
News360

Mahjong for PlayBook



Huffington Post

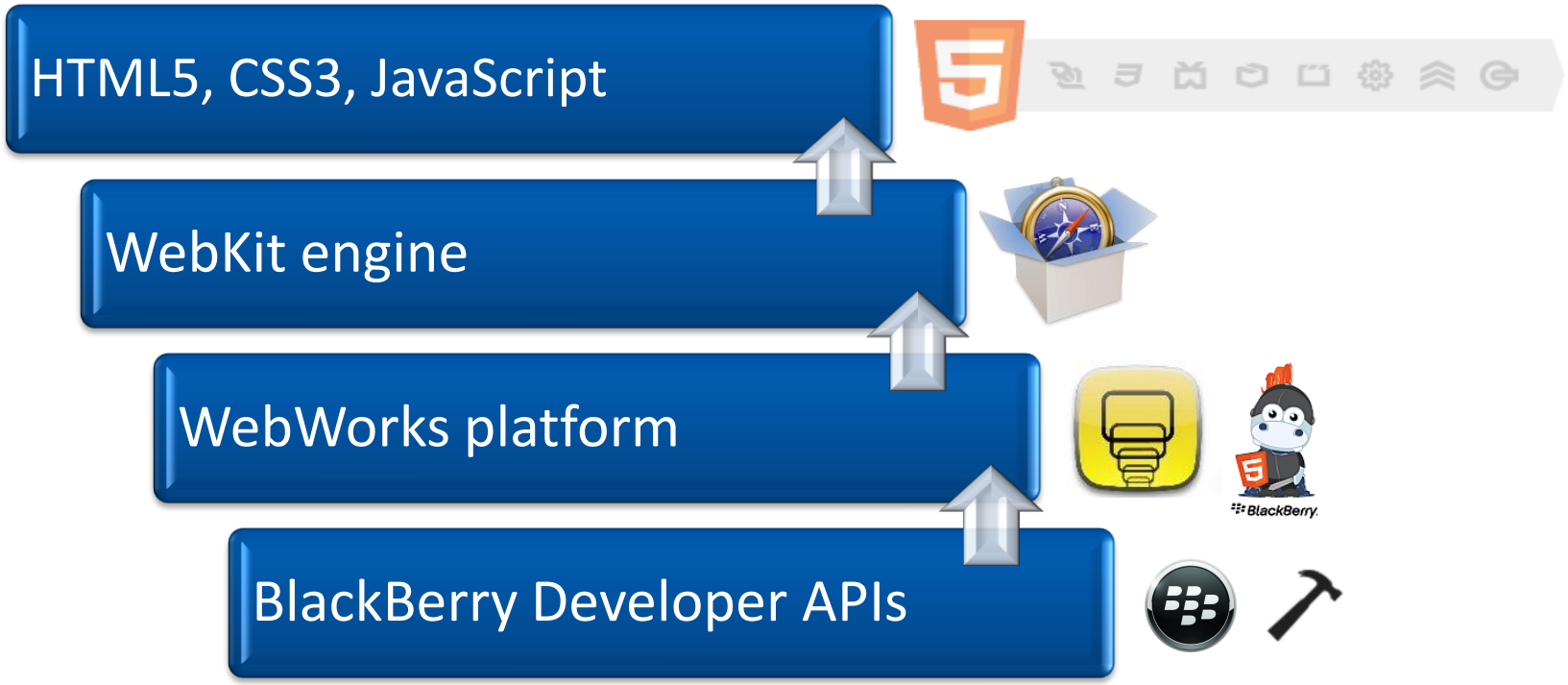
Italian Party



Gravitation

HTML5 powered by native capabilities

BlackBerry 10 Jam



https://bdsc.webapps.blackberry.com/html5/api

2. Install Ripple

Lets emulate

What is Ripple?

BlackBerry 10 Jam

- A multi-platform mobile emulator
  - Render Web content similar to a web browser
  - Emulate device-specific APIs and capabilities
  - Web inspector debugging & profiling
  - Package and sign BlackBerry applications

Ripple
MOBILE
ENVIRONMENT
EMULATOR

Installing Ripple

BlackBerry 10 Jam

- Download and install the Ripple extension
  - http://developer.blackberry.com/html5
- Recommended installation folder
  - Windows: C:\program files\Research In Motion\Ripple <version>
  - Mac: /Developer/SDKs/Research In Motion/Ripple <version>

Installing Ripple

BlackBerry 10 Jam

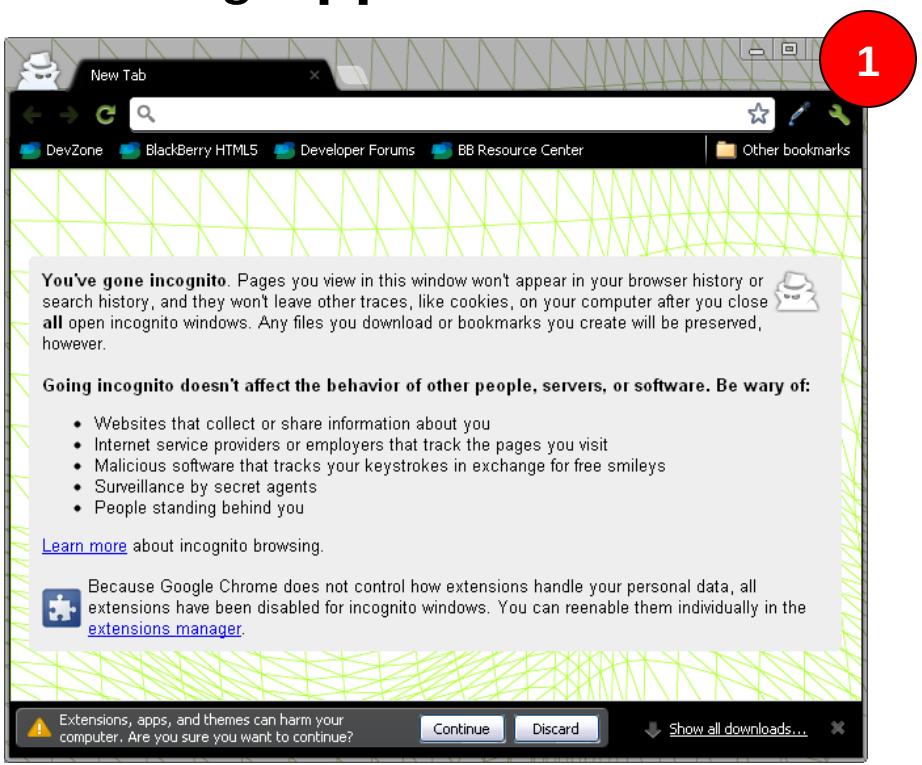
- Find **ripple_ui.crx** file:
  - Windows: C:\program files\Research In Motion\Ripple <version>
  - Mac: /Applications/Research In Motion/Ripple <version>

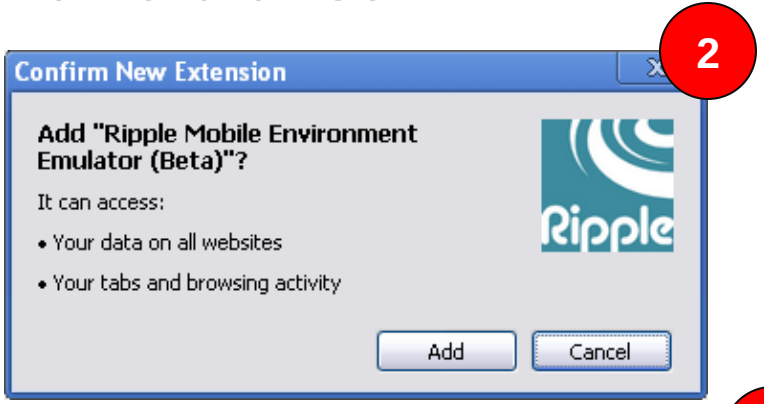
- Launch chrome browser

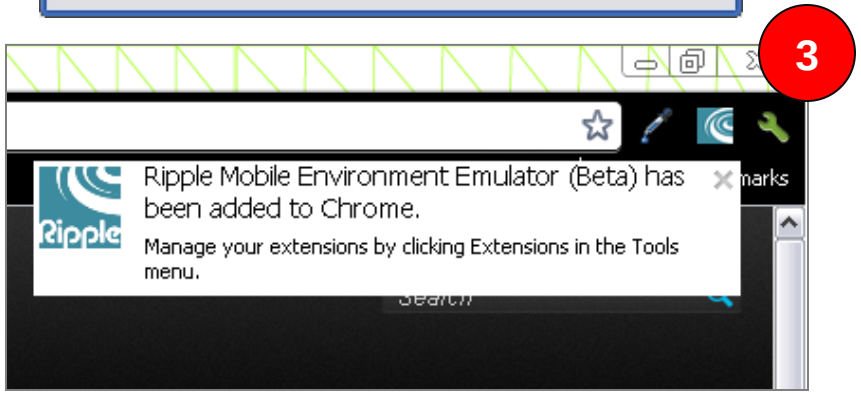
Installing Ripple

BlackBerry 10 Jam

- Drag **ripple_ui.crx** into the Chrome browser



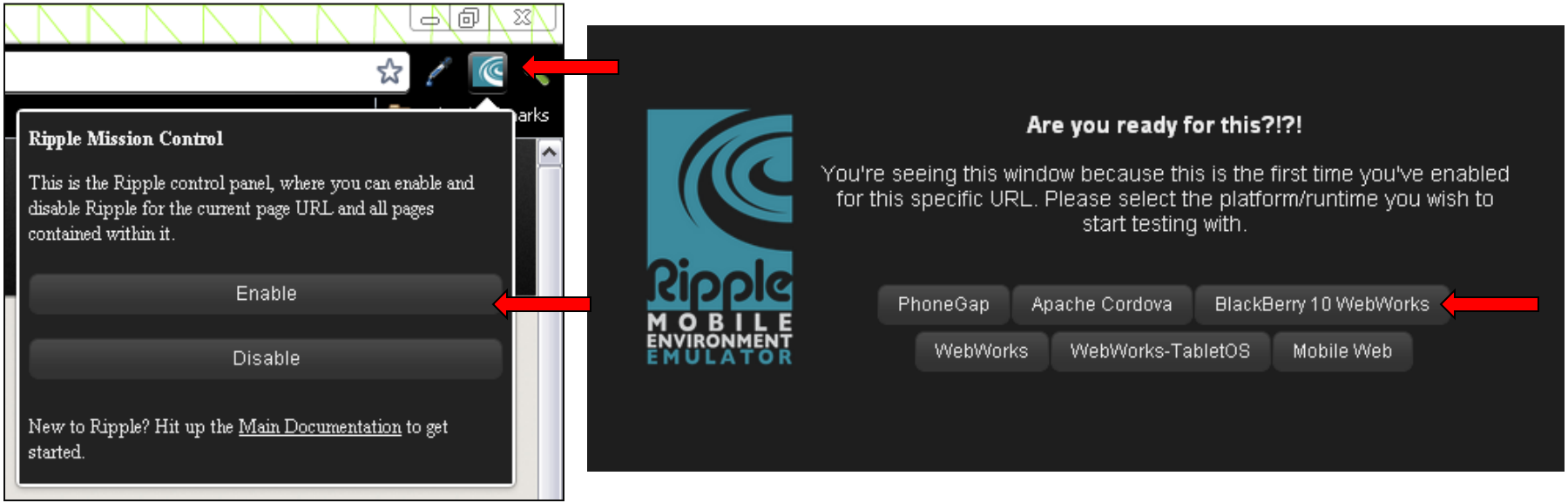




Using Ripple

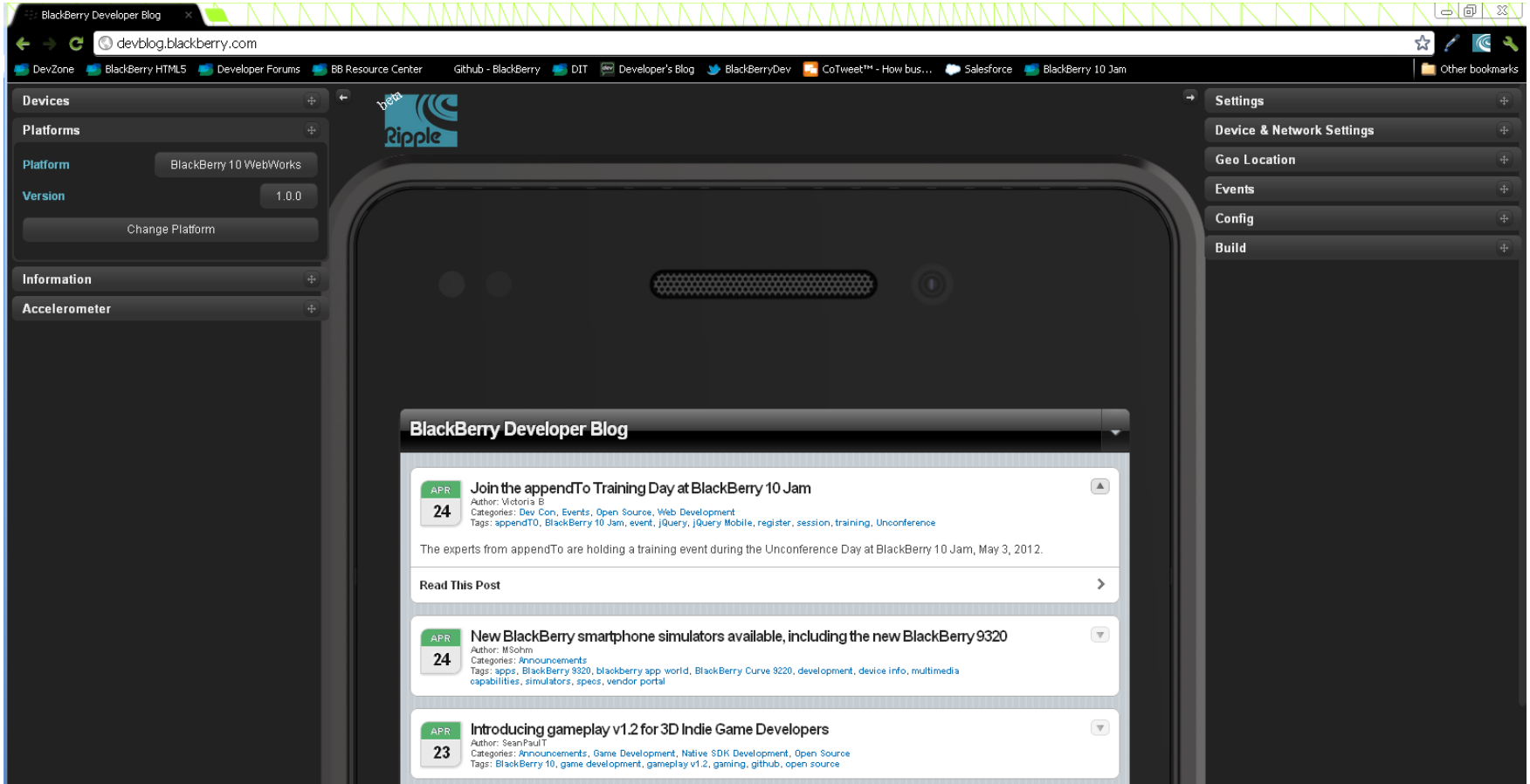
BlackBerry 10 Jam

- Open http://devblog.blackberry.com using Chrome browser
- Click on Ripple extension icon → Enable
- Choose ‘BlackBerry 10 WebWorks’ platform



Using Ripple

BlackBerry 10 Jam



3. Sample application

Kitchen Sink

Kitchen Sink

- Sample application for developers
  - Over 100 samples: “Everything but the kitchen sink”
  - HTML5
  - CSS3
  - WebWorks APIs
  - BlackBerry web platform capabilities

- Download the source code
  - http://github.com/blackberry/WebWorks-Samples
  - ZIP archive will contain a kitchenSink folder

Kitchen Sink

BlackBerry 10 Jam

- Next we'll configure Ripple to load kitchenSink

4. Environment setup

Configure to load WebWorks project using a web server or file system access

Environment setup

Use one of two ways to load a WebWorks project in Ripple:

1. Setting up a web server
2. Accessing local file system directly

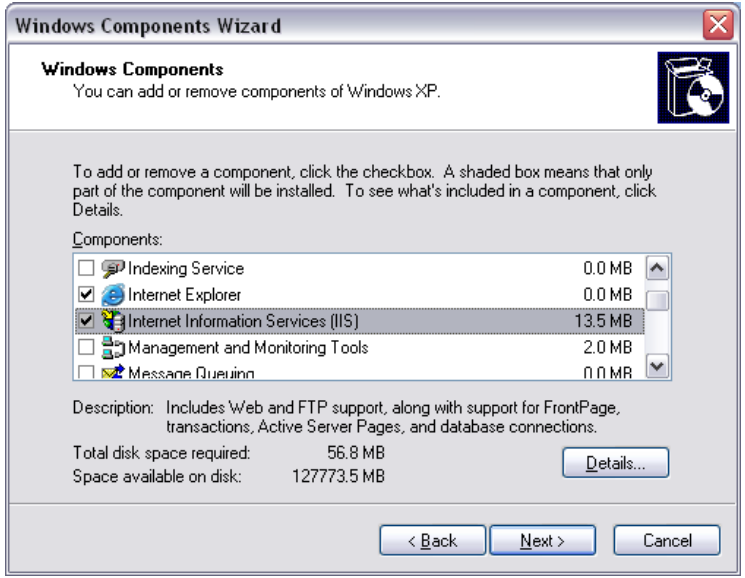
Setting up a web server

- How it works:
  - A web server provides a response to an HTTP request
  - Developer saves WebWorks project to local machine
  - Load and display WebWorks project files using Ripple
    - E.g. http://localhost/kitchenSink

Setting up a web server

BlackBerry 10 Jam

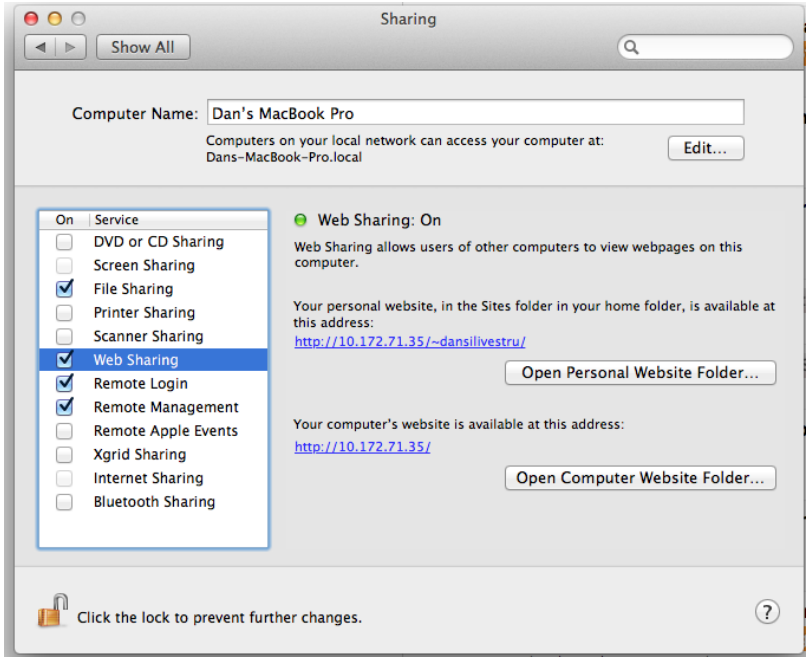
- Windows: Enable Internet Information Services (ISS)
  - **XP :** Control Panel → Add / remove programs → Windows Components
  - **Win7**: Control Panel → Programs → Windows Features



Setting up a web server

BlackBerry 10 Jam

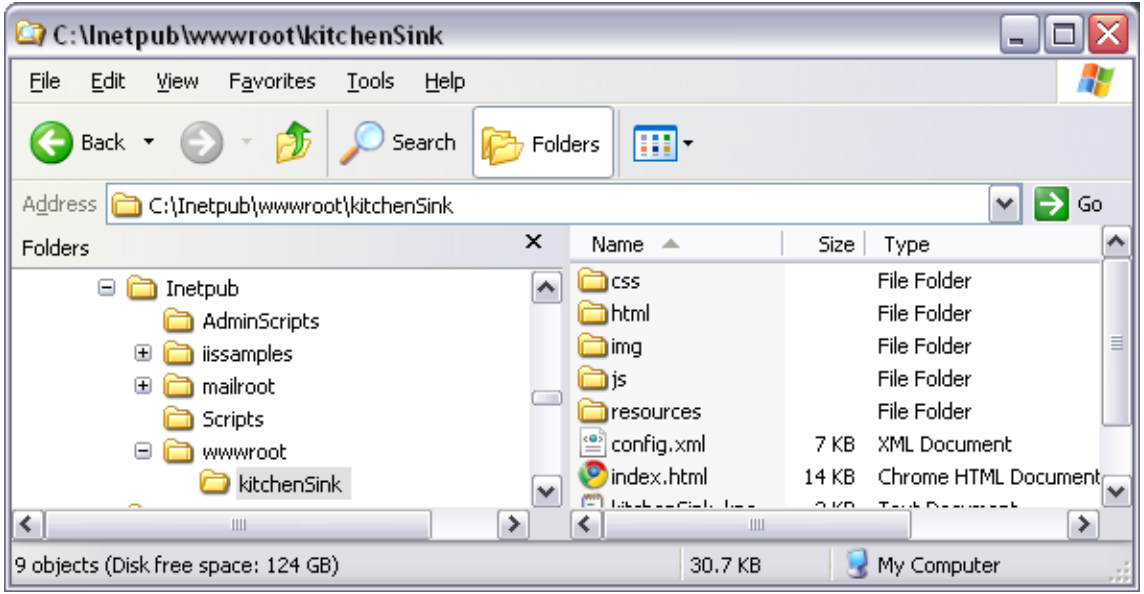
- Mac: Enable Web sharing
  - System Preferences →Sharing → Web Sharing



Setting up a web server

BlackBerry 10 Jam

- Extract **kitchenSink** folder into web server “working” folder
  - Windows default: **C:\inetpub\wwwroot\kitchenSink**
  - Mac default: **~/Sites/kitchenSink**

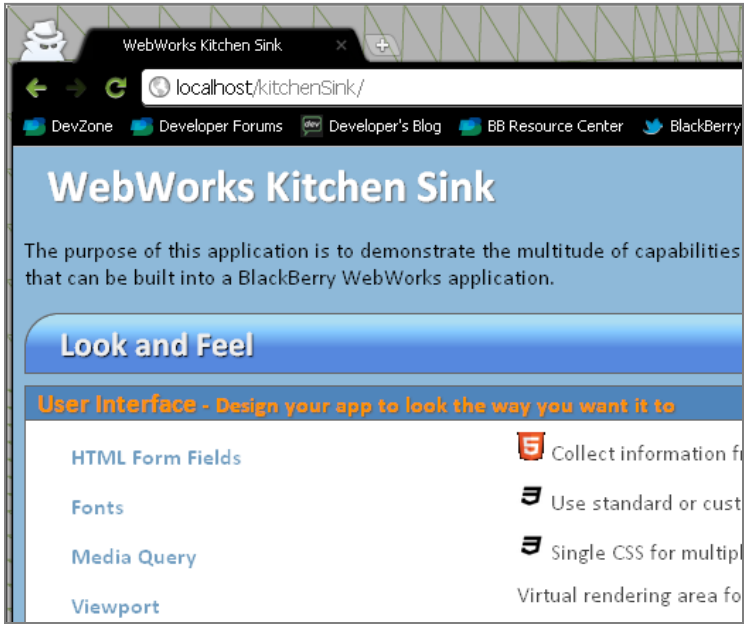


Setting up a web server

BlackBerry 10 Jam

- Can now load http://localhost/kitchenSink

Browser



Ripple extension

Accessing local file system directly

BlackBerry 10 Jam

* Required only if you cannot setup a local Web server

Accessing local file system directly

BlackBerry 10 Jam

- “Accessing a project from the file system in Ripple”
  - Tutorial http://bit.ly/ICWZ28

- How?
  - Create a local **RippleSites** folder
  - Deploy your WebWorks project to this folder
  - Load using port 9900 http://localhost:9900/myApp/index.html

BlackBerry 10 Jam

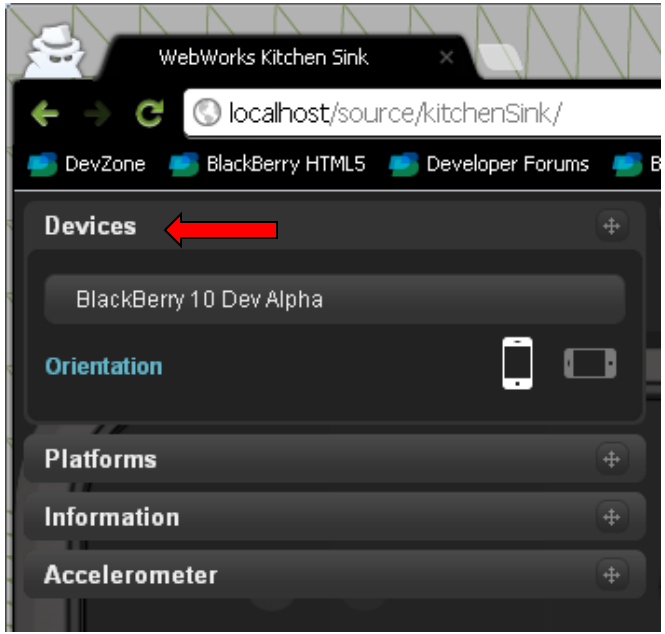
5. Using Ripple

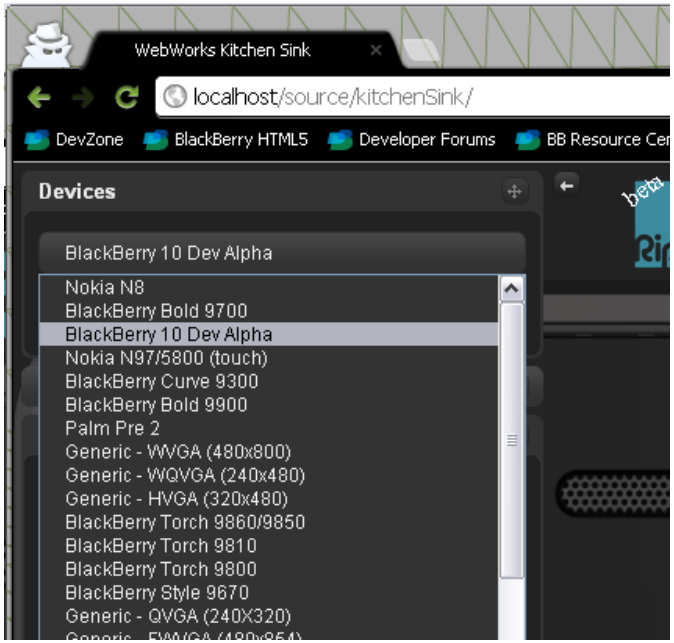
Its more than just a pretty face

Using Ripple

BlackBerry 10 Jam

- Switch Devices
  - Change between device profiles and screen orientation

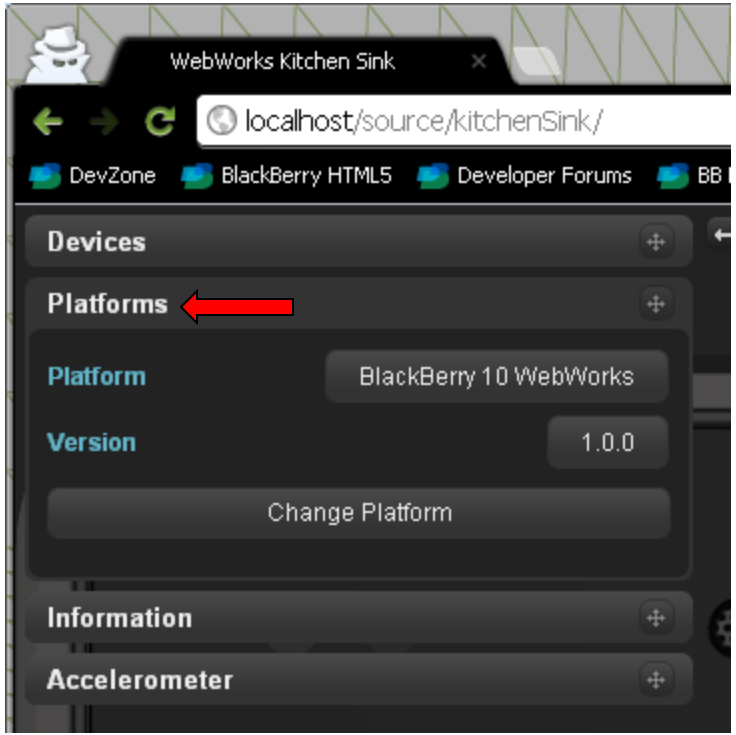




Using Ripple

BlackBerry 10 Jam

- Change Platforms
  - WebWorks
  - PhoneGap
  - Apache Cordova
  - Mobile Web
- Platform-specific features
  - WebWorks APIs
  - PhoneGap APIs



Using Ripple

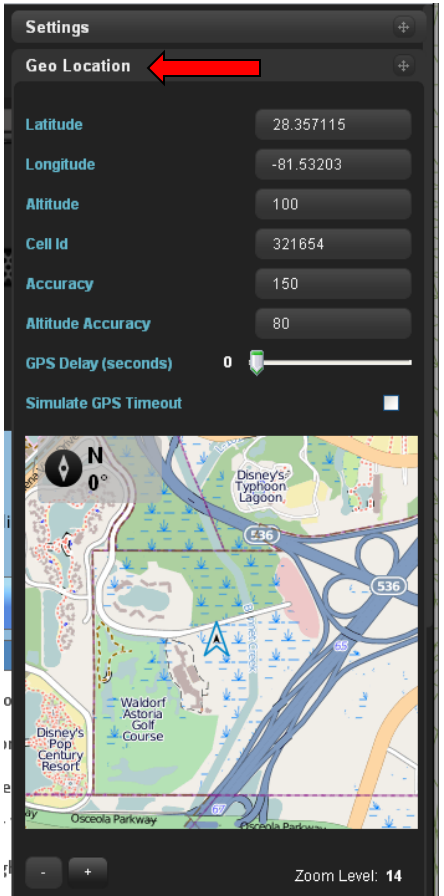
- Accelerometer
  - Emulate physical device movement
  - Move virtual device with mouse

- Example test page:
  - http://rem.io/run-away.html

Using Ripple

BlackBerry 10 Jam

- Geolocation
  - Emulate GPS coordinates
  - Emulate GPS delay
- GPS examples:
  - BB10Jam: 28.357115, -81.53203
  - Taj Majal: 27.175057, 78.042068
  - Niagara Falls: 43.08337, -79.073925
  - Stonehenge: 51.17859, -1.826134



BlackBerry 10 Jam

6. Installing the WebWorks SDK

Transform your HTML5 into a BlackBerry application

Build environment setup

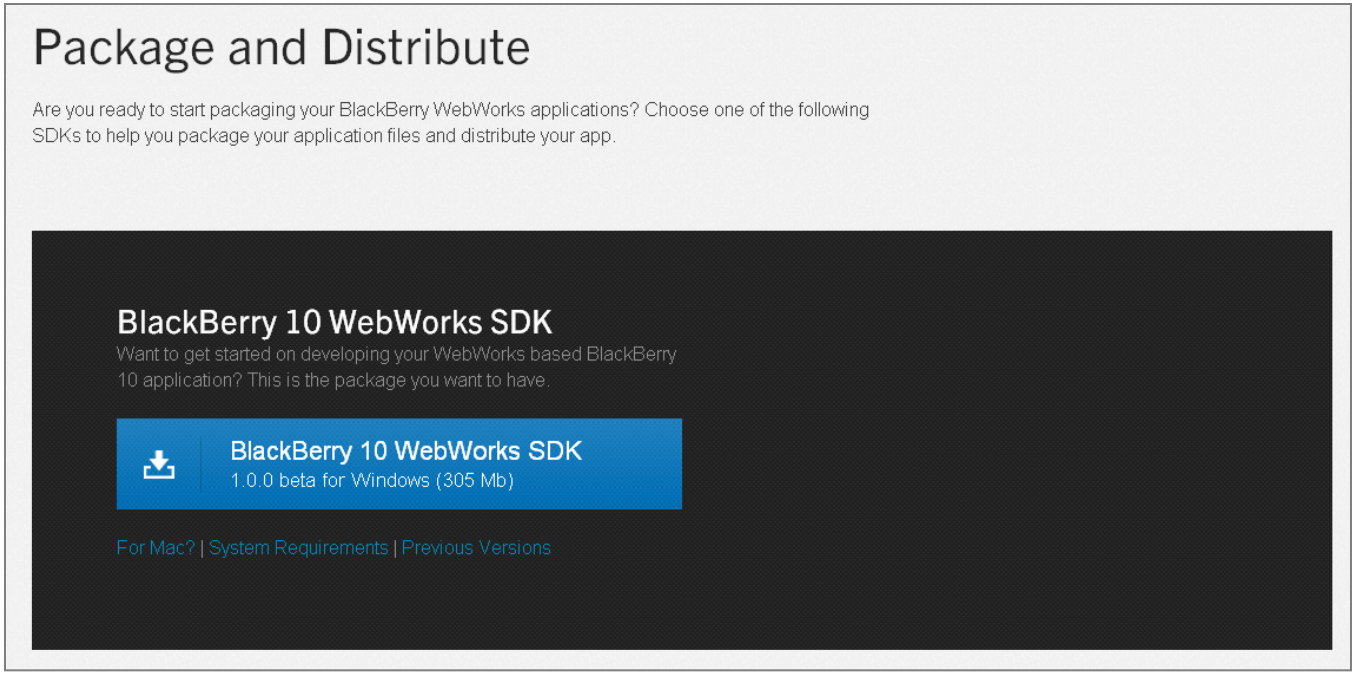
BlackBerry 10 Jam

- Package WebWorks assets into a BlackBerry application
- Required: BlackBerry WebWorks SDK for BB10
- Optional: BlackBerry 10 simulator
  - VMware Player (Windows)
  - VMware Fusion (Mac)

Step 1: Set up the SDK

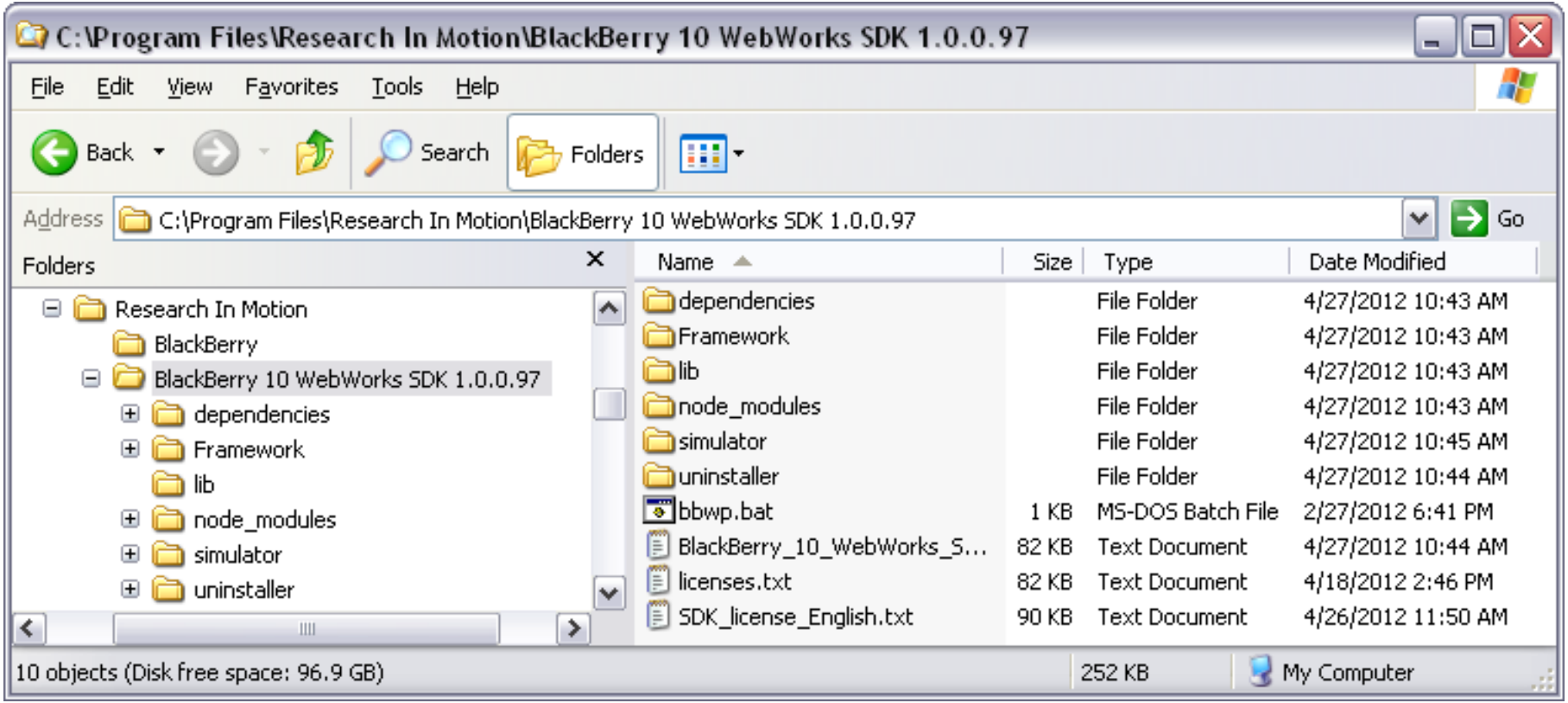
BlackBerry 10 Jam

- Install the BlackBerry WebWorks SDK for BB10
  - http://developer.blackberry.com/html5/download



Step 2: Set up the SDK

BlackBerry 10 Jam



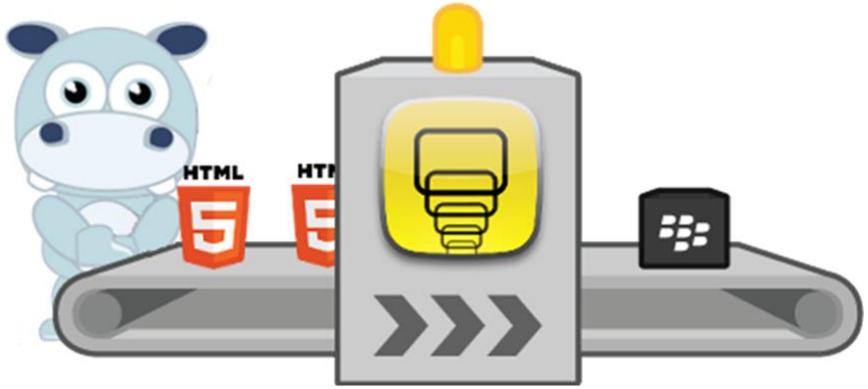
BlackBerry 10 Jam

7. Build the kitchenSink app

Using Ripple and WebWorks to produce a BlackBerry application

How to get there?

BlackBerry 10 Jam



Web Assets → WebWorks → BlackBerry Applications

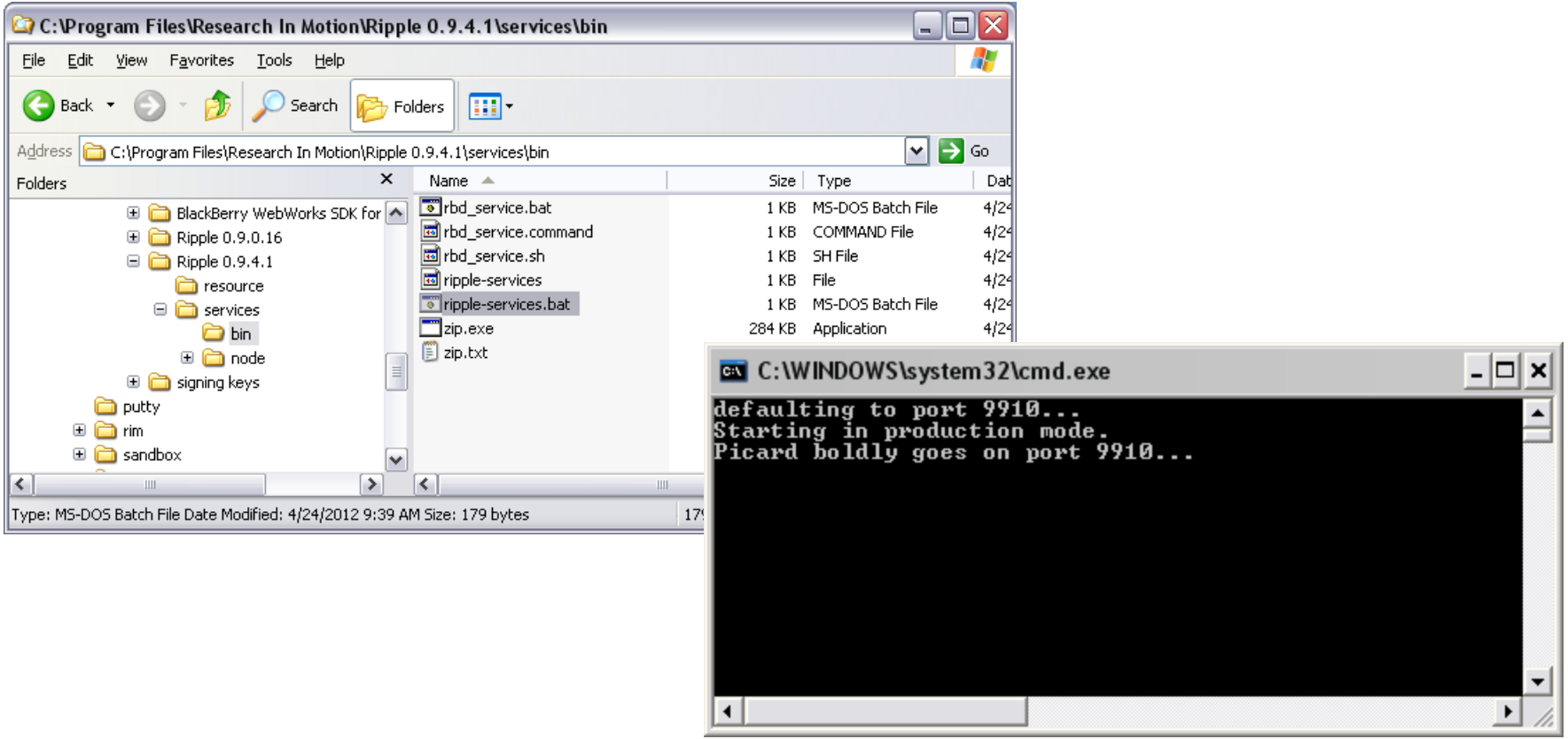
Build environment setup

BlackBerry 10 Jam

- Ripple extension can compile, sign and deploy apps!
  - Start **ripple-services** command line utility
  - Opens port 9910 for use
- Run services\bin**ripple-services.bat**:
  - Windows: C:\program files\Research In Motion\Ripple <version>
  - Mac: /Applications/Research In Motion/Ripple <version>
- Keep command window open

Build environment setup

BlackBerry 10 Jam



Build environment setup

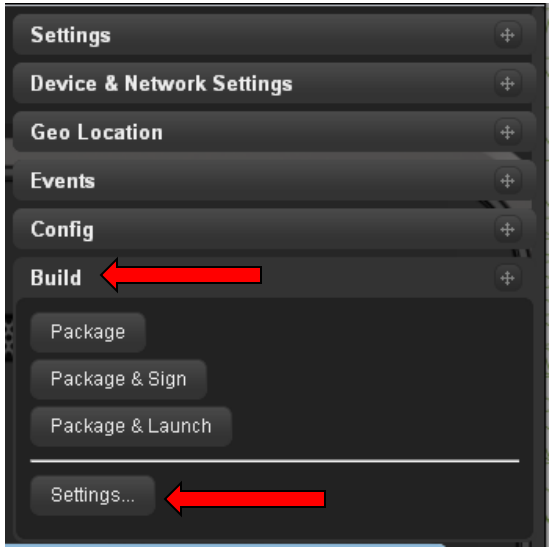
BlackBerry 10 Jam

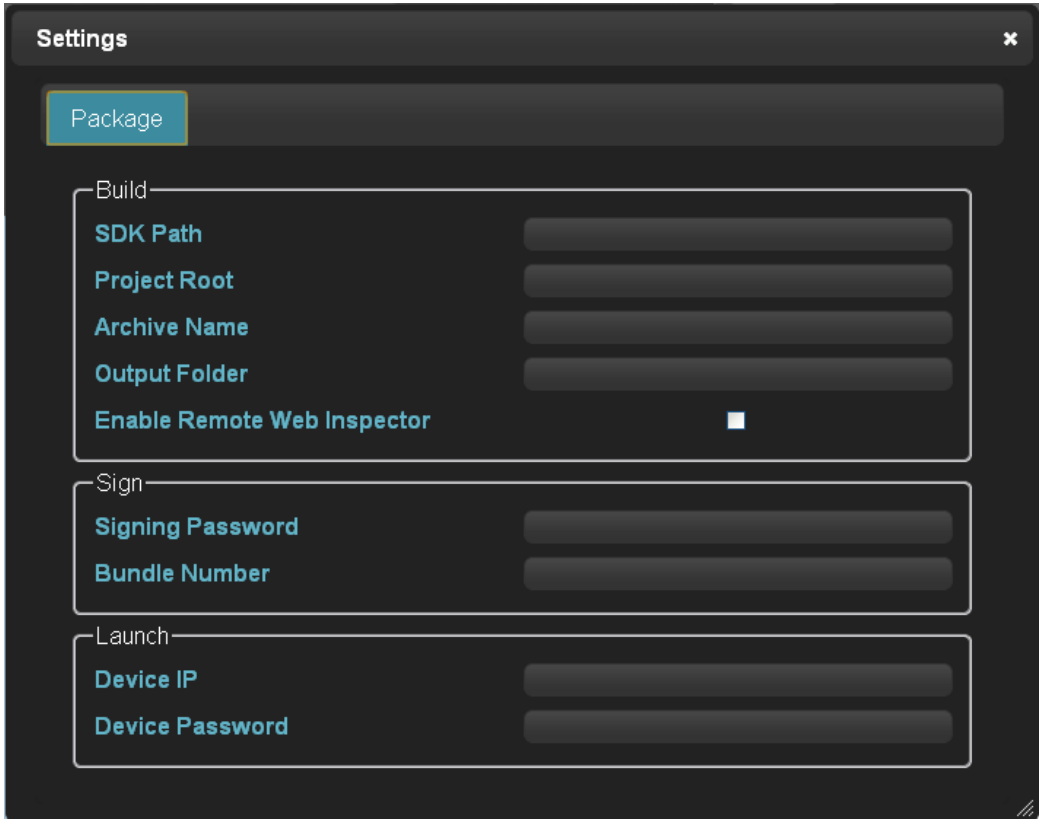
- TEMPORARY STEP (As of May 1, 2012)
  - WebWorks for BB10 does not yet support *all* APIs
- Edit kitchenSink/**config.xml**
- Comment / remove ALL <feature> elements **except**:
  - blackberry.app
  - blackberry.invoke
  - blackberry.system
  - blackberry.identity

Build environment setup

BlackBerry 10 Jam

- Open Ripple extension
- Expand Build tab
- Click Settings button

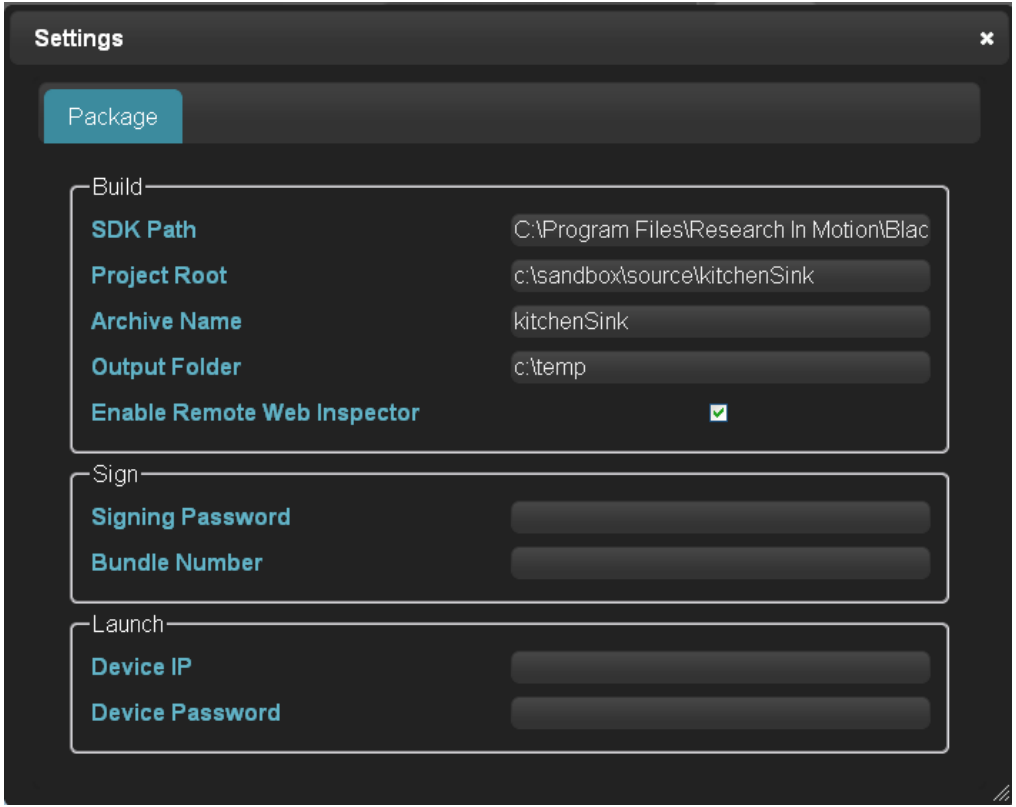




Configure settings

BlackBerry 10 Jam

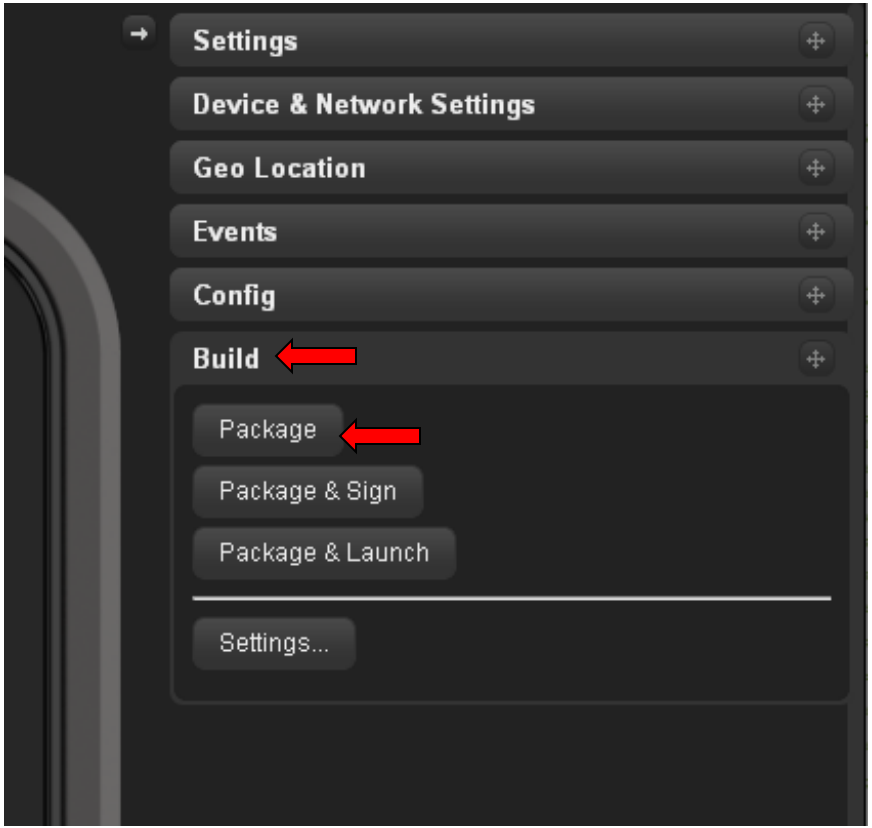
- SDK Path
  - BBWP installer directory
- Project Root
  - Application source code
- Archive Name
  - BAR file name
- Output Folder
  - Different than project root



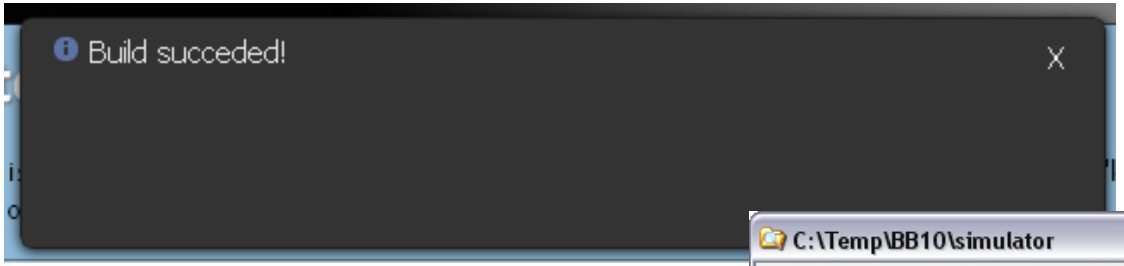
Build using Ripple

BlackBerry 10 Jam

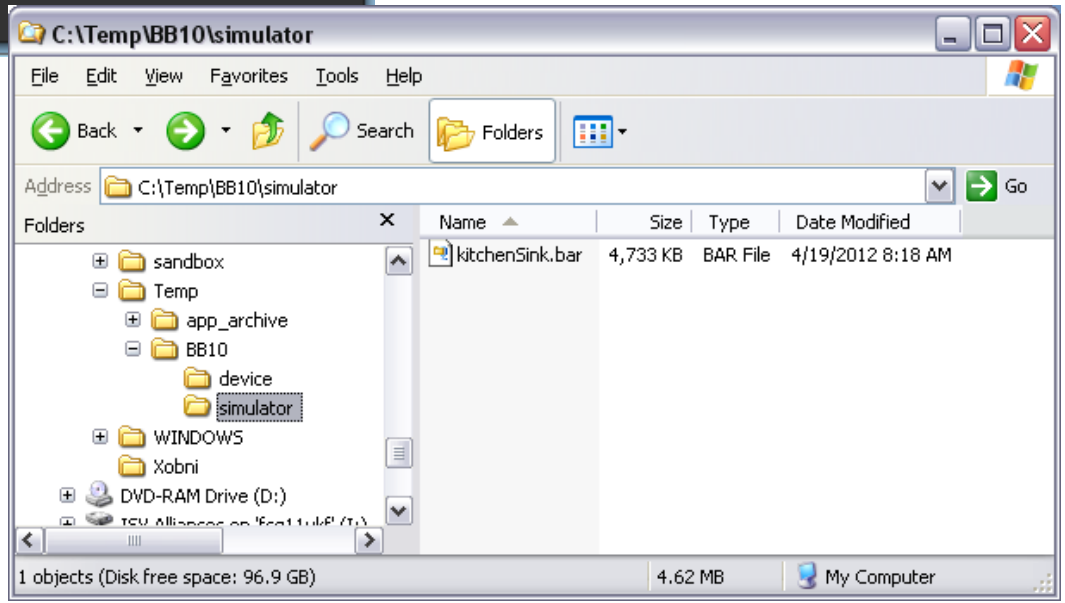
- Open Build tab
  - Package
    - For simulators
  - Package & Sign
    - For live devices
  - Package & Launch
    - Deploy to simulator



Build using Ripple



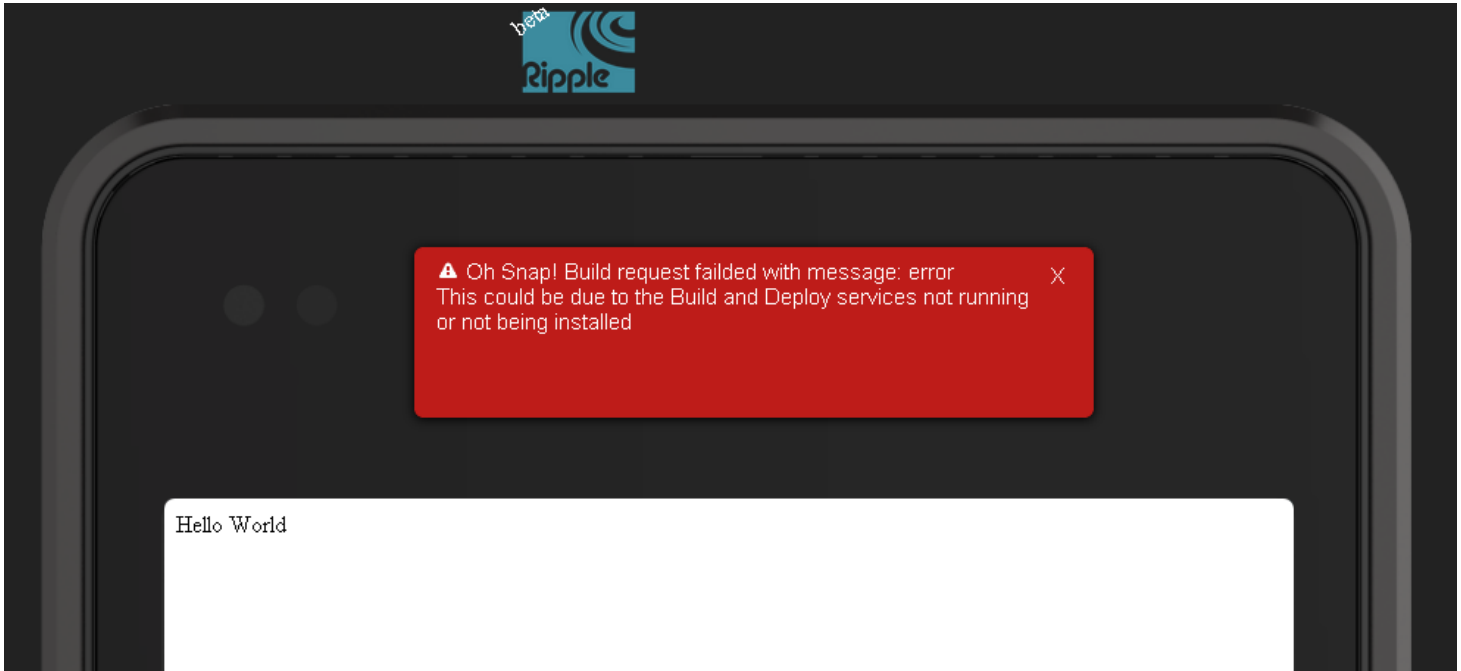
- Two BAR files created
- Deployment targets:
  - device
  - simulator



Build using Ripple

BlackBerry 10 Jam

- Troubleshooting:
  - What happens if **ripple-services** isn't running?



BlackBerry 10 Jam

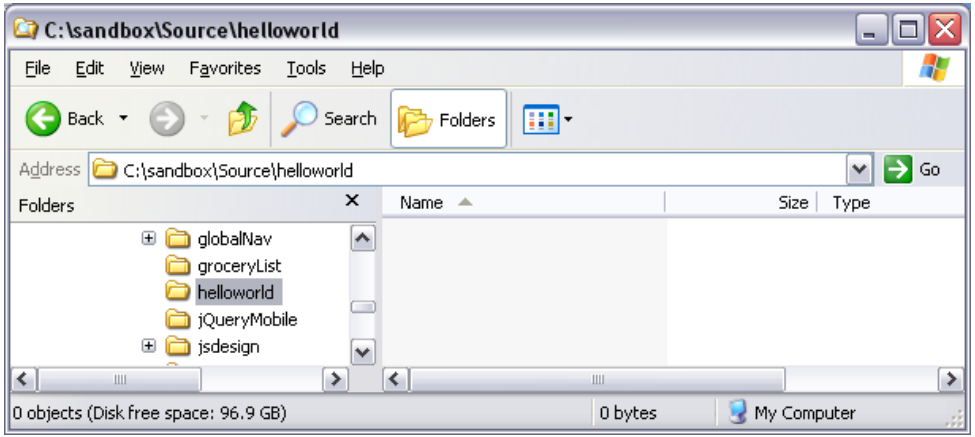
8. Creating your 1st app

Hello World?

Create a project folder

BlackBerry 10 Jam

- Create a new folder named **helloWorld**



- Hints:
  - Put in working directory of web server.
  - Tutorial: “Creating your first application” http://bit.ly/J3N6sS

Create the main page

BlackBerry 10 Jam

- Create a new file in **helloworld** folder
  - Name it **index.html**

```
<!DOCTYPE html>
<html>
<head>
	<title>Hello World</title>
</head>
<body>
	<div id="message">Hello World</div>
</body>
</html>
```

Create the configuration file

BlackBerry 10 Jam

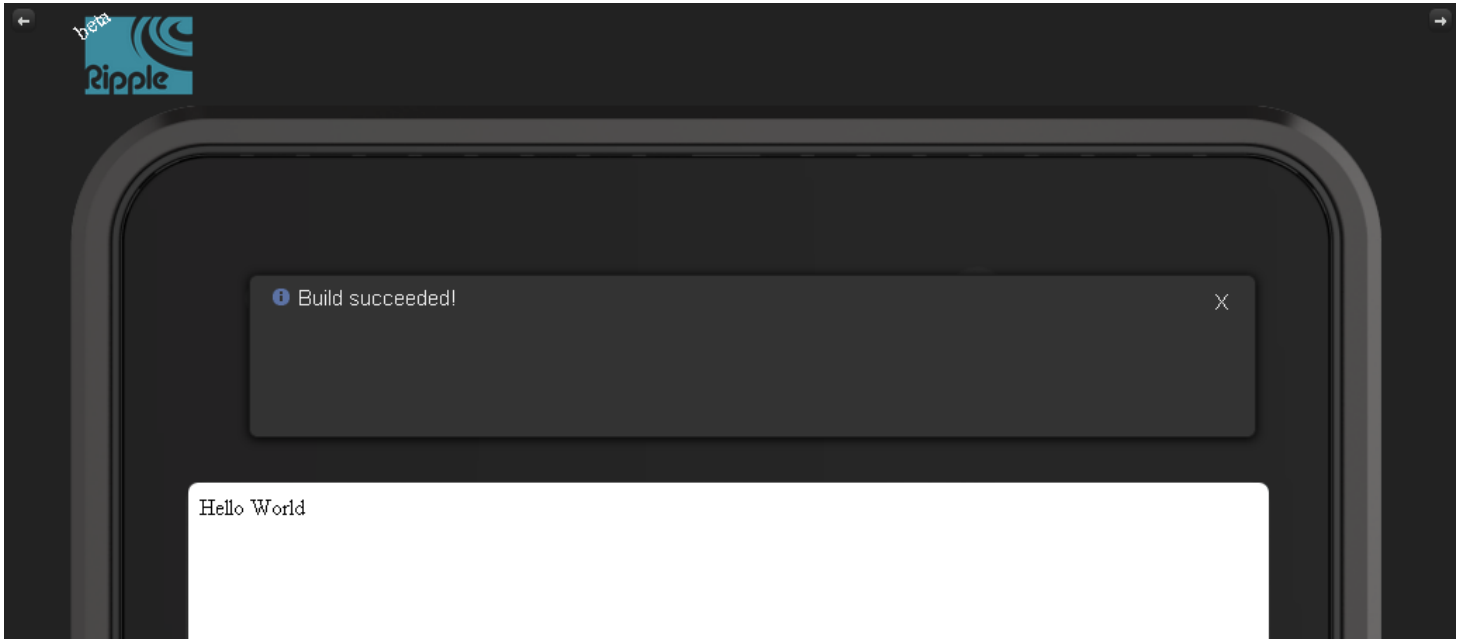
- Create a new file in **helloworld** folder
  - Name it **config.xml**

```
<?xml version="1.0" encoding="UTF-8"?>
<widget xmlns="http://www.w3.org/ns/widgets"
        version="1.0.0.1"
        id="helloWorld">

   <name> Hello World </name>
   <content src="index.html" />
   <author>Your name here</author>

</widget>
```

Build helloWorld

BlackBerry 10 Jam

- Configure Ripple to build **helloWorld** into an application
  - Using WebWorks for BB10



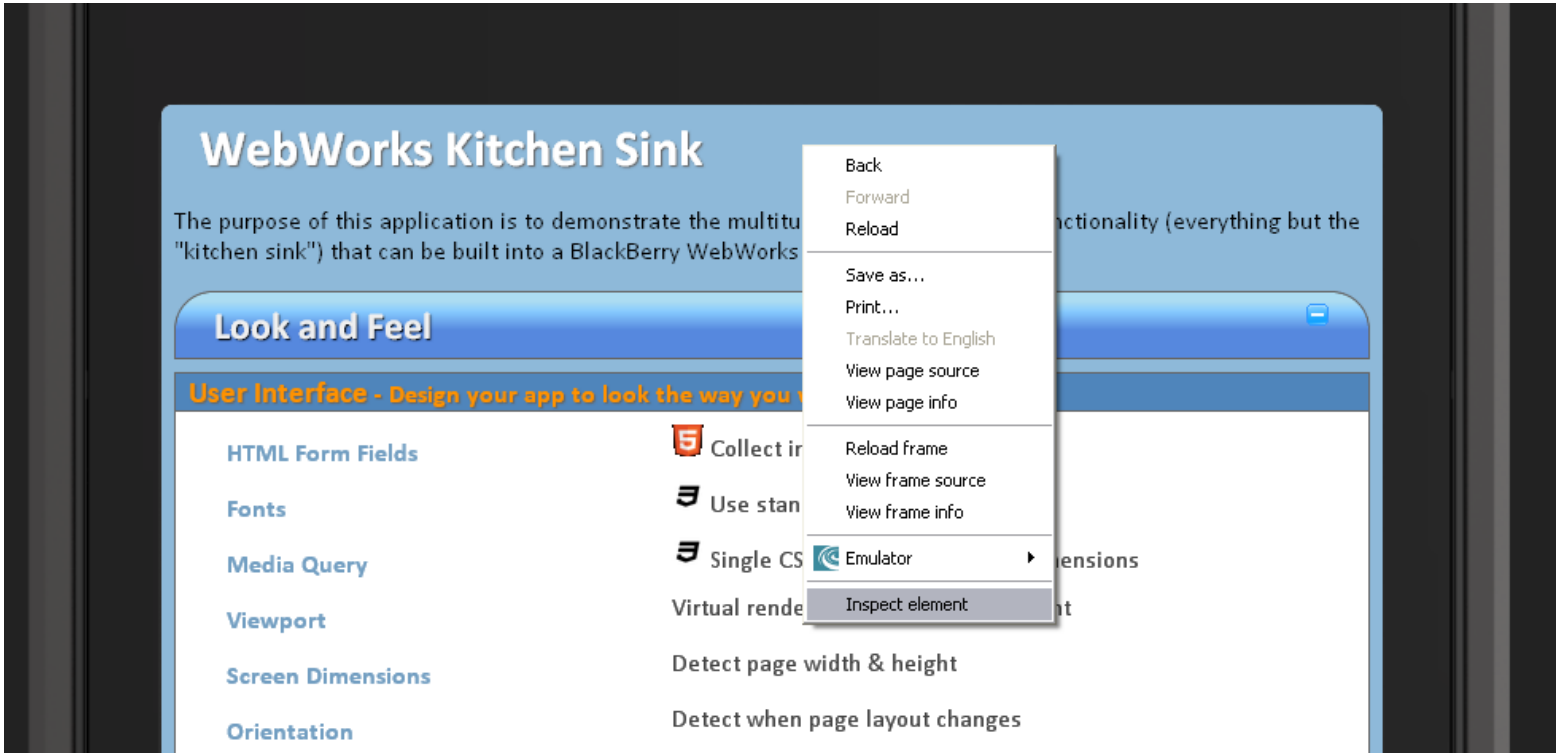
9. Debugging

Use Web Inspector to troubleshoot bugs and performance issues.

Web Inspector debugging

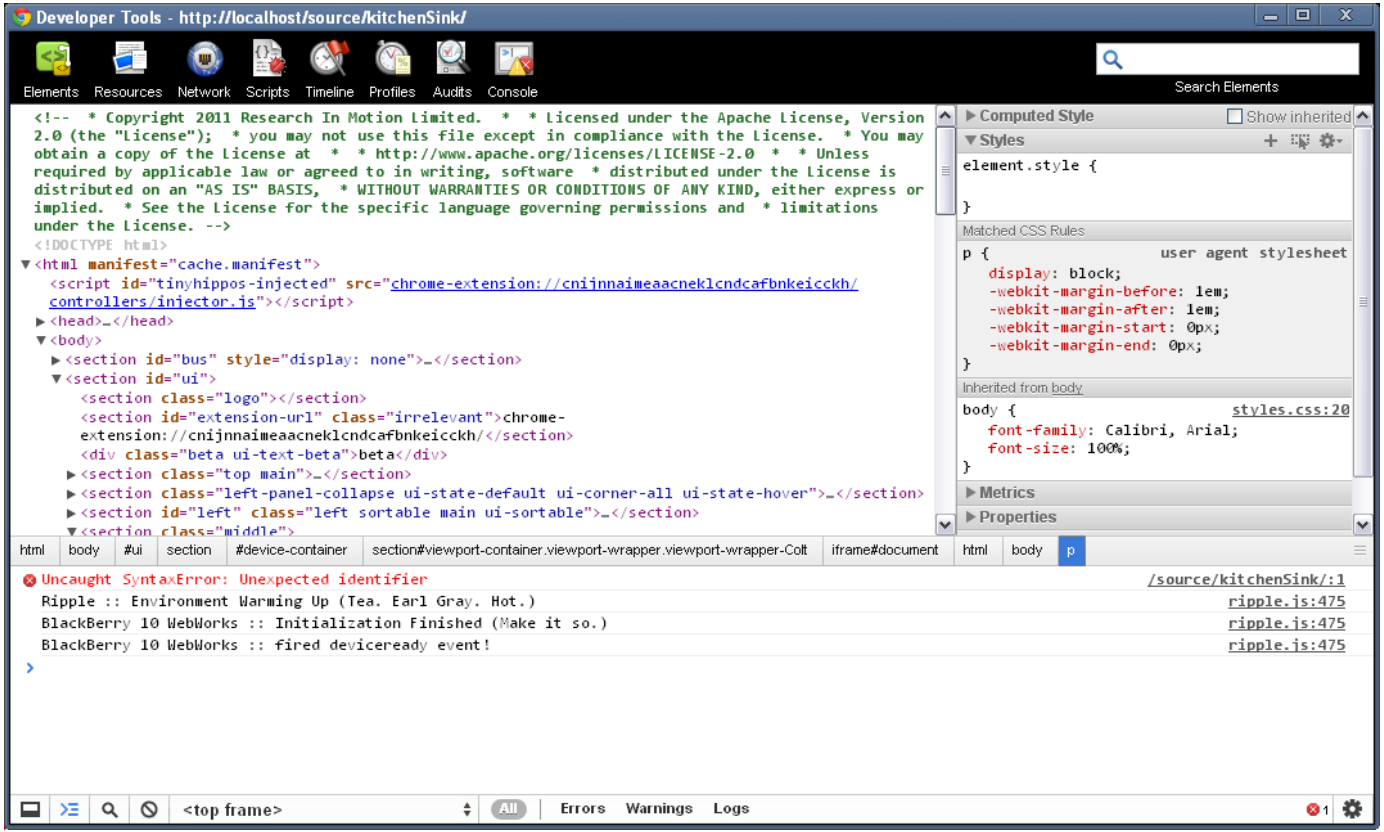
BlackBerry 10 Jam

- Right click content window → “Inspect Element”



Web Inspector debugging

BlackBerry 10 Jam



Web Inspector debugging

BlackBerry 10 Jam

- Web Inspector features:
  - Elements – DOM elements and properties.
  - Resources –images, scripts, css, storage, cookies, cache.
  - Network – HTTP request and response data.
  - Scripts – step through JavaScript.
  - Timeline – download speeds.
  - Profiles – CPU and memory load.
  - Audits – feedback about network and web page performance.
  - Console –error and log statements.

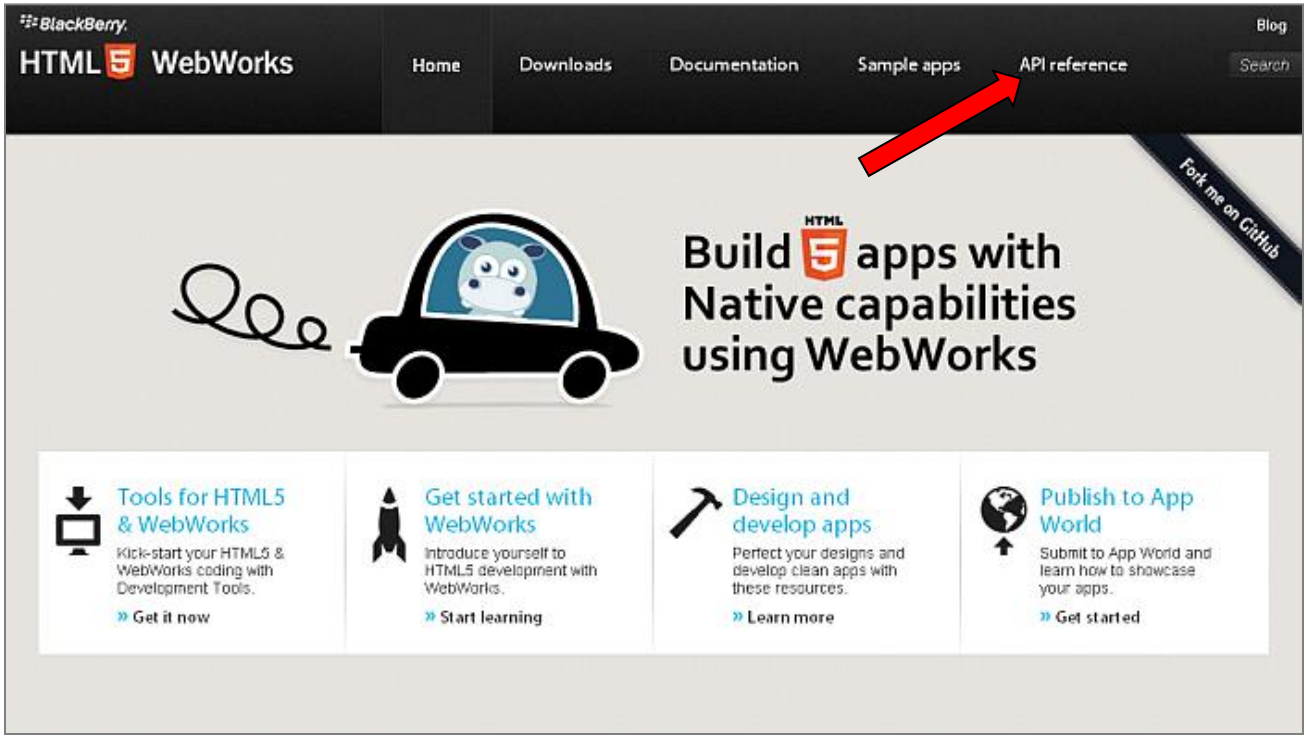
BlackBerry 10 Jam

10. WebWorks APIs

Connecting your HTML5 content with native BlackBerry 10 device capabilities

BlackBerry 10 WebWorks APIs

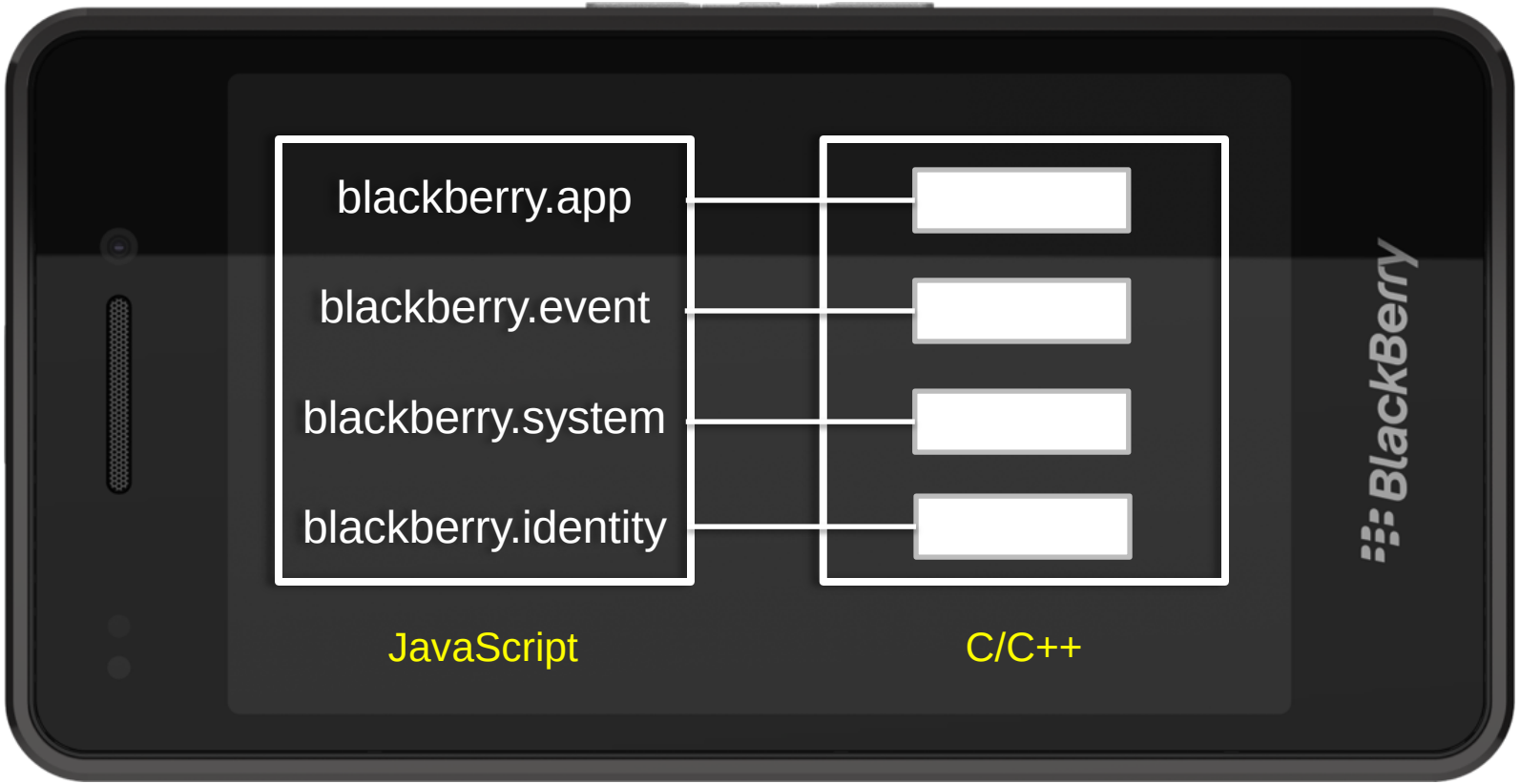
BlackBerry 10 Jam



http://developer.blackberry.com/html5/api

BlackBerry 10 WebWorks APIs

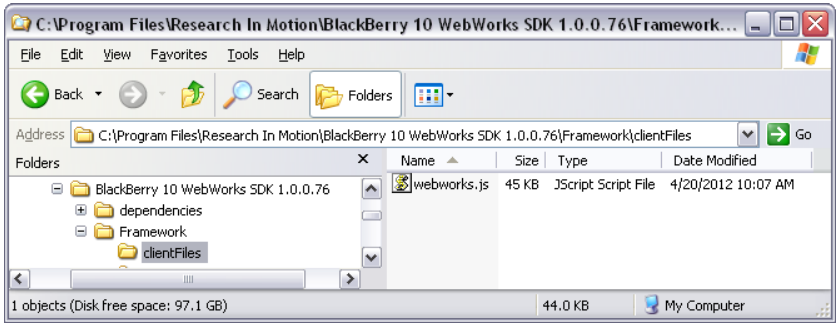
BlackBerry 10 Jam



BlackBerry 10 WebWorks

BlackBerry 10 Jam

- Add **webworks.js** to your project
  - Copy from ../BlackBerry 10 WebWorks SDK <version>/framework/clientFiles/



- Add a reference to **webworks.js** in your code
  - Best practice: Put JS at the end of your HTML page

```
<script src="webworks.js"></script>
```

BlackBerry 10 WebWorks

BlackBerry 10 Jam

- Initialize the **webworks.js** framework:
  - Must create a handler for **webworksready** event
- Only use WebWorks APIs *after* this event has occurred

```
<script>
    function ready() {
        //APIs are now available
    }
    window.addEventListener("load", function(e) {
         document.addEventListener("webworksready", ready);
    });
</script>
```

Task: Display uuid (PIN)

BlackBerry 10 Jam

- Read and display device **uuid** in helloWorld application
  - **uuid** = Universally unique identifier
  - Equals the BlackBerry PIN, but using Cordova API signature

- Hints:
  - Add a feature element for blackberry.identity to **config.xml**
  - Use JavaScript to read blackberry.identity.uuid
  - Display **uuid** in a new DIV element on the page

Solution: Display uuid (PIN)

BlackBerry 10 Jam

- config.xml:

```
<?xml version="1.0" encoding="UTF-8"?>
<widget xmlns="http://www.w3.org/ns/widgets"
        version="1.0.0.1"
        id="helloWorld">

    <name> Hello World </name>
    <content src="index.html" />
    <author>Your name here</author>
    <feature id="blackberry.identity" required="true"
                version="1.0.0.0"/>

</widget>
```

Solution: Display uuid (PIN)

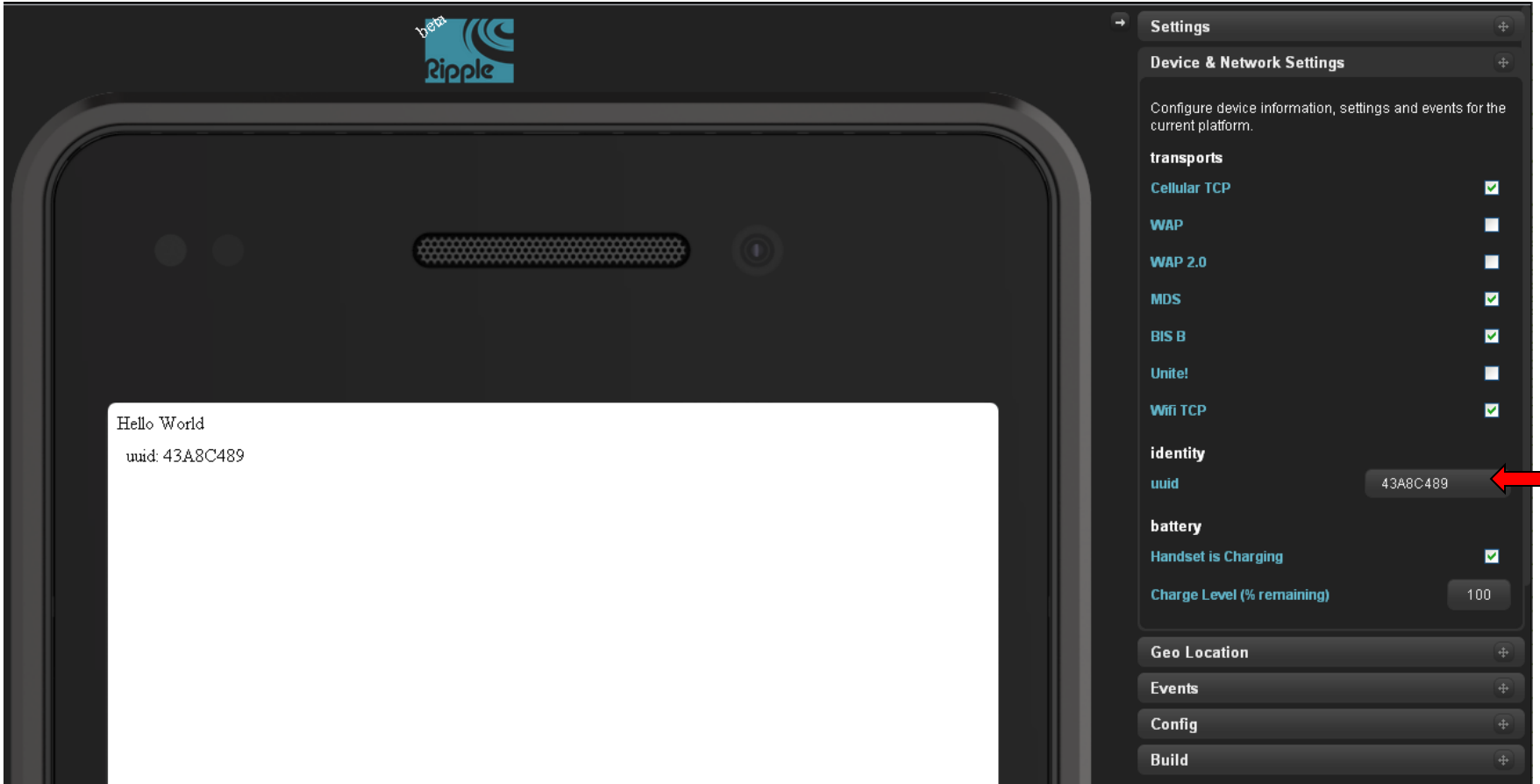
BlackBerry 10 Jam

- index.html:

```
...
<script type="text/javascript" src="webworks.js"></script>

<script>
    function ready() {
        var ele = document.createElement("div");
        ele.innerHTML = "uuid: " + blackberry.identity.uuid;
        document.documentElement.appendChild(ele);
    };

    window.addEventListener("load", function(e) {
        document.addEventListener("webworksready", ready);
    });
</script>
...
```

Task: Display uuid (PIN)

BlackBerry 10 Jam



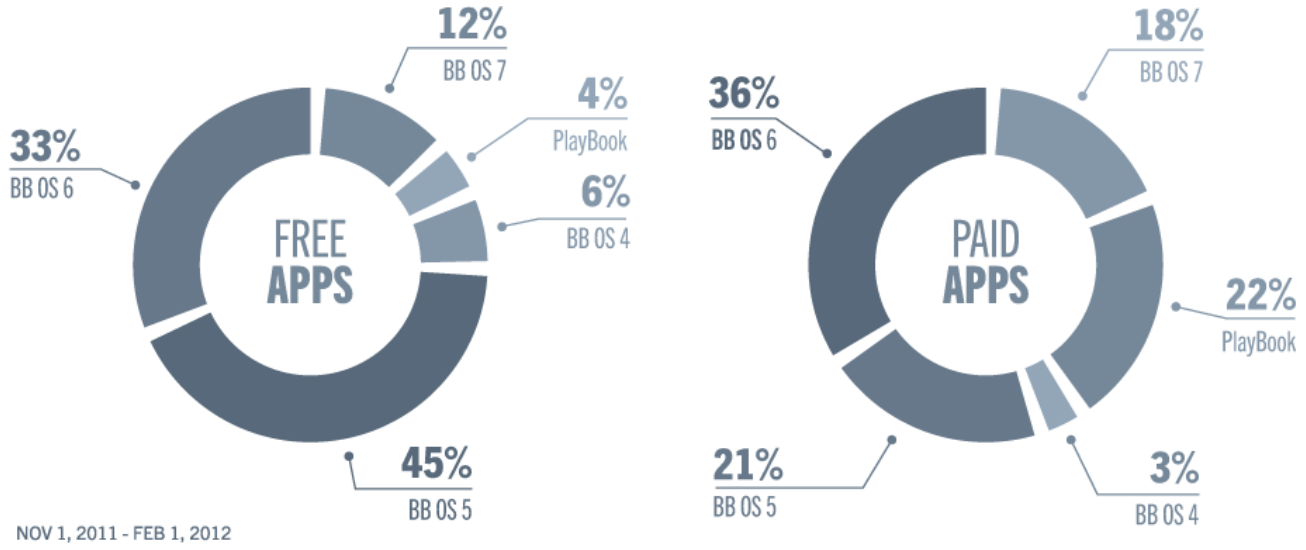
11. Deployment

How to get your BAR file on a simulator or live device

Deployment

BlackBerry 10 Jam

- BlackBerry App World
  - 5.5 million daily downloads
  - 40+ carriers supporting carrier billing



Deployment

- What about deploying apps directly?
  - Live devices
  - simulators

Deployment

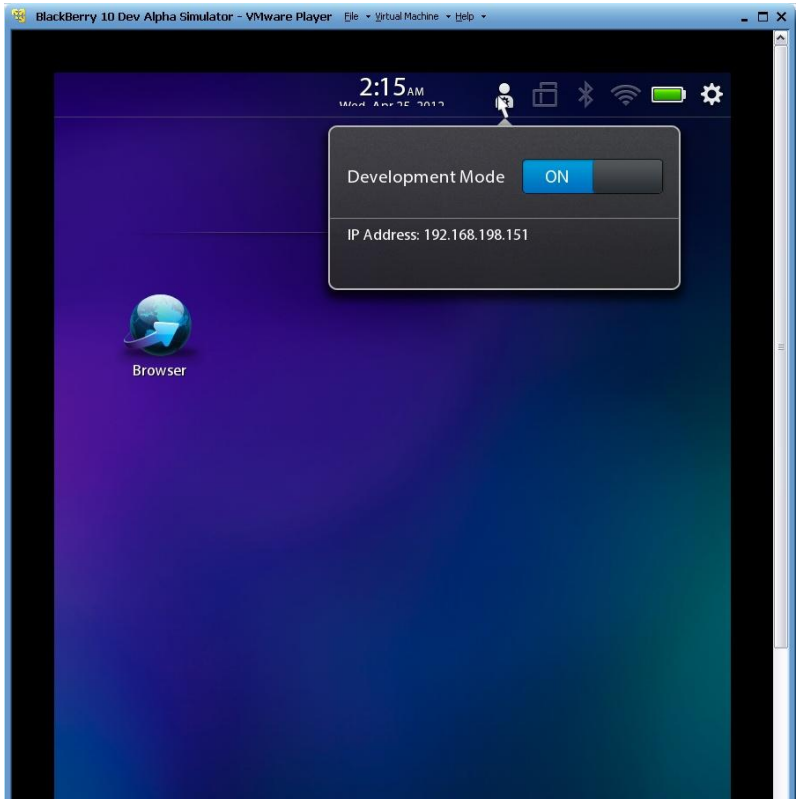
BlackBerry 10 Jam

- BlackBerry 10 Dev Alpha simulator
  - BlackBerry10Simulator.vmx
  - C:\Program Files\Research In Motion\BlackBerry 10 WebWorks SDK <version>\simulator
- VMware player is available from:
  - http://www.vmware.com/products/player

Deployment

BlackBerry 10 Jam

- Enable development mode
  - Open security settings
  - Enter system password
  - IP address



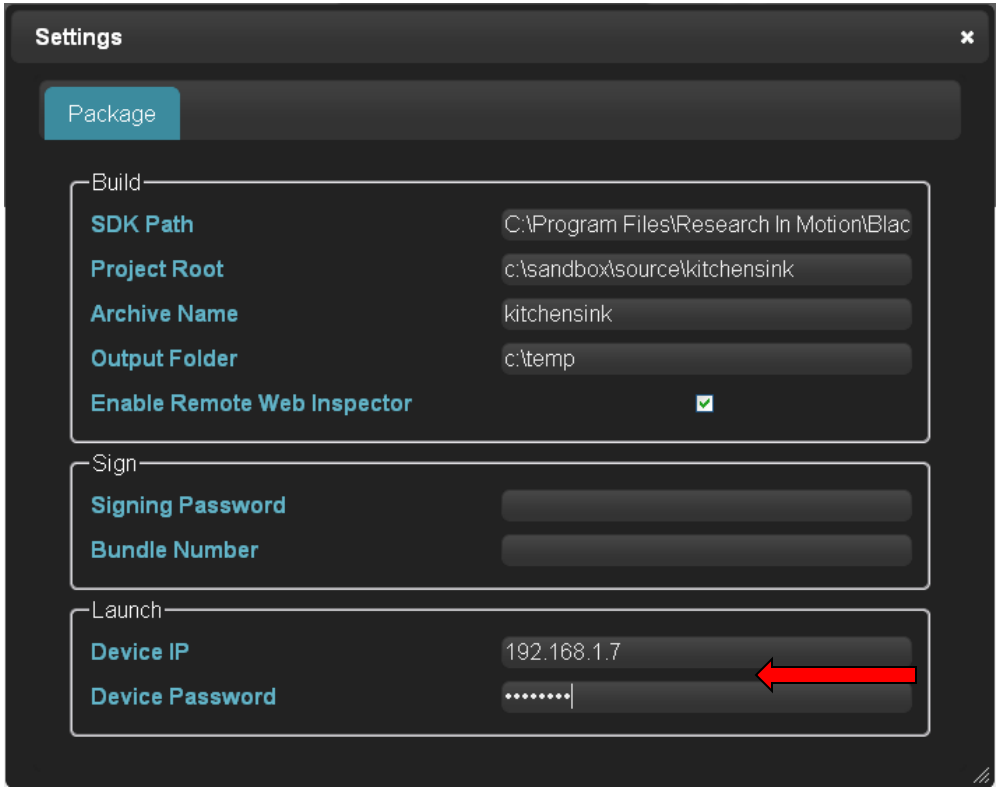
Deployment

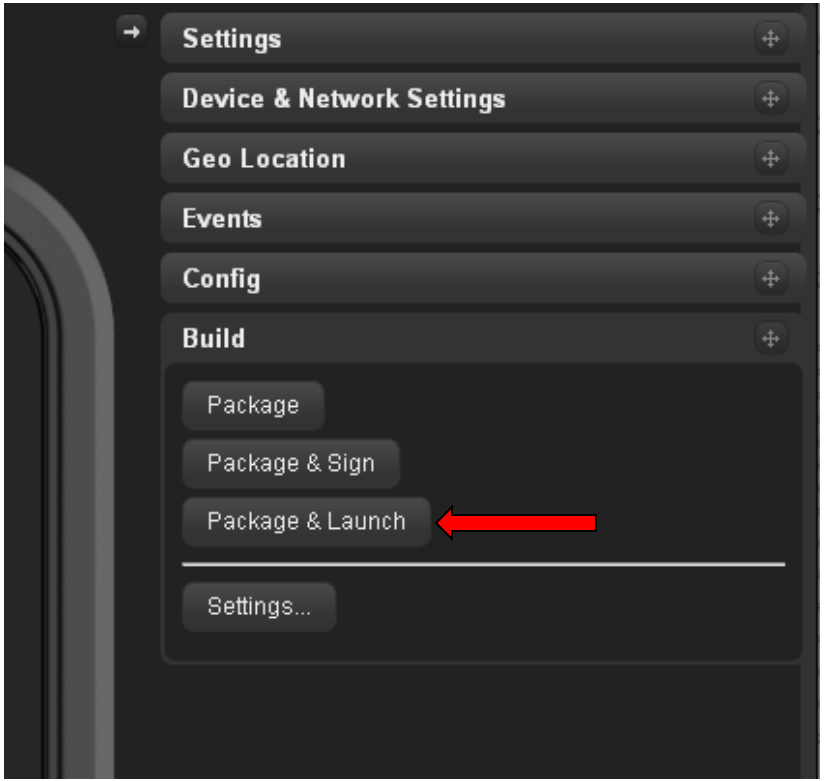
BlackBerry 10 Jam

- Use Ripple to deploy unsigned app to simulator
  - Enter IP address and Password in settings screen
  - Select “Package & Launch” option
  - Deploy to VMWare simulator

Deployment

BlackBerry 10 Jam

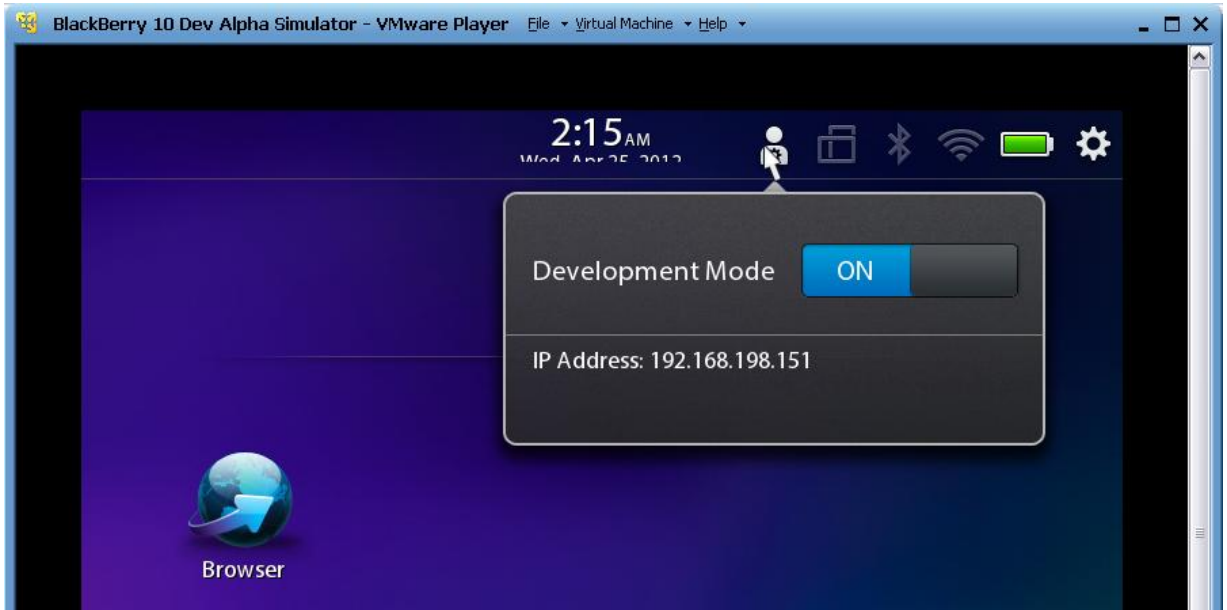




Task:

BlackBerry 10 Jam

- Deploy kitchenSink and helloWorld to simulator
- Hint:
  - Don’t forget to enable development mode



Deployment

BlackBerry 10 Jam

- Use blackberry-deploy to side-load a signed app
  - Command line tool found in
    - C:\Program Files\Research In Motion\BlackBerry 10 WebWorks SDK <version>\dependencies\tools\bin
- Deploy to
  - a live device (app must be signed)
  - a simulator (app does not have to be signed)

```
blackberry-deploy -installApp -device <Device IP> -package
<Compiled BAR> -password <Device PWD>
```

Deployment

BlackBerry 10 Jam

```
C:\Program Files\Research In Motion\BlackBerry 10 WebWorks SDK
1.0.0.76\dependencies\tools\bin>blackberry-deploy -installApp
-device 192.168.198.134 -package "c:\temp\kitchenSink.bar"
-password 1234

Sending Install request...
Info: Action: Install
Info: File size: 40731
Info: Installing ...
actual_dname::DEV8281a833da63a6b7e2098dae6d0662e1.MjA5OG
RhZTZkMDY2MmUxICAgICA
actual_id::MjA5OGRhZTZkMDY2MmUxICAgICA
actual_version::1.0.0.0
result::success
```

12. Code signing

BlackBerry device capabilities

Code Signing

BlackBerry 10 Jam

- Apps must be signed to run on a live device
  - Required in order to deploy to BlackBerry App World
- Register for keys
  - https://www.blackberry.com/SignedKeys
- Install keys
  - http://bit.ly/JKTsfu

Code signing key setup

BlackBerry 10 Jam

- Open command prompt and navigate to
  - C:\Program Files\Research In Motion\BlackBerry 10 WebWorks SDK <version>\dependencies\tools\bin
- Install the keys:

```
blackberry-signer -register -csjpin <csj pin>
    -storepass <KeystorePassword> <client-RDK-xxxxxx.csj file>
    <client-PBDT-xxxxx.csj file>
```

- Use Ripple to “Package & Sign”

Task: Deploy your app

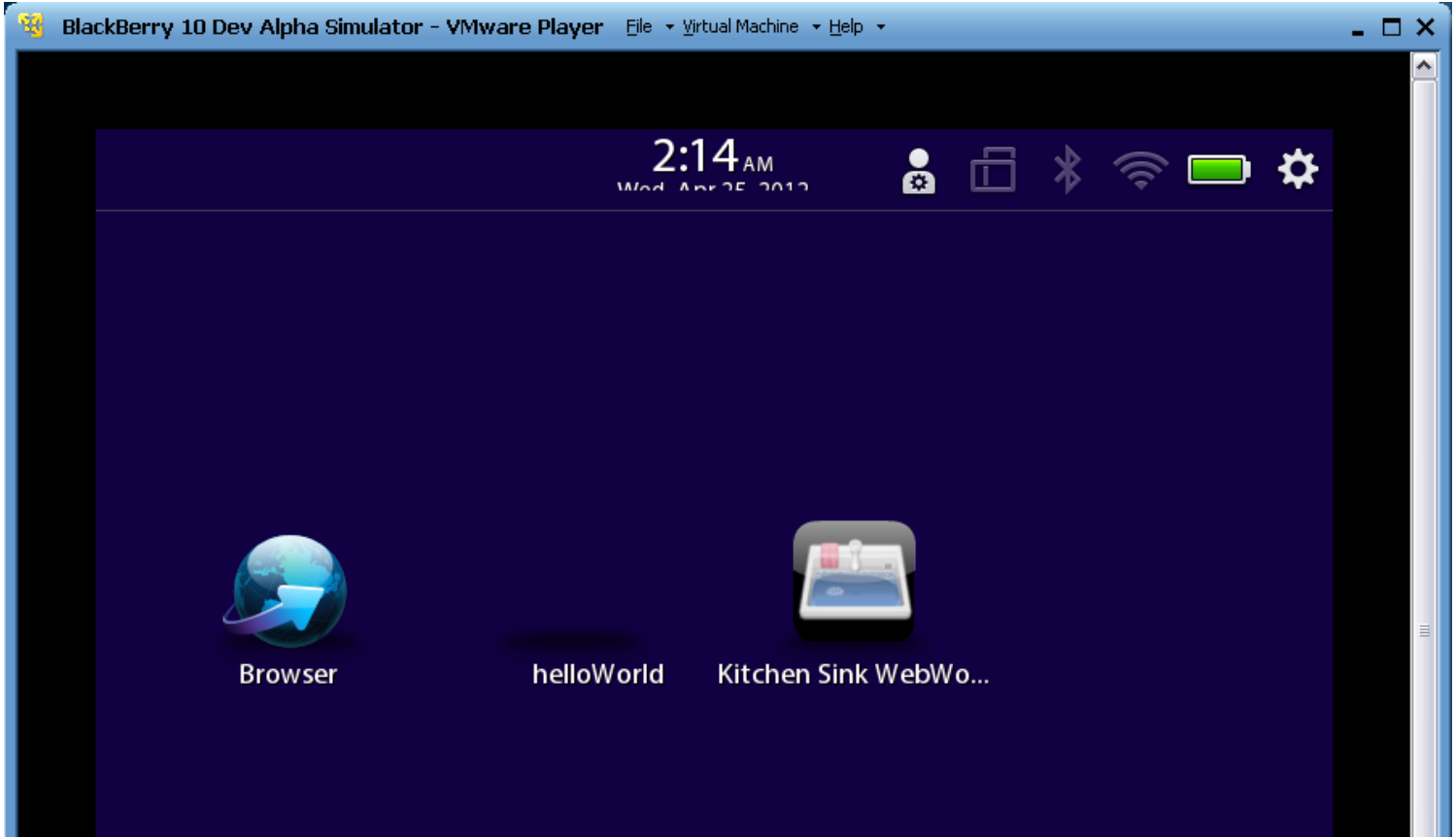
BlackBerry 10 Jam

- Deploy kitchenSink or helloWorld to live device

- Hint:
  - Register for keys
  - Install keys
  - Don’t forget to sign it

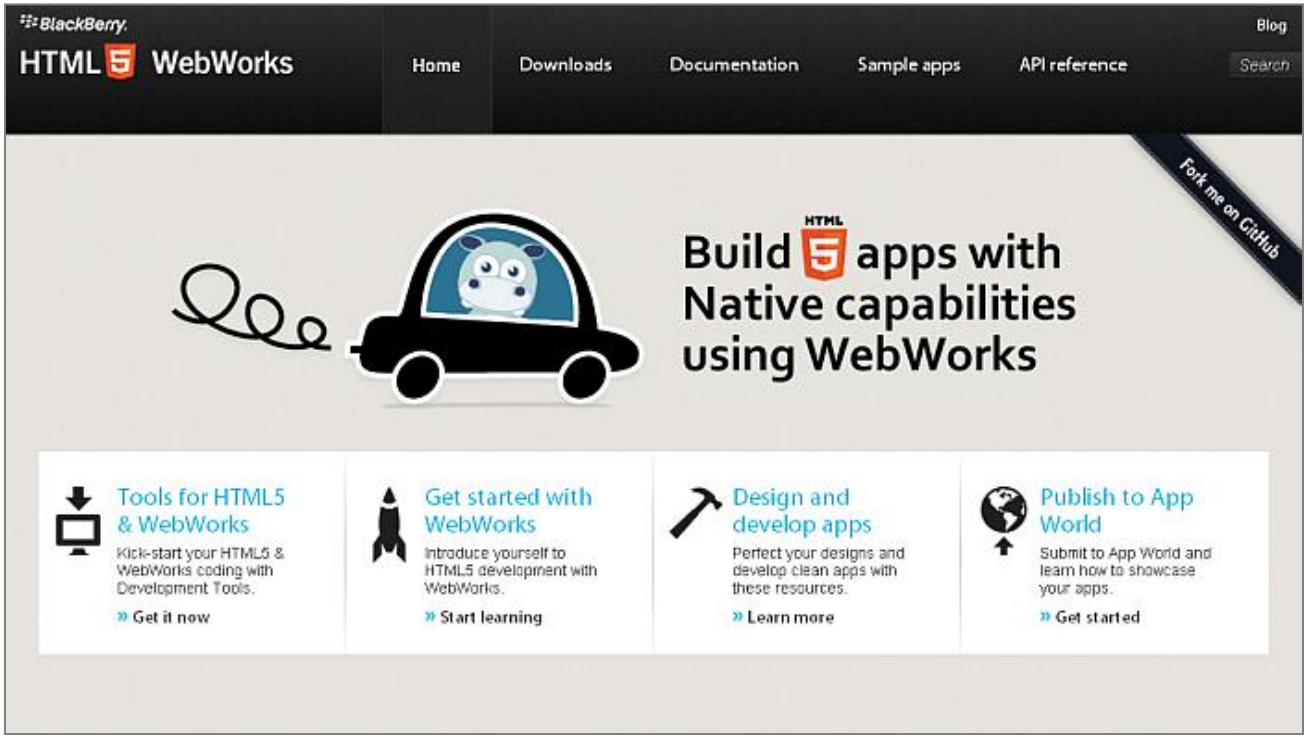
Task: Deploy your app

BlackBerry 10 Jam



For more information

BlackBerry 10 Jam



http://developer.blackberry.com/html5

BlackBerry 10 Jam

THANK YOU

DEV144

@n_adam_stanley, @ken_wallis, @confusement

May 1-3, 2012