



Tools for Developing Advanced Mobile Multimedia Applications

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Tools for Developing Java Platform, Micro Edition (Java ME Platform) Multimedia Applications

Multimedia applications and the MVM environment.
Introducing Sprint next-generation developer tools.

Agenda

Developing multimedia applications

Demo

Developing applications in MVM

Demo

Summary

Q&A

Agenda

Developing multimedia applications

Multimedia architecture overview

Common code patterns

Demo—Visually designing Multimedia applications

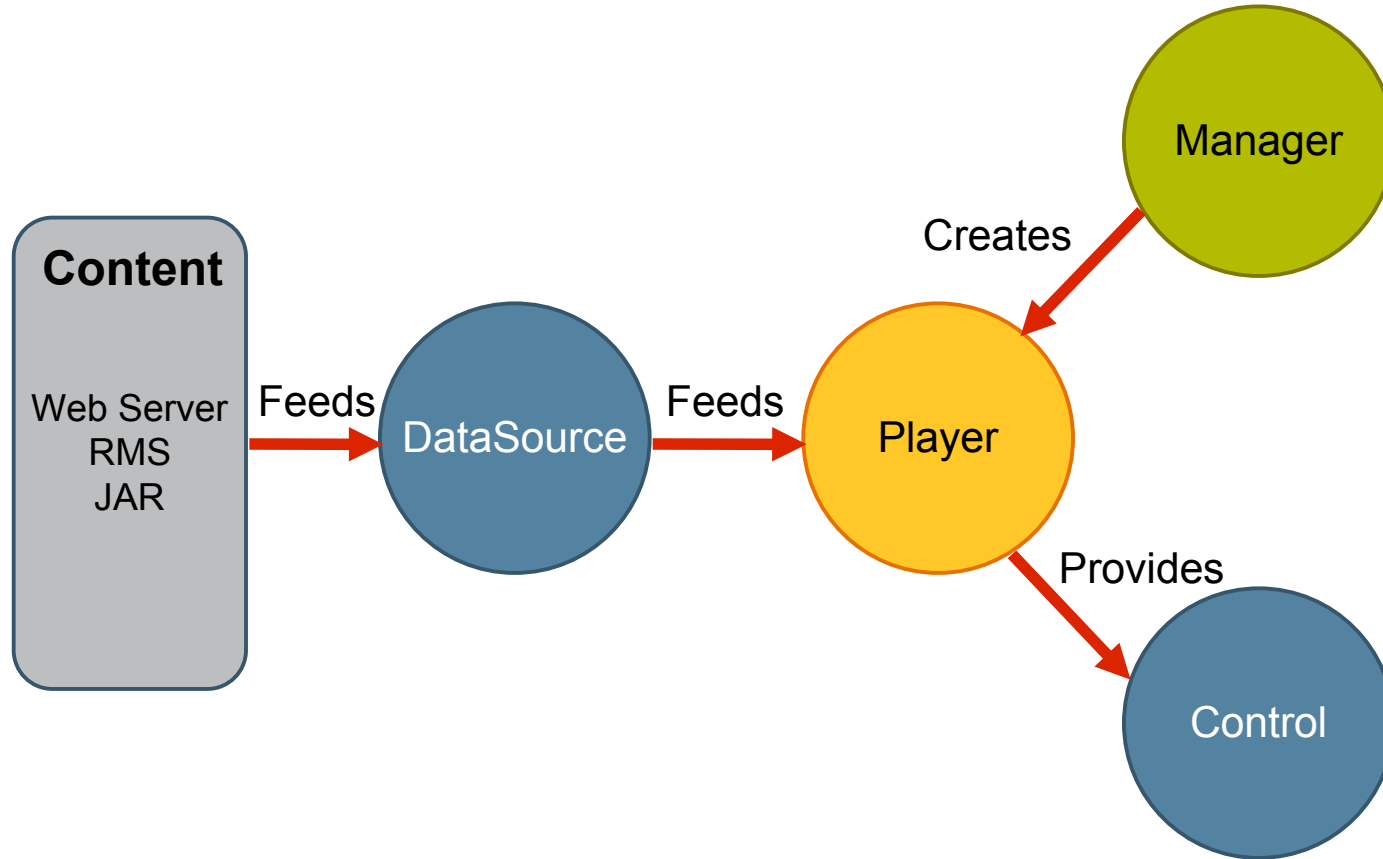
Developing applications in MVM

Demo

Summary

Q&A

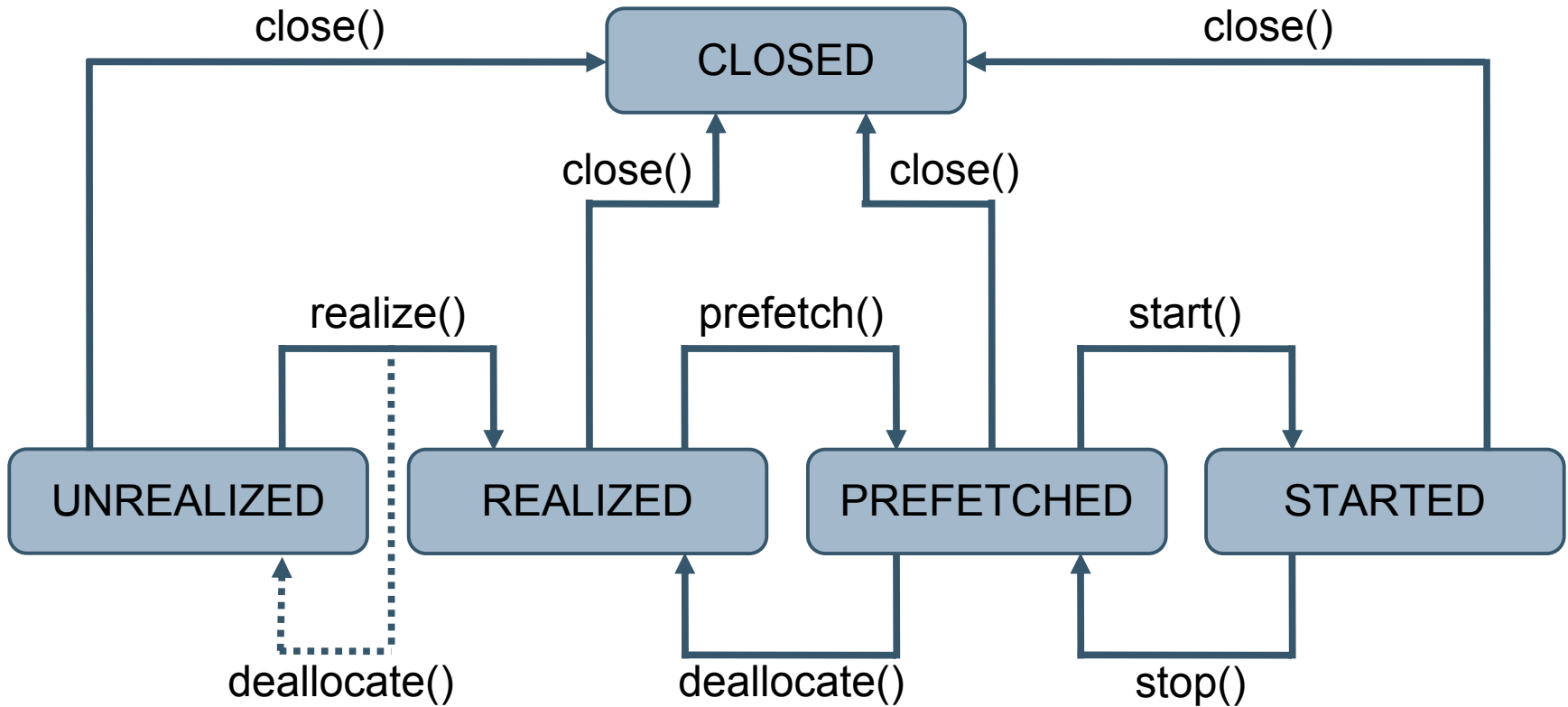
MMAPI Architecture Diagram



<http://developers.sun.com/techttopics/mobility/midp/articles/mmapioverview/fig1.gif>

JAR = Java Archive file

Player Life-Cycle



Play .mp4 Media Files Sample Code

```
Player player =
Manager.createPlayer("rtsp://mediaServer/JavaIsEveryWhere.
mp4");

player.realize();

vidc = (VideoControl)player.getControl("VideoControl");

vidc.initDisplayMode(VideoControl.USE_DIRECT_VIDEO,
canvas);

rc = (RateControl) player.getControl("RateControl");

vc = (VolumeControl) player.getControl("VolumeControl");

player.start();
```



DEMO

Building a MusicPlayer application utilizing Sprint-Mobility-IDE and Sprint MVM Toolkit V. 3.2-EA

Deploying the application onto an actual Sprint handset

Agenda

Developing multimedia application

Demo

Developing applications for MVM

What is MVM?

New MIDlet states

Resource management

MVM pointers

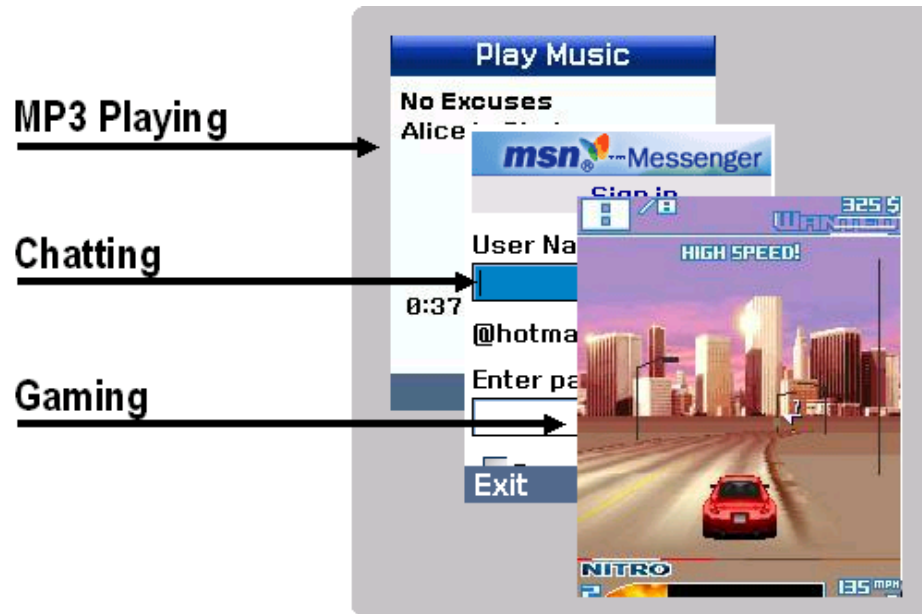
MVM demo

Summary

Q&A

What Is MVM?

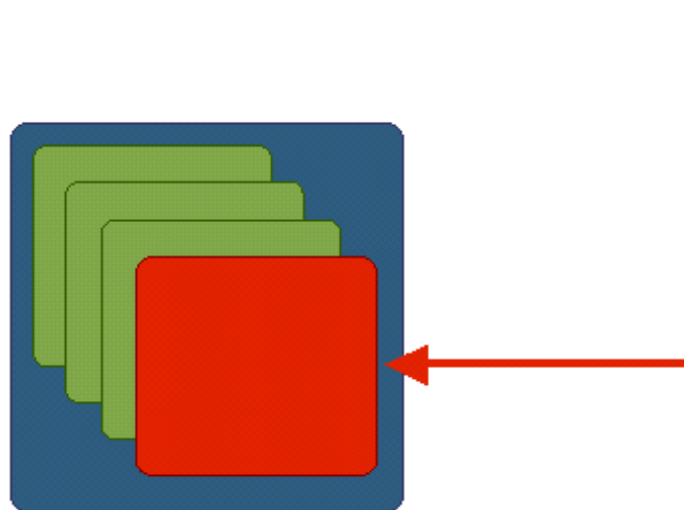
- Running multiple applications simultaneously
- Java technology is always on
- Favorite applications instantly available



New MIDlet State in MVM

Foreground MIDlet

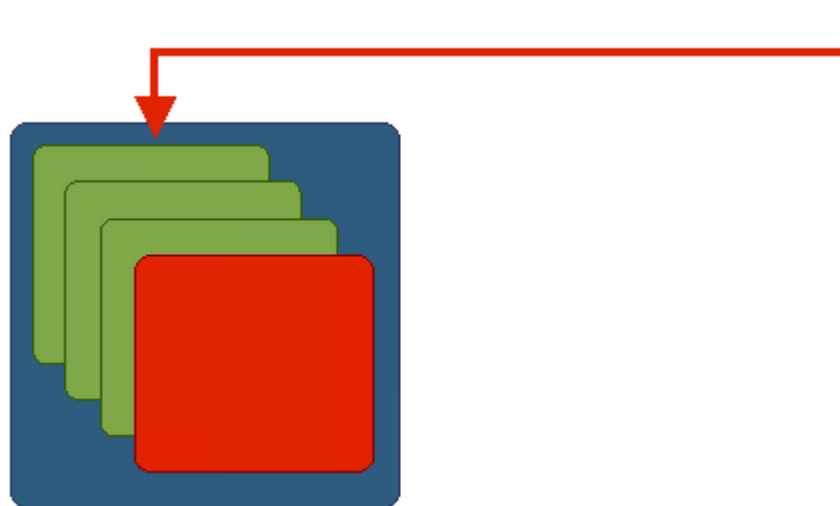
- An application is said to be in the Foreground when:
 - Its displayable controls the display
 - It handles event from the user input mechanism
- Only one MIDlet can execute in the Foreground at a time



New MIDlet State in MVM

Background MIDlet

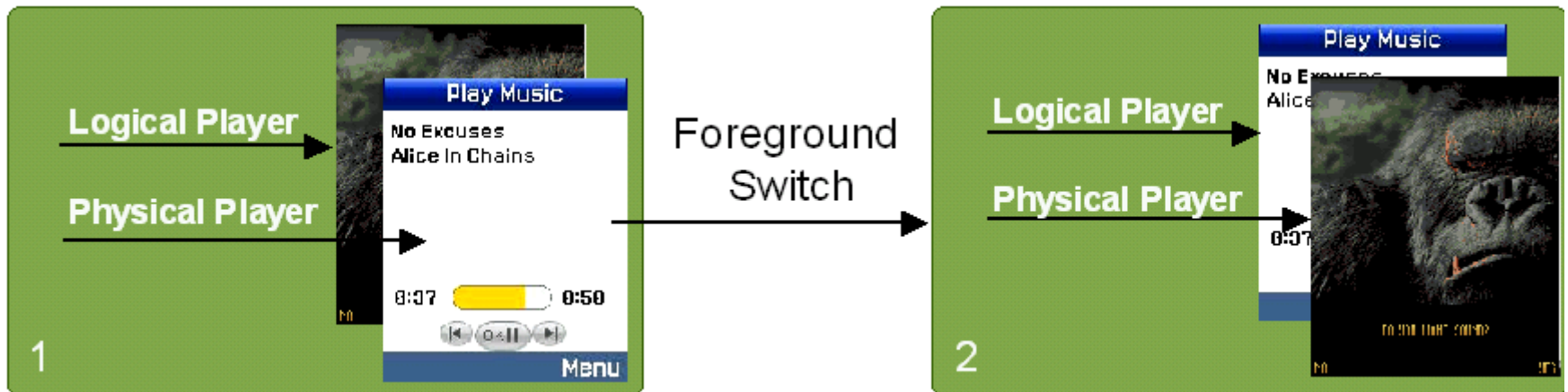
- An application is in the Background when:
 - Its displayable does not control the display
 - It does not handle the user inputs mechanism
- Zero or more MIDlets can execute in the Background at a time



Special Resource Management Policies—Example

Sound

- Background MIDlets are assigned a logical player that only maintains the audio state (remembers the last state)
- Unique Java Application Descriptor (JAD) file property to lock audio resources
 - Allows a background MIDlet to be audible
 - Useful for media players (e.g., the MP3 player etc.)



New JAD MVM Attributes

- MIDlet-Resource-Priority
 - “High”—applicable for trusted applications only
 - “Medium”—may be assigned to untrusted applications
 - “Low”—default value
- A resource is defined as:
 - JPEG encoding/decoding
 - Audio playback
 - GPS
 - 3D graphics
 - Secure networking

New JAD MVM Attributes

- MIDlet-Background-No-Pause=yes
 - Keeps the application running in the background
- MIDlet-Launch-Background=yes
 - Application must be launched to the background (not visible on UI); the splash screen **MUST NOT** be displayed
- MIDlet-Launch-Power-On=yes
 - Application **MUST** be launched when the device is powered on
- MIDlet-No-Exit=yes
 - Application is not allowed to be exited

MIDlet Guidelines

MIDlet state detection

- Using a Displayable class:
`Displayable.isShown()`
- Using a Canvas class:
 - `Canvas.hideNotify()`—Moving to background
 - `Canvas.showNotify()`—Moving to foreground
- MIDP 2.0 Spec. does not support state detection
 - Use a Displayable object even if not necessary

Background State Behavior

Background pause/no pause consideration

- MIDlets that “pause” in the background (default behavior)
 - Resources may be revoked
 - Players may be inadvertently killed
- MIDlets that do not “pause” in the background
 - Display is not available
 - Use only relevant resources
 - Media player/recorder application
 - Connected applications



DEMO

MVM—Dancing While Gaming



For More Information

List

- Sprint ADP Website:
<http://developer.sprint.com>

Resources

- <http://developers.sun.com/techttopics/mobility/midp/articles/mmapioverview/>
- <http://mobilezoo.biz/jsr/234/index.html>



Q&A





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