BlackBerry Business Cloud Services

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*** BlackBerry.

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About BlackBerry Business Cloud Services

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The BlackBerry Business Cloud Services is designed to be a secure link between your organization's cloud messaging services and BlackBerry devices. The BlackBerry Business Cloud Services can provide mobile access to the email accounts and organizer data that are part of your organization's resources.

The BlackBerry Business Cloud Services supports AES encryption to help protect wireless data that is transmitted between the BlackBerry Business Cloud Services and devices.

BlackBerry solution comparison chart

Messaging features

Feature	BlackBerry Enterprise Server	BlackBerry Enterprise Server Express	BlackBerry Internet Service	BlackBerry Business Cloud Services
Supported messaging environments	Microsoft Exchange, Lotus Domino, and Novell GroupWise	Microsoft Exchange and Lotus Domino	IMAP and POP (for example, Google Mail, Yahoo! Mail, Microsoft Outlook Web Access)	Microsoft Office 365
Wireless email messaging	\checkmark	\checkmark	\checkmark	\checkmark
Email reconciliation	$\sqrt{}$	\checkmark	\checkmark	\checkmark
Contact lookup	\checkmark	\checkmark	\checkmark	\checkmark
Sent message reconciliation	$\sqrt{}$	\checkmark	\checkmark	\checkmark
Reconciliation of permanently deleted messages (hard delete)	\checkmark	\checkmark	√ Some messaging environments	\checkmark
Email messages with HTML and rich content	\checkmark	\checkmark	\checkmark	\checkmark

Feature	BlackBerry Enterprise Server	BlackBerry Enterprise Server Express	BlackBerry Internet Service	BlackBerry Business Cloud Services
Remote email message lookup	\checkmark	\checkmark	√ Google Mail only	\checkmark
Email message filters	Global filters and user filters	Global filters and user filters	User filters	User filters
Separate inboxes for work and personal accounts	\checkmark	\checkmark	\checkmark	\checkmark
Synchronization of published public contact folders	\checkmark	\checkmark	√ With limitations	
Synchronization of personal contact folders	\checkmark	\checkmark		\checkmark
Synchronization of personal mail folders	\checkmark	\checkmark		\checkmark
Synchronization of organizer data (memos and tasks)	\checkmark	\checkmark		\checkmark

Calendar features

Feature	BlackBerry Enterprise Server	BlackBerry Enterprise Server Express	BlackBerry Internet Service	BlackBerry Business Cloud Services
Calendar synchronization	\checkmark	\checkmark	Google Mail only	\checkmark
Ability to check the availability of meeting participants	\checkmark	\checkmark	\checkmark	√
Ability to forward calendar entries	\checkmark	\checkmark	\checkmark	\checkmark
Calendar attachments	\checkmark	\checkmark		\checkmark

Enterprise instant messaging features

Feature	BlackBerry Enterprise Server	BlackBerry Enterprise Server Express	BlackBerry Internet Service	BlackBerry Business Cloud Services
Supported enterprise instant messaging environments	IBM Lotus Sametime, Microsoft Office Communications Server, Microsoft Lync Server, and Novell GroupWise Messenger	None	None	None

Console support features

Feature	BlackBerry Enterprise Server	BlackBerry Enterprise Server Express	BlackBerry Internet Service	BlackBerry Business Cloud Services
Administration console	\checkmark	\checkmark	√ With limitations	\checkmark
Administrative roles	\checkmark	√ With limitations	√	Limited to Microsoft Office 365 administrative roles
Self-service console	\checkmark	\checkmark	\checkmark	\checkmark
Languages	English, Brazilian Portuguese, French, German, Italian, Japanese, and Spanish	English, Brazilian Portuguese, French, German, Italian, Japanese, and Spanish	For a list of supported languages, visit www.blackberry.com/support to read article KB12859.	English, Brazilian Portuguese, French, German, Italian, Japanese, and Spanish

Activation features

Feature	BlackBerry Enterprise Server	BlackBerry Enterprise Server Express	BlackBerry Internet Service	BlackBerry Business Cloud Services
Supported activation methods	 BlackBerry Administration Service 	 BlackBerry Administration Service 	_	 BlackBerry Administration Service
	Over the wireless networkBlackBerry Desktop Software	Over the wireless network (requires app or specific data plan)		Over the wireless networkBlackBerry Web Desktop Manager

Feature	BlackBerry Enterprise Server	BlackBerry Enterprise Server Express	BlackBerry Internet Service	BlackBerry Business Cloud Services
	BlackBerry Web Desktop Manager	BlackBerry Desktop Software		
	 Over your organization's Wi-Fi 	 BlackBerry Web Desktop Manager 		
	network	 Over your organization's Wi-Fi network 		

Security features

Feature	BlackBerry Enterprise Server	BlackBerry Enterprise Server Express	BlackBerry Internet Service	BlackBerry Business Cloud Services
Transport layer encryption	√ (AES and Triple DES)	$\sqrt{\text{(AES and Triple DES)}}$		√(AES)
Enhanced encryption	√ (S/MIME and PGP)	√ (S/MIME and PGP)	√(SSL)	
BlackBerry Balance technology	\checkmark	\checkmark		\checkmark
IT administration	Supports:	Supports:	Supports:	Supports:
commands	Specify new device password and lock device	Specify new device password and lock device	Specify new device password and lock device	Specify new device password and lock device
	Delete only work data and remove device	 Delete only work data and remove device 	Delete all device data and remove device	 Delete only work data and remove device
	Delete all device data and remove device	Delete all device data and remove device		Delete all device data and remove device
IT policy rules	All	Subset		Subset
Two-factor authentication	\checkmark	\checkmark		

Application and browsing features

Feature	BlackBerry Enterprise Server	BlackBerry Enterprise Server Express	BlackBerry Internet Service	BlackBerry Business Cloud Services
Web browsing	\checkmark	\checkmark	\checkmark	\checkmark
Intranet browsing	\checkmark	\checkmark		
Methods for installing applications	Supports: Over the wireless network BlackBerry Administration Service BlackBerry Desktop Software BlackBerry Web Desktop Manager Standalone application loader tool Web browser on BlackBerry devices BlackBerry App World	Supports: Over the wireless network BlackBerry Administration Service BlackBerry Desktop Software BlackBerry Web Desktop Manager Standalone application loader tool Web browser on BlackBerry devices BlackBerry App World	Supports: BlackBerry Desktop Software Web browser on BlackBerry devices BlackBerry App World	Supports: BlackBerry Desktop Software Web browser on BlackBerry devices BlackBerry App World
Ability to push applications to devices	√	√		
Application control policies	$\sqrt{}$	$\sqrt{}$		
Methods for updating BlackBerry Device Software	 Over the wireless network BlackBerry Administration Service 	 Over the wireless network BlackBerry Administration Service 	Supports:Over the wireless networkBlackBerry Desktop Software	Supports:Over the wireless networkBlackBerry Desktop Software

Feature	BlackBerry Enterprise Server	BlackBerry Enterprise Server Express	BlackBerry Internet Service	BlackBerry Business Cloud Services
	BlackBerry Desktop Software	BlackBerry Desktop Software		
	BlackBerry Web Desktop Manager	BlackBerry Web Desktop Manager		
	 Standalone application loader tool 	 Standalone application loader tool 		
	 BlackBerry Desktop Software update sites 	 BlackBerry Desktop Software update sites 		

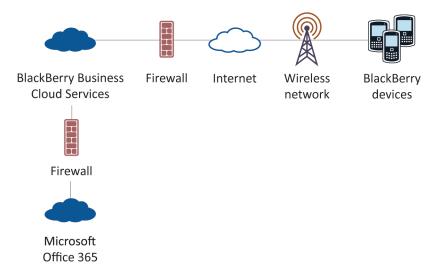
System requirements

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Item	Requirement
Cloud messaging service	Microsoft Office 365 with an Enterprise Plan
Devices	devices that are running 4.5 or later.
Browsers	Administrators and BlackBerry device users can connect to the BlackBerry Business Cloud Services using the following browsers:
	Windows Internet Explorer 8.0
	Mozilla Firefox 3.6
	Safari 4 for Mac
	Google Chrome 4
	Windows Internet Explorer provides optimal support for the BlackBerry Business Cloud Services features. Some browsers might prevent you from activating devices that are connected to a computer or from backing up and restoring device data.

Architecture

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Component	Description
BlackBerry Business Cloud Services	The BlackBerry Business Cloud Services provides a secure connection between your organization's Microsoft Office 365 messaging services and BlackBerry devices. BlackBerry Business Cloud Services is designed to connect to Microsoft Office 365 using a dedicated SSL connection. The BlackBerry Business Cloud Services can provide mobile access to the email accounts and organizer data that are part of your organization's environment.
Microsoft Office 365	Microsoft Office 365 provides cloud messaging services to organizations. The BlackBerry Business Cloud Services connects with Microsoft Office 365.

Features

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BlackBerry Business Cloud Services administration features

The BlackBerry Business Cloud Services provides you with a web-based administration interface to manage user accounts, assign groups to user accounts, and apply IT policies to user accounts. You can access the BlackBerry Business Cloud Services administration interface from a supported browser on any computer that is connected to the Internet. You can share administrative tasks with multiple administrators.

When Microsoft ActiveX controls are turned on in your browser, you can connect BlackBerry devices to your computers and manage the devices while you are logged in to the BlackBerry Administration Service.

Feature	Description
Authentication	You can log in using the same credentials that you use to access Microsoft Office 365.
User account management	You can manage how the BlackBerry Business Cloud Services synchronizes email messages and organizer data for individual user accounts.
Administration of user groups	You can create groups to share IT policies and other configuration settings among similar user accounts. You can then set properties one time for the group instead of for every user. You can assign a user account to more than one group so that the user account inherits the properties of every group that the user account belongs to. You can also assign groups to other groups so that the properties of the parent group are shared with all of the user accounts in the child groups.
User statistics tracking	You can view user statistics, including the number of email messages that are sent and received, pending email messages, reconciliation, and last contact time with a device. All information is displayed in sortable columns.
Support for personal devices	For users that have both personal and work data on a device, the BlackBerry Business Cloud Services offers the ability to delete only work data from the device (for example, you might want to delete work data if a user leaves the organization). You can use this feature on devices that are running a supported version of 6.0 or later.

Device activation features

Activating BlackBerry devices

To assign BlackBerry devices to user accounts and activate the devices, you can use any of the following methods:

Method	Description
BlackBerry Administration Service	You can activate devices before you distribute them to users by connecting the devices to a computer and logging in to the BlackBerry Administration Service.
Over the wireless network	New users and users that are receiving replacement devices can activate the devices without requiring a physical connection to your organization's network. Devices that are associated with the BlackBerry Internet Service cannot be activated over the wireless network.
BlackBerry Web Desktop Manager	New users and users that are receiving replacement devices can activate the devices by connecting the devices to a computer that hosts the BlackBerry Web Desktop Manager.

Messaging features

Wireless messaging features

The BlackBerry Business Cloud Services integrates with existing email accounts in your organization's cloud messaging services. It redirects email messages from users' email accounts to their BlackBerry devices automatically. When users move or delete email messages or mark email messages as read or unread, the BlackBerry Business Cloud Services reconciles changes over the wireless network between the devices and email accounts.

Feature	Description
Email reconciliation	The BlackBerry Business Cloud Services reconciles the status of email messages between devices and email accounts. If users delete or move email messages to personal folders in their email accounts, the email messages are deleted from the message list on the devices. If users mark email messages as

Feature	Description
	read or unread in their email accounts, the email messages appear with the same status on the devices.
	You can turn off wireless email reconciliation for a specific user.
Email filters	You or users can create and change email filters. Email filters specify the actions that the BlackBerry Business Cloud Services takes if incoming email messages match specific criteria. For example, users can create email filters to stop email messages from specific senders from being forwarded to their device.
Email-message forwarding	Users can turn off email-message forwarding to their devices (for example, if users are outside of a wireless coverage area). You can also turn off emailmessage forwarding to users.
Signatures	Users can add a signature to all email messages that they send from their devices. You can also add a signature and disclaimers to all email messages that a specific user sends.
Out-of-office reply	Users can set and change their out-of-office replies using their devices. Users can also specify an expiry date for out-of-office replies.
Contact lookup	Users can search for a contact's first name, last name, or both in the organization's user directory. The BlackBerry Business Cloud Services returns results for a maximum of 20 of the closest matches.
Contact list updates	When users select contacts from contact lookup results, they can add the contacts to the contact lists on their devices.
Custom fields in the contact list	If your organization maintains custom fields in users' personal contact lists, you can map these fields to corresponding fields that appear in the contact list on BlackBerry devices. Users can use these custom fields to search for contacts on their devices.
Send attachments	Users can send email messages that contain attachments from their devices. The attachments are not converted. Attachments must meet the following requirements:
	• If a user sends one attachment in an email message, the file size of the attachment cannot exceed 3 MB.
	• If a user sends multiple attachments in an email message, the total file size of the attachments cannot exceed 5 MB.
	 If an attachment exceeds 64 KB, the device sends the attachment in multiple data packets.
	If you want to manage the system resources that are used to upload and send attachments, you can use IT policies to limit the file size of attachments.

Feature and Technical Overview Features

Feature	Description
Download attachments	Users can download attachments and store them on their devices. Users can open supported attachment file formats using the media application on their devices. Users can open and update attachments using an appropriate third-party application on their devices.
	If you want to manage the system resources that are used to upload and send attachments, you can use IT policies to limit the file size of attachments.
Save sent email messages	Users can configure their devices to save copies of email messages that they send from their devices in the sent items folder in their email accounts.
Personal distribution lists	Users with devices that are running 5.0 or later can view personal distribution lists in their contact lists. Users can send email messages to the personal distribution lists and delete personal distribution lists from their devices.
Personal folders	Users with devices that are running BlackBerry Device Software 5.0 or later can add, delete, move, and rename personal folders on their devices.
Follow-up flag	Users with devices that are running BlackBerry Device Software 5.0 or later can flag email messages on their devices and set reminder times.
Personal contact subfolders	Users with devices that are running BlackBerry Device Software 5.0 or later can view personal contact subfolders on their devices and change contact information.
	Users can specify which contact subfolders that they want to synchronize with their devices. You can limit the number of contact subfolders that a user can synchronize with their devices.
Calendar entry forwarding	Users with devices that are running BlackBerry Device Software 5.0 or later can forward meeting invitations and calendar entries from their devices.
Availability of meeting invitees	Users can view the availability of meeting invitees on their devices.
Search for email messages	Users can search for email messages in their email account from their devices.
Email messages that contain rich content	Users can view email messages that contain HTML and rich content.

Supported instant-messaging applications

The BlackBerry Business Cloud Services supports BlackBerry Messenger for instant messaging. Users can search for a contact's first name, last name, or both in their organization's user directory and send email messages to invite contacts to BlackBerry Messenger.

The BlackBerry Business Cloud Services also supports the consumer instant-messaging applications that are available from the BlackBerry App World storefront such as Windows Live Messenger.

Synchronization features

The BlackBerry Business Cloud Services synchronizes organizer data such as tasks, memos, and contacts over the wireless network so that the entries on BlackBerry devices are consistent with the entries in user email accounts. Users are not required to connect devices to computers to synchronize organizer data and reconcile email messages.

The BlackBerry Business Cloud Services backs up user settings and data on devices over the wireless network. You can restore the user settings and data to devices when the devices are activated over the wireless network.

Feature	Description
Initial synchronization	When the BlackBerry Business Cloud Services turns on wireless data synchronization to a device for the first time, an initial data synchronization process starts. The process synchronizes the data for calendar entries and email messages between devices and email accounts. It also resolves conflicting or duplicate entries to prevent data loss.
	By default, the calendar on the device synchronizes up to 31 days before the activation date, and up to 28 years after the activation date.
Synchronization settings	You can configure settings for wireless data synchronization that apply to specific user accounts. You can specify which organizer data the BlackBerry Business Cloud Services synchronizes, how data conflicts are resolved, and whether changes are synchronized in both directions or in one direction only between devices and email accounts.
Synchronization of contact pictures	Contact pictures are synchronized between devices and email accounts. If users add, change, or delete contact pictures on their devices, the contact lists in their email applications are also updated.
	Contact pictures that exceed 32 KB cannot be synchronized.

How the BlackBerry Business Cloud Services manages attachments

The BlackBerry Business Cloud Services receives message attachments from supported devices and reconciles the attachments with the cloud messaging services.

The BlackBerry Business Cloud Services limits the file size of attachments that it can receive from a device to a maximum of 3 MB. If the BlackBerry Business Cloud Services receives more than one attachment at a time, it limits the total file size of all of the attachments to a maximum of 5 MB.

Users can download attachments in any format to their devices. Users can open and make changes to file formats using an appropriate third-party application on their devices. Users might be able to open specific file formats using the media application on the devices.

Attachment file formats that are supported

Format	Extension
Adobe Acrobat	.pdf
ASCII text	.txt
Audio	.amr, .mp3, .wav, .wma
Corel WordPerfect 7 to 10	.wpd
HTML	.htm, .html
Images	.bmp, .gif, .jpeg, .jpg, .png, .ppm, .tif, .tiff, .wmf
Microsoft Excel 97 to 2003, 2007, 2010, and XP	.xls, .xlsx
Microsoft PowerPoint 97 to 2003, 2007, 2010, and XP	.pps, .ppsx, .ppt, .pptx
Microsoft Word 97 to 2003, 2007, 2010, and XP	.doc, .dot, .dotx, .docx
OpenOffice.org 1.1	.odp, .ods, .odt, .ott
RTF	.rtf
ZIP archives	.zip

Using both BlackBerry Business Cloud Services and BlackBerry Enterprise Server or BlackBerry Enterprise Server Express

If your organization uses both and an on-premises messaging server, your organization can use both BlackBerry Business Cloud Services and BlackBerry Enterprise Server or BlackBerry Enterprise Server Express to manage BlackBerry devices.

The BlackBerry Business Cloud Services does not interact with the BlackBerry Enterprise Server or BlackBerry Enterprise Server Express. You can manage each device with only one product. To switch management of a device from the BlackBerry Enterprise Server or BlackBerry Enterprise Server Express to the BlackBerry Business Cloud Services, you must delete all data from the device and then reactivate the device for BlackBerry Business Cloud Services.

BlackBerry Business Cloud Services security

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The BlackBerry Business Cloud Services and BlackBerry devices are designed to help protect data that is in transit between the BlackBerry Business Cloud Services and a device. To help protect data that is in transit over the wireless network, the BlackBerry Business Cloud Services and device use AES encryption to encrypt the data that is sent between each other.

The BlackBerry Business Cloud Services uses confidentiality, integrity, and authenticity, which are principles for information security, to help protect your organization from data loss or alteration.

Security features of the BlackBerry Business Cloud Services

The BlackBerry Business Cloud Services is designed to use the following features to help provide security, privacy, and continuity to your organization's environment:

- Encryption to help keep your data protected while it is in transit
- Access controls to help keep your data confidential from other tenants
- Physical security to help keep RIM data centers safe
- A software development model that focuses on security
- Security policies and rules for conduct for RIM administrators who manage IT systems
- High availability, disaster recovery, and contingency plans to handle emergencies
- Architecture that is designed to provide a secure link between Microsoft Office 365 and BlackBerry Business Cloud Services
- Administrative control of BlackBerry device behavior using IT administration commands and IT policies

Using IT policies to manage security

You can use IT policies to control and manage devices in your organization's environment. An IT policy consists of multiple IT policy rules that manage the security and behavior of the BlackBerry Business Cloud Services. For example, you can use IT policy rules to manage the following device behaviors and security features:

- Use of a password or pass phrase
- Protection of user data on the device
- · Control of device resources, such as the camera
- Control personal devices using BlackBerry Balance

The BlackBerry Business Cloud Services includes preconfigured IT policies that you can use. The Default IT policy includes IT policy rules that are configured to indicate the default behavior of the device.

After a user activates a device, the BlackBerry Business Cloud Services automatically sends the IT policy that you assigned to the user account or group to the device. By default, if you do not assign an IT policy to the user account or group, the BlackBerry Business Cloud Services sends the Default IT policy. If you delete an IT policy that you assigned to the user account or group, the BlackBerry Business Cloud Services automatically re-assigns the Default IT policy to the user account and resends the Default IT policy to the device.

For more information, see the BlackBerry Business Cloud Services Policy Reference Guide.

Preconfigured IT policies

The BlackBerry Business Cloud Services includes the following preconfigured IT policies that you can use to meet the requirements of your organization.

Preconfigured IT policy	Description
Default	This policy includes all the standard IT policy rules that are set in the BlackBerry Business Cloud Services.
Basic Password Security	This policy requires a basic password that users can use to unlock their BlackBerry devices. Users must change the passwords regularly. The IT policy includes a password timeout that locks devices.

Default values for preconfigured IT policies

You can configure additional IT policy rules in the preconfigured IT policies or change any of the following values:

IT policy rule	Default IT policy	Basic Password Security IT Policy
Device-Only Items		
Enable Long-Term Timeout	_	_
Maximum Security Timeout	_	30 minutes
Maximum Password Age	_	60 days
Minimum Password Length	_	_
Password Pattern Checks	No restriction	No restriction
Password Required	No	Yes
User Can Change Timeout	Yes	Yes
User Can Disable Password	Yes	No
Password policy group		
Forbidden Passwords	_	_
Maximum Password History	_	_
Periodic Challenge Time	_	_
Set Maximum Password Attempts	_	_
Set Password Timeout	_	_
Suppress Password Echo	_	_
Personal devices policy group		
Enable Separation of Work Content	_	_
Disable Forwarding of Work Content Using Personal Channels	_	_
Require Work Resources for Conducting Work Activities	_	_
Work Domains	_	_
Security policy group		
Content Protection Strength	_	_
Disable External Memory	No	_
External File System Encryption level	Not required	_

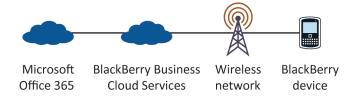
IT policy rule	Default IT policy	Basic Password Security IT Policy
Required Password Pattern	No	_
BlackBerry App World policy group		
Enable Wireless Service Provider Billing	_	_
Camera policy group		
Disable Photo Camera	_	_
Disable Video Camera	_	_
PIM Synchronization policy group		
Disable All Wireless Synchronization	_	_
Wired Software Updates policy group		
Allow Web-Based Software Loading	_	_

Data flows

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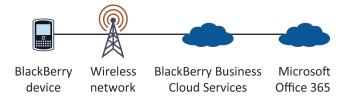
Messaging data flows

Data flow: Sending an email message to a device



- 1. Microsoft Office 365 notifies the BlackBerry Business Cloud Services that an email message has arrived in a BlackBerry device user's mailbox.
- 2. The BlackBerry Business Cloud Services sends the message to the wireless network.
- 3. The wireless network verifies that the PIN belongs to a valid device that is registered with the wireless network, and sends the email message data to the device.
- 4. The device sends a delivery confirmation to the BlackBerry Business Cloud Services.
 - If the BlackBerry Business Cloud Services does not receive a delivery confirmation within four hours, it sends the email message to the wireless network again. The delivery confirmation verifies that the wireless network delivered the email message to the device, but it does not verify that the user received or opened the email message.

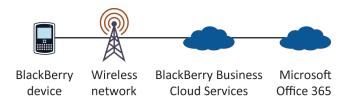
Data flow: Sending an email message from a device



This process flow applies to wireless calendar entries, new email messages, and reconciled email messages (email messages that a BlackBerry device user moved, deleted, or marked as read or unread).

- 1. The user sends an email message from a BlackBerry device.
 - The device assigns a Refld to the email message. If the email message is a meeting invitation or calendar entry, the device appends the calendar information to the email message.
- 2. The wireless network sends the email message to the BlackBerry Business Cloud Services.
- 3. The BlackBerry Business Cloud Services performs the following actions:
 - a The BlackBerry Business Cloud Services sends the email message to the user's mailbox.
 - b The BlackBerry Business Cloud Services sends a copy of the email message to the Sent Items folder in the user's inbox.
- 4. The messaging services deliver the email message to the recipients.

Data flow: Sending an email message that contains an attachment from a device



- 1. A BlackBerry device user attaches a file to an email message on a BlackBerry device and sends the email message.

 If the user tries to attach a file that exceeds the maximum file size that you specified, a notification appears and the user cannot attach the file.
- 2. The device sends the email message to the wireless network.
 - The device formats the header of the message to indicate that a large attachment is part of the email message. The device does not send the attachment content.
- 3. The wireless network sends the email message to the BlackBerry Business Cloud Services.

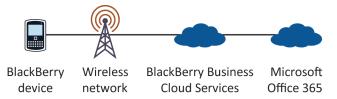
- 4. The BlackBerry Business Cloud Services sends a request for the attachment content to the device.
- 5. The device sends the attachment content to the BlackBerry Business Cloud Services.
- 6. The BlackBerry Business Cloud Services verifies the validity of the attachment content, and stores the content in memory as it arrives from the device.

If the BlackBerry Business Cloud Services has received only part of the attachment and has received no attachment content from the device for 15 minutes, the BlackBerry Business Cloud Services cancels the email message, deletes the attachment content from temporary storage, and sends an error message to the device.

After all of the attachment content arrives, the BlackBerry Business Cloud Services checks for other attachments that might be part of the same email message. If other attachments exist, the BlackBerry Business Cloud Services requests the attachment content. If no additional attachments exist, the BlackBerry Business Cloud Services finishes processing the message and sends the email message to the user's mailbox.

7. Microsoft Office 365 delivers the email message to the intended recipients.

Data flow: Viewing an email message attachment

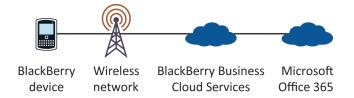


- 1. A BlackBerry device user receives an email message with an attachment.
- 2. The BlackBerry Business Cloud Services verifies that the BlackBerry device can open the attachment format.

 If the format cannot be viewed on a device, the user cannot choose the Open Attachment menu item on the device.
- 3. The user clicks the Open Attachment menu item to view the attachment on the device.
- 4. The attachment viewer sends a request for the attachment to the BlackBerry Business Cloud Services.
- 5. The BlackBerry Business Cloud Services performs the following actions:
 - a The BlackBerry Business Cloud Services retrieves the attachment in binary format from the message store on the device.
 - b The BlackBerry Business Cloud Services distills the attachment and extracts the content, layout, format, and navigation information from the attachment.
 - c The BlackBerry Business Cloud Services organizes, stores, and links the information in a proprietary DOM in a binary XML style.
 - d The BlackBerry Business Cloud Services formats the attachment for the device and converts it to UCS format. The formatting is based on the type of request (for example, page and paragraph information, or search words) and the available device information (for example, screen size, display, or available space).

- e The BlackBerry Business Cloud Services sends the first part of the attachment to the wireless network.
- 6. The wireless network verifies that the PIN belongs to a valid device that is registered with the wireless network. The wireless network delivers the attachment to the device.
- 7. The device sends a delivery confirmation to the BlackBerry Business Cloud Services. If the BlackBerry Business Cloud Services does not receive a delivery confirmation within four hours, it sends the attachment data to the wireless network again.
- 8. The user views the attachment on the device by selecting a section from the table of contents, or by viewing the full attachment. The original formatting of the attachment, including indents, tables, fonts, and bullets, displays on the device.

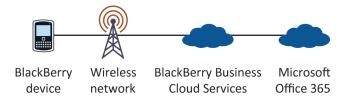
Data flow: Searching an organization's user directory from a device



- 1. A BlackBerry device user searches the user directory for a contact.
- 2. The BlackBerry device assigns a Refld to the search request, and sends the request to the BlackBerry Business Cloud Services.
- 3. The BlackBerry Business Cloud Services performs the following actions:
 - a The BlackBerry Business Cloud Services searches the contact list in Microsoft Office 365 and retrieves the 20 closest matches for the contact lookup request.
 - b The BlackBerry Business Cloud Services sends the data to the wireless network.
- 4. The wireless network verifies that the PIN belongs to a valid device that is registered with the wireless network, and sends the data to the device.
- 5. The device sends a delivery confirmation to the BlackBerry Business Cloud Services.
 - If the BlackBerry Business Cloud Services does not receive a delivery confirmation within four hours, it resubmits the contact lookup results to the wireless network.

Organizer data synchronization data flows

Data flow: Synchronizing organizer data for the first time on a device



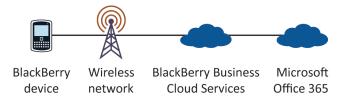
- 1. A BlackBerry device user activates a new BlackBerry device or upgrades an existing device and receives the service book for the BlackBerry Business Cloud Services.
- The device requests the synchronization configuration information from the BlackBerry Business Cloud Services.
 The configuration information indicates whether wireless data synchronization on the BlackBerry Business Cloud Services is turned on. The configuration information also includes database synchronization types and conflict resolution settings.
- 3. The BlackBerry Business Cloud Services returns the configuration information to the device and synchronizes with Microsoft Office 365 using the configuration information.
 - If organizer data exists on both the device and in the BlackBerry Business Cloud Services database, the BlackBerry Business Cloud Services merges, adds, or updates the organizer data during the synchronization process. If organizer data exists on only the device or the BlackBerry Business Cloud Services, the BlackBerry Business Cloud Services restores the organizer data from the appropriate location. The device and the BlackBerry Business Cloud Services do not delete organizer data during the initial synchronization process.

The initial synchronization process is complete when the organizer data on the device and the organizer data on the BlackBerry Business Cloud Services are synchronized. Changes to organizer data on the device or the BlackBerry Business Cloud Services that occur after the initial synchronization service is complete are synchronized over the wireless network.

If the user changes organizer data on the device or using a computer during the initial synchronization process, the BlackBerry Business Cloud Services synchronizes the changes after the initial synchronization completes.

If the user connects the device to a computer running the self-service interface, the initial synchronization process can occur over the connection to the BlackBerry Business Cloud Services instead of over the wireless network.

Data flow: Synchronizing changes to organizer data



- 1. A BlackBerry device user saves an update to organizer data or BlackBerry device settings (for example, a new AutoText entry) on a device or in the organizer application from the computer.
- Depending on where the user made the update, the device or the BlackBerry Business Cloud Services adds the update to a changelist. If the device adds the update to a changelist, it sends the changelist to the BlackBerry Business Cloud Services.
 - The changelist includes the target database and record information associated with the organizer application.
- 3. The BlackBerry Business Cloud Services sends an update to organizer data over the wireless network, along with other entries in the changelist for the user.
 - The BlackBerry Business Cloud Services sends other updates, including device information, time-zone information, and backup and restore data, at the batch synchronization interval that is set on the BlackBerry Business Cloud Services. By default, the batch synchronization interval is ten minutes. To prevent synchronization errors, the BlackBerry Business Cloud Services and device can send only a single changelist at a time for a user account.
- 4. The device sends a delivery confirmation to the BlackBerry Business Cloud Services for each record that it receives.
- 5. The BlackBerry Business Cloud Services receives delivery confirmations, deletes the corresponding synchronization request entries, and saves each delivery confirmation to the database.
 - Each organizer database record has a unique identifier that is mapped to a corresponding record on the device.

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AES Advanced Encryption Standard

ASCII American Standard Code for Information Interchange

content protection Content protection helps protect user data on a locked BlackBerry device by encrypting the user

data using the content protection key and ECC private key.

DOM Document Object Model

HTTP Hypertext Markup Language
HTTP Hypertext Transfer Protocol

HTTPS Hypertext Transfer Protocol over Secure Sockets Layer

IT administration

command

An IT administration command is a command that you can send over the wireless network to protect sensitive information on a BlackBerry device or delete all BlackBerry device data.

IT policy An IT policy consists of various IT policy rules that control the security features and behavior of

BlackBerry smartphones, BlackBerry PlayBook tablets, the BlackBerry Desktop Software, and

the BlackBerry Web Desktop Manager.

IT policy rule An IT policy rule permits you to customize and control the actions that BlackBerry smartphones,

BlackBerry PlayBook tablets, the BlackBerry Desktop Software, and the BlackBerry Web

Desktop Manager can perform.

PIN personal identification number

RTF Rich Text Format

service books Service books determine which services are available on BlackBerry devices.

UCS Universal Content Stream

XML Extensible Markup Language

Provide feedback

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To provide feedback on this deliverable, visit www.blackberry.com/docsfeedback.

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