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A Closer Look at the JavaTM ME Platform SDK 3.0

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Session goal

Discover some of the advanced features of Sun Java ME Platform SDK 3.0 a new SDK for CLDC, CDC and BD-J development.

See Sony Ericsson to show off SDK tools for Sony Ericsson handsets based on customized SDK device adapters.

Agenda

- > Java ME SDK Highlights
- > On-device Tooling
- > Sony Ericsson device adapter for SDK 3.0
- > Tools Overview
- > Sony Ericsson Tools Plugin for SDK 3.0
- > Java ME SDK on Mac and Linux

Consolidated SDK

All Java Micro Edition stacks in one

- > Integrates CLDC, CDC, Blu-ray Disc Java
 - Easier access to all Java ME technologies
 - Successor of popular Java Wireless Toolkit for CLDC and Java Toolkit for CDC
 - Provides device emulation, real device connectivity, standalone development environment, samples, documentation and set of utilities for easy development of Java ME applications
 - Integration with software BD-J players
 - Product page:
<http://java.sun.com/javame/downloads/sdk30.jsp>

CLDC/MIDP stack highlights

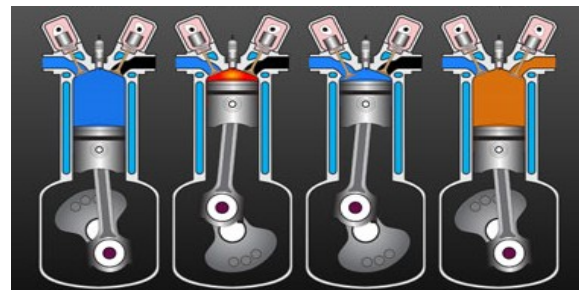
New HotSpot VM with optimized MSA

> Sun Java Wireless Client 2.2

- Code base is opensource PhoneME Feature project (MR4)
- Custom PhoneME runtime dev build can plug into SDK

> Features

- Multithreading VM (MVM)
- Advanced on-device tooling support
- VM implements CLDC 1.1.1
- MSA update 1.1 with extensions
 - JSR256 Mobile Sensors API, JSR280 XML API, JSR229 Payment API, JSR239 OpenGL ES



Tools

All tools integrated into one SDK user interface

- > Lightweight development environment
- > SDK GUI is based on Netbeans platform
 - Shares project system with Netbeans Mobility Pack
 - Easy transition from Java ME SDK to full featured IDE – Netbeans Mobility Pack
 - Modularity of Netbeans platform enables to plug-in new tools either from Sun or 3rd parties
 - Netbeans autoupdate center used for distribution of plug-ins

Tools

All tools integrated into one SDK user interface

- > **New** built in source code editor
- > **New** emulators
 - Individual API profiles, multi-state, multi-screen and multi-keyboard support, screen rotation
- > **New** Device Selector
 - Structured list of devices with their properties
- > **New** CPU profiler data visualization
 - Based on very popular Netbeans profiler
- > **New** device search tool
 - Opensource WURFL database is used

Sony Ericsson Tools plugin for SDK 3.0

Device database of all SE handsets online

- > Handset specific tools obtained via autoupdate
 - Let user choose right tools for his target devices
- > Device Database
 - Online tool for detailed information on all Sony Ericsson handsets
- > Device Explorer
 - Explorer installed MIDlets on a device and provide basic instrumentation functions

Java ME SDK Tools Demo

emulators, device selector, device
database

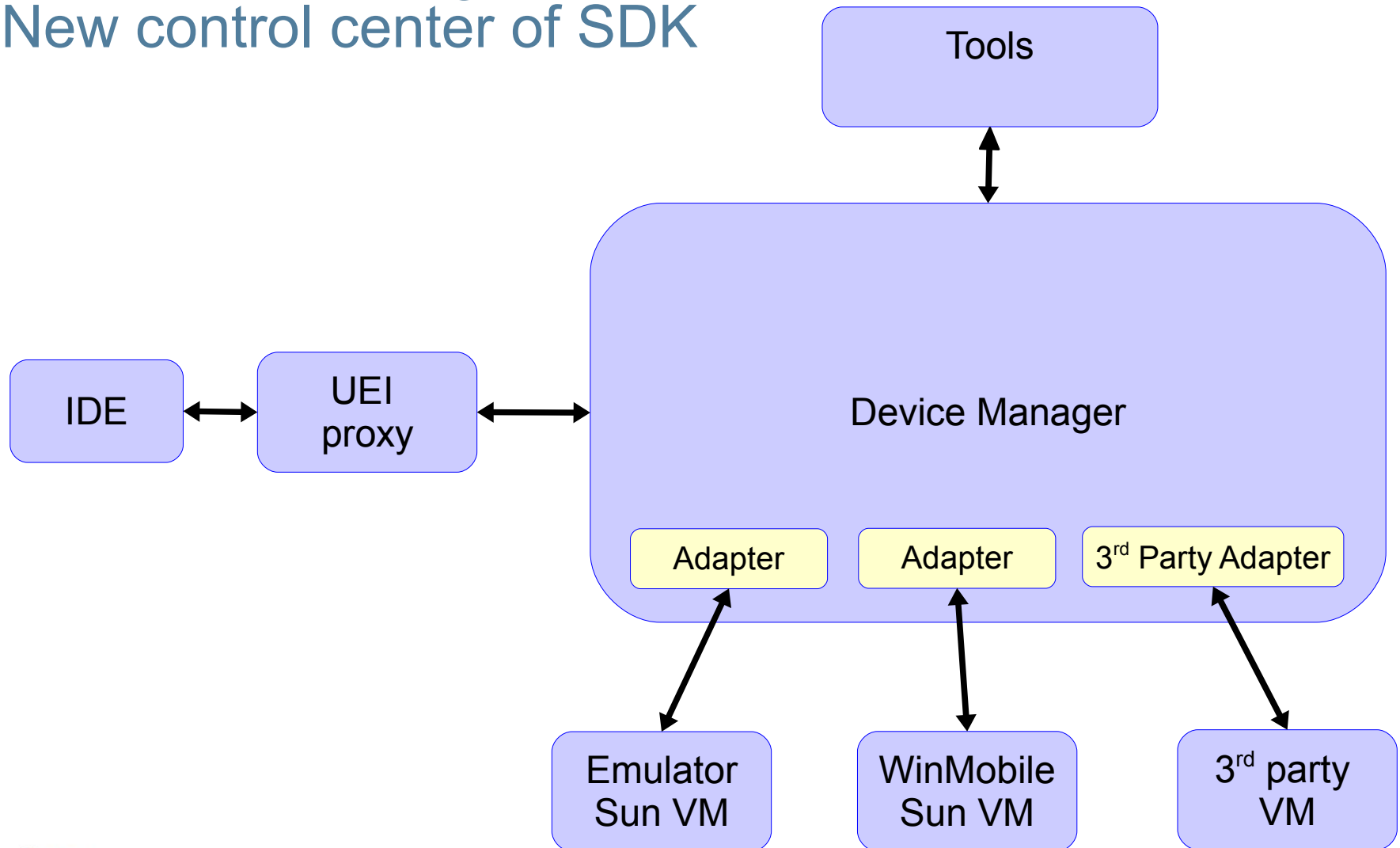
On-Device Tooling

Real life testing is done on device

- > Even very good emulation requires testing and monitoring on real device
 - On-Device Tooling infrastructure makes this process much easier
- > Currently supported on-device are
 - Deployment
 - Download, launch, remove application after exit
 - Output redirection
 - Device std and err outputs redirected to PC
 - Debugging
 - Starts debugging session and handles jdwp port

Device Manager

New control center of SDK



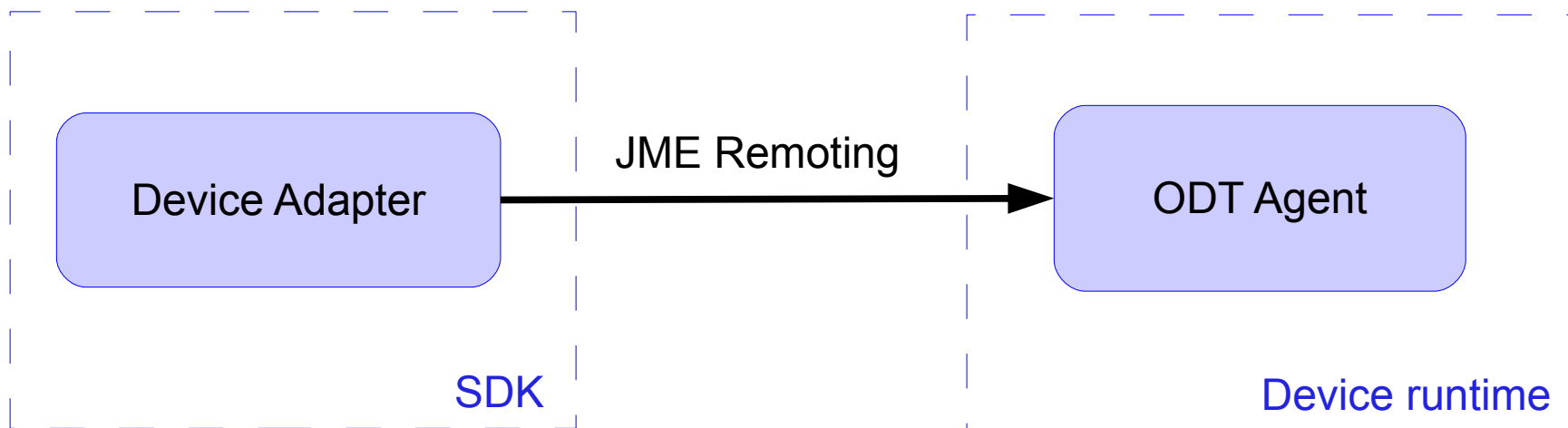
Device Adapters

An abstract layer between SDK and devices

- > Each emulator or device type requires a device adapter
 - Java ME SDK always uses the same interface to communicate with a device or emulator. Adapter provides concrete implementation for a given device
- > Included are device adapters for Sun VM
 - Built in emulators
 - Microsoft device emulator
 - Windows Mobile device
- > 3rd party adapters
 - Will be downloadable through update centre

Device Adapters and ODT Agents

Key components of SDK-To-Device connectivity



- > ODT Agent called by device adapter performs tasks in VM
- > JME Remoting
 - Lightweight RMI
 - compatible with Java SE and JavaME
 - allows to pass objects, return values, register listeners

Sony Ericsson Device Adapter for SDK 3.0

- > Sony Ericsson Device Adapter
 - Adds support for on-device debugging and instrumentation (including CPU profiling)

On-device Tooling Demo

Deployment, debugging,
device instrumentation and profiling on
Windows Mobile and Sony Ericsson device

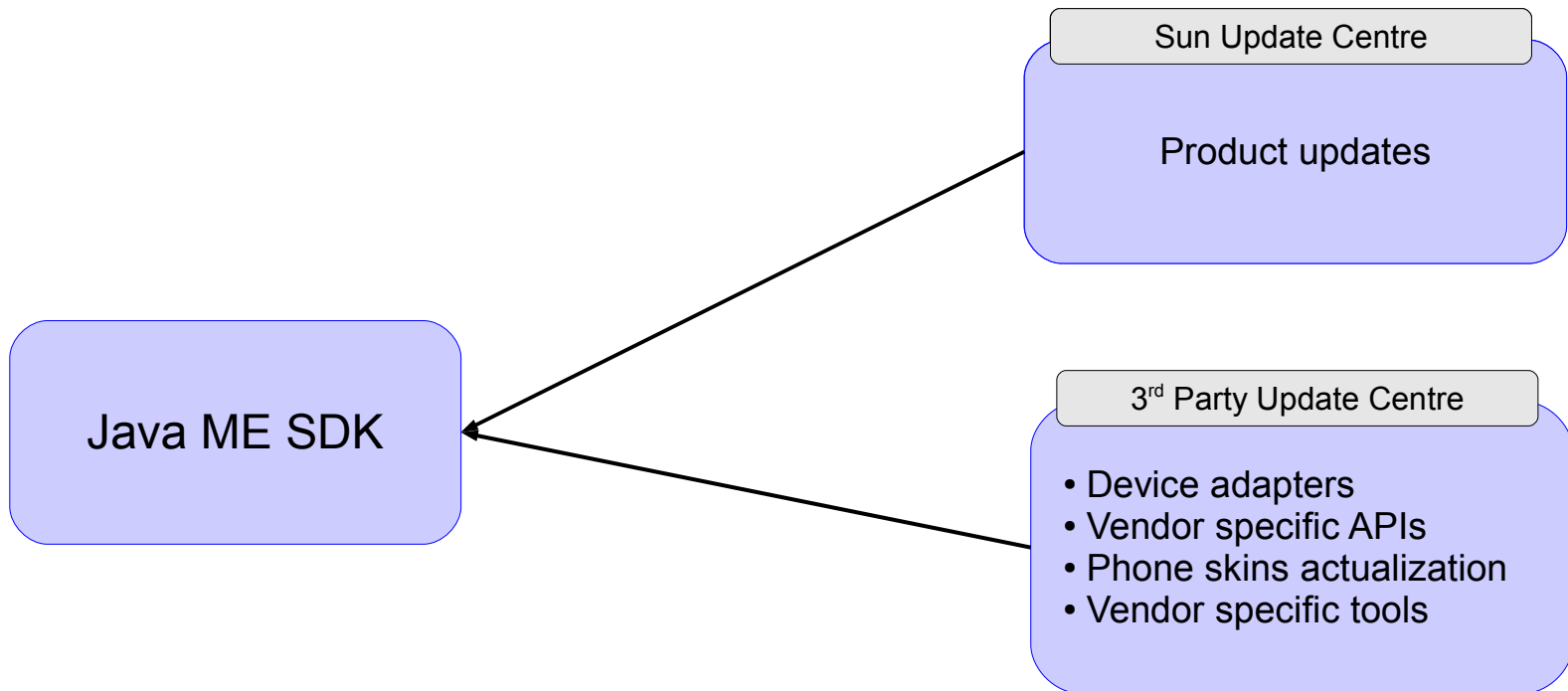
Autoupdate!

Allows to update SDK core, tools and runtimes

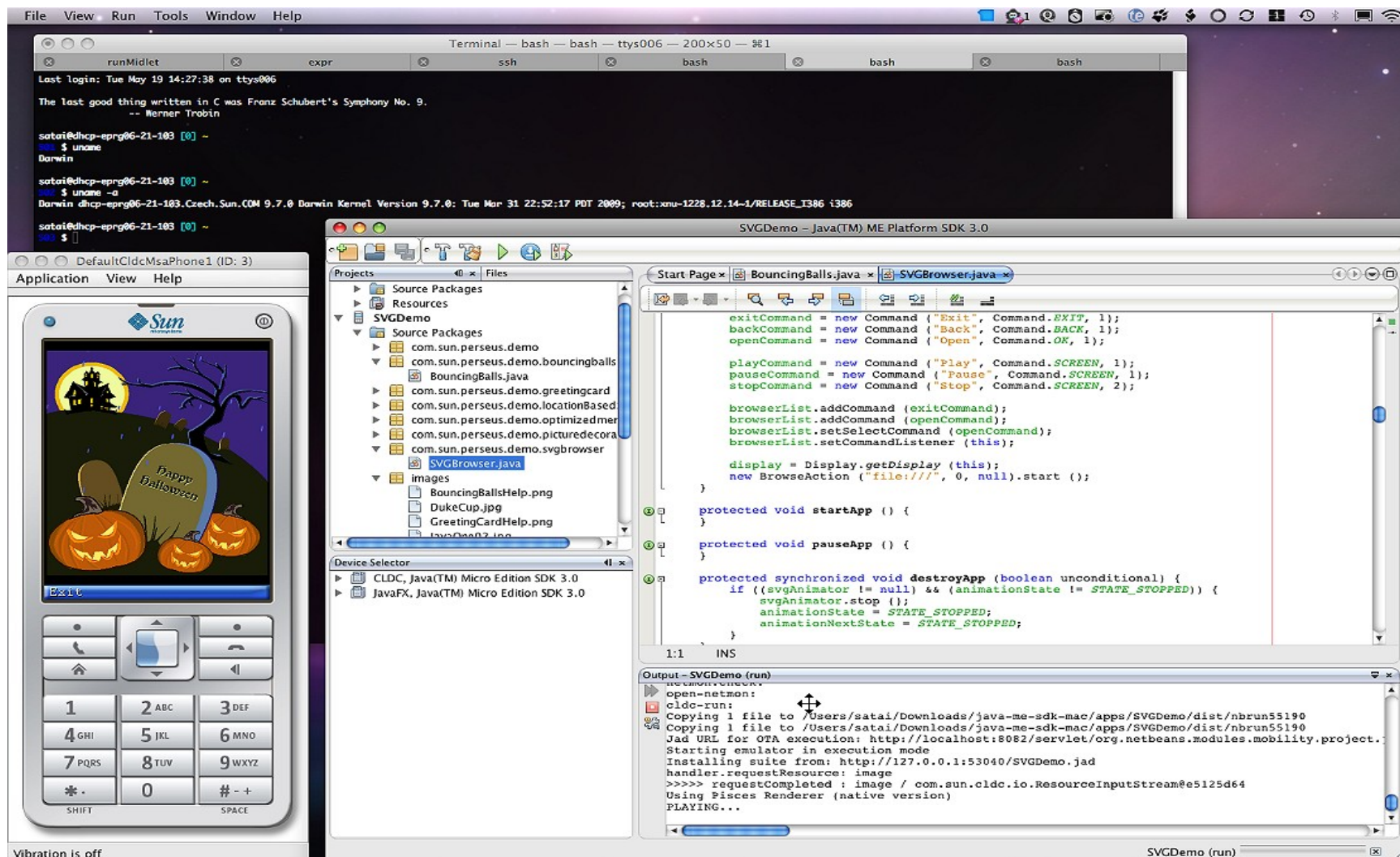
- > Allows to deliver updates faster than regular releases.
- > SUN partners can host update servers
 - Deliver partner specific adapters and tools
 - Deliver partner specific Java ME APIs
 - Make Java ME SDK a standard tools platform for Java ME !
- > Technologies behind the scenes
 - All opensourced! Update Center 2.0 with Image Packaging System (IPS) repository and Netbeans Autoupdate

Java ME SDK + autoupdate

Common framework for Java ME development



Mac OS and Linux



File View Run Tools Window Help

Terminal — bash — bash — ttys006 — 200x50 — ##1

runMidlet expr ssh bash bash

Last login: Tue May 19 14:27:38 on ttys006

The last good thing written in C was Franz Schubert's Symphony No. 9.
-- Werner Trobin

satai@dhcp-epng06-21-103 [0] ~
\$ uname
Darwin

satai@dhcp-epng06-21-103 [0] ~
\$ uname -a
Darwin dhcp-epng06-21-103.Crech.Sun.COM 9.7.0 Darwin Kernel Version 9.7.0: Tue Mar 31 22:52:17 PDT 2009; root:xnu-1228.12.14~1/RELEASE_T386 i386

satai@dhcp-epng06-21-103 [0] ~
\$

DefaultCldcMsaPhone1 (ID: 3)

Application View Help

SVGDemo

Source Packages

- com.sun.perseus.demo
- com.sun.perseus.demo.bouncingballs
- com.sun.perseus.demo.greetingcard
- com.sun.perseus.demo.locationBased
- com.sun.perseus.demo.optimizedmer
- com.sun.perseus.demo.picturedecora
- com.sun.perseus.demo.svgbrowser

Images

- BouncingBallsHelp.png
- DukeCup.jpg
- GreetingCardHelp.png
- JavaOne02.jpg

Device Selector

- CLDC, Java(TM) Micro Edition SDK 3.0
- JavaFX, Java(TM) Micro Edition SDK 3.0

SVGBrowser.java

```

exitCommand = new Command ("Exit", Command.EXIT, 1);
backCommand = new Command ("Back", Command.BACK, 1);
openCommand = new Command ("Open", Command.OK, 1);

playCommand = new Command ("Play", Command.SCREEN, 1);
pauseCommand = new Command ("Pause", Command.SCREEN, 1);
stopCommand = new Command ("Stop", Command.SCREEN, 2);

browserList.addCommand (exitCommand);
browserList.addCommand (openCommand);
browserList.setSelectCommand (openCommand);
browserList.setCommandListener (this);

display = Display.getDisplay (this);
new BrowseAction ("file:/// ", 0, null).start ();

protected void startApp () {
}

protected void pauseApp () {
}

protected synchronized void destroyApp (boolean unconditional) {
    if ((svgAnimator != null) && (animationState != STATE_STOPPED)) {
        svgAnimator.stop ();
        animationState = STATE_STOPPED;
        animationNextState = STATE_STOPPED;
    }
}
    
```

Output - SVGDemo (run)

```

open-netmon:
cldc-run:
Copying 1 file to /Users/satai/Downloads/java-me-sdk-mac/apps/SVGDemo/dist/nbrun55190
Copying 1 file to /Users/satai/Downloads/java-me-sdk-mac/apps/SVGDemo/dist/nbrun55190
Jad URL for OTA execution: http://localhost:8082/servlet/org.netbeans.modules.mobility.project.
Starting emulator in execution mode
Installing suite from: http://127.0.0.1:53040/SVGDemo.jad
handler.requestResource: image
>>>> requestCompleted: image / com.sun.cldc.io.ResourceInputStream@e5125d64
Using Pisces Renderer (native version)
PLAYING...
    
```

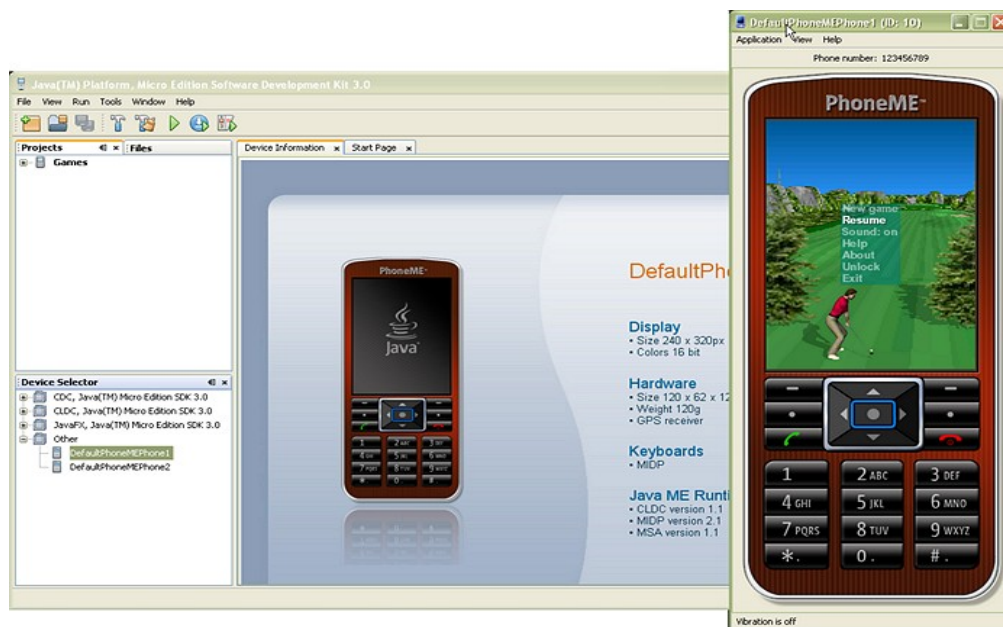
Vibration is off

SVGDemo (run)

PhoneME to Java ME SDK binding

How to integrate PhoneME into Java ME SDK

- > Build custom PhoneME build with SDK binding
- > Install custom PhoneME build into SDK
- > Look at <http://blogs.sun.com/javamesdk> for guidelines



Resources

- > Java ME SDK 3.0 product page
 - <http://java.sun.com/javame/downloads/sdk30.jsp>
- > Team blog
 - <http://blogs.sun.com/javamesdk>
- > Forum
 - <http://forums.sun.com/forum.jspa?forumID=999>
- > Phone ME project
 - <http://phoneme.dev.java.net/>



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Thank You

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