



the
POWER
of
JAVA™



JavaOne
and all related and related services

Expanded Capabilities for Mobile Development With JSR 209

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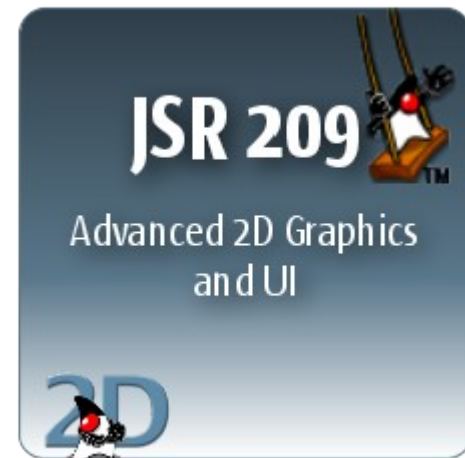
TS-3615



Build real applications that make use of **all** the capabilities of a mobile platform with CDC and JSR 209!

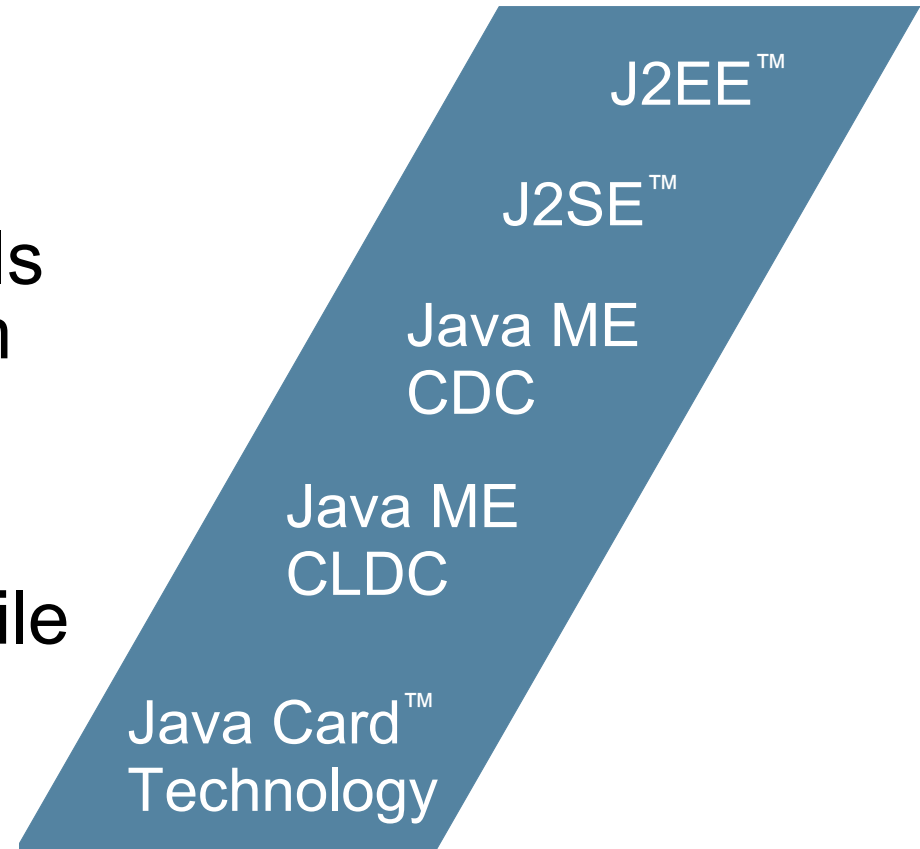
What Is JSR 209?

- “Advanced Graphics and User Interface Optional Package for the J2ME™ Platform”
- “AGUI”
- Recent API addition to the CDC family
- JSR 209 provides:
 - Swing user interface toolkit
 - ImageIO
 - Java 2D™ extension
 - Platform Look and Feel



What Is CDC?

- Connected Device Configuration
- Bringing Java SE APIs to the mobile platform
- Strict subset of Java SE 1.4.2 API
- Augmented with mobile specific APIs



What Is the CDC Family?

- CDC family includes:
 - Connected Device Configuration 1.1 (CDC JSR 219)
 - Foundation Profile (FP JSR 46)
 - Personal Basis Profile 1.1 (PBP JSR 217)
 - Advanced Graphics and User Interface Optional Package for the J2ME Platform (AGUI JSR 209)

Benefits of CDC

- Fine grained security
- User-defined class loaders
- Networking
- Unicode 3.0
- Collections
- Reflection
- Allows “system-level” programming
- Familiar APIs

Benefits of CDC and JSR 209

- Built on CDC/FP/PBP for richer platform functionality than MIDP
- Access to advanced device functionality
- Provides advanced UI and graphics capabilities
- Enables advanced entertainment and enterprise applications
- Familiar components and graphics APIs for developers

Where Is JSR 209?

- Currently In “Proposed Final Draft 2” stage
- Download the JSR 209 API from:
<http://jcp.org/en/jsr/detail?id=209>
- Download the PBP API (includes CDC/FP) from:
<http://jcp.org/en/jsr/detail?id=217>
- Available now from:
 - Sun—Early access reference implementation
 - SavaJe—Developers kit

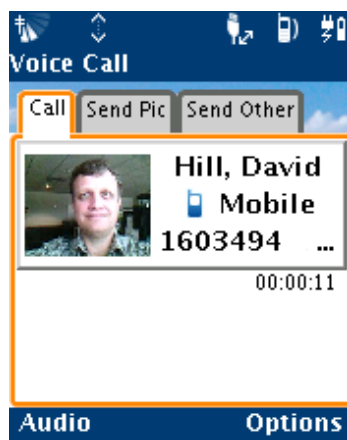
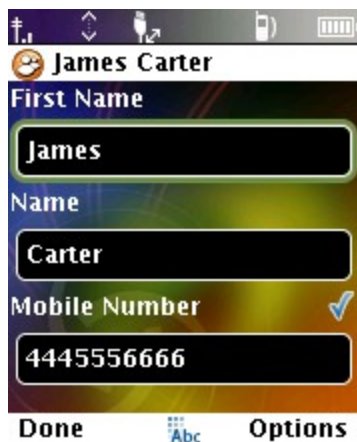
Rich Swing-Based Components

- The Swing-based components allow for a richer user experience
 - Features beyond MIDP LCDUI
 - Components that allow for greater programmatic control
 - Control of popup menus



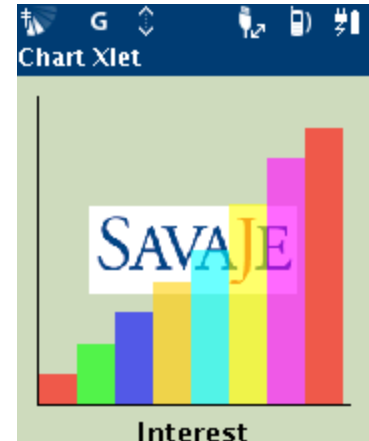
Advanced Layout Capabilities

- Swing layouts allows for precise positioning of components
- Focus management allows control of component traversal



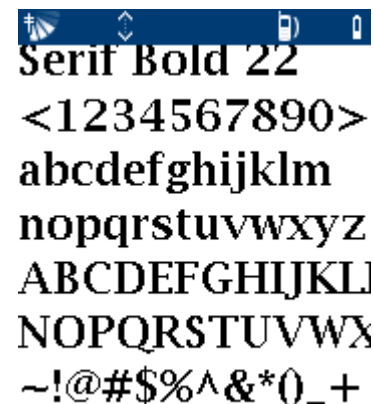
Better Graphics With Java 2D

- Build advanced applications with rich graphics capabilities:
 - Antialiasing
 - Gradients
 - Compositing
 - 2D geometry
 - Affine transforms
 - Bezier paths



Richer Text Palette

- Text capabilities
 - Antialiased outline fonts
 - Arbitrary affine transforms
 - Scalable font size choices



Serif Bold 22
 <1234567890>
 abcdefghijklm
 nopqrstuvwxyz
 ABCDEFGHIJKL
 NOPQRSTUVWXYZ
 ~!@#\$\$%^&*()_+



Improve Your Image(ing)

- Image capabilities
 - BufferedImage
 - Java array holds pixels for direct access
 - HW device dependent buffers as well
 - Image operators
 - Affine transform, convolution
 - Control over alpha blending
- Flexibility of accessing and storing image data



Look and Feel

- Pluggable Look and Feel
 - Allows a high level of customization by carriers and OEMs
 - System control, not application control
 - Customization of behavior
 - Customization of appearance
- Allows Service Providers to deploy consistent LaF across devices



DEMO

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DEMO

One Program—Many Platforms

DEMO

One Program—Many Looks

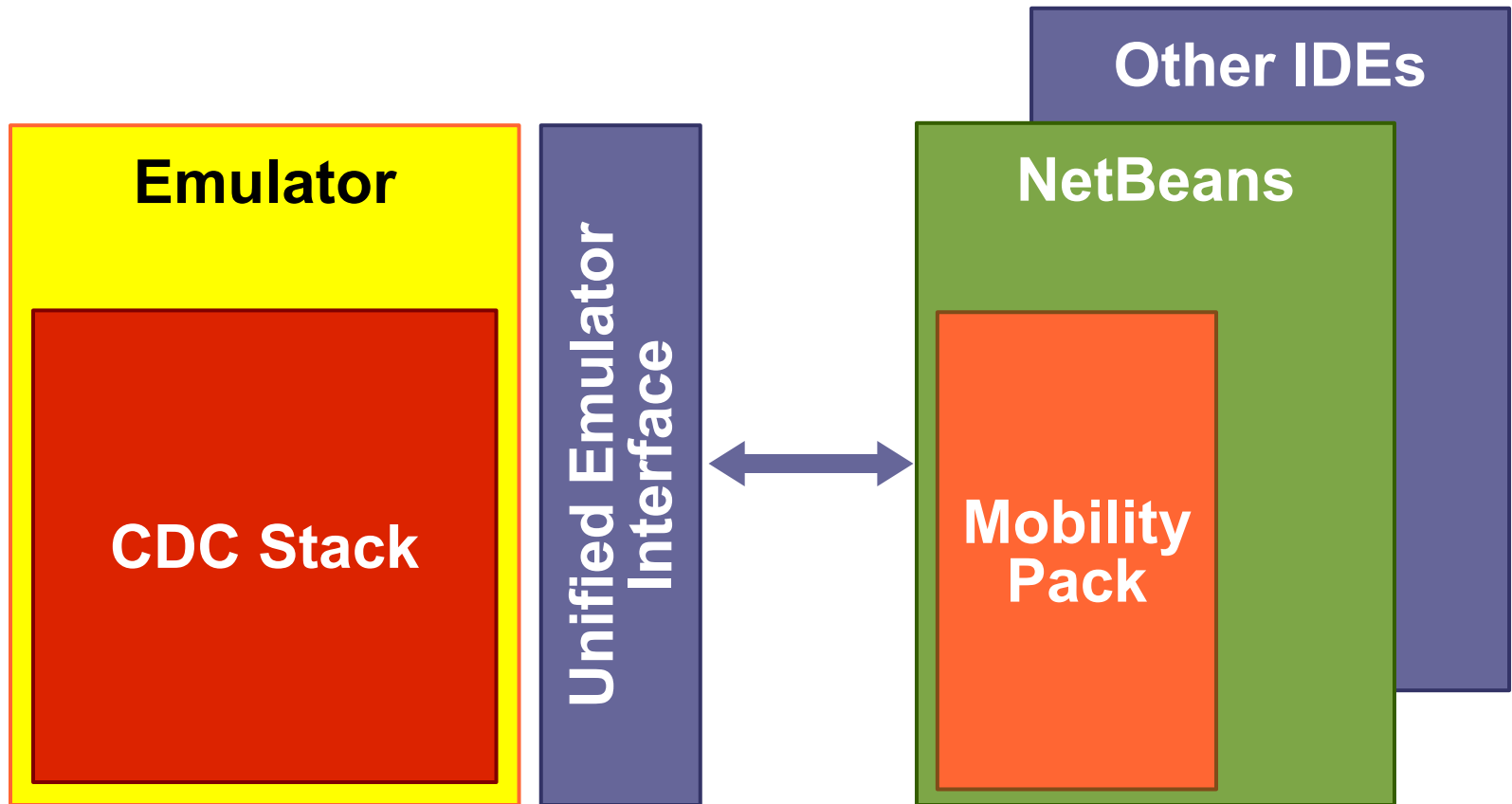
Tools

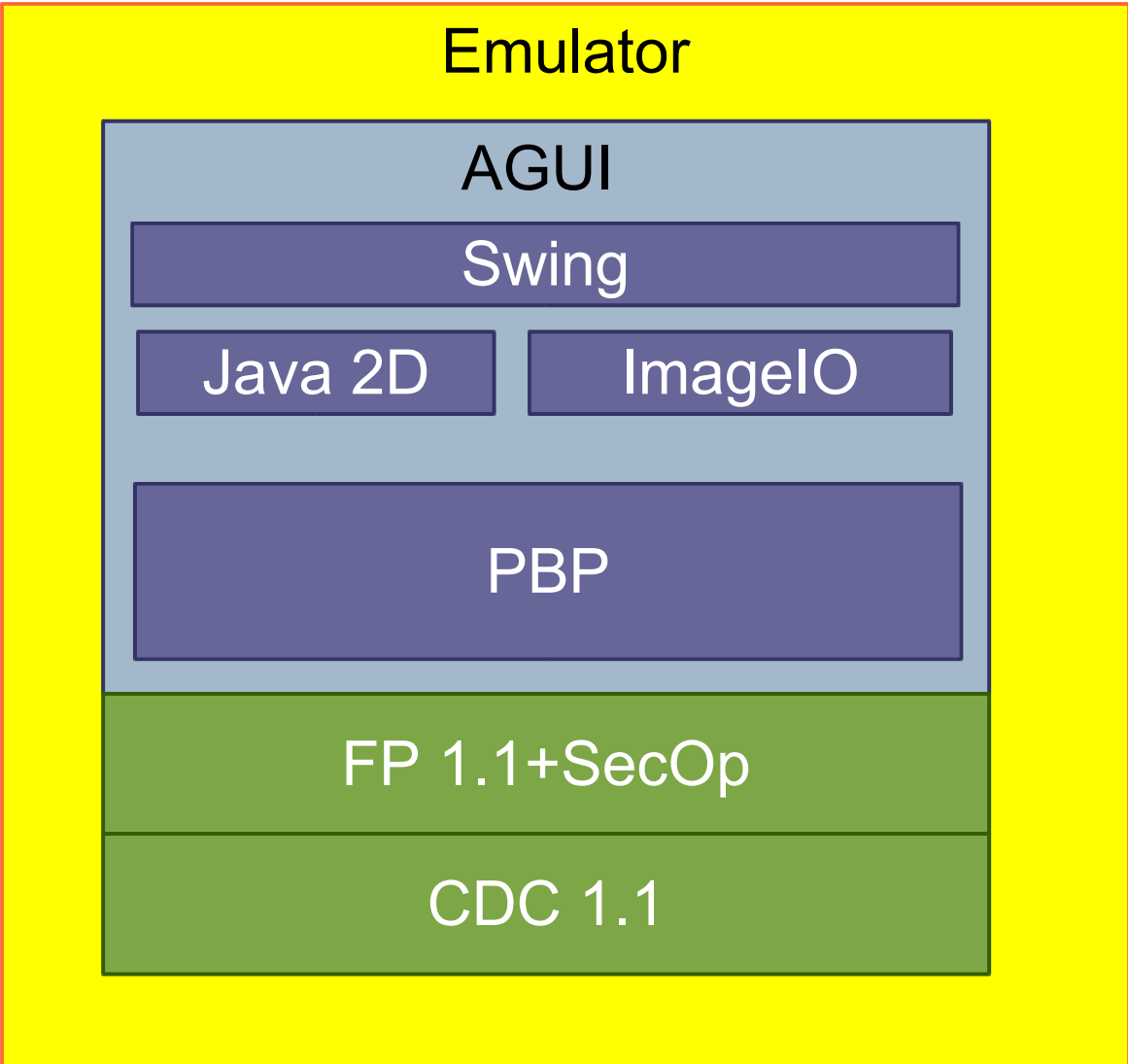
- From the team that brought you the Java ME Wireless Toolkit
- Development tools for new generation of CDC
- Device emulation environment
- Same implementation of stack as on device
- Integrated with development tools

NetBeans™ Technology Integration

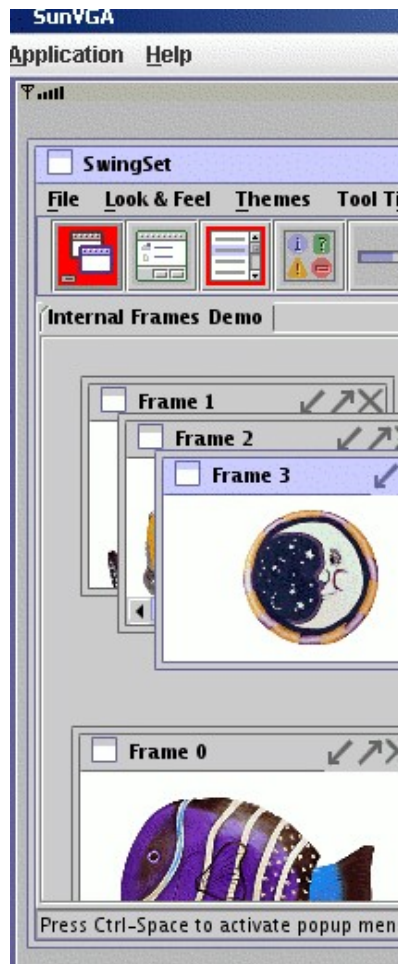
- Seamless integration with IDE
 - CDC is another project type
 - Build, run, debug from IDE, using emulator
- Visual editor for user interfaces
 - Drag-and-drop tool for building UI

Toolkit Architecture





Emulator Skins



NetBeans IDE 5.0 Dev 200512182030 - CdcApplication1

File Edit View Navigate Source Refactor Build Run CVS Tools Window Help

Projects Files Runtime

CdcApplication1

- Source Packages
 - cdccapplication1
 - Main.java
 - NewJInternalFrame.java
 - NewJInternalFrame
 - Form NewJInternalFrame
- Test Packages
- Libraries

Navigator - Main.java Inspector

Other Components

- [JInternalFrame]
 - jButton1 [JButton]
 - jLabel1 [JLabel]
 - jTextField1 [JTextField]
 - jTextField2 [JTextField]
 - jLabel2 [JLabel]
 - jScrollPane1 [JScrollPane]
 - jTextArea1 [JTextArea]

Output - CdcApplication1 (run)

```

Compiling 1 source file to C:\Documents and Settings\Hinkmond Wong.W2K-0002\CdcApplication1\build\classes
compile:
C:\Program Files\netbeans-5.0dev\ide6\ant\extra\org-netbeans-modules-java-j2se-compilers\javac.exe -d C:\Documents and Settings\Hinkmond Wong.W2K-0002\CdcApplication1\build\classes -classpath C:\Documents and Settings\Hinkmond Wong.W2K-0002\CdcApplication1\build\classes: C:\Documents and Settings\Hinkmond Wong.W2K-0002\CdcApplication1\src\Main.java
Building jar: C:\Documents and Settings\Hinkmond Wong.W2K-0002\CdcApplication1\build\classes
jar:
run:
Input:
  
```

Building CdcApplication1 (run)...

SmartPhone

Application Help

The SmartPhone application window displays a mobile phone interface. The screen shows a yellow background with two text input fields at the top, each preceded by a label: "jLabel1" and "jTextField1", and "jLabel2" and "jTextField2". Below these fields is a large blue rectangular area. At the bottom of the screen, there is a blue button labeled "Hello World". The phone has a silver body with a central navigation pad and a numeric keypad below it. The keypad includes buttons for numbers 1-9, *, 0+, and #.

DEMO

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For More Information

- <http://java.sun.com/products/cdc>
- <http://jcp.org>
- <http://www.savaJe.com>
- SavaJe booth at JavaOneSM conference

Q&A

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