

Mobile Information Device Profile

The Java™ Platform for Mobile Information Devices



Highlights

The Mobile Information Device Profile (MIDP) with the Connected Limited Device Configuration (CLDC) is the Java™ runtime environment for today's mobile information devices.

- Defines Java platform for dynamically and securely delivering graphical, networked, and portable applications
- Designed for building games, multimedia, and messaging applications
- Supports dynamic deployment and updating of applications over the air
- Provides a robust security model built on open standards
- Deployed on millions of mobile phones and PDAs

➤ Designed for the mobile user

MIDP enables truly networked applications on mobile information devices. To download an MIDP application, the user browses a list of applications stored on a Web server. After an application is selected, the device checks to make sure it can run the application. If so, the device downloads the application, then verifies and compiles the Java™ byte code to run on the device. Once installed, MIDP applications can be easily updated and removed by the user.

MIDP applications provide the foundation for highly graphical and intuitive applications. Its graphical user interface is optimized for the small display size, input methods, and other native features of mobile devices. It also offers intuitive navigation and data entry by fully leveraging phone keypads, extra buttons such as arrow keys, touch screens, and small QWERTY keyboards. MIDP applications are installed and run locally, operate in both networked and disconnected mode, and can securely store and manage data locally.

A mobile user interface

MIDP features an application programming interface (API) that shields developers from the complexity of building portable applications. This high-level API enables developers to build easy-to-use, highly graphical, and portable applications optimized for mobile information devices, and reduces development effort.

User interface functionality includes predefined screens for displaying and selecting lists, editing text, popping up alert dialogs, and adding scrolling tickers. Forms are screens that can include any number of predefined items, such as images, read-only text fields, editable text fields, editable date and time fields, charts, and choice groups, as well as custom items added by developers to provide unique functionality and graphics. All screens and items

are device-aware, with built-in support for native display size, input, and navigation capabilities. They enable developers to define highly portable, flexible user interfaces that change layout and navigation to fully leverage each device.

Multimedia and game functionality

MIDP is ideal for building portable games and multimedia applications. A low-level, user interface API complements the high-level API, giving developers greater control of graphics and inputs when they need it. The game API adds game-specific functions, such as sprites and tiled layers, that take advantage of native device graphic capabilities. Built-in audio provides support for tones, tone sequences, and Windows Wave (WAV) formatted files. In addition, developers can use the Mobile Media API (MMAPI), an optional package for MIDP, to add video and other rich multimedia content.

Extensive connectivity

With MIDP, developers can fully leverage the native data network and messaging capabilities of mobile information devices. It supports leading connectivity standards, including HTTP, HTTPS, datagram, sockets, server sockets, and serial port communication. MIDP also supports the Short Message Service (SMS) and Cell Broadcast Service (CBS) capabilities of Global System for Mobile Communications (GSM) and CDMA networks, through the Wireless Messaging API (WMA) optional package.

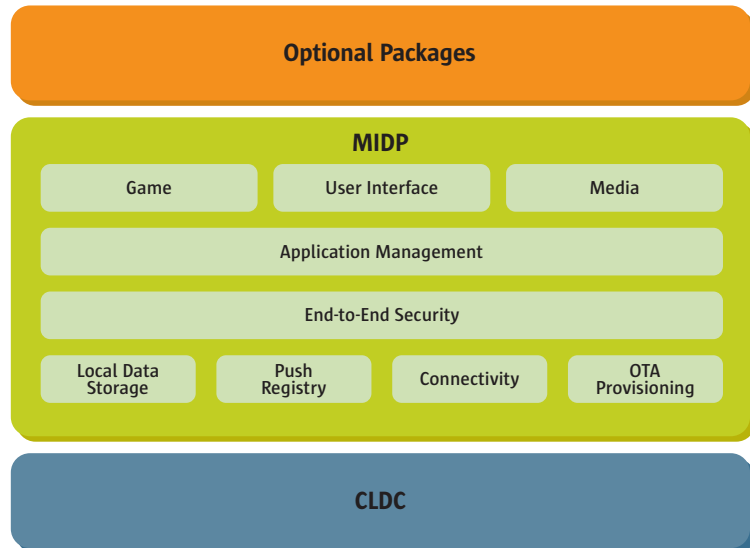
MIDP connectivity and messaging support enables truly networked, event-driven applications. MIDP also supports a server push model. A push registry keeps track of applications registered to receive inbound information from the network. When information arrives, the device decides whether to start the application based on user preferences. This push architecture allows developers to include alerts, messaging, and broadcasts in MIDP applications, as well as leverage the event-driven capabilities of devices and carrier networks.

Over-the-air provisioning

A major benefit of MIDP is its ability to dynamically deploy and update applications over the air (OTA). The MIDP specification defines how MIDP applications are discovered, installed, updated, and removed on mobile information devices. MIDP also enables a service provider to identify which MIDP applications work on a given device, and obtain status reports from the device following installation, updates, or removal. The MIDP OTA Provisioning model is defined and adopted by leading device manufacturers and service providers to deliver a reliable, secure provisioning solution.

End-to-end security

To protect the network, applications, and mobile information devices, MIDP provides a robust security model built on open standards. The use of HTTPS leverages existing standards such as Secure Sockets Layer (SSL) and Wireless Transport Layer Security (WTLS) to allow the transmission of encrypted data. Security



MIDP subsystems and services

domains protect against unauthorized access of data, applications, and other network and device resources by MIDP applications on the device. By default, MIDP applications are not trusted, and are assigned to untrusted domains that prevent access to privileged functionality. To gain privileged access, a MIDP application must be assigned to specific domains that are defined on the mobile device, and are properly signed using the X.509 PKI security standard. For a signed MIDP application to be downloaded, installed, and granted associated permissions, it must be successfully authenticated.

Resources on the Web

To learn more about MIDP, please visit java.sun.com/products/midp. Information for Java platform mobility developers is available at developers.sun.com/techtoc/mobility. And to find out about the Java Community ProcessSM, please see jcp.org.

Learn more

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