



BlackBerry Attachment Service

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Introduction

The BlackBerry® Enterprise Solution is a wireless connectivity solution that provides corporations with a secure, open platform for extending wireless communications and corporate data applications to mobile users. The BlackBerry Enterprise Solution integrates tightly with existing enterprise systems, enabling wireless access to business information and communications, including email attachments.

Traditional wireless attachment solutions involve expensive and complicated server installations and require additional software licenses for native applications such as Microsoft® Word. These wireless attachment solutions typically send attachments as separate email messages, increasing network traffic and adding to bandwidth costs.

The BlackBerry Attachment Service, a component of the BlackBerry Enterprise Server™, uses a proprietary data format to interpret, convert, and preserve the format of email attachments without the need for additional software licenses. The Attachment Service also delivers data in sections and provides configurable file size limits, decreasing network traffic and bandwidth costs.

BlackBerry Attachment Service

The BlackBerry Attachment Service enables BlackBerry Wireless Handhelds™, BlackBerry Connect™ and BlackBerry Built-In™ enabled devices to open email attachments. The Attachment Service supports files created in Microsoft Word, Microsoft Excel, Microsoft PowerPoint®, Corel® WordPerfect®, Adobe® Acrobat®, .html and .zip files, and ASCII documents. With the release of the BlackBerry Enterprise Server Software version 4.0, the Attachment Service also supports .jpeg, .gif, .bmp, .png, and .tif file formats.

The Universal Content Stream (UCS), a proprietary data format that is optimized for wireless delivery, formats and delivers the attachment content to handhelds, preserving the formatting and style information of the original document. The UCS supports text, images, vector, and hybrid content.

Content type	Information preserved
Documents	Preserves font styles, bullets, indentation, tables, bookmarks, and hyperlinks.
Spreadsheets	Preserves a scrollable grid with resizable columns.
Unicode	Preserves Unicode character mapping (Java™-based handhelds only).

Note: Color formatting and style information displays only on BlackBerry Wireless Handhelds with color screens.

New in version 4.0

The BlackBerry Enterprise Server Software version 4.0 includes an updated Attachment Service that offers several new features.

Document links

The Attachment Service recognizes navigation links within documents (such as the table of contents, hyperlinks, and bookmarks), even if the complete attachment is not retrieved from the server. Users can jump to a specific part of a document without having to first download the complete attachment to the handheld.

Track changes

BlackBerry Wireless Handhelds with color screens display new or changed text, which is added to a document using the Microsoft track changes feature, in different colors.

Image Viewing

The Attachment Service supports .jpeg, .gif, .bmp, .png, and .tif image formats. The images are resized to fit on the handheld screen, and users can zoom, pan, rotate, and enlarge the images.

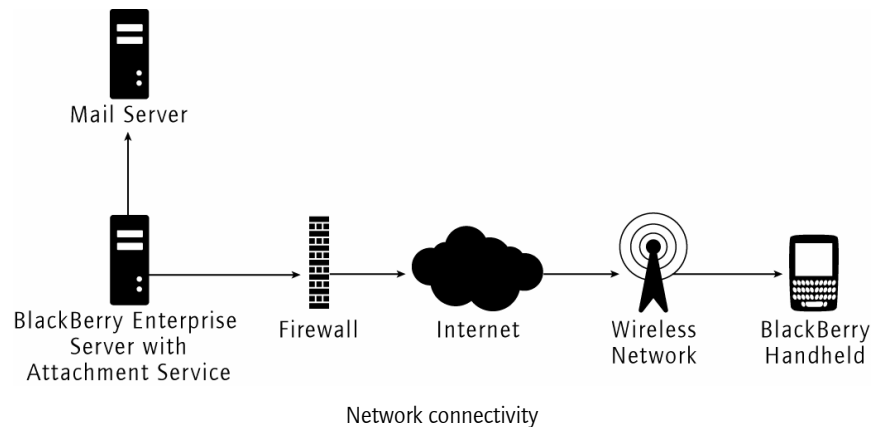
System architecture

Network connectivity

The BlackBerry Enterprise Server maintains a link to the messages that are stored on the mail server. The Attachment Service uses this link to access attachments directly from the mail server.

The BlackBerry Enterprise Server also maintains a constant, direct TCP/IP level connection to the BlackBerry Infrastructure using the Server Routing Protocol (SRP). The BlackBerry Infrastructure uses BlackBerry protocols to maintain a connection to the wireless network and to BlackBerry Wireless Handhelds.

Note: The firewall must be configured to allow the BlackBerry Enterprise Server to initiate an outbound connection on port 3101.



The Attachment Service communicates directly with the BlackBerry Enterprise Server over the TCP/IP connection with no inbound or outbound connections through the firewall. By default, the Attachment Service uses ports 1900, 1999, and 2000 to communicate with the BlackBerry Enterprise Server, but you can use any valid TCP/IP ports.

Port	Description
1900	This port is used to submit documents and return the converted content.
1999	This port is used for administration and monitoring purposes.
2000	This port is used to monitor the background processing of large attachments.

Document conversion

The BlackBerry Enterprise Server receives documents in binary format. It distills the documents and extracts the content, original visual representation, and navigation information. This information is then organized, stored, and linked together in an efficient proprietary Document Object Model (DOM) using a binary Extensible Markup Language (XML) style.

The Attachment Service formats documents for the handheld and then converts them to USC format. When a user requests an attachment from the handheld, the request is sent to the Attachment Service. When the Attachment Service receives the request, it accesses the DOM and reconstructs any components of the original document that are required to satisfy the request.

Based on the request for content (for example, page and paragraph information or search words) and any available handheld information (for example, screen size, display type, or space), the server generates the

appropriate document and sends it to the BlackBerry Enterprise Server. The BlackBerry Enterprise Server compresses the data, encrypts it, and sends it to the handheld over the Internet and the wireless network.

Supported formats

You can create custom distillers that meet the specific needs of your organization. By default, the Attachment Service supports the following document formats:

Format	Extensions	Versions	Distiller Module
Adobe PDF	.pdf	1.1, 1.2, 1.3, 1.4	BBDM_Pdf.dll
Microsoft Excel	.xls	97 and later	BBDM_Excel.dll
Microsoft PowerPoint	.ppt	97 and later	BBDM_PowerPoint.dll
Microsoft Word	.doc	97 and later	BBDM_Word2000.dll
Corel WordPerfect	.wpd	6.0 to 2000	BBDM_WordPerfect.dll
Compressed archive file	.zip	2.6 and earlier	BBDM_Zip.dll
HTML	.html .htm	all	BBDM_Html.dll
ASCII Text	.txt	all	BBDM_Text.dll
Images	.bmp .gif .jpg .png .tif	all	BBDM_Image.dll

Managing the Attachment Service

After the Attachment Service is installed and assigned to one or more BlackBerry Enterprise Servers, no further administration is required.

Installing the Attachment Service on a single computer

By default, the Attachment Service is installed with the BlackBerry Enterprise Server on a single computer. In environments that support it, the Attachment Service can support multiple BlackBerry Enterprise Servers on the same computer.

Installing the Attachment Service on a dedicated attachment processing computer

BlackBerry Enterprise Server version 2.2 Service Pack 1 or later for IBM® Lotus® Domino®, BlackBerry Enterprise Server version 3.6 Service Pack 1 or later for Microsoft Exchange, and BlackBerry Enterprise Server version 4.0 or later for Novell® GroupWise® support the installation of the Attachment Service on a dedicated attachment processing computer.

This installation method is ideal for organizations with a large number of users or who use the attachment feature extensively.

Configuring the Attachment Service using the Attachment Service Configuration Tool

The BlackBerry Attachment Service Configuration Tool enables you to configure the Attachment Service to provide optimal performance. For example, you can restrict the file size of supported attachments or discontinue support for a specific file format.

In the BlackBerry Enterprise Server Software version 4.0, the Attachment Service Configuration Tool is part of the BlackBerry Configuration Panel.

Monitoring

The Attachment Service generates logs and stores them on the BlackBerry Enterprise Server. BlackBerry Enterprise Server version 2.2 Service Pack 4 or later for IBM Lotus Domino, BlackBerry Enterprise Server version 3.6 Service Pack 3 or later for Microsoft Exchange, and BlackBerry Enterprise Server version 4.0 or later for Novell GroupWise include an extended logging feature that you can enable for additional troubleshooting information.

Security

Attachment data is protected in the following ways:

- **Encryption:** All Attachment Service data that is sent from the BlackBerry Enterprise Server to the handheld is encrypted.
- **Data exchange behind firewall:** The Attachment Service communicates with the BlackBerry Enterprise Server directly over a TCP/IP connection. No inbound or outbound connections through the firewall are required.
- **Virus avoidance:** Because the Attachment Service does not require the applications used to create the email attachments, the BlackBerry Enterprise Server and handhelds are protected against infection by macro viruses.

Performance

The Attachment Service uses multithreaded components and a scalable TCP/IP kernel completion port architecture to process attachments quickly, without using a lot of system resources. The Attachment Service uses a scalable and reliable concurrent conversion process that monitors and recycles used virtual machine (VM) process space at regular intervals.

Network performance

Because documents are often 1 MB or more in size, sending the complete attachment can cause network traffic and bandwidth issues. The Attachment Service optimizes network performance in the following ways:

- **On-demand delivery:** Users can request the table of contents or a summary of attachments, enabling them to retrieve and read relevant parts of an attachment.
- **Segmented delivery:** On Java-based handhelds, data is delivered 3 KB at a time. After the first 3 KB of data is delivered to the handheld, the remainder is not delivered until the user requests that more data be sent.
- **Distilled data:** The BlackBerry Enterprise Server completes all attachment processing so that a complete attachment is never sent over the wireless network.
- **Optimized formatting:** Attachment content formatting is optimized based on the requesting device using the UCS format before it is sent to the handheld.

Additional resources

For more information on the Attachment Service and to obtain copies of the following documentation, visit the BlackBerry Technical Knowledge Center at <http://www.blackberry.com/knowledgecenterpublic/>.

Version	Resource
BlackBerry Enterprise Server version 2.2 for IBM Lotus Domino	Product Overview
	Installation and Getting Started Guide
	Monitoring and Troubleshooting Guide
BlackBerry Enterprise Server version 3.6 for Microsoft Exchange	Installation and Getting Started Guide
	Administration Guide
BlackBerry Enterprise Server version 4.0	Feature and Technical Overview
	Installation Guide
	Troubleshooting Guide

Appendix A: Compatibility matrix

Software version	Supported attachment formats				
	.doc, .xls, .ppt, .pdf, .wpd, ASCII files	.bmp, .gif, .jpg, .png, .tif	Color attachments	.zip files	HTML
BlackBerry Enterprise Server					
3.5 for Microsoft Exchange 2.1 Service Pack 1 for IBM Lotus Domino Note: Requires the Attachment Service add-on	C++-based handhelds				
3.6 for Microsoft Exchange 2.2 for IBM Lotus Domino	√				
3.6 Service Pack 1 for Microsoft Exchange 2.2 Service Pack 1 for IBM Lotus Domino	√		BlackBerry Wireless Handhelds with color screens	√	√
4.0 for Microsoft Exchange 4.0 for IBM Lotus Domino 4.0 for Novell GroupWise	√	BlackBerry Wireless Handhelds with color screens	BlackBerry Wireless Handhelds with color screens	√	√
C++-based handhelds					
2.1, 2.5 Note: Requires the Attachment Service add-on	√				
2.6	√				
2.6 Service Pack 1	√			√	√
2.7	√			√	√
Java-based handhelds					
3.6	√				
3.7	√		√	√	√
3.8	√	√	√	√	√
4.0	√	√	√	√	√
BlackBerry Connect and BlackBerry Built-In enabled devices					
Contact your service provider for details on Attachment Service support.					

Appendix B: Attachment Service version 4.0 distiller capabilities

Feature	Attachment formats					
	Word	Excel	PPT	WP	PDF	HTML
Bookmarks	√			√		√
Colour support	√	√	√	√		√
Comments	√					
Email links	√	√	√	√	√	√
Embedded images	√				√	
Embedded tables	√					
Endnotes	√					
Font sizes	√		√	√	√	
Font styles	√	√	√	√	√	√
Footnotes	√					
Internal hyperlinks	√			√		√
Internal Table of Contents	√			√		
Password					√	
Phone links	√	√	√	√	√	√
Text box	√		√			
Track changes	√			√		
URL links	√	√	√	√	√	√

Part number: SWD_X_BES_001.000

*Check with service provider for availability, roaming arrangements and service plans. Certain features outlined in this document require a minimum version of BlackBerry Enterprise Server software, BlackBerry Desktop Software, and/or BlackBerry handheld software. May require additional application development. Prior to subscribing to or implementing any third party products or services, it is your responsibility to ensure that the airtime service provider you are working with has agreed to support all of the features of the third party products and services. Installation and use of third party products and services with RIM's products and services may require one or more patent, trademark or copyright licenses in order to avoid infringement of the intellectual property rights of others. You are solely responsible for determining whether such third party licenses are required and are responsible for acquiring any such licenses. To the extent that such intellectual property licenses may be required, RIM expressly recommends that you do not install or use these products and services until all such applicable licenses have been acquired by you or on your behalf. Your use of third party software shall be governed by and subject to you agreeing to the terms of separate software licenses, if any, for those products or services. Any third party products or services that are provided with RIM's products and services are provided "as is". RIM makes no representation, warranty or guarantee whatsoever in relation to the third party products and services and RIM assumes no liability whatsoever in relation to the third party products and services even if RIM has been advised of the possibility of such damages or can anticipate such damages.

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