Mobile Service Architecture

Version 0.9, Draft

API GUIDE

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About This Document

This document will cover in brief about specifications and components in Mobile Service Architecture (MSA). It also focuses on how MSA is making impact on current Wireless Industry.

Scope:

This document is intended for novice users who want to know about Mobile Service Architecture.

Document History:

Date	Version	Comment
02/02/09	0.9	Draft

References:

The Mobile Service Architecture Specification:

http://developers.sun.com/mobility/midp/articles/msaintro

Abbreviations:

JRE	Java Run Time Environment
JTWI	Java Technology for Wireless Information
API	Application Programming Interface
VM	Virtual Machine
CDC	Connected Device Configuration
CLDC	Connection Limited Device Configuration
MIDP	Mobile Information Device Profile
JSR	Java Specification Request

Table of Contents

Table of Figures

Introduction

Mobile Service Architecture (MSA) is the next generation Java ME platform for mobile devices. MSA defines a standard platform of APIs where developers can rely upon. MSA specification provides consistency, focus, and direction for Java ME development reducing API fragmentation and inconsistencies. With this specification, manufacturers benefit from a large number of compatible applications that take advantage of their device's hardware and software functionalities.

Current mobile devices generally abide by the Java Technology for the Wireless Industry (JTWI, or JSR 185). Unfortunately, JTWI does not leave much to work with; the standard only requires three technologies: CLDC 1.0, MIDP 2.0 and WMA 1.1. MSA, on the other hand, requires nearly two dozen JSRs ranging from CLDC 1.1 to Mobile 3D Graphics API 1.1.

MSA is based on the Connected Limited Device Connection (CLDC) of Java Platform, Micro Edition (Java ME). It is the next step in Java ME evolution. MSA Specification defines an MSA Subset for devices with limited resources. Both MSA and MSA Subset can also be implemented using Connected Device Configuration (CDC).

This MSA specification is useful for content providers and service providers. They can use better application portability between these different MSA compliant implementations.

Design Goals

The goals of the MSA specification are to:

- Define a standard set of application functionality for mobile devices while clarifying interactions between various technologies associated with the MIDP and CLDC specifications.

- Reduce the difficulties of mobile environments with the help of innovative applications.

- Facilitate MSA applications in:
  o Wide variety of market.
  o More customers.

- Maintain regularity in both MSA definitions and the upcoming MSA Advanced environment.

MSA Specification

The MSA specification offers two choices:

- To implement the predefined subset of the MSA specification.

- Or to implement the full MSA specification.

MSA-compatible devices must implement either all of the predefined subset or all of the full MSA specification:

- The subset meets today's base common handset functionality.

- The full specification is targeted at feature rich, leading-edge mobile devices.

There are two sets of component JSRs:

- Full MSA set comprising of 16 JSRs
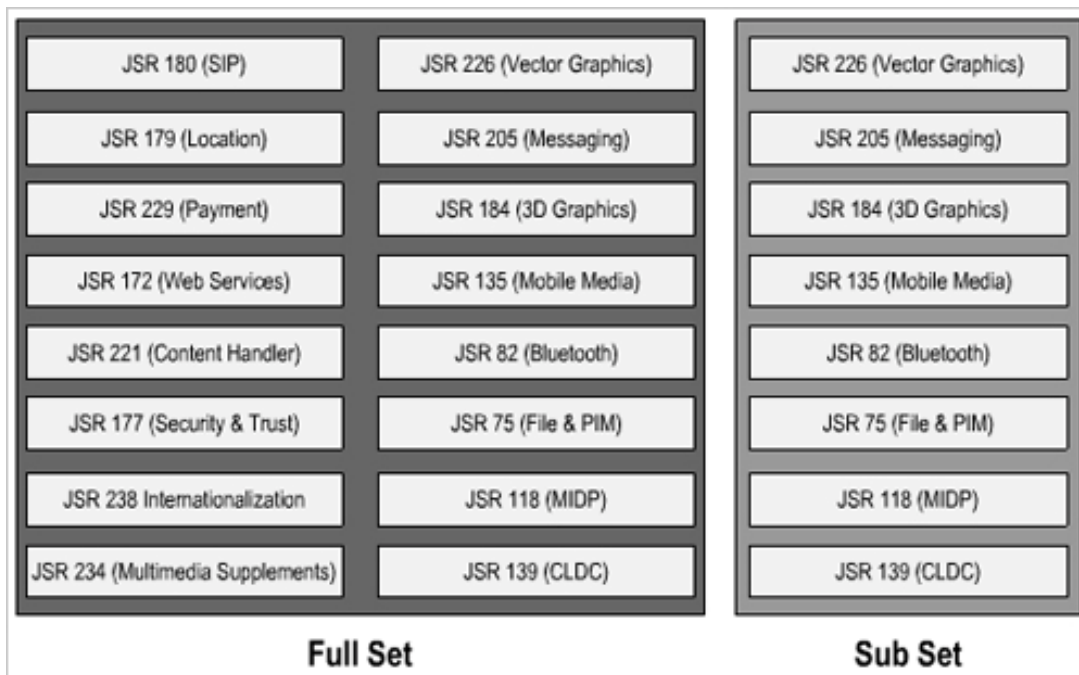
- MSA Subset comprising of 8 JSRs

Figure 1: MSA Set

Some of the JSRs are mandatory, others are conditionally mandatory. To comply with MSA, an implementation must support a JSR if it is mandatory, or if it is conditionally mandatory and the relevant conditions are true.

Example: If the device supports Bluetooth, it must also support JSR 82.

MSA Subset is a proper subset of MSA component JSRs. This will give compatibility for applications written for MSA Subset. Additional clarifications are required to reduce the possible problems with the component JSRs.

Requirement list includes security, content formats and JTWI. These requirements improve predictability and compatibility of MSA compliant implementations. Roadmaps in MSA have the view of advanced Java platform for mobiles in future. Guidelines and recommendations are also available for the developers on how to write applications for MSA environment.

MSA Component JSRs

The MSA subset comprises of eight JSRs:

- **JSR 139:** Java ME Connected Limited Device Configuration 1.1 is the configuration, which provides basic application support.

- **JSR 118:** Mobile Information Device Profile 2.1 is the profile, which provides capabilities required by most mobile applications, such as user interface.

- **JSR 75:** PDA Optional Packages for the Java ME platform specifies two packages to support functionality often needed in Personal Digital Assistants, one for access to the device's local file system and other for Personal Information Management.

- **JSR 82:** Java APIs for Bluetooth gives you access to Bluetooth functionality, and the OBEX protocol (conditionally mandatory).

- **JSR 135:** Mobile Media API provides access to media capabilities such as audio and video playback.

- **JSR 184:** Mobile 3D Graphics API supports three-dimensional graphics.

- **JSR 205:** Wireless Messaging API profiles messaging features such as SMS and MMS.

- **JSR 226:** Scalable 2D Vector Graphics API for Java ME supports two-dimensional scalable vector graphics.

The full MSA stack consists of the eight JSRs in the subset, and eight more:

- **JSR 172:** Java ME Web Services supports XML parsing and basic web services in a mobile device.

- **JSR 177:** Security and Trust Services API provides access to cryptographic services (mandatory), communication with smart cards (conditionally mandatory), and access to public key infrastructure services (conditionally mandatory). Note that SATSA-JCRMI is not part of MSA or MSA Subset.

- **JSR 179:** Location API for Java ME supports location-based services (conditionally mandatory).

- **JSR 180:** Session Initiation Protocol (SIP) API for Java ME provides access to the Session Initiation Protocol (SIP).

- **JSR 211:** Content Handler API supports launching of Java applications based on content type.

- **JSR 229:** Payment API provides access to payment mechanisms.

- **JSR 234:** Advanced Multimedia Supplements extend JSR 135 to provide advanced multimedia capabilities.

- **JSR 238:** Mobile Internationalization API supports the development of localized applications.