

# Wireless application deployment over WAP

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## Overview

This document is intended for wireless operators or wireless portal providers who want to deploy applications wirelessly to BlackBerry® wireless devices. For information on wireless deployment of applications in an enterprise, refer to TA-00141.

BlackBerry Device Software 3.6 and later allows users to download third-party Java™ applications wirelessly using the BlackBerry Browser. Users can manage, run, and delete these applications using BlackBerry Desktop Manager. The BlackBerry device supports Java applications, called MIDlets, that use the Mobile Information Device Profile (MIDP) application programming interfaces (APIs), as well as Java applications that use BlackBerry APIs.

This implementation follows the functional requirements that are specified in *Over The Air User Initiated Provisioning Recommended Practice for the Mobile Information Device Profile: Version 1.0*, which is published by [Sun Microsystems™](#).

## Supported file types

The following two files are required for an application to be downloaded wirelessly to the device:

- A JAD file is an application descriptor that provides information about the application and the location of COD files.
- A COD file is a compiled and packaged application code (BlackBerry-specific format).

The BlackBerry Browser uses the JAD file to discover applications for download. This required JAD file provides a URL to the COD files for the application. Application COD files cannot be downloaded directly if a JAD file is unavailable.

The device does not support JAR files; therefore, the JAR files for MIDP applications (MIDlets) are converted into the BlackBerry COD file format using the BlackBerry Java Development Environment (JDE). To download the BlackBerry JDE, visit the [BlackBerry Developer Program](#).

Third-party Java applications written using the BlackBerry JDE are packaged into COD files.

**Note:** The provisioning server and web server set the Multipurpose Internet Mail Extensions (MIME) type for JAD files to `text/vnd.sun.j2me.app-descriptor`. The web server sets the MIME type for COD files to `application/vnd.rim.cod`.

### Application descriptor file

Additional JAD file parameters (identified by a `RIM-COD` prefix) are required to support COD files. These parameters are added automatically when you build applications using the BlackBerry JDE or when you convert JAR files using the BlackBerry Converter.

Parameter	Description
<code>RIM-COD-URL</code>	URL to the location of the COD file for the application
<code>RIM-COD-Size</code>	Size of the COD file in bytes
<code>RIM-COD-Module-Name</code>	Name of the application
<code>RIM-COD-Module-Dependencies</code>	Software modules that exist on the device to install this application
<code>RIM-COD-Creation-Time</code>	Time when the COD file was created

The following is an example of a JAD file for a third-party Java application:

```
Manifest-Version: 1.0
RIM-COD-Module-Name: Expense_Reporter
RIM-COD-Module-Dependencies: net_rim_os,net_rim_cldc
RIM-COD-Creation-Time: 1051886195
MIDlet-Jar-URL: unknown
RIM-COD-URL: expense_reporter.cod
RIM-COD-Size: 15112
MicroEdition-Configuration: CLDC-1.0
MIDlet-Version: 0.0
MIDlet-Name: unnamed
MIDlet-Vendor: anonymous
MicroEdition-Profile: MIDP-1.0
```

**Note:** You can create a dual-purpose JAD file to support the downloading of MIDlets on both BlackBerry devices and third-party devices. Create a JAD file that contains both `RIM-COD-URL` and `RIM-COD-Size` entries and `MIDlet-Jar-URL` and `MIDlet-Jar-Size`. On BlackBerry devices, the COD files are downloaded; on other devices, the JAR files are downloaded.

You can specify multiple COD files in a single JAD file by appending a number to the `RIM-COD-URL` and `RIM-COD-Size` headers as follows:

```
RIM-COD-URL-1: expense_reporter.cod
RIM-COD-Size-1: 19292
RIM-COD-URL-2: expense_lib.cod
RIM-COD-Size-2: 12291
```

When the application is downloaded on the device, the multiple COD files are not displayed. The size of the application is displayed as the sum of the COD file sizes.

## Application discovery

To locate application to download, use the Wireless Application Protocol (WAP) browser on the device.

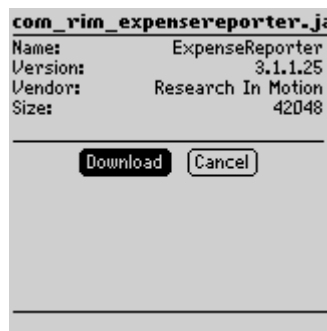
1. In the WAP browser, the user views a link to a JAD file.
2. The user selects the link to start the installation process.
3. The WAP browser downloads the JAD file, which the BlackBerry Application Loader uses to start the application installation.

As specified in the *OTA Recommended Practice*, the web server sets the MIME type of the JAD file to `text/vnd.sun.j2me.app-descriptor`.

## Application installation

As specified in the *OTA Recommended Practice*, the device supports UTF-8 as the default character set for JAD files.

1. Using the information in the selected JAD file, the WAP Browser displays a dialog box with information about the application such as name, version, vendor, and size.



2. To cancel the installation process, click **Cancel**; to continue the installation process, click **Download**.
3. Using the URL specified in the JAD file, the device downloads the application COD file using HTTP. If the server or proxy includes a **Set-Cookie** header in the response, the WAP browser stores the cookie values.
4. If the server or proxy responds to the request for the application with a **401** (Unauthorized) or **407** (Proxy Authentication Required) response, a dialog box appears. Type a username and password. The device resends the request with the user-supplied credentials.
5. The Application Loader verifies there is enough space on the device to install the application; if there is insufficient space, the installation stops.
6. The Application Loader displays a message to the user when the installation is complete.  
**Note:** The device does not support the `MIDlet-Install-Notify` attribute in the JAD file and does not send an installation status report to indicate the success or failure of the application installation.
7. On the device Home screen, click the icon to start the application.

## Application update

The Application Manager on the device does not distinguish between an application update and a new installation. If you install an application that already exists on the device, you are not notified. The existing application is removed and replaced by the new application.

Signed applications on the device can be replaced by unsigned applications.

## Application removal

To delete third-party applications from the device

1. In Options, click **Applications** or **Advanced Options > Applications** to view a list of third-party applications that are installed on the device.
2. To view information about an application, select it, and click **Properties** or **View Properties**.
3. To delete an application, select it and click **Delete**. You are prompted to confirm the deletion.

**Note:** The device does not support the `MIDlet-Delete-Confirm` attribute in the JAD file and the value of this attribute is not included in the confirmation prompt.

## WAP gateway configuration

In a WAP environment, users download applications using the WAP Browser on the device, which uses the WAP protocol stack to communicate with the WAP gateway.

To support wireless application download for devices, WAP gateways must meet the following requirements:

- Support MIME types for JAD and COD files (`text/vnd.sun.j2me.app-descriptor` and `application/vnd.rim.cod`);
- follow the rules for HTTP proxies (RFC 2616) for the JAD and COD MIME types;
- support HTTP authentication (server responses 401 and 407);
- pass any set-cookie headers to the device.

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