



How to Build, Run, and Develop Code With the phoneME Open Source Project

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<http://phoneme.dev.java.net>

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Goal of This Talk

Learn how to customize and build the premier open source Java™ Platform, Micro Edition (Java ME platform) implementation and use it to develop and debug your mobile applications



Updated Slides

<https://phoneme.dev.java.net/files/documents/>

Agenda

Overview of phoneME™ software

Source Code at Java.Net

Building and Running

Developing Apps for phoneME
Feature software

Developing Apps for phoneME
Advanced software

Developing the Platform

Overview of phoneME Project

- The open source implementation of Java™ ME platform
- Hosted in Subversion on java.net
 - <https://phoneme.dev.java.net/source/browse/phoneme/>
- Part of the “Mobile and Embedded” Community
 - www.mobileandembedded.org
- Other projects part of the M&E Community
 - cqME™ software
 - ME Application Developer
- Java.net includes email lists, forums, wikis, etc

Overview of phoneME Software

- **phoneME Advanced software**
 - Advanced phones and consumer devices (Ref: Linux/x86)
 - Contents: CDC/Foundation/Personal Basis/Personal Profiles
 - “CDC stack”
 - Java Specification Request (JSRs): 135 (MMAPI) and 172 (Web Serv)
- **phoneME Feature software**
 - Mass-market “feature” phones (Ref: Linux/x86)
 - Contents: CLDC/Mobile Information Device Profile
 - “CLDC stack”
 - JSRs: 120 (WMA), 135 (MMAPI), 172 (Web Serv), 177 (SATSA), JSR 211 (CHAPI), JSR 239 (OpenGL ES)

phoneME Software Source Code License

- GPL version 2
 - <http://www.gnu.org/copyleft/gpl.html>
- GPL Questions
 - Refer to yesterday's Business Track presentations
- Dual Licensed with Commercial License
 - Enables proprietary use
 - Compatible w/non-GPL licenses

Hinkmond and Stuart are not lawyers. This slide is not intended as legal advice or representation.

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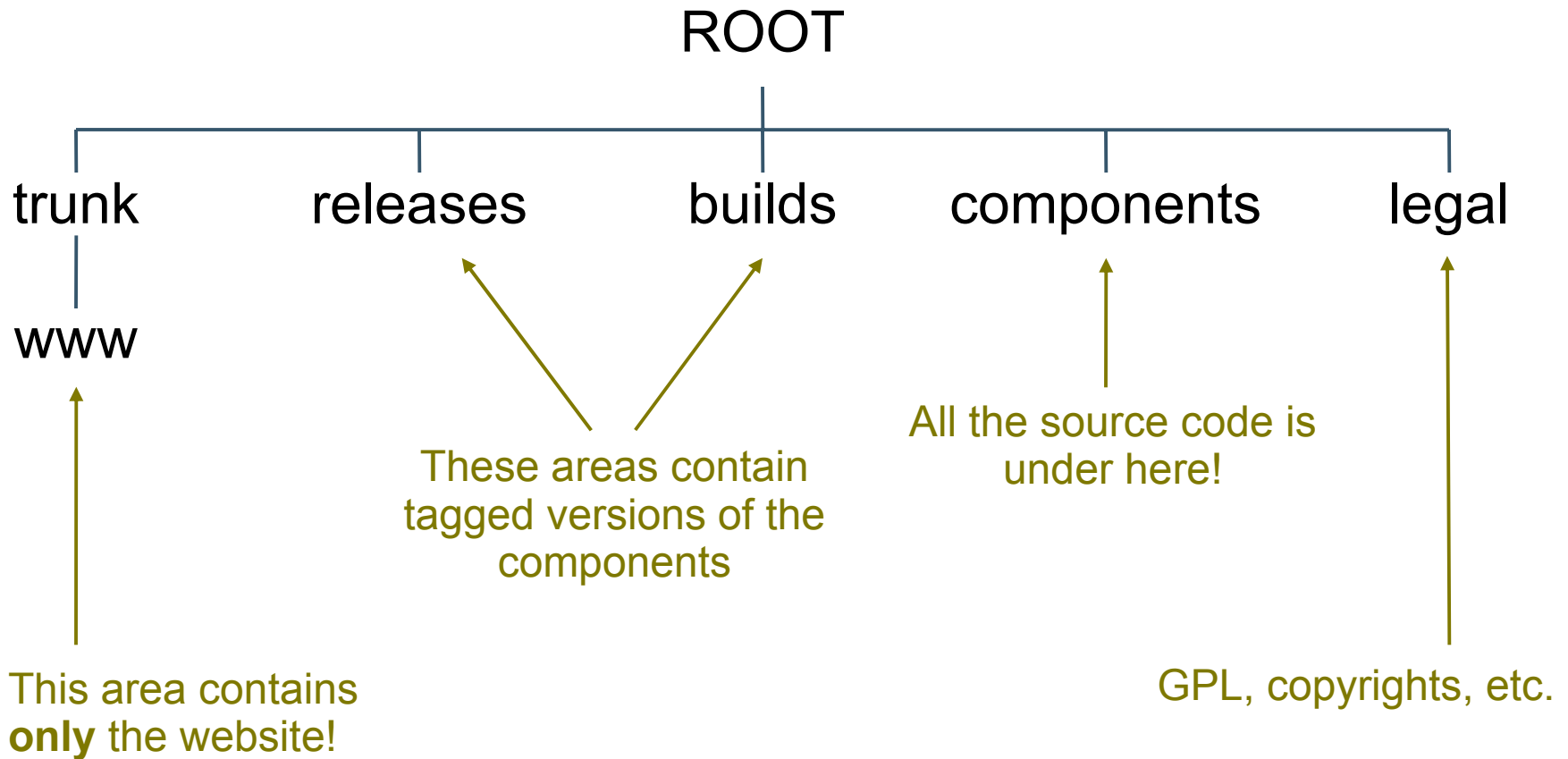
Developing Apps for phoneME
Advanced software

Developing the Platform

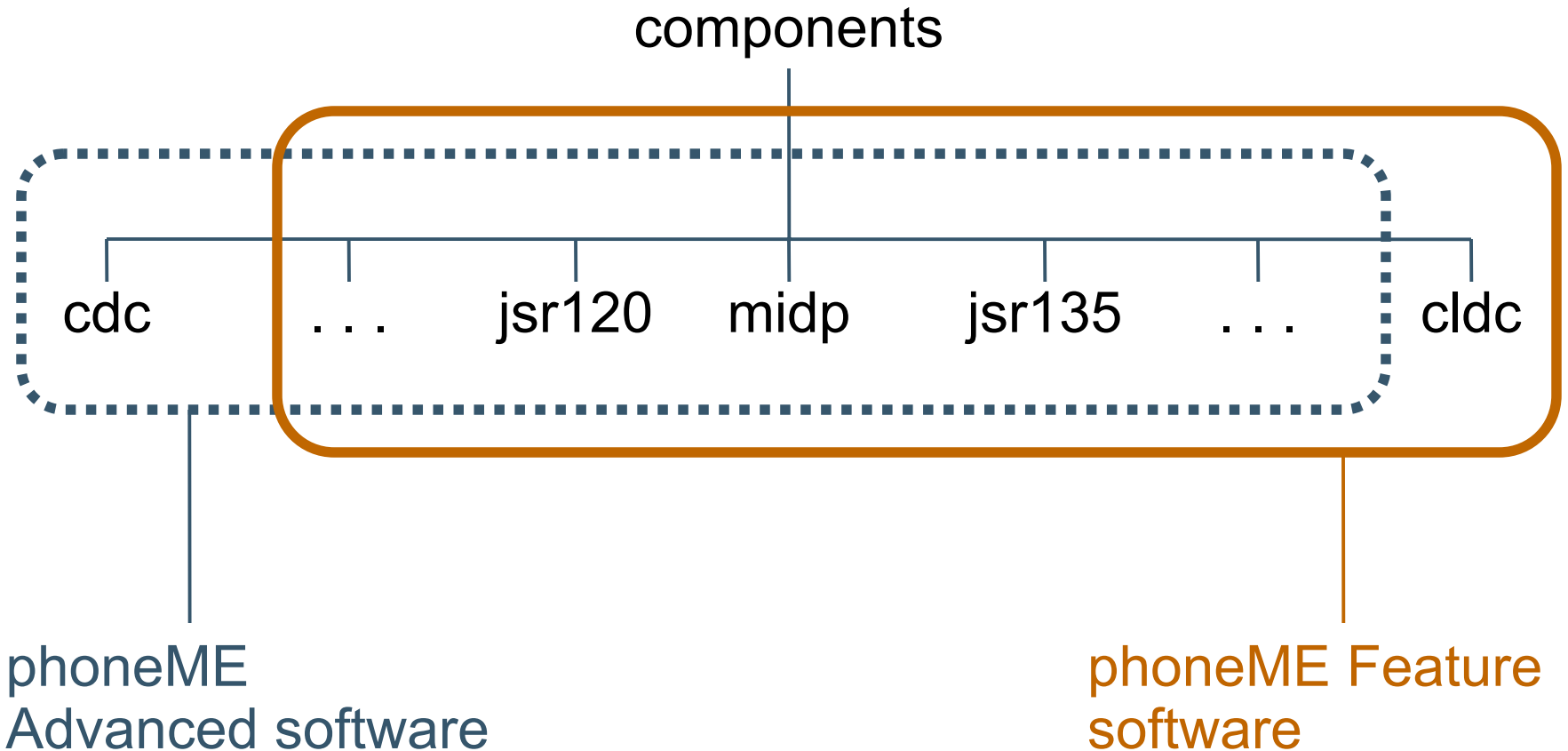
Source Code at Java.Net

- Snapshots available as source code bundles
 - https://phoneme.dev.java.net/downloads_page.html
- Source code can be retrieved from svn repository
 - Use an svn client to access
<https://phoneme.dev.java.net/svn/phoneme>
- Atypical repository structure
 - Don't just grab the whole thing
 - We have lots of branches, tags, and supertags
 - You'll get about 100 copies of the source code...

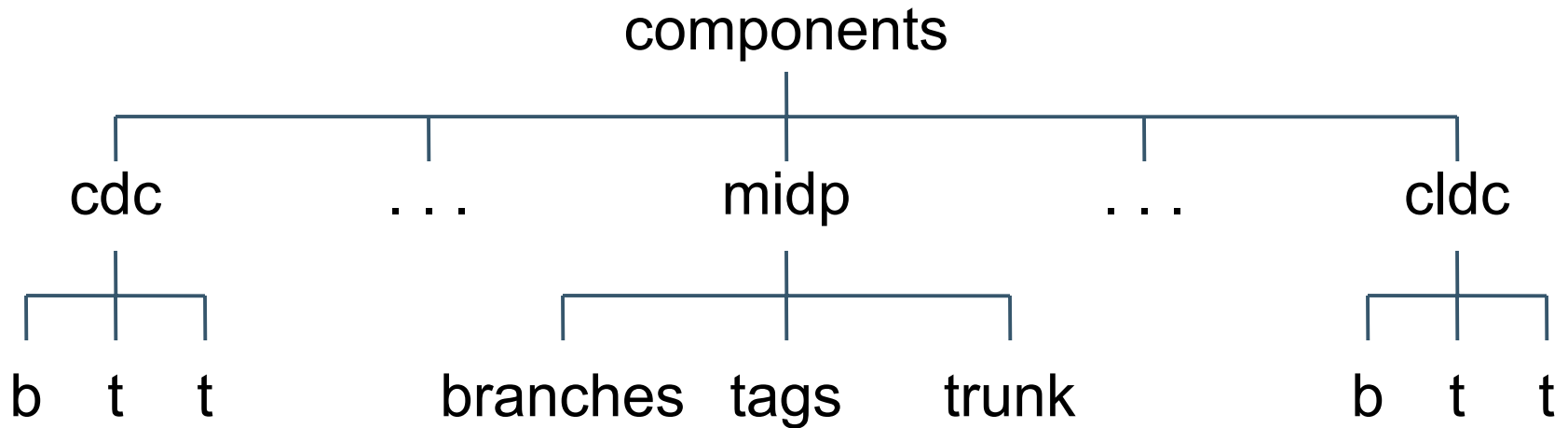
Repository Layout—Top Level



Repository Layout—Components



Repository Layout—Each Component



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Building and Running

- Download
 - Using “svn co” command
 - Check out the needed components (See “Getting Started Guides” below)
- Build (Tools Required):
 - make
 - gcc
 - ant 1.6.5
- Getting Started Guides:
 - https://phoneme.dev.java.net/content/mr2/index_feature.html
 - https://phoneme.dev.java.net/content/phoneme_advanced_r2.html

Building and Running pMEF

- Getting Started Guide:
 - https://phoneme.dev.java.net/content/index_feature.html
- Follow Getting Started Guide:
 - Running using the VM
- Develop your MIDlet
 - Run using the phoneME VM
- ME Application Developer Project:
(more how-to info here)
 - <http://meapplicationdevelopers.dev.java.net>



Building and Running pMEA

```
svn co
```

```
https://phoneme.dev.java.net/svn/phoneme/components/midp/trunk  
midp
```

```
svn co
```

```
https://phoneme.dev.java.net/svn/phoneme/components/tools/trunk  
tools
```

```
cd cdc/build/linux-x86-generic
```

```
make J2ME_CLASSLIB=foundation
```




DEMO

Building and running
phoneME Feature software
phoneME Advanced software

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Developing the Platform

Developing Apps for phoneME Software Feature

- Developing a MIDlet
 - See:
 - <http://www.netbeans.org/kb/trails/mobility.html>
 - Develop MIDlet normally with WTK or NetBeans™ software
 - Using pMEF in WTK or NetBeans software
 - Makes MIDlet more portable and robust
 - Emulator Usage
 - pMEF from command line
 - pMEF as integrated emulator
 - More info
 - <http://meapplicationdevelopers.dev.java.net/>



DEMO

Developing App for phoneME Feature software



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Developing Apps for phoneME Advanced Software

- Developing an Xlet
 - Using javac and the btclasses.zip with basis.jar
 - Xlet lifecycle
 - Simple HelloWorld

Developing App for phoneME Advanced Software

Building:

```
javac -source 1.4 -target 1.4 *.java -classpath  
btclasses.zip:basis.jar
```

Running:

```
bin/cvm com.sun.xlet.XletRunner -name basis.DemoXlet -  
path democlasses.jar
```

Developing App for phoneME Advanced Software

```
import javax.microedition.xlet.*;
...
public class HelloWorldXlet extends Xlet {
    ...

    public void initXlet() {
        // Initialize the Xlet
    }
    public void destroyXlet() {
    }
    public void startXlet() {
        // Start the Xlet
    }
    public void pauseXlet() {
    }
}
```




DEMO

Developing App for phoneME Advanced Software



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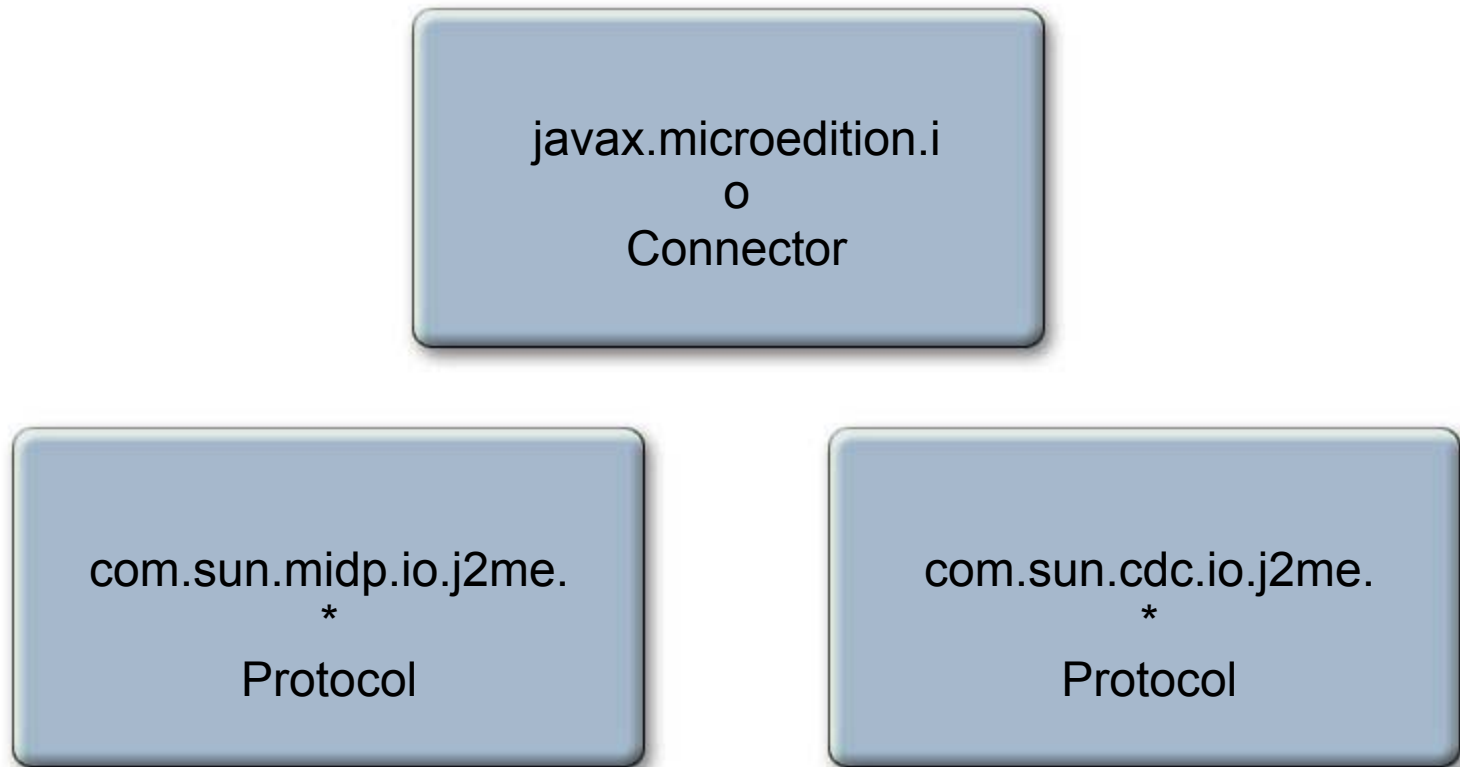
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Developing the Platform

Example: Generic Connection Framework



Developing the Platform

- Generic Connection Framework
 - Plug-in Architecture for Connections (I/O)
 - How to add your own protocols
- Example Addition
 - Protocol for upcase:
 - `javax.microedition.io.Connector`
 - `sun/cldc/io/j2me/upcase/Protocol.java`
- Differences in CDC
 - `sun/cdc/io/j2me/upcase/Protocol.java`

Developing the Platform

- Example Addition upcase in pMEF:
 - Add:
 - midp/src/protocol/upcase/classes/com/sun/midp/io/j2me/upcase/Protocol.java
 - Building
 - Build from command line

Developing the Platform

- Example Addition upcase in pMEA:
 - Add:
 - `src/share/classes/com/sun/cdc/io/j2me/upcase/Protocol.java`
 - `build/share/defs_cdc.mk`
 - `CVM_BUILDTIME_CLASSES += \`
`com.sun.cdc.io.j2me.upcase.Protocol`
 - Building
 - Build from a command line:
 - `cd build/linux-x86-generic`
 - `make`



DEMO

Example “upcase” GCF addition





Q&A

Stuart Marks

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Get Involved in phoneME Project!

Contribute and Participate:

<https://phoneme.dev.java.net>

Forums:

<http://forums.java.net/jive/category.jspa?categoryID=56>



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