

## Deploying Java Applications

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## Executive summary

This document provides information about how to distribute and install applications written in Java™ on BlackBerry® devices and BlackBerry-enabled devices (BlackBerry Connect™ or BlackBerry Built-In™ devices), and it directs you to the related development and administration resources that are available on [www.blackberry.com](http://www.blackberry.com). The document describes the BlackBerry Internet Solution™ and the BlackBerry Enterprise Solution™ and highlights the similarities and differences in the deployment of third-party applications in the two solutions. Third-party applications are applications that Research In Motion (RIM) did not develop. They are sometimes referred to as custom applications.

The document describes the following methods for deploying applications:

- BlackBerry Desktop Software (BlackBerry device connected to a user's computer)
- BlackBerry Application Web Loader (BlackBerry device connected to a user's computer)
- Standalone Application Loader, also referred to as Application Loader Lite (BlackBerry device connected to a user's computer)
- web browser (wireless download)
- Application Control policies (wireless push)

## Audience

This document is intended for system administrators and application developers. It assumes that you have a working knowledge of the following areas:

- BlackBerry Enterprise Server Version 4.0 or BlackBerry Internet Solution Version 2.0
- Java applications

If you have installed BlackBerry Enterprise Server Version 4.1, visit [www.blackberry.com/knowledgecenterpublic/](http://www.blackberry.com/knowledgecenterpublic/) to read the *BlackBerry Enterprise Server System Administration Guide* for information about application distribution and installation.

## BlackBerry solutions

The BlackBerry Internet Solution and the BlackBerry Enterprise Solution have been designed to address the increasingly diverse needs of mobile professionals in a variety of work environments.

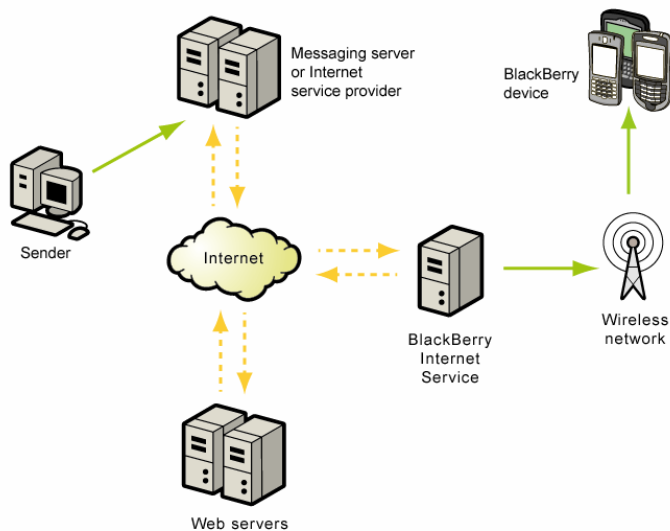
### BlackBerry Internet Solution

The BlackBerry Internet Solution has been developed for individual users and small and medium-sized organizations. It is designed to provide mobile connectivity to the Internet, Internet-based email, and Internet-based applications through a wireless service provider.

The BlackBerry Internet Solution includes the following components:

- BlackBerry devices or BlackBerry-enabled devices
- BlackBerry Internet Service™, which provides delivery of email messages, mobile access to email attachments and images, instant messaging, and access to web pages and content on the Internet
- BlackBerry Desktop Software

The BlackBerry Internet Solution can also include third-party applications and BlackBerry accessories.



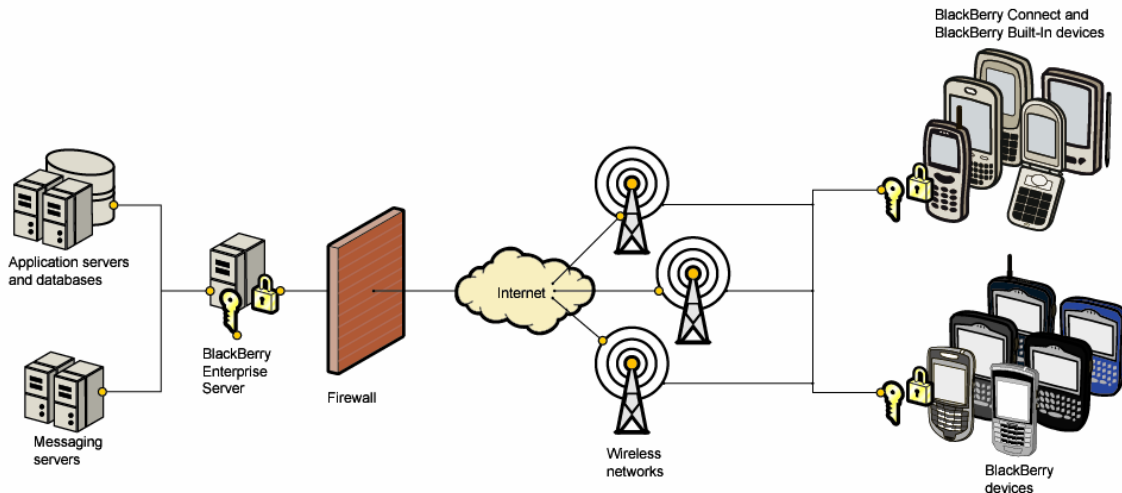
Typical message flow through the BlackBerry Internet Solution

### BlackBerry Enterprise Solution

The BlackBerry Enterprise Solution has been developed for the mobile workforce in organizations that can support the BlackBerry Enterprise Server. This solution is designed to provide access to Internet-based resources, as the BlackBerry Internet Solution does. In addition, the BlackBerry Enterprise Solution provides users with integrated access to an enterprise’s infrastructure, including email, data, applications, and intranet.

The BlackBerry Enterprise Solution includes the following components and services:

- BlackBerry devices or BlackBerry-enabled devices
- The BlackBerry Enterprise Server software, which acts as the centralized link between BlackBerry devices, wireless networks, and enterprise applications. The BlackBerry Enterprise Server integrates with an organization’s messaging and collaboration systems and other resources. All data between applications and BlackBerry devices flows centrally through the BlackBerry Enterprise Server.
- The BlackBerry Mobile Data System™ (BlackBerry MDS™), which is a framework that you can use to create, distribute, and manage applications for the BlackBerry Enterprise Solution.



Typical message flow through the BlackBerry Enterprise Solution

## Developing Java applications for BlackBerry devices

The BlackBerry Java Development Environment (BlackBerry JDE) provides tools for building Java applications for BlackBerry devices. With the BlackBerry JDE, you can build and test Java applications and package them for deployment either from a user's computer or wirelessly. In the BlackBerry JDE, you can compile Java applications and generate .cod files, which are the application files that can run on BlackBerry devices. The BlackBerry JDE also provides tools to generate .jad or .alx descriptor files, which are used during the application deployment process. Visit the BlackBerry Developer Zone at [www.blackberry.com/developers/](http://www.blackberry.com/developers/) for resources to assist in the development of Java applications for BlackBerry devices.

MIDlets are Java applications that conform to the Mobile Information Device Profile (MIDP) standard and that are designed to run on any mobile device that can run Java applications. Most MIDlets are distributed as .jar files. The BlackBerry JDE provides tools for converting existing MIDlets that are in the form of .jad and .jar files into .cod files for use on a BlackBerry device. Visit [www.blackberry.com/knowledgecenterpublic/](http://www.blackberry.com/knowledgecenterpublic/) to read article DB-00055, which provides information about recompiling MIDlets.

## Application deployment

The BlackBerry solutions provide several options for deploying third-party applications. Some of these options can be used to deploy applications on any BlackBerry device, while other options are exclusive to BlackBerry devices that are part of the BlackBerry Enterprise Solution.

### Deployment options

You have five options for deploying third-party applications on BlackBerry devices.

Application deployment option	BlackBerry Internet Solution	BlackBerry Enterprise Solution	Notes
<b>Application deployment from a user's computer</b>			
BlackBerry Desktop Software	✓	✓	You can use this option for most applications. The option uses the Application Loader that is installed as part of the BlackBerry Desktop Software. An automated application installer installs the application's .alx file locally on the user's computer. The user then navigates to the file and installs it on the BlackBerry device.
BlackBerry Application Web Loader	✓	✓	This option does not require the BlackBerry Desktop Software. The option is available for BlackBerry devices but not for BlackBerry-enabled devices. You can use this option to install applications from a web site using the web browser on the user's computer.
Standalone Application Loader		✓	This option requires the BlackBerry Device Manager but does not require a full installation of the BlackBerry Desktop Software. This is the same Application Loader tool that is included with the Desktop Software, but it is packaged separately so that an administrator can install it in a shared network location.

Application deployment option	BlackBerry Internet Solution	BlackBerry Enterprise Solution	Notes
<b>Application deployment over a wireless network</b>			
Web browser or BlackBerry Browser	✓	✓	<p>With this option, a BlackBerry device does not require a physical connection to a computer.</p> <p>In a BlackBerry Internet Solution environment, users can download a publicly available application from an Internet site by using a web browser on their BlackBerry devices.</p> <p>In a BlackBerry Enterprise Solution environment, users can download an application using either a web browser for an Internet site or the BlackBerry Browser for an intranet site.</p>
BlackBerry Enterprise Server and Application Control policy rules		✓	The administrator in a BlackBerry Enterprise Solution environment can use this option to push applications and application upgrades to BlackBerry devices.

## Overview of application deployment from a user's computer

Users can install an application on a BlackBerry device by connecting the BlackBerry device to a computer. The BlackBerry device then uses either the BlackBerry Device Manager or the BlackBerry Application Web Loader to download and install applications.

In an enterprise environment, you can connect a BlackBerry device to the Handheld Configuration Tool (for Microsoft® Exchange) or the BlackBerry Manager (for IBM® Lotus® Domino® or Novell® GroupWise®) and then use the Application Loader to install the application. Alternatively in this environment, you can provide a link to the standalone Application Loader so that users can download and install applications from a shared location.

## Using the BlackBerry Desktop Software

Typically, an .alx identifier file and the application .cod files are installed locally on the user's computer by an automated application installer that is created in the BlackBerry JDE by an application developer. Using the Application Loader tool, which is part of the BlackBerry Desktop Software, a user navigates to the .alx file and installs the application on the BlackBerry device.

### Usage

The BlackBerry Desktop Software is designed to present a familiar environment for users to download and install new or updated applications on BlackBerry devices. This software can be used to install or upgrade both the BlackBerry Device Software and third-party applications.

### Prerequisites

Component	Requirement
BlackBerry device or BlackBerry-enabled device	<ul style="list-style-type: none"> <li>able to run Java applications</li> </ul>
User's computer	<ul style="list-style-type: none"> <li>Microsoft Windows® 2000 or Microsoft Windows XP</li> <li>BlackBerry Desktop Software Version 4.0 or later</li> <li>RIM® USB drivers and USB connection for the BlackBerry device</li> </ul>

Component	Requirement
Application	<ul style="list-style-type: none"> <li>• .alx files and .cod files: The .alx file is an identifier for the application files. A .cod file contains compiled and packaged application code. The Application Loader requires both of these file types to install an application.</li> <li>• optional modules: Some third-party applications require optional modules that are part of the BlackBerry Device Software. In these cases, the required modules are listed in the .alx file within a &lt;requires&gt; tag. If these required modules are not preloaded on the BlackBerry device, you might need to install the BlackBerry Device Software for the BlackBerry device on the user's computer. Visit <a href="http://www.blackberry.com/knowledgecenterpublic/">www.blackberry.com/knowledgecenterpublic/</a> to read the <i>BlackBerry Application Developer Guide, Volume 1: Fundamentals</i> for more information about dependencies.</li> <li>• installer: If you want the installer to update registry settings so that an application displays automatically in the Application Loader in BlackBerry Desktop Manager, visit the Technical Knowledge Center at <a href="http://www.blackberry.com/knowledgecenterpublic/">www.blackberry.com/knowledgecenterpublic/</a> to read article DB-00061, "How to – Update the registry to deploy Java applications using Desktop Manager."</li> </ul>

## Application deployment using BlackBerry Desktop Software

In both the BlackBerry Internet Solution environment and the BlackBerry Enterprise Solution environment, perform the following actions to deploy a Java application using the BlackBerry Desktop Software.

Action	Procedure
Make the application available to users.	<p>The administrator or application developer completes this action.</p> <ol style="list-style-type: none"> <li>1. Obtain the application installer from the application's vendor, developer, or wireless service provider.</li> </ol> <p><b>Note:</b> The installer is usually distributed as either an .exe file or a .zip file.</p> <ol style="list-style-type: none"> <li>2. If the installer is a .zip file, unzip it.</li> <li>3. Run the .exe file.</li> </ol> <p>This action places the .alx identifier file and the .cod file in an installation folder on the user's computer.</p> <p><b>Note:</b> In an enterprise environment, you can perform several actions at this point that can affect the distribution and behavior of the application. These actions include the following:</p> <ul style="list-style-type: none"> <li>• Index the application.</li> <li>• Set a software configuration to include the application.</li> <li>• Set an Application Control policy rule for the application.</li> </ul> <p>See "Using the BlackBerry Enterprise Server and Application Control policy rules" on page 14 for information about how to complete these tasks.</p>
Install the application.	<p>Typically, the user completes this action, but an administrator in an enterprise environment might complete it instead.</p> <ol style="list-style-type: none"> <li>1. Connect the BlackBerry device to your computer.</li> <li>2. In the BlackBerry Desktop Manager, open <b>Application Loader</b>.</li> <li>3. In the Application Loader wizard, click <b>Next</b>.</li> <li>4. Type your password, if prompted, and click <b>Next</b>.</li> <li>5. In the Device Application Selection window, click <b>Add</b>.</li> <li>6. Navigate to the folder of the program that you want to add.</li> </ol>

Action	Procedure
	<ol style="list-style-type: none"> <li>7. Click the <b>.alx</b> file for the program, and click <b>Open</b>.</li> <li>8. After the application displays in the <b>Application Name</b> list, make sure that its check box is selected, and click <b>Next</b>.</li> <li>9. If the Device Backup window displays, select a backup option, and click <b>Next</b>.</li> <li>10. Verify the information that displays in the Completing the Application Loader Wizard window, and click <b>Finish</b>. The application installs, and you are notified when the installation is complete.</li> <li>11. Click <b>Close</b>.</li> </ol>

## Using the BlackBerry Application Web Loader

The BlackBerry Application Web Loader can simplify the deployment of third-party applications on BlackBerry devices. This tool, which is based on Microsoft ActiveX®, is added to a web page.

Users connect their BlackBerry devices to a computer and then use the computer's browser to navigate to the web page that contains the BlackBerry Application Web Loader.

After a user opens the BlackBerry Application Web Loader and accepts the permission prompt, the tool installs on the user's computer if it is not already present and communicates with the BlackBerry device connected to the computer. Using the .jad and .cod files for the application that are stored on the web server, the tool installs the application on the BlackBerry device.

When you enable the BlackBerry Application Web Loader on a web page, use any scripting language that works with Microsoft Internet Explorer and Microsoft ActiveX.

The BlackBerry Application Web Loader supports only .cod files. To install a MIDlet, convert the .jar file to a .cod file. Visit [www.blackberry.com/knowledgecenterpublic/](http://www.blackberry.com/knowledgecenterpublic/) to read the *BlackBerry Application Developer Guide, Volume 1: Fundamentals* for information about how to compile .java and .jar files into the .cod file format. In addition, the *BlackBerry Application Web Loader Developer Guide* provides developer information and a sample development template.

## Usage

The BlackBerry Application Web Loader is designed to facilitate the download and installation of new or updated applications on to BlackBerry devices. You can host applications centrally on a company intranet or public web server, making it easy to post application updates for BlackBerry device users to download.

Users connect their BlackBerry devices to a computer with the RIM USB drivers installed and a USB connection, visit the hosted web site, and load applications on to their BlackBerry devices. They do not require the BlackBerry Desktop Software.

## Prerequisites

Component	Requirement
BlackBerry device or BlackBerry-enabled device	<ul style="list-style-type: none"> <li>• able to run Java applications</li> </ul> <p><b>Notes:</b> Users do not require the BlackBerry Desktop Software to download and install the .cod files.</p> <p>You cannot use the BlackBerry Application Web Loader to install applications from a web page to a BlackBerry Connect device that was manufactured or distributed by a third party.</p>

Component	Requirement
User's computer	<ul style="list-style-type: none"> <li>• Microsoft Windows 2000 or Microsoft Windows XP</li> <li>• Microsoft Internet Explorer Version 5.0 or later (users must use Microsoft Internet Explorer to access the web site with the BlackBerry Application Web Loader)</li> <li>• Microsoft ActiveX Version 8.0 or later</li> <li>• BlackBerry Application Web Loader (if the Application Web Loader is not present, it is loaded as the first step in the installation)</li> <li>• RIM USB drivers and USB connection for the BlackBerry device</li> </ul>
Web server	<p>Configure the following Multipurpose Internet Mail Extensions (MIME) types on the web server to enable the download and installation of Java applications on BlackBerry devices:</p> <ul style="list-style-type: none"> <li>• .cod files: application/vnd.rim.cod</li> <li>• .jad files: text/vnd.sun.j2me.app-descriptor</li> </ul>
Application	<ul style="list-style-type: none"> <li>• scripting language: Use any language that works with Microsoft Internet Explorer and Microsoft ActiveX.</li> <li>• AxLoader.cab file: Place this file in the same folder as the web page .html files (or update the &lt;object&gt; element URL information in the .html file to the new location).</li> <li>• .jad files and .cod files: The .jad file is the application descriptor that provides information about the application and the location of .cod files. A .cod file contains compiled and packaged application code. Both of these file types are required to install an application.</li> <li>• maximum .jad file size: The maximum file size is 4096 bytes.</li> <li>• maximum number of .cod files: The maximum number of .cod files is 12.</li> <li>• MIDlet support: The BlackBerry Application Web Loader supports Connected Limited Device Configuration (CLDC) applications that reference the BlackBerry application programming interface (BlackBerry API) or MIDlets that have been converted to the .cod file format.</li> <li>• installer: If you want the installer to update registry settings so that an application displays automatically in the Application Loader, visit the Technical Knowledge Center at <a href="http://www.blackberry.com/knowledgecenterpublic/">www.blackberry.com/knowledgecenterpublic/</a> to read article DB-00061.</li> </ul>

## Application deployment using the BlackBerry Application Web Loader

In both the BlackBerry Internet Solution environment and the BlackBerry Enterprise Solution environment, perform the following actions to deploy a Java application using the BlackBerry Application Web Loader.

Action	Procedure
Enable the BlackBerry Application Web Loader on a web server.	<p>The administrator or application developer completes this action.</p> <ol style="list-style-type: none"> <li>1. Create a web page for application distribution.</li> <li>2. Create or obtain the <b>.jad</b> and <b>.cod</b> files for the application.</li> <li>3. Place the <b>AxLoader.cab</b> file in the same folder as the web page's .html files.</li> <li>4. Place the application <b>.jad</b> and <b>.cod</b> files on the web server that hosts the web page.</li> <li>5. Reference a specific version of the BlackBerry Application Web Loader.</li> <li>6. Associate the BlackBerry Application Web Loader with the application .jad file.</li> <li>7. To load the .jad file, invoke the application web loader <code>loadJad()</code> method. Use a string parameter that represents one of the following: <ul style="list-style-type: none"> <li>• .jad file is in the same location as the AxLoader.cab file: Use the .jad filename.</li> <li>• .jad file is in a different location from the AxLoader.cab file: Use the relative location address of the .jad file.</li> </ul> </li> <li>8. Distribute the web page link to users.</li> </ol> <p><b>Note:</b> The BlackBerry Application Web Loader requires the user password on the BlackBerry device before installing an application. If a password is set, the <code>AxLoaderPassword</code> control is used to obtain the device password. This control is included in the <code>AxLoader.cab</code> file. See the <i>BlackBerry Application Web Loader Developer Guide</i> for more information about how to obtain a device password.</p>
Install the application on the BlackBerry device.	<p>Typically, the user completes this action.</p> <ol style="list-style-type: none"> <li>1. Connect the BlackBerry device to your computer.</li> <li>2. Access the web page using Microsoft Internet Explorer on your computer.</li> <li>3. If the current version of the BlackBerry Application Web Loader is not already installed, accept the installation on the computer.</li> <li>4. Follow the prompts to install the application.</li> </ol>

## Using the standalone Application Loader

The standalone Application Loader that is included with the BlackBerry Enterprise Server software is the same tool as the Application Loader that is part of the BlackBerry Desktop Software. The standalone tool is provided so that you can make it available from a central network location for users to install or upgrade applications. The BlackBerry Desktop Software that is installed on the user's computer manages the connection between the wizard and the user's BlackBerry device.

### Usage

To use the standalone Application Loader, you create a shared folder or network drive. In this shared location, you place the applications that you want to deploy and then index the applications. You then provide users with a link to the shared location.

### Application deployment in automated mode

You can use the standalone Application Loader to deploy applications in automated mode. Automated mode is designed to simplify application deployment to a large number of client computers in an automated manner without the need for user interaction.

### Prerequisites

Component	Requirement
BlackBerry device or BlackBerry-enabled device	<ul style="list-style-type: none"> <li>able to run Java applications</li> </ul>
User's computer	<ul style="list-style-type: none"> <li>Microsoft® Windows® 2000 or Microsoft Windows XP</li> <li>RIM USB drivers and USB connection, or a serial connection (for serial devices)</li> <li>BlackBerry Desktop Software Version 4.0 (or BlackBerry Device Manager Version 4.1 for automated installation)</li> </ul>
Application	<ul style="list-style-type: none"> <li><b>.alx file and .cod files:</b> The .alx file is an identifier file for the application files. A .cod file contains compiled and packaged application code. The Application Loader requires both of these file types to install an application.</li> <li><b>optional modules:</b> Some third-party applications are dependent on optional modules that are part of the BlackBerry Device Software. In these cases, the required modules are listed in the .alx file within a &lt;requires&gt; tag. If these required modules are not preloaded on the BlackBerry device, then you might need to install the BlackBerry Device Software for the specific device model on the local computer. Visit <a href="http://www.blackberry.com/knowledgecenterpublic/">www.blackberry.com/knowledgecenterpublic/</a> to read the <i>BlackBerry Application Developer Guide, Volume 1: Fundamentals</i> for more information about dependencies.</li> <li><b>required applications:</b> To set an application as required on a user's BlackBerry device, complete the following actions: <ul style="list-style-type: none"> <li>Open the .alx file.</li> <li>Locate the copyright statement. For example, &lt;copyright&gt;Copyright 1998-2006 Research In Motion&lt;/copyright&gt;.</li> <li>Add the following tag: &lt;required&gt;true&lt;/required&gt;.</li> </ul> <p>Each application that the .alx file references is now required in the Application Loader.</p> </li> </ul>

### Application deployment using the standalone Application Loader

In the BlackBerry Enterprise Solution environment, perform the following actions to deploy a Java application using the standalone Application Loader.

Action	Procedure
Add the application files to a shared folder.	<p>The administrator or application developer completes these actions.</p> <ol style="list-style-type: none"> <li>Create or obtain the <b>.alx</b> and <b>.cod</b> files for the application.</li> <li>Create a uniquely named folder for the application, maintaining the application's file structure, in a shared network location: &lt;drive:&gt;\Program Files\Common Files\Research In Motion\Shared\Applications\.</li> <li>Copy the <b>.cod</b>, <b>.alx</b>, and <b>.dll</b> files to the unique folder.</li> </ol>
Index the application	<p>➤ See "Using the BlackBerry Enterprise Server and Application Control policy rules" on page 14 for information about how to index an application.</p>

Action	Procedure
Share the application folder.	<ol style="list-style-type: none"> <li>1. Navigate to the application's folder.</li> <li>2. Right-click the folder, and then click <b>Properties</b>.</li> <li>3. Click the <b>Sharing</b> tab.</li> <li>4. Select <b>Share this folder</b>. Provide read-only permissions.</li> <li>5. Set any other required options, and then click <b>OK</b>.</li> </ol>
Set a software configuration.	<ul style="list-style-type: none"> <li>➤ This action is optional. Set a software configuration if you want the Handheld Configuration Tool (for Microsoft Exchange) or the BlackBerry Manager (for IBM Lotus Domino or Novell GroupWise) to monitor or track whether users install an application on their BlackBerry devices. See "Using the BlackBerry Enterprise Server and Application Control policy rules" on page 14 for information about how to set a software configuration.</li> </ul>
Distribute a link to the application.	<ul style="list-style-type: none"> <li>➤ Using your preferred distribution method (for example, a link in a message or a link on an intranet web page), provide users with a URL link to the <b>loader.exe</b> file. For example, \\&lt;shared computer name&gt;\Research In Motion\Apploder\loader.exe.</li> </ul>
Install the application.	<p>Typically, the user completes this action.</p> <p><b>Note:</b> The BlackBerry Desktop Software must be installed on your computer.</p> <ol style="list-style-type: none"> <li>1. Connect the BlackBerry device to your computer. <ul style="list-style-type: none"> <li><b>Note:</b> Do not disconnect your BlackBerry device from your computer until the installation is complete.</li> </ul> </li> <li>2. If prompted, type your BlackBerry device password, and then click <b>Next</b>.</li> <li>3. On your computer, click the link to the <b>loader.exe</b> file that was provided by your administrator.</li> <li>4. If a security warning displays, click <b>Run</b>. The Application Loader wizard displays.</li> <li>5. Follow the on-screen instructions. You are notified when the loading process completes.</li> <li>6. Click <b>Close</b>.</li> </ol>

### Application deployment using the standalone Application Loader in automated mode

In a BlackBerry Enterprise Solution environment with the BlackBerry Device Manager Version 4.1, perform the following actions to deploy a Java application using the standalone Application Loader in automated mode.

Action	Procedure
Deploy the application in automated mode.	<ul style="list-style-type: none"> <li>➤ The actions required to deploy an application in automated mode are identical to the actions using the Application Loader described on page 11, with the following exception.</li> </ul> <p>When you distribute the application link, specify the loading command based on the type of connection (USB or serial) that the BlackBerry device uses, as shown in the following examples:</p> <ul style="list-style-type: none"> <li>• USB: \\&lt;shared computer name&gt;\Research In Motion\Apploder\loader.exe /defaultUSB /forceload</li> <li>• Serial: \\&lt;shared computer name&gt;\Research In Motion\Apploder\loader.exe</li> </ul>

## Overview of application deployment over a wireless network

Wireless application downloads are available to users in both the BlackBerry Internet Solution and the BlackBerry Enterprise Solution environments. With wireless deployment, a BlackBerry device is not physically connected to another computer.

In both environments, users can download and install applications over a wireless network by browsing to a public Internet site using the BlackBerry Internet Browser or the wireless solution provider's Wireless Application Protocol (WAP) Browser. Users in a BlackBerry Enterprise Solution environment can also download applications by browsing to an intranet site using the BlackBerry Browser.

## Using a web browser

The application provider places the .jad file and application .cod or .jar files on a web server. To install the application, the user points a web browser on the BlackBerry device to the .jad file, and the application installs automatically.

## Usage

Wireless application download using a web browser on the BlackBerry device is designed to provide a flexible way for users to install new applications without a connection to another computer.

## Prerequisites

Component	Requirement
BlackBerry device	<ul style="list-style-type: none"> <li>able to run Java applications</li> </ul>
Web server	Configure the following MIME types on the web server to allow the download and installation of Java applications on BlackBerry devices: <ul style="list-style-type: none"> <li>.cod files: application/vnd.rim.cod</li> <li>.jad files: text/vnd.sun.j2me.app-descriptor</li> <li>.jar files (optional): application/java-archive</li> </ul>
Application	The following file types are required to install an application: <ul style="list-style-type: none"> <li>.jad file: The .jad file is the application descriptor that provides information about the application and the location of the application's .cod or .jar files.</li> <li>.cod or .jar files: These files contain compiled and packaged application code.</li> </ul>

## Application deployment using a web browser

In both the BlackBerry Internet Solution environment and the BlackBerry Enterprise Solution environment, perform the following actions to deploy a Java application using a web browser.

Action	Procedure
Install the application on the web server.	The administrator or application developer completes these actions. <ol style="list-style-type: none"> <li>Create a web page for application distribution.</li> <li>Create or obtain the <b>.jad</b> and <b>.cod</b> or <b>.jar</b> files for the application.</li> <li>Place the <b>.jad</b> and <b>.cod</b> or <b>.jar</b> files on the web server.</li> </ol>
Send the application's link to users.	<ul style="list-style-type: none"> <li>➤ Using your preferred distribution method (for example, a link in a message or a link on an intranet web page), provide users with a URL link to the <b>.jad</b> file.</li> </ul>

Action	Procedure
Install the application on a BlackBerry device.	<p>Typically, the user completes this action.</p> <ol style="list-style-type: none"> <li>1. Open a browser on the BlackBerry device.</li> <li>2. Click <b>Download</b>. Using the URL specified in the .jad file, the BlackBerry device begins downloading the application .cod or .jar files using HTTP.</li> <li>3. After verifying that there is sufficient space on the BlackBerry device, the BlackBerry device installs the application and presents a notification message at completion.</li> </ol>

## Using the BlackBerry Enterprise Server and Application Control policy rules

Application Control policy rules are designed to provide you with the ability to centrally manage the third-party applications that are present on BlackBerry devices and to control the privileges associated with each application. For example, you can specify an application's operating environment, require or exclude applications, and set policies for API usage, internal data access, and external connections. You can also audit or remotely administer applications.

To deploy an application from the BlackBerry Enterprise Server using Application Control policy rules, you provide the .alx and .cod files for the application on a shared network drive. You create a software configuration to send the application wirelessly to each user account that is assigned the Application Control policy rule within the software configuration.

Visit [www.blackberry.com/knowledgecenterpublic/](http://www.blackberry.com/knowledgecenterpublic/) to read the *BlackBerry Enterprise Server Handheld Management Guide* for your platform for more information about how to use Application Control policy rules.

### Usage

Application Control policy rules work with BlackBerry devices that can connect to a BlackBerry Enterprise Server. When you set an Application Control policy rule, you can install third-party applications without user intervention. This helps to make sure that the mobile professionals in your organization always have access to the most complete and up-to-date applications.

### Prerequisites

Component	Requirement
BlackBerry device	<ul style="list-style-type: none"> <li>• able to run Java applications</li> <li>• BlackBerry Device Software Version 4.0 and later</li> </ul>
BlackBerry Enterprise Server	<ul style="list-style-type: none"> <li>• BlackBerry Enterprise Server software Version 3.0 or later</li> </ul>
Application	<p>The following files are installed on the shared network drive:</p> <ul style="list-style-type: none"> <li>• .alx file and .cod files: The .alx file is an identifier file for the application files. A .cod file contains compiled and packaged application code. The Application Loader requires both of these file types to install an application.</li> <li>• optional modules: Some third-party applications depend on optional modules that are part of the BlackBerry Device Software. In these cases, the required modules are listed in the .alx file within a &lt;requires&gt; tag. If these required modules are not preloaded on the BlackBerry device, then you might need to install the BlackBerry Device Software for the specific device model on the local computer.</li> </ul> <p>Visit <a href="http://www.blackberry.com/knowledgecenterpublic/">www.blackberry.com/knowledgecenterpublic/</a> to read the <i>BlackBerry Application Developer Guide, Volume 1: Fundamentals</i> for more information about dependencies.</p>

## Application deployment using the BlackBerry Enterprise Server and Application Control policy rules

In the BlackBerry Enterprise Solution environment, perform the following actions to deploy a Java application using the BlackBerry Enterprise Server and Application Control policy rules.

**Note:** Allow four hours for application deployment on multiple BlackBerry devices.

Action	Procedure
Add the application files to a shared folder.	<p>The administrator or application developer completes these actions.</p> <ol style="list-style-type: none"> <li>1. Create or obtain the <b>.alx</b> and <b>.cod</b> files for the application.</li> <li>2. Create a uniquely named folder, maintaining the application's file structure, in the network location that hosts your shared applications: &lt;drive:&gt;\Program Files\Common Files\Research In Motion\Shared\Applications\.</li> <li>3. Copy the <b>.alx</b>, <b>.cod</b>, and <b>.dll</b> files to the unique folder.</li> </ol>
Configure a required application.	<p>This action is optional. The administrator or application developer completes the action for a third-party application that is required on the BlackBerry device. When an application is configured as "required," users cannot remove it from their BlackBerry devices.</p> <ol style="list-style-type: none"> <li>1. Open the <b>.alx</b> file.</li> <li>2. In the &lt;application&gt; element, type &lt;required&gt;true&lt;/required&gt;.</li> <li>3. Save the <b>.alx</b> file.</li> </ol>
Index the application.	<p>The Application Loader reads the list of installed software in the software index and uses the index to locate the applications to install.</p> <ol style="list-style-type: none"> <li>1. At the command prompt, type <b>cd &lt;drive:&gt;\Program Files\Common Files\Research In Motion\Apploder</b>.</li> <li>2. Type <b>loader.exe /index</b>. The Application Loader builds the software index structure and adds any missing index files.</li> </ol> <p><b>Note:</b> If you modify an <b>.alx</b> file after you create a software index, re-index the applications.</p> <ul style="list-style-type: none"> <li>• At the command prompt, type <b>cd &lt;drive:&gt;\Program Files\Common Files\Research In Motion\Apploder</b>.</li> <li>• Type <b>loader.exe /reindex</b>.</li> </ul>
Share the application folder.	<p>Software configurations must be able to access the application through a Universal Naming Convention (UNC) path to the shared network drive.</p> <ol style="list-style-type: none"> <li>1. Navigate to the application's folder.</li> <li>2. Right-click the folder, and then click <b>Properties</b>.</li> <li>3. Click the <b>Sharing</b> tab.</li> <li>4. Select <b>Share this folder</b>. Provide read-only permissions.</li> <li>5. Set any other required options, and then click <b>OK</b>.</li> </ol>
Set an IT policy rule for the user account.	<p>This action is optional.</p> <p><b>Notes:</b> You must set the Disallow Third Party Application Downloads policy to <b>False</b>.</p> <p>The following steps describe the procedure for setting an IT policy rule for the BlackBerry Enterprise Server Version 4.0.4. If you have a BlackBerry Enterprise Server Version 4.1, see the <i>BlackBerry Enterprise Server System Administration</i></p>

Action	Procedure
	<p><i>Guide</i> for your platform. The <i>BlackBerry Enterprise Server Policy Reference Guide</i> provides information about setting IT policy rules.</p> <p><b>For Microsoft Exchange</b></p> <ol style="list-style-type: none"> <li>1. In the Handheld Configuration Tool, right-click the name of the BlackBerry Enterprise Server.</li> <li>2. Click <b>IT Policy</b>.</li> <li>3. Click <b>New</b>.</li> <li>4. Type a policy name.</li> <li>5. From the <b>Policy rule</b> list, add policy rules to the IT policy.</li> <li>6. Click <b>OK</b>.</li> </ol> <p><b>For IBM Lotus Domino and Novell GroupWise</b></p> <ol style="list-style-type: none"> <li>1. In the BlackBerry Manager, in the left pane, click <b>BlackBerry Domain</b>.</li> <li>2. On the <b>Global</b> tab, click <b>Edit Properties</b>.</li> <li>3. Click <b>IT Policy</b>.</li> <li>4. In the <b>IT Policy Administration</b> section, double-click <b>IT Policies</b>.</li> <li>5. Click <b>New</b>.</li> <li>6. Double-click <b>IT Policy Name</b>.</li> <li>7. Type a name for the new policy.</li> <li>8. Configure the policy rules by performing the following actions: <ul style="list-style-type: none"> <li>• In the left pane, click a policy group.</li> <li>• In the right pane, double-click the rule to assign a value or to choose between <b>True</b> and <b>False</b>.</li> </ul> </li> <li>9. Click <b>OK</b>.</li> </ol>
Assign users to the IT policy rule.	<p>Users can be assigned to only one IT policy.</p> <p><b>For Microsoft Exchange</b></p> <ol style="list-style-type: none"> <li>1. In the <b>Policy Name</b> list, click the new IT policy.</li> <li>2. Click <b>Edit User List</b>.</li> <li>3. Click <b>Add Users to This Policy</b>.</li> <li>4. Click the user to add to the policy.</li> <li>5. Click <b>Add</b>.</li> <li>6. Click <b>Close</b>.</li> <li>7. Click <b>OK</b>.</li> </ol> <p><b>For IBM Lotus Domino and Novell GroupWise</b></p> <p>Manage the IT policy-to-user assignment from either the IT policy or the user account.</p> <p>Manage an IT policy assignment in the policy</p> <ol style="list-style-type: none"> <li>1. In the BlackBerry Manager, in the left pane, click <b>BlackBerry Domain</b>.</li> <li>2. On the <b>Global</b> tab, click <b>Edit Properties</b>.</li> <li>3. Click <b>IT Policy</b>.</li> </ol>

Action	Procedure
	<ol style="list-style-type: none"> <li>4. In the <b>IT Policy Administration</b> section, double-click <b>IT Policy to User Mapping</b>.</li> <li>5. In the left pane, click a user.</li> <li>6. In the right pane, click an IT policy.</li> <li>7. Repeat steps 5 and 6 to move additional users to the IT policy.</li> <li>8. Click <b>OK</b>.</li> </ol> <p><b>Manage an IT policy assignment in the user account</b></p> <ol style="list-style-type: none"> <li>1. In the BlackBerry Manager, in the left pane, click the server name.</li> <li>2. In the <b>User List</b>, double-click a user.</li> <li>3. Click <b>IT Policy</b>.</li> <li>4. Click <b>IT Policy Name</b>.</li> <li>5. From the list, select a new IT policy.</li> <li>6. Click <b>OK</b>.</li> </ol>
Set a software configuration.	<p>This action is optional. Complete the step if you want the Handheld Configuration Tool (for Microsoft Exchange) or the BlackBerry Manager (for IBM Lotus Domino or Novell GroupWise) to monitor or track whether users install an application on their BlackBerry devices.</p> <ol style="list-style-type: none"> <li>1. In the Handheld Configuration Tool (Microsoft Exchange) or in the BlackBerry Manager (IBM Lotus Domino or Novell GroupWise), in the left pane, click <b>Software Configurations</b>.</li> <li>2. Click <b>Add New Configuration</b>.</li> <li>3. In the <b>Configuration Name</b> field, type a name.</li> <li>4. In the <b>Configuration Description</b> field, type a description.</li> <li>5. To define the application's location, click <b>Change</b>, and then specify the location. For example, \\&lt;shared computer name&gt;\Research In Motion\.</li> <li>6. Click <b>OK</b>.</li> <li>7. In the <b>Application Name</b> list, select the check box beside each BlackBerry device series that you are configuring.</li> <li>8. Select the check box for each application that you are installing.</li> <li>9. Click <b>Policies</b> to define Application Control policy rules for the application. From the <b>Policy</b> list, select an Application Control policy rule for the third-party application.</li> <li>10. Click <b>OK</b>.</li> </ol>

Action	Procedure
Set an Application Control policy rule.	<p>This action is required if you create an Application Control policy rule and are not using one of the default policies.</p> <p>Visit <a href="http://www.blackberry.com/knowledgecenterpublic/">www.blackberry.com/knowledgecenterpublic/</a> to read the <i>BlackBerry Enterprise Server Handheld Management Guide</i> for your platform for more information about Application Control policy rule options.</p> <ol style="list-style-type: none"> <li>1. In the Handheld Configuration Tool (Microsoft Exchange) or in the BlackBerry Manager (IBM Lotus Domino or Novell GroupWise), in the left pane, click <b>Software Configurations</b>.</li> <li>2. Click <b>Manage Application Policies</b>.</li> <li>3. Click <b>New</b>.</li> <li>4. Type a new policy name.</li> <li>5. Customize the properties for the Application Control policy rules.</li> <li>6. Click <b>OK</b>.</li> </ol>
Assign an Application Control policy rule to an application.	<p>This step is optional. Assign an Application Control policy rule if you want to manage an application after it is installed.</p> <ol style="list-style-type: none"> <li>1. In the Handheld Configuration Tool (Microsoft Exchange) or in the BlackBerry Manager (IBM Lotus Domino or Novell GroupWise), in the left pane, click <b>Software Configurations</b>.</li> <li>2. Click <b>Manage Application Policies</b>.</li> <li>3. In the <b>Policy</b> column, specify the policy to assign to the application. <ul style="list-style-type: none"> <li>• To assign an Application Control policy rule to all applications that are not already assigned to an Application Control policy rule, click a policy rule at the application software level.</li> <li>• To assign an Application Control policy rule at the application software level, click <b>&lt;default&gt;</b>. An asterisk is added to the policy name.</li> <li>• To assign the default Application Control policy rules that are preconfigured on the BlackBerry device, click <b>&lt;none&gt;</b>.</li> </ul> </li> <li>4. Click <b>OK</b>. When you assign a new Application Control policy rule, the BlackBerry Enterprise Server automatically sends the policy to the specified BlackBerry devices.</li> </ol>
Send the application to the BlackBerry device over the wireless network.	<ol style="list-style-type: none"> <li>1. In the Handheld Configuration Tool (Microsoft Exchange) or in the BlackBerry Manager (IBM Lotus Domino or Novell GroupWise), click <b>Software Configurations</b>.</li> <li>2. In the <b>Configuration Name</b> list, click a software configuration.</li> <li>3. Click <b>Edit Configuration</b>.</li> <li>4. Expand the application, and then select the check boxes beside the applications to push over the wireless network.</li> <li>5. From the <b>Delivery</b> list, select <b>Wireless</b>.</li> <li>6. Click <b>OK</b>.</li> </ol>

## Related resources

Resource	Description
<i>BlackBerry Application Web Loader Developer Guide</i>	<ul style="list-style-type: none"> <li>• installation of applications from a web page</li> <li>• AxLoader.cab controls</li> <li>• BlackBerry Application Web Loader web page template</li> </ul>
<i>BlackBerry Enterprise Server System Administration Guide</i>	<ul style="list-style-type: none"> <li>• IT policy rules</li> <li>• selection of a network drive</li> </ul>
<i>BlackBerry Enterprise Server Handheld Management Guide</i>	<ul style="list-style-type: none"> <li>• third-party application controls</li> <li>• IT policy rules for third-party applications</li> <li>• Application Control policy rules</li> <li>• installation and configuration of third-party applications on a BlackBerry device</li> </ul>
<i>BlackBerry Enterprise Server Policy Reference Guide</i>	<ul style="list-style-type: none"> <li>• IT policy rules for third-party applications</li> <li>• access to enterprise applications</li> </ul>
<i>BlackBerry Java Development Environment Application Developer Guide</i>	<p>Volume 1: Fundamentals</p> <ul style="list-style-type: none"> <li>• BlackBerry Integrated Development Environment</li> <li>• third-party application development, packaging, distribution, and installation</li> <li>• integration of enterprise applications</li> </ul> <p>Volume 2: Advanced Topics</p> <ul style="list-style-type: none"> <li>• BlackBerry device applications</li> <li>• BlackBerry Browser integration</li> <li>• data storage and backup</li> </ul>
BlackBerry MIDlet Developer Guide	<ul style="list-style-type: none"> <li>• design and creation of MIDlets for BlackBerry devices</li> <li>• BlackBerry and MIDP APIs</li> </ul>
<i>Managing Wireless Data Transport in the BlackBerry Solution Version 4.0</i>	<ul style="list-style-type: none"> <li>• Part 1: Understanding TCP and HTTP transport options for Java applications for BlackBerry</li> <li>• Part 2: Alternative Transport Options for Java applications for BlackBerry</li> </ul>
<a href="http://www.blackberry.com/knowledgecenterpublic/">www.blackberry.com/knowledgecenterpublic/</a>	<ul style="list-style-type: none"> <li>• BlackBerry technical documentation</li> <li>• DB-00019: What Is – An .alx file</li> <li>• DB-00055: How to – Compile a MIDlet into a COD file</li> <li>• DB-00061: How to – Update the registry to deploy Java applications using Desktop Manager</li> </ul>
<a href="http://www.blackberry.com/developers/">www.blackberry.com/developers/</a>	<ul style="list-style-type: none"> <li>• BlackBerry Developer Zone</li> <li>• BlackBerry device documentation</li> <li>• developer support</li> <li>• application development tools for the BlackBerry device</li> </ul>

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