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Preinstallation and preupgrade checklist

Verify that the following requirements are met before you install BlackBerry UEM version 12.8.

You can also upgrade to BlackBerry UEM version 12.8 from the following:

- Good Control version 3.0 or later
- Good Proxy version 3.0 or later
- BES10 version 10.2.3 or later
- BlackBerry UEM version 12.6 or later

You can download the BlackBerry UEM software from the BlackBerry UEM and BES Downloads web page.

For more information about configuring BlackBerry UEM, see the Configuration content.

When you verify requirements in this document, see the Compatibility matrix.

You can use the BlackBerry UEM Readiness Tool to check system requirements before you run the BlackBerry UEM setup application. Download the tool from the BlackBerry UEM and BES Downloads web page.

Minimum requirements for installing BlackBerry UEM

The following requirements apply when you need to configure computers or devices to support BlackBerry UEM in your organization.

<table>
<thead>
<tr>
<th>Complete</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Verify that your computer is running an operating system that supports BlackBerry UEM.</td>
</tr>
<tr>
<td></td>
<td>• Verify that your computer is running Windows PowerShell 2.0 or later for the following:</td>
</tr>
<tr>
<td></td>
<td>◦ RRAS for BlackBerry Secure Connect Plus setup during the BlackBerry UEM installation</td>
</tr>
<tr>
<td></td>
<td>◦ Exchange ActiveSync gatekeeping (optional).</td>
</tr>
<tr>
<td></td>
<td>• Verify that your ports are configured. For more information, see Port requirements.</td>
</tr>
<tr>
<td></td>
<td>• Verify that you have a mail server that supports BlackBerry UEM.</td>
</tr>
<tr>
<td></td>
<td>• Verify that the Exchange ActiveSync version meets the minimum requirements.</td>
</tr>
<tr>
<td></td>
<td>• Verify that you have Microsoft Exchange Server 2010 or later if you plan to enable Exchange ActiveSync gatekeeping on the mail server.</td>
</tr>
<tr>
<td>Complete</td>
<td>Requirement</td>
</tr>
<tr>
<td>----------</td>
<td>-------------</td>
</tr>
</tbody>
</table>
|          | • Verify that you have one of the following company directories:  
|          |   ◦ Microsoft Active Directory and users with Microsoft Active Directory accounts  
|          |   ◦ LDAP with anonymous authentication or simple bind authentication, with or without SSL  
|          | • If you are upgrading from Good Control or Good Proxy, verify that the Good Control license is a production license (not a development license). You can check the type of license you have in the Admins section of [https://community.blackberry.com](https://community.blackberry.com).  
|          | • Verify that your database server has a supported database management system.  
|          | • Verify that the TCP/IP network protocols are turned on for your BlackBerry UEM and BlackBerry Control databases. BlackBerry Control does not support dynamic ports.  
|          | • Verify that you have DNS support for resolving IP addresses into host names.  
|          | • If you have VPN hardware in your environment, verify that you have one of the following:  
|          |   ◦ IPSec VPN hardware  
|          |   ◦ SSL VPN hardware  
|          | • If you have a remote BlackBerry Router instance or TCP proxy server in your organization, verify that you have a supported operating system.  
|          | • Verify that you have a supported browser on the computers that host the BlackBerry UEM management console.  
|          | • Verify that you configure the following settings to support browser access:  
|          |   ◦ Support for JavaScript  
|          |   ◦ Cookies turned on  
|          |   ◦ Support for TLS  
|          |   ◦ The SSL certificate is installed to permit trusted connections to the consoles  
|          | • Verify that you have supported mobile operating systems for BlackBerry 10, iOS, macOS, Android, and Windows devices. |
Installation and upgrade

Steps to install BlackBerry UEM

The BlackBerry UEM setup application installs the BlackBerry UEM software and creates a BlackBerry UEM database.

For a new installation of BlackBerry UEM, perform the following actions:

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Review the port requirements.</td>
</tr>
<tr>
<td>2</td>
<td>Complete the preinstallation tasks.</td>
</tr>
<tr>
<td>3</td>
<td>Verify the prerequisites.</td>
</tr>
<tr>
<td>4</td>
<td>Install a new BlackBerry UEM instance.</td>
</tr>
<tr>
<td>5</td>
<td>Log in to BlackBerry UEM.</td>
</tr>
</tbody>
</table>

Applications that are installed with BlackBerry UEM

You can use the BlackBerry UEM installation process to install the following third-party applications:

- Microsoft .NET Framework 4.5 (if it is available in the setup application to enable through the Windows Server Manager)
  
  **Note:** If a later version of Microsoft .NET Framework is already installed, the BlackBerry UEM setup application does not install Microsoft .NET Framework 4.5.

- Microsoft Visual C++ 2008 SP1 Redistributable Package
- Microsoft Visual C++ 2010 Redistributable Package
- Microsoft SQL Server 2016 Express SP1 (if it is selected during the installation process)
- Microsoft SQL Server 2012 Native Client
• RRAS for Windows Server 2008 or 2012

**Note:** If the setup application cannot install RRAS on your computer you must stop the installation, install it manually, and restart the installation. Windows PowerShell 2.0 or later is required to run RRAS when installing BlackBerry UEM. For more information about installing RRAS manually, visit technet.microsoft.com.

**Note:** Uninstall the Microsoft SQL Server 2012 Native Client before installing BlackBerry UEM if you are installing Microsoft SQL Server 2016 Express SP1.

For more information about the JRE version that is installed with BlackBerry UEM, see the Compatibility matrix. If you want to install the most recent version of JRE before you install BlackBerry UEM, visit www.java.com.

If you want to install Microsoft SQL Server 2016 Express SP1 on a computer that does not host BlackBerry UEM, you can copy the BlackBerry UEM installation files to the computer that you want to install Microsoft SQL Server 2016 Express SP1 on. In the BlackBerry UEM installation files, navigate to the **Tools > ext** folders and run the sqlexpress.exe file (64-bit).

### Supported upgrade environments

The following are the supported upgrade paths to BlackBerry UEM version 12.8:

- You can use the setup application to upgrade BlackBerry UEM version 12.6 or later to BlackBerry UEM version 12.8. If you have BES12 version 12.5 or earlier, you must first upgrade all instances to a minimum of BlackBerry UEM version 12.6 before you can upgrade to BlackBerry UEM version 12.8.

- You can use the setup application to upgrade Good Control version 3.0 and later and Good Proxy version 3.0 and later to BlackBerry UEM.

- You can install BlackBerry UEM and migrate policy sets, connectivity profiles, app groups, app usage (for certificates), and certificates from Good Control (standalone) version 5.0 to BlackBerry UEM.

- You can install BlackBerry UEM and migrate IT policies, profiles, groups, users, and devices from BES10 to BlackBerry UEM.

When you upgrade to the latest version of BlackBerry UEM, you upgrade the management console and the database. After you upgrade, existing users are active and no additional administrative actions are required. An upgrade to BlackBerry UEM also installs a BlackBerry Control database and a BlackBerry Control management console or upgrades an existing Good Control database.

**CAUTION:** Do not initiate synchronization until all BlackBerry UEM, BES12, Good Control, and Good Proxy servers in your environment are upgraded to the same version of BlackBerry UEM. Synchronization in a mixed-version environment is not supported. Confirm that all Good Control servers are connected to the BlackBerry Infrastructure.

To upgrade from BES5 to the latest version of BlackBerry UEM, you must first upgrade to a minimum of BlackBerry UEM version 12.6. Then you can upgrade from BES12 version 12.6 or later to BlackBerry UEM version 12.8.
Steps to upgrade an environment that consists of BlackBerry UEM, Good Control, and Good Proxy

Use the BlackBerry UEM setup application to upgrade an environment that consists of one or more instances of BlackBerry UEM, Good Control, and Good Proxy.

After you install BlackBerry UEM, the BlackBerry Control and BlackBerry Proxy services are disabled. However, BlackBerry UEM configures and checks the servers and then sets the services to start automatically.

**Note:** For a successful configuration, do not start these services manually. You must allow BlackBerry UEM to complete the configuration and start the services.

For troubleshooting purposes, the configuration log files for BlackBerry Control and BlackBerry Proxy are located in `<drive>:\good\install under gc_install or gp_install`. If the services are not working, review the gc_server log files or gps log files for further information. If the setup application did not create gc_install or gp_install log files, review the BlackBerry UEM core log files. Do not manually start the BlackBerry Control or BlackBerry Proxy services unless the configuration log files are present.

**CAUTION:** Do not initiate synchronization until all BlackBerry UEM, Good Control, and Good Proxy servers in your environment are upgraded to the same version of BlackBerry UEM. Synchronization in a mixed-version environment is not supported. Confirm that all Good Control servers are connected to the BlackBerry Infrastructure.

When you upgrade an environment that consists of BlackBerry UEM, Good Control, and Good Proxy to BlackBerry UEM, you perform the following actions:

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Review the port requirements.</td>
</tr>
<tr>
<td>2</td>
<td>Complete the preupgrade tasks.</td>
</tr>
<tr>
<td>3</td>
<td>Verify the prerequisites.</td>
</tr>
<tr>
<td>4</td>
<td>Stop all Good Control and Good Proxy instances.</td>
</tr>
<tr>
<td>5</td>
<td>Upgrade a BlackBerry UEM instance.</td>
</tr>
<tr>
<td>6</td>
<td>Upgrade a Good Control instance.</td>
</tr>
</tbody>
</table>
**Steps to upgrade BlackBerry UEM version 12.6 or later to BlackBerry UEM version 12.8**

The BlackBerry UEM version 12.8 setup application upgrades the BlackBerry UEM software and database to BlackBerry UEM version 12.8.

For more information about upgrading a BlackBerry UEM domain that consists of multiple instances of BlackBerry UEM, see [Upgrade a domain that consists of multiple instances of BlackBerry UEM](#).

When you upgrade BlackBerry UEM version 12.6 or later to BlackBerry UEM version 12.8, you perform the following actions:

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Review the port requirements.</td>
</tr>
<tr>
<td>2</td>
<td>Complete the preupgrade tasks.</td>
</tr>
<tr>
<td>3</td>
<td>Verify the prerequisites.</td>
</tr>
<tr>
<td>4</td>
<td>Upgrade the BlackBerry UEM software.</td>
</tr>
</tbody>
</table>

---

**Upgrade a Good Proxy instance.**

**Upgrade any remaining instances of BlackBerry UEM, Good Control, or Good Proxy in any order.**

**Note:** If you have a Good Control instance and a Good Proxy instance on separate servers, you must first upgrade the Good Control server.

**Synchronize Good Control with BlackBerry UEM (optional)**
Steps to upgrade Good Control to BlackBerry UEM

The BlackBerry UEM setup application upgrades the Good Control software and database to BlackBerry UEM.

When you upgrade Good Control to BlackBerry UEM, you perform the following actions:

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Review the port requirements.</td>
</tr>
<tr>
<td>2</td>
<td>Complete the preupgrade tasks.</td>
</tr>
<tr>
<td>3</td>
<td>Verify the prerequisites.</td>
</tr>
<tr>
<td>4</td>
<td>Upgrade Good Control to BlackBerry UEM.</td>
</tr>
<tr>
<td>5</td>
<td>Restore custom certificates from the Good Control backup files.</td>
</tr>
</tbody>
</table>

Steps to upgrade Good Proxy to a BlackBerry Connectivity Node instance

The BlackBerry UEM setup application upgrades the Good Proxy to a BlackBerry Connectivity Node instance.

When you upgrade Good Proxy to a BlackBerry Connectivity Node instance, you perform the following actions:

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Review the port requirements.</td>
</tr>
<tr>
<td>2</td>
<td>Complete the preupgrade tasks.</td>
</tr>
</tbody>
</table>
### Steps to upgrade BES10 to BlackBerry UEM

You can install BlackBerry UEM on the same computer as BES10 or on a separate computer. After you install BlackBerry UEM, you use the BlackBerry UEM management console to migrate your existing BES10 IT policies, profiles, groups, users, and devices to BlackBerry UEM.

For more information about upgrading from BES10 to BlackBerry UEM, see the Planning content.

When you upgrade from BES10 to BlackBerry UEM, you perform the following actions:

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Install BlackBerry UEM by following the <a href="#">Steps to install BlackBerry UEM</a>.</td>
</tr>
<tr>
<td>2</td>
<td>Migrate BES10 data to BlackBerry UEM. For information about moving BES10 IT policies, profiles, group names, users, and devices from BES10 to BlackBerry UEM, see the Configuration content.</td>
</tr>
</tbody>
</table>

### Steps to upgrade from BES5 to BlackBerry UEM

To upgrade from BES5 to BlackBerry UEM, you must first upgrade BES5 to BlackBerry UEM version 12.6.

You can upgrade from BES5 to BlackBerry UEM in an existing domain, or in a new domain. For more information, see the Planning content.

**CAUTION:** After an upgrade from BES5 to BlackBerry UEM, you cannot roll back to the BES5 database. Before you begin an upgrade, back up the BES5 database. The BlackBerry UEM setup application is set to back up the existing database by default.

When you upgrade from BES5 to BlackBerry UEM, you perform the following actions:

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Upgrade BES5 to BlackBerry UEM version 12.6. For more information, see the Planning content and the Installation and upgrade content for version 12.6.</td>
</tr>
</tbody>
</table>
Port requirements

Before you install or upgrade BlackBerry UEM, familiarize yourself with how BlackBerry UEM uses ports.

Configuring ports

The BlackBerry UEM components use various ports to communicate with the BlackBerry Infrastructure, the BlackBerry Dynamics NOC, and internal resources (for example, your organization’s messaging software). The topics in this section indicate the default ports that BlackBerry UEM uses for outbound connections, and also describe the internal connections that you should verify. Note that these port connections are required whether or not BlackBerry UEM is installed in a DMZ.

Outbound connections: BlackBerry UEM to the BlackBerry Infrastructure

BlackBerry UEM must connect with and receive data from the BlackBerry Infrastructure to perform tasks. BlackBerry UEM connects with the BlackBerry Infrastructure over the outbound-initiated, two-way port 3101 (TCP).

Your organization’s firewall must allow outbound two-way connections over port 3101 to <region>.srp.blackberry.com, <region>.bbsecure.com, and <region>.turnb.bbsecure.com. For more information about domains and IP addresses to use in your firewall configuration, visit http://support.blackberry.com/kb/articleDetail?articleNumber=000036470 to read article KB36470.

**Note:** If you install the device connectivity components (the BlackBerry Connectivity Node) on a separate computer, your organization’s firewall must allow connections from that computer over port 443 through the BlackBerry Infrastructure (<region>.bbsecure.com) to activate the BlackBerry Connectivity Node. All other outbound connections from the BlackBerry Connectivity Node use port 3101 through the BlackBerry Infrastructure (<region>.bbsecure.com). To add a BlackBerry Connectivity Node instance to an existing server group when you activate it, your organization’s firewall must allow connections from that server over port 443 through the BlackBerry Infrastructure (<region>.bbsecure.com) and to the same bbsecure.com region as the Core server.

You have the option of routing data from BlackBerry UEM through your organization’s TCP proxy server or the BlackBerry Router to the BlackBerry Infrastructure. If you choose to send data through a proxy server, configure the firewall to allow the following outbound two-way connections:

- Use port 3102 as the default listening port to connect the BlackBerry UEM components to the TCP proxy server or the BlackBerry Router
• Use port 3101 as the default listening port to connect the components that manage BlackBerry OS devices to the TCP proxy server or the BlackBerry Router

If you configure BlackBerry UEM to use a TCP proxy server or the BlackBerry Router, verify that the proxy allows connections over port 3101 to `<region>.srp.blackberry.com`, `<region>.bbsecure.com`, and `<region>.turnb.bbsecure.com`.

### Activities initiated by the BlackBerry UEM Core over the port 3101 connection to the BlackBerry Infrastructure

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authenticate BlackBerry UEM</td>
<td>Connect to the authentication service to authenticate the BlackBerry UEM installation and allow the components to use the BlackBerry Infrastructure services.</td>
</tr>
<tr>
<td>Enable licenses</td>
<td>Connect to the licensing infrastructure to activate your organization’s server licenses and to enable BlackBerry 10, iOS, Android, and Windows devices to use SIM licenses obtained from your service provider.</td>
</tr>
<tr>
<td>Request a signed CSR</td>
<td>Connect to the signing infrastructure so you can request a certificate signing request (CSR) from BlackBerry. You use the signed CSR to obtain and register an Apple Push Notification Service (APNs) certificate, which you require to manage iOS devices.</td>
</tr>
</tbody>
</table>
| Activate and manage BlackBerry 10 devices | Connect to the BlackBerry Infrastructure to:  
- Activate and manage BlackBerry 10 devices  
- Enable the work space on BlackBerry 10 devices |
| Communicate with notification services | Connect to the BlackBerry Infrastructure to send data to the appropriate notification service for supported device types (APNs, GCM, or WNS). |
| Communicate with the BlackBerry push data service | Connect to the BlackBerry push data service so that you can manage and configure settings for BlackBerry 10 devices. |
| Discover server connection during activation | Connect to the discovery service so that BlackBerry UEM can find and use the server connection automatically when users activate devices. If you turn off this connection, users must specify the server manually when they activate devices. |
### Purpose

<table>
<thead>
<tr>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connect to the BlackBerry Infrastructure each day at midnight to check a hosted metadata file for new device or OS data. Updates are downloaded to the BlackBerry UEM database.</td>
</tr>
<tr>
<td>Connect to the BlackBerry Infrastructure and then to the App Store or BlackBerry World so that you can search for apps to add to the available app list.</td>
</tr>
<tr>
<td>Connect to the BlackBerry Infrastructure and then to the App Store to allow you to buy and push apps to iOS devices.</td>
</tr>
</tbody>
</table>

### Activities initiated by the BlackBerry Affinity Manager over the port 3101 connection to the BlackBerry Infrastructure

<table>
<thead>
<tr>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connect to the BlackBerry Infrastructure to send and receive data for BlackBerry 10 devices, including Exchange ActiveSync data and enterprise connectivity data (for example, intranet browsing and third-party app data).</td>
</tr>
</tbody>
</table>

### Activities initiated by BlackBerry Secure Connect Plus over the port 3101 connection to the BlackBerry Infrastructure

<table>
<thead>
<tr>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connect to the BlackBerry Infrastructure to provide BlackBerry 10, Android for Work, and KNOX Workspace devices with a secure connection to work resources using BlackBerry Secure Connect Plus.</td>
</tr>
</tbody>
</table>

### Activities initiated by the components of the BlackBerry Connectivity Node over the port 3101 connection to the BlackBerry Infrastructure

<table>
<thead>
<tr>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>You can install one or more instances of the BlackBerry Connectivity Node to add additional instances of the device connectivity components to your organization’s domain. Each BlackBerry Connectivity Node contains the following BlackBerry UEM components:</td>
</tr>
<tr>
<td>- BlackBerry Secure Connect Plus: Connects to the BlackBerry Infrastructure to provide devices with a secure connection to work resources</td>
</tr>
<tr>
<td>- BlackBerry Secure Gateway: connects to the BlackBerry Infrastructure to provide iOS devices with the MDM controls activation type with a secure connection to your organization’s mail server</td>
</tr>
<tr>
<td>- BlackBerry Gatekeeping Service: Connects through the BlackBerry Infrastructure to the primary BlackBerry UEM components and the Microsoft Exchange Server or Microsoft Office 365 for Exchange ActiveSync gatekeeping</td>
</tr>
</tbody>
</table>
### Purpose

<table>
<thead>
<tr>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>• BlackBerry Cloud Connector: Connects to the BlackBerry Infrastructure to allow the BlackBerry Connectivity Node components to communicate with the primary BlackBerry UEM components. The BlackBerry Connectivity Node also includes the BlackBerry Proxy, which maintains the secure connection between your organization and the BlackBerry Dynamics NOC. The BlackBerry Proxy does not use the 3101 connection.</td>
</tr>
</tbody>
</table>

### Outbound connections: BlackBerry UEM to the BlackBerry Dynamics NOC

Your organization’s firewall must allow TCP connections to the following IP ranges so that the BlackBerry Control and BlackBerry Proxy components can connect to the BlackBerry Dynamics NOC:

- 206.124.114.1 to 206.124.114.254 (206.124.114.0/24) on port 443
- 206.124.121.1 to 206.124.121.254 (206.124.121.0/24) on port 443
- 206.124.122.1 to 206.124.122.254 (206.124.122.0/24) on port 443

Alternatively, you can configure your organization’s firewall to allow connections to the following host names:

- gdentgw.good.com on port 443
- gdrelay.good.com on port 443
- gdweb.good.com on port 443
- gdmdc.good.com on port 443

If you do not configure a web proxy server for a BlackBerry Proxy instance, your organization’s internal and external firewalls must allow connections over port 17533. If you configure BlackBerry Proxy to use BlackBerry Dynamics Direct Connect, your organization’s external firewalls must allow connections over port 17533. For more information about configuring BlackBerry Proxy, see the Configuration content.

**Note:** If you are using Samsung KNOX with BlackBerry Secure Connect Plus, all the device traffic, including HTTP and TCP traffic, is redirected to BlackBerry UEM. For information on which ports must be open, support.blackberry.com/kb to read article 36470.

### Outbound connections: Devices on a work Wi-Fi network

BlackBerry 10, iOS, Android, and Windows devices that use your work Wi-Fi network use the following outbound ports to connect to the BlackBerry Infrastructure and external services. Configure your organization’s firewall to allow outbound two-way connections over these ports.
<table>
<thead>
<tr>
<th>From</th>
<th>To</th>
<th>Purpose</th>
<th>Protocol</th>
<th>Port</th>
</tr>
</thead>
</table>
| BlackBerry 10       | BlackBerry Infrastructure | To connect to *.rdns.blackberry.net and primary DNS host iceberg.blackberry.com if "Use cloud services to find more info about the contacts that you add to the Contacts app" is enabled in the Contacts settings. | 1. HTTP CONNECT to BlackBerry Infrastructure; creates tunnel from device to BlackBerry UEM outbound to BlackBerry Infrastructure  
2. TLS session between device and BlackBerry UEM | 443  |
| BlackBerry 10       | BlackBerry Infrastructure | To connect to the `<region>.bbsecure.com` subdomain when activating the device.                                                                                                                          | 1. HTTP CONNECT to BlackBerry Infrastructure; creates tunnel from device to BlackBerry UEM  
2. TLS session between device and BlackBerry UEM                                                                 | 443  |
| BlackBerry 10       | BlackBerry Infrastructure | To connect to the `<region>.bbsecure.com` subdomain so that administration commands can be applied to the devices.                                                                                      | 1. HTTP CONNECT to BlackBerry Infrastructure; creates tunnel from device to BlackBerry UEM  
2. TLS session between device and BlackBerry UEM                                                                 | 443  |
<p>| MacOS               | BlackBerry Infrastructure | To connect to the <code>&lt;region&gt;.bbsecure.com</code> subdomain so that administration commands can be applied to the devices.                                                                                      | HTTPS; includes TLS handshake using SNI                                    | 443  |</p>
<table>
<thead>
<tr>
<th>From</th>
<th>To</th>
<th>Purpose</th>
<th>Protocol</th>
<th>Port</th>
</tr>
</thead>
<tbody>
<tr>
<td>iOS</td>
<td>APNs</td>
<td>To connect to gateway.push.apple.com to receive notifications from APNs.</td>
<td>TCP</td>
<td>5223</td>
</tr>
</tbody>
</table>
| Android | GCM   | To connect to android.apis.google.com (ports 5228 and 5229) and android.googleapis.com (port 5230) to receive notifications from GCM. | TCP      | 5228  
|       |        |                                                                         |          | 5229  
|       |        |                                                                         |          | 5230  |

Devices with BlackBerry Dynamics apps require outbound connections over the following ports:

- bxcheckin.good.com:443
- gdmnc.good.com:49152
- gdmnc.good.com:443
- gdrelay.good.com:15000
- gdrelay.good.com:443

**Intranet connections**

**Connections initiated by the BlackBerry UEM Core**

To simplify administration and support certain device features, the BlackBerry UEM Core must be able to connect to your organization's intranet applications. Examples of intranet applications include Microsoft Active Directory, an LDAP directory, Microsoft Exchange, or an SMTP server.

Consult the documentation or support resources for your organization's applications to identify the ports that BlackBerry UEM must be able to access.

**Intranet port configurations for BlackBerry Control and BlackBerry Proxy**

On each computer that hosts BlackBerry Control and BlackBerry Proxy, verify that the following inbound ports are open, available, and not used by other servers or processes:

- 17080
- 17317
- 17433
- 17443
- 17643

Disable any web servers or services that use TCP ports 80 or 443. Port 443 must be open for SSL communications between BlackBerry Control and BlackBerry Proxy.
The computer that hosts BlackBerry Proxy should have at least 30,000 ports in the dynamic TCP port allocation for outbound connections to the BlackBerry Dynamics NOC (when Direct Connect is configured, these ports become inbound).

On the computer that hosts the BlackBerry Control database, the following inbound port must be open so that BlackBerry Control and BlackBerry Proxy can communicate with the database:

- 1433 for Microsoft SQL Server
- 1521 for Oracle

To route connections from BlackBerry Dynamics apps through a web proxy server, the proxy server must support the HTTP Connect command and must not require authentication. Your organization’s internal firewall must allow connections over port 17533. If you do not configure a web proxy server for a BlackBerry Proxy instance, your organization’s internal and external firewalls must allow connections over port 17533. For more information about configuring BlackBerry Proxy, see the Configuration content.

### Connections initiated by BlackBerry 10 devices

BlackBerry 10 devices can access your organization’s internal applications through BlackBerry UEM using the outbound-initiated port 3101 connection. Examples of internal applications include your organization’s messaging software, or work browser access to intranet sites (HTTP/HTTPS).

Consult the documentation or support resources for your organization’s applications to identify additional ports that BlackBerry UEM must be able to access.

### Access to internal data from devices

For iOS, Android, and Windows devices, BlackBerry UEM sends and receives only activation and management data through the outbound-initiated port 3101 connection to the BlackBerry Infrastructure and the 443 connection to the BlackBerry Dynamics NOC.

All other data, such as messaging data and data from third-party applications, require alternate inbound connections from devices directly to the application. Consult the documentation or support resources for your organization’s messaging software and third-party applications to identify the ports that you must open, or investigate alternate access methods such as VPN.

### How BlackBerry UEM selects listening ports during installation

When you install BlackBerry UEM for the first time, the setup application determines whether default listening ports are available for use. If a default port is not available, the setup application assigns a port value from the range of 12000 to 12999. The setup application stores the port values in the BlackBerry UEM database.

When you install an additional BlackBerry UEM instance in the domain, the setup application retrieves the listening port values from the database and uses those values for the current installation. If a defined listening port is not available, you receive an error message stating that you cannot complete the installation until the port is available for use.

The default values of some listening ports may have changed over the course of BlackBerry UEM releases. When you upgrade BlackBerry UEM to a new version, the upgrade process retains the listening port values that were defined by the original installation.
BlackBerry UEM listening ports

The following is a list of the default ports that the BlackBerry UEM setup application tries to use when you install the first BlackBerry UEM instance in your organization’s domain. If a default port is not available, the setup application assigns a port from the range of 12000 to 12999. Some listening ports require the default port and cannot be assigned a different port value (see notes in the table below).

To check the minimum ports that must be open between BlackBerry UEM instances, or any assigned listening port, see Check the ports assigned by the BlackBerry UEM setup application.

**Note:** If you have a standalone Good Control and Good Proxy, the BlackBerry Dynamics APIs use port 443. If Good Control is integrated with BlackBerry UEM but is not yet synchronized with BlackBerry UEM, the APIs use port 17443. After you synchronize Good Control with BlackBerry UEM, the APIs use the same port as the BlackBerry Web Services (default 18084) instead of port 17443.

**Note:** BlackBerry UEM uses port 8889 for identity management for BlackBerry 10 devices and to handle SCEP requests for BlackBerry Secure Connect Plus. BlackBerry UEM must be able to access this port to support devices running BlackBerry 10 OS version 10.3 or later.

<table>
<thead>
<tr>
<th>Default port</th>
<th>Name in database</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>1610</td>
<td>mdm.snmp.monitoring.udpport</td>
<td>The BlackBerry UEM Core uses this port to provide SNMP monitoring data.</td>
</tr>
<tr>
<td>1611</td>
<td>com.rim.p2e.snmp.monitoring.udpport</td>
<td>SNMP clients can use this port to query monitoring data for BlackBerry Secure Connect Plus.</td>
</tr>
<tr>
<td>1612</td>
<td>com.rim.asp.snmp.monitoring.udpport</td>
<td>This is the default port that is used for SNMP monitoring for the BlackBerry Secure Gateway. This port can be changed in the management console.</td>
</tr>
<tr>
<td>1613</td>
<td>com.rim.platform.mdm.zed.snmp.monitoring.udpport</td>
<td>This is the default port that is used for SNMP monitoring for the BlackBerry Cloud Connector.</td>
</tr>
<tr>
<td>1620</td>
<td>mdm.snmp.eventing.ipv4.udpport</td>
<td>The BlackBerry UEM Core uses this port to send SNMP notifications in an IPv4 environment.</td>
</tr>
<tr>
<td>3202</td>
<td>ec.gme.common.rcp.internal.port</td>
<td>The active BlackBerry Affinity Manager listens for RCP connections from the BlackBerry Dispatcher on this port.</td>
</tr>
<tr>
<td>3203</td>
<td>ec.gme.common.bipp.bippe.port</td>
<td>The BlackBerry Dispatcher listens for BIPPe connections from the BlackBerry MDS Connection Service on this port.</td>
</tr>
<tr>
<td>8000</td>
<td>ui.port.ssp</td>
<td>BlackBerry UEM Self-Service and the management console listen for HTTPS connections on this port.</td>
</tr>
<tr>
<td>443</td>
<td>ui.port.admin</td>
<td></td>
</tr>
<tr>
<td>Default port</td>
<td>Name in database</td>
<td>Purpose</td>
</tr>
<tr>
<td>--------------</td>
<td>------------------</td>
<td>---------</td>
</tr>
<tr>
<td>8009</td>
<td>good.control.tomcat.shutdown.listening.port</td>
<td>If 443 is not available, the setup application tries to use port 8008. If port 8008 is not available, the setup application assigns a port from the range of 12000 to 12999.</td>
</tr>
<tr>
<td>8085</td>
<td>ec.gme.affinityManager.notification.port</td>
<td>The Apache Tomcat shutdown port for BlackBerry Control. <strong>Note:</strong> The default port value must be used. The setup application does not assign an alternate port if the default port is not available.</td>
</tr>
<tr>
<td>8087</td>
<td>com.rim.asp.proxy.listenPort</td>
<td>The primary BlackBerry UEM components and any BlackBerry Connectivity Node instances send BlackBerry Secure Gateway traffic to this port.</td>
</tr>
<tr>
<td>8091</td>
<td>tomcat.bwcn.https.port</td>
<td>The BlackBerry Work Connect Notification Service listens on this secure SSL port.</td>
</tr>
<tr>
<td>8093</td>
<td>tomcat.udui.http.port</td>
<td>The management console uses this port to connect to the BlackBerry UEM Core.</td>
</tr>
<tr>
<td>8095</td>
<td>tomcat.public.https.port</td>
<td>This port is reserved for secure REST communication between external systems and BlackBerry UEM plug-ins.</td>
</tr>
<tr>
<td>8100</td>
<td>ui.port.healthcheck</td>
<td>The BlackBerry UEM Core uses this port to check the status of the UEM management console.</td>
</tr>
<tr>
<td>8102</td>
<td>com.rim.p2e.monitoringservice.listenerPort</td>
<td>The BlackBerry UEM Core uses this port to check the status of BlackBerry Secure Connect Plus.</td>
</tr>
<tr>
<td>8103</td>
<td>com.rim.asp.monitoringservice.listenPort</td>
<td>The BlackBerry UEM Core uses this port to obtain the status of the BlackBerry Secure Gateway. The status is displayed in the management console.</td>
</tr>
<tr>
<td>8182</td>
<td>bcs_mgmt.port</td>
<td>The BlackBerry UEM Core uses this port to obtain the status of the BlackBerry Collaboration Service.</td>
</tr>
<tr>
<td>8448</td>
<td>ui.port.internal-api</td>
<td>The BlackBerry UEM Core and the management console and BlackBerry UEM Self-Service use this port for internal communication.</td>
</tr>
<tr>
<td>Default port</td>
<td>Name in database</td>
<td>Purpose</td>
</tr>
<tr>
<td>--------------</td>
<td>-----------------</td>
<td>---------</td>
</tr>
<tr>
<td>8881</td>
<td>tomcat.bDMI.certicom.https.port</td>
<td>The BlackBerry UEM Core uses this port to receive management requests for BlackBerry 10 devices. The connection uses mutual authentication with ECC certificates.</td>
</tr>
<tr>
<td>8882</td>
<td>tomcat.enrol.http.port</td>
<td>The BlackBerry UEM Core uses this port to receive enrolment requests for BlackBerry 10 devices.</td>
</tr>
<tr>
<td>8883</td>
<td>tomcat.enrol.https.port</td>
<td>The BlackBerry UEM Core uses this port to receive enrolment requests for iOS, Android, and Windows Phone devices.</td>
</tr>
<tr>
<td>8884</td>
<td>tomcat.bDMI.bouncycastle.https.port</td>
<td>The BlackBerry UEM Core uses this port to receive management requests for iOS, Android, and Windows Phone devices. The connection uses mutual authentication with RSA certificates.</td>
</tr>
<tr>
<td>8885</td>
<td>tomcat.appleMDM.https.port</td>
<td>The BlackBerry UEM Core uses this additional port to receive management requests for iOS devices. The connection uses mutual authentication with RSA certificates.</td>
</tr>
<tr>
<td>8887</td>
<td>tomcat.ipc.https.port</td>
<td>The BlackBerry UEM Core and the management console use this port for authenticated connections to check the status of BlackBerry UEM instances.</td>
</tr>
<tr>
<td>8889</td>
<td>tomcat.scep.https.port</td>
<td>The BlackBerry UEM Core uses this port for identity management for BlackBerry 10 devices and to handle SCEP requests for BlackBerry Secure Connect Plus (the BlackBerry UEM Core acts as the CA). <strong>Note:</strong> BlackBerry UEM must be able to access port 8889 to support devices running BlackBerry 10 OS version 10.3 or later.</td>
</tr>
<tr>
<td>8890</td>
<td>tomcat.e2c.https.port</td>
<td>When BlackBerry Secure Connect Plus and the BlackBerry Gatekeeping Service are installed remotely as part of a BlackBerry Connectivity Node, these components use this port to obtain configuration and authorization data and certificates. The BlackBerry Gatekeeping Service also uses this port for gatekeeping operations.</td>
</tr>
<tr>
<td>Default port</td>
<td>Name in database</td>
<td>Purpose</td>
</tr>
<tr>
<td>--------------</td>
<td>---------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>8891</td>
<td>tomcat.i2c.https.port</td>
<td>Certain BlackBerry Infrastructure services use this mutually authenticated port to connect with BlackBerry UEM.</td>
</tr>
<tr>
<td>8892</td>
<td>tomcat.e2c.local.https.port</td>
<td>When BlackBerry Secure Connect Plus and the BlackBerry Gatekeeping Service are installed with the primary BlackBerry UEM components, they use this port to obtain configuration and authorization data and certificates. The BlackBerry Gatekeeping Service also uses this port for gatekeeping operations.</td>
</tr>
<tr>
<td>8893</td>
<td>tomcat.bb2fa.local.http.port</td>
<td>This port supports connections to the BlackBerry UEM Core from the BlackBerry 2FA app on BlackBerry 10 devices (10.3.2 or earlier).</td>
</tr>
<tr>
<td>8894</td>
<td>tomcat.core.health.check.http.port</td>
<td>The BlackBerry UEM Core health can be collected on this port. This functionality is available only for deployments of BlackBerry UEM Cloud.</td>
</tr>
<tr>
<td>8895</td>
<td>tomcat.i2c.basic.https.port</td>
<td>The BlackBerry UEM Core uses this port to receive requests from external services such as BEMS, BlackBerry Connect, and BlackBerry Workspaces.</td>
</tr>
<tr>
<td>8896</td>
<td>tomcat.dynamics.apps.https.port</td>
<td>BlackBerry UEM listens on this port for REST requests from BlackBerry Dynamics apps. This port uses GDAuthToken-based authentication.</td>
</tr>
<tr>
<td>8897</td>
<td>tomcat.bdmi.wp8.https.port</td>
<td>BlackBerry UEM listens on this port when you are upgrading to BlackBerry UEM version 12.8 so that it can communicate with Windows Phone 8 devices. For more information, visit support.blackberry.com to read article KB48098.</td>
</tr>
<tr>
<td>8900</td>
<td>winservice.bgs.https.port</td>
<td>The BlackBerry Gatekeeping Service listens on this secure SSL port.</td>
</tr>
<tr>
<td>10080</td>
<td>ec.gme.mdscs.web.server.listenport</td>
<td>The BlackBerry MDS Connection Service listens for enterprise push data on this HTTP port.</td>
</tr>
<tr>
<td>10443</td>
<td>ec.gme.mdscs.web.server.listensslport</td>
<td>The BlackBerry MDS Connection Service listens for enterprise push data on this HTTPS port. This port is used when you turn on push encryption.</td>
</tr>
<tr>
<td>Default port</td>
<td>Name in database</td>
<td>Purpose</td>
</tr>
<tr>
<td>-------------</td>
<td>-----------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>11001</td>
<td>com.rim.p2e.endpoint.listenerPort</td>
<td>BlackBerry Secure Connect Plus uses this port to listen for signaling requests from the BlackBerry Infrastructure.</td>
</tr>
</tbody>
</table>
| 17080       | good.proxy.appservers.http.listening.port                | BlackBerry Proxy listens on this port for connections from application servers.  
*Note:* The default port must be used. The setup application does not assign an alternate port if the default port is not available. |
| 17317       | good.control.container.management.listening.port         | BlackBerry Control listens on this port for container management data.  
*Note:* The default port must be used. The setup application does not assign an alternate port if the default port is not available. |
| 17433       | good.proxy.appservers.ssl.listening.port                 | BlackBerry Proxy listens on this port for SSL connections from application servers.  
*Note:* The default port must be used. The setup application does not assign an alternate port if the default port is not available. |
| 17443       | good.control.tomcat.http.listening.port                  | BlackBerry Control listens on this port for HTTP connections.  
*Note:* The default port must be used. The setup application does not assign an alternate port if the default port is not available. |
| 17443       | good.control.tomcat.ssl.listening.port                   | BlackBerry Control listens on this port for SSL connections.  
*Note:* The default port must be used. The setup application does not assign an alternate port if the default port is not available. |
| 17533       | good.proxy.container.ssl.listening.port                  | BlackBerry Proxy listens on this port for SSL connections.  
*Note:* The default port must be used. The setup application does not assign an alternate port if the default port is not available. |
<p>| 17643       | good.control.tomcat.ipc.listening.port                   | BlackBerry Control listens on this port for connections from the BlackBerry UEM Core.                                                                                                                |</p>
<table>
<thead>
<tr>
<th>Default port</th>
<th>Name in database</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>18084</td>
<td>tomcat.bws.port</td>
<td>Applications can use this port to send data to the BlackBerry Web Services.</td>
</tr>
<tr>
<td>38082</td>
<td>com.rim.platform.mdm.core.proxy.adam.endpoint.port</td>
<td>The BlackBerry UEM Core listens on this port to route email notification traffic through the BlackBerry Infrastructure to the APNs for iOS devices.</td>
</tr>
<tr>
<td>38083</td>
<td>com.rim.platform.mdm.core.proxy.direct.endpoint.port</td>
<td>The BlackBerry UEM Core listens on this port for migration requests when you move devices from BES10 to BlackBerry UEM.</td>
</tr>
<tr>
<td>38086</td>
<td>com.rim.platform.mdm.core.proxy.apns.endpoint.port</td>
<td>Your organization’s TCP proxy server or the BlackBerry Router listens on this port for data that BlackBerry UEM sends to the APNs.</td>
</tr>
<tr>
<td>38087</td>
<td>com.rim.platform.mdm.core.proxy.cirr.endpoint.port</td>
<td>The BlackBerry UEM Core listens on this port to route traffic for BlackBerry Enterprise Identity through the BlackBerry Infrastructure.</td>
</tr>
</tbody>
</table>

**Minimum ports to open between BlackBerry UEM instances**

If your organization’s domain has more than one BlackBerry UEM instance, note the following requirements:

- The active BlackBerry Affinity Manager must be able to connect to and poll the health of each instance of the BlackBerry Dispatcher in the domain. For this purpose, ports 139 and 445 must be open between each BlackBerry UEM instance.
- If you install the device connectivity components (the BlackBerry Connectivity Node) on a separate computer, your organization’s firewall must allow connections from that computer over port 443 through the BlackBerry Infrastructure (<region>.bbsecure.com) to activate the BlackBerry Connectivity Node. All other outbound connections from the BlackBerry Connectivity Node use port 3101 through the BlackBerry Infrastructure (<region>.bbsecure.com).
- If you are migrating data from one BlackBerry UEM instance to another, the ports that must be open between the source and destination servers are 8887 (TCP) and 35844 (TCP) for BlackBerry UEM and static ports 1433 (TCP) and 1434 (UDP) for Microsoft SQL Server.
The following listening ports must be open between each instance. The default port values are listed. After you install the first instance, you can verify the listening port values that the setup application defined. For instructions, see Check the ports assigned by the BlackBerry UEM setup application.

<table>
<thead>
<tr>
<th>Default port</th>
<th>Name in database</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>3202</td>
<td>ec.gme.common.rcp.internal.port</td>
<td>The active BlackBerry Affinity Manager listens for RCP connections from the BlackBerry Dispatcher on this port.</td>
</tr>
<tr>
<td>8000</td>
<td>ui.port.ssp</td>
<td>BlackBerry UEM Self-Service and the management console listen for HTTPS connections on this port.</td>
</tr>
<tr>
<td>443</td>
<td>ui.port.admin</td>
<td>If 443 is not available, the setup application tries to use port 8008. If port 8008 is not available, the setup application assigns a port from the range of 12000 to 12999.</td>
</tr>
<tr>
<td>8085</td>
<td>ec.gme.affinityManager.notification.port</td>
<td>The active BlackBerry Affinity Manager listens for REST notifications on this port.</td>
</tr>
<tr>
<td>8093</td>
<td>tomcat.udui.http.port</td>
<td>The management console uses this port to connect to the BlackBerry UEM Core.</td>
</tr>
<tr>
<td>8448</td>
<td>ui.port.internal-api</td>
<td>The BlackBerry UEM Core, the management console, and BlackBerry UEM Self-Service use this port for internal communication.</td>
</tr>
<tr>
<td>8887</td>
<td>tomcat.ipc.https.port</td>
<td>BlackBerry UEM uses this port for authenticated connections to check the status of BlackBerry UEM instances.</td>
</tr>
<tr>
<td>8896</td>
<td>tomcat.dynamics.apps.https.port</td>
<td>BlackBerry UEM listens on this port for REST requests from BlackBerry Dynamics apps. This port uses GDAuthToken-based authentication.</td>
</tr>
<tr>
<td>17080</td>
<td>good.proxy.appservers.http.listening.port</td>
<td>BlackBerry Proxy listens on this port for connections from application servers.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Note:</strong> The default port value must be used. The setup application does not assign an alternate port value if the default port is not available.</td>
</tr>
<tr>
<td>17317</td>
<td>good.control.container.management.listening.port</td>
<td>BlackBerry Control listens on this port for container management data.</td>
</tr>
<tr>
<td>Default port</td>
<td>Name in database</td>
<td>Purpose</td>
</tr>
<tr>
<td>--------------</td>
<td>---------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>17433</td>
<td>good.proxy.appservers.ssl.listening.port</td>
<td><strong>Note:</strong> The default port value must be used. The setup application does not assign an alternate port value if the default port is not available. BlackBerry Proxy listens on this port for SSL connections from application servers.</td>
</tr>
<tr>
<td>17443</td>
<td>good.control.tomcat.http.listening.port</td>
<td><strong>Note:</strong> The default port value must be used. The setup application does not assign an alternate port value if the default port is not available. BlackBerry Control listens on this port for HTTP connections.</td>
</tr>
<tr>
<td>17443</td>
<td>good.control.tomcat.ssl.listening.port</td>
<td><strong>Note:</strong> The default port value must be used. The setup application does not assign an alternate port value if the default port is not available. BlackBerry Control listens on this port for SSL connections.</td>
</tr>
<tr>
<td>17533</td>
<td>good.proxy.container.ssl.listening.port</td>
<td><strong>Note:</strong> The default port value must be used. The setup application does not assign an alternate port value if the default port is not available. BlackBerry Proxy listens on this port for SSL connections.</td>
</tr>
</tbody>
</table>

**Check the ports assigned by the BlackBerry UEM setup application**

When you install the first instance of BlackBerry UEM, the setup application assigns the listening ports and stores them in the BlackBerry UEM database. You can run the following script on the BlackBerry UEM database to check the minimum ports that must be open between each BlackBerry UEM instance.

You can change the "WHERE name in" portion of this script to retrieve the port value for any listening port by adding the database name of the port. See [BlackBerry UEM listening ports](#) for the database name associated with each listening port.

```sql
SELECT vgcs.name, vgcs.value
FROM v_global_cfg_setting vgcs
WHERE name in
('ec.gme.common.rcp.internal.port',
'ui.port.ssp',
'ui.port.admin',
'ec.gme.affinityManager.notification.port',
)
```
Preinstallation and preupgrade tasks

Complete the following tasks, if required, before you install or upgrade to BlackBerry UEM.

<table>
<thead>
<tr>
<th>Task</th>
<th>Install BlackBerry UEM</th>
<th>Upgrade to BlackBerry UEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Download the BlackBerry UEM software from the BlackBerry UEM and BES Downloads web page.</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Configure permissions for the service account</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Configuring connections for the BlackBerry UEM and Good Control databases</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Backing up the databases</td>
<td>No</td>
<td>Optional</td>
</tr>
<tr>
<td>Creating or upgrading a BlackBerry UEM database using CreateDB</td>
<td>Optional</td>
<td>Optional</td>
</tr>
<tr>
<td>Performing a test upgrade of the BlackBerry UEM database</td>
<td>No</td>
<td>Optional</td>
</tr>
<tr>
<td>BlackBerry UEM Readiness Tool</td>
<td>Optional</td>
<td>Optional</td>
</tr>
<tr>
<td>Configuring database high availability</td>
<td>Optional</td>
<td>Optional</td>
</tr>
<tr>
<td>Make sure that your perpetual licenses are supported. See the Licensing content or visit support.blackberry.com to read article KB36537.</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Configure permissions for the service account

A service account is a Windows account that runs the services for BlackBerry UEM. The service account must be a member of the local Administrators group on the computer that you install BlackBerry UEM on, and must have the Log on as a service permission. The service account must also have permission to access the Microsoft SQL Server.

If your organization’s environment includes another EMM solution from BlackBerry, you can use the same service account to install BlackBerry UEM. Otherwise, create a service account in your company directory or a local Windows account on the computer that you want to install BlackBerry UEM on.
Note: If you use Microsoft SQL Server authentication to connect to the BlackBerry UEM database, the BlackBerry UEM services run under the Local System account.

1. On the taskbar, click Start > Administrative Tools > Computer Management.
2. In the left pane, expand Local Users and Groups.
3. Navigate to the Groups folder.
4. In the right pane, double-click Administrators.
5. Click Add.
6. In the Enter the object names to select field, type the name of the service account (for example, BESAdmin).
7. Click OK.
8. Click Apply.
9. Click OK.
11. In the left pane, expand Local policies.
12. Click User Rights Assignment.
13. Configure Log on as a service permission for the service account.

Configuring connections for the BlackBerry UEM and Good Control databases

The BlackBerry UEM database is created using the BlackBerry UEM setup application or by running CreateDB using the command prompt window. BlackBerry UEM can connect to the BlackBerry UEM and Good Control databases using Windows authentication or Microsoft SQL Server authentication.

You can connect to the BlackBerry UEM and Good Control databases using one of the following:

- Service account that you use to complete the installation process
- Windows administrator account that has create_db role permissions
- Microsoft SQL Server account that you specify during the installation process

Specifying database permissions to create the BlackBerry UEM database

Depending on the database option and the type of authentication that you select, you might need to assign database creator permissions to one of the following:

- Service account that you use to complete the installation process
- Microsoft SQL Server account that you specify during the installation process
Database option | Database permission
--- | ---
Install Microsoft SQL Server Express during the BlackBerry UEM installation | If you choose Windows authentication, the setup application automatically assigns the required database permissions to the service account
Use an existing Microsoft SQL Server in your organization's environment | You must add the service account or Microsoft SQL Server account to the dbcreator server role

**Verifying database permissions to upgrade the BlackBerry UEM and Good Control databases**

BlackBerry UEM connects to the BlackBerry UEM and Good Control databases on the database server using the login information that you specified during the installation process (Windows authentication or Microsoft SQL Server authentication). If you want to use the setup application to upgrade BlackBerry UEM or Good Control, the service account or Microsoft SQL Server account must have permissions on the database server.

You can configure database permissions using Microsoft SQL Server roles. You must verify that the service account or Microsoft SQL Server account is a member of the dbcreator server role.

The Microsoft SQL Server account must have dbo as its default schema. For more information, visit [http://support.blackberry.com/kb](http://support.blackberry.com/kb) to read article 39316.

Any tables that exist in the Good Control database must belong to the dbo schema.

**Note:** The BlackBerry Dynamics server must be able to access to the database server if it is remote. The default port for Microsoft SQL Server is TCP 1433. Note: The port must be static; Good Control does not support dynamic Microsoft SQL Server port connections.

**Configuring database permissions using Microsoft SQL Server roles**

The setup application requires the service account or Microsoft SQL Server account that it uses during the installation or upgrade process to have permissions on the database server to create or upgrade the BlackBerry UEM database. After the installation or upgrade process completes, you can change the database permissions for the service account or Microsoft SQL Server account to the minimum permissions that BlackBerry UEM requires to run.

When you change the database permissions, you can use Microsoft SQL Server security to minimize the operations that the service account or Microsoft SQL Server account can perform on the BlackBerry UEM database. The Microsoft SQL Server roles that are required by the setup application and BlackBerry UEM are as follows:

<table>
<thead>
<tr>
<th>Database role</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>db_owner</td>
<td>The setup application or CreateDB automatically adds the account that you use to create the BlackBerry UEM database to this role. This role contains the minimum permissions that the setup application or CreateDB requires to upgrade the BlackBerry UEM database.</td>
</tr>
</tbody>
</table>
Configure minimum database permissions for the service account or Microsoft SQL Server account

You can configure minimum database permissions for the service account or Microsoft SQL Server account that BlackBerry UEM uses to connect to the BlackBerry UEM database.

**Before you begin:** Add a different Windows account or Microsoft SQL Server account to the db_owner database role for the BlackBerry UEM database.

1. Open the Microsoft SQL Server Management Studio.
2. Expand **Microsoft SQL Server > Security > Logins**.
3. Right-click the service account or Microsoft SQL Server account. Click **Properties**.
4. Click **User Mapping**. Select the BlackBerry UEM database.
5. In the **Users mapped to this login** section, select **bes**.
6. In the **Database role membership for** section, select **rim_db_bes_server**.
7. Remove all other database role memberships except for **rim_db_bes_server** and **public**.
8. Click **OK**.

**Backing up the databases**

The setup application automatically backs up the databases as part of the upgrade process.

You can also use the backup tool that is a part of Microsoft SQL Server to back up the BlackBerry UEM or Good Control databases. For more information, see the Microsoft documentation for Microsoft SQL Server.

**Creating or upgrading a BlackBerry UEM database using CreateDB**

**Note:** You cannot upgrade a BES10 database to a BlackBerry UEM database.

If your organization’s security policies do not allow applications to have permissions to create or upgrade databases, you can run CreateDB on the database server to create a BlackBerry UEM database or upgrade to a BlackBerry UEM database instead of using the setup application. After you create or upgrade to the BlackBerry UEM database using CreateDB, you can run the setup application using a service account that has minimum permissions on the database server.

Create a BlackBerry UEM database using CreateDB

**Before you begin:** Verify that you configured the correct permissions on the database server.
**Note:** If you do not want to run CreateDB on the database server, you must run it on a computer where BlackBerry UEM is installed. The computer must be able to connect to the computer that hosts the database server that you want to create or upgrade the BlackBerry UEM database on.

1. If you use a Windows account to create the BlackBerry UEM database, log in to the computer using a Windows account that has database creator permissions.

2. Copy the BlackBerry UEM installation files to the computer and extract the contents to a folder.
   Do not copy used installation files from another computer. You must re-extract the installation files on each computer.

3. Navigate to `<extracted_folder>\tools\ext`.

4. Double-click the `jre.exe` file.

5. In the **Java Setup** screen, click **Install**.

6. Click **Close**.

7. Navigate to `<extracted_folder>\tools\ext\UnlimitedJCEPolicyJDK8`.

8. Copy all of the files from the **UnlimitedJCEPolicyJDK8** folder.

9. Navigate to `<java_install_dir>\lib\security`.

10. Paste the files that you copied from the **UnlimitedJCEPolicyJDK8** folder in the **security** folder.

11. Navigate to `<extracted_folder>\db`.

12. Open the **CreateDB.properties** file in a text editor.

13. Change the file to include information that is specific to your organization's environment.
   For more information on the contents of the createDB.properties file, see **CreateDB.properties file**.

14. Save and close the file.

15. Open a command prompt window.

16. Change the directory to `<extracted_folder>\db`.

17. Type one of the following commands to create or upgrade to a BlackBerry UEM database:

<table>
<thead>
<tr>
<th>Database configuration</th>
<th>Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create a BlackBerry UEM database</td>
<td>Type <code>CreateDB.bat install CreateDB.properties</code>. Press <strong>ENTER</strong>.</td>
</tr>
<tr>
<td>Upgrade to a BlackBerry UEM database</td>
<td>Type <code>CreateDB.bat upgrade CreateDB.properties</code>. Press <strong>ENTER</strong>.</td>
</tr>
</tbody>
</table>

**After you finish:** Delete the CreateDB.properties file after you create or upgrade the BlackBerry UEM database.
CreateDB.properties file

The following properties apply to the CreateDB.properties file, which contains configuration information for CreateDB.

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Database type (BlackBerry UEM)</td>
<td>This property specifies the type of database for BlackBerry UEM. By default, the database type property is &quot;configuration.database.ng.type=SQL_SERVER&quot;. You should not modify this property as it is a default setting.</td>
</tr>
<tr>
<td>Database server name (BlackBerry UEM)</td>
<td>This property specifies the database server name that hosts the database to create or upgrade to BlackBerry UEM. By default, the database server name property is &quot;configuration.database.ng.server=localhost&quot;.</td>
</tr>
<tr>
<td>Database instance name (BlackBerry UEM)</td>
<td>This property specifies the database instance name to create or upgrade to BlackBerry UEM. If you use a Microsoft SQL Server instance name; by default, the database instance name property is &quot;configuration.database.ng.instance=Microsoft_SQL_Server_instance name&quot;. <strong>Note:</strong> The default Microsoft SQL Server instance name in the CreateDB.properties file is <em>UEM</em>. If you use another Microsoft SQL Server instance name than <em>UEM</em>, configure the database instance name property to change <em>UEM</em> to your Microsoft SQL Server instance name. If you do not use a Microsoft SQL Server named instance, verify that the Microsoft_SQL_Server_instance name value is deleted.</td>
</tr>
<tr>
<td>Database port (BlackBerry UEM)</td>
<td>This property specifies the port that the database server uses. If you use a dynamic port configuration, verify that you have no ports listed for this property. By default, the database port property uses a dynamic port configuration and you do not need to configure this property. If you use a static port configuration, configure your database port as &quot;configuration.database.ng.port=static_port_number&quot;. <strong>Note:</strong> If you specify a static port, leave the database instance name property blank.</td>
</tr>
<tr>
<td>Property</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Database name (BlackBerry UEM)</td>
<td>This property specifies the name of the Microsoft SQL Server database for BlackBerry UEM.</td>
</tr>
<tr>
<td></td>
<td>By default, the database name property is &quot;configuration.database.ng.name=UEM&quot;.</td>
</tr>
<tr>
<td>Authentication type (BlackBerry UEM)</td>
<td>This property specifies the authentication type as follows:</td>
</tr>
<tr>
<td></td>
<td>• Windows authentication - by default, configured as INTEGRATED in this properties file</td>
</tr>
<tr>
<td></td>
<td>• Microsoft SQL Server authentication - can be configured as USER in this properties file</td>
</tr>
<tr>
<td></td>
<td>If you use Windows authentication, by default your authentication type is &quot;configuration.database.ng.authenticationtype=INTEGRATED&quot;.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> If you use Windows authentication, you do not need to configure a user and password in the createdb.properties file.</td>
</tr>
<tr>
<td></td>
<td>If you use Microsoft SQL Server authentication, configure your authentication type as &quot;configuration.database.ng.authenticationtype=USER&quot;.</td>
</tr>
<tr>
<td>Username and Password - Microsoft SQL Server authentication (USER) (BlackBerry UEM)</td>
<td>If you use Microsoft SQL Server database authentication, these properties specify the username and password for the database account that has database creator permissions.</td>
</tr>
<tr>
<td></td>
<td>By default, the username property you configure for Microsoft SQL Server authentication (USER) is &quot;configuration.database.ng.user=user_name&quot;.</td>
</tr>
<tr>
<td></td>
<td>By default, the password property you configure for Microsoft SQL Server authentication (USER) is &quot;configuration.database.ng.password=password&quot;.</td>
</tr>
<tr>
<td>Database type (BlackBerry Control)</td>
<td>This property specifies the type of database for BlackBerry Control.</td>
</tr>
<tr>
<td></td>
<td>By default, the database type property is &quot;configuration.database.gc.type=SQL_SERVER&quot;.</td>
</tr>
<tr>
<td></td>
<td>You should not modify this property as it is a default setting.</td>
</tr>
<tr>
<td>Database server name (BlackBerry Control)</td>
<td>This property specifies the database server name that hosts the BlackBerry Control database to create or upgrade to BlackBerry UEM.</td>
</tr>
<tr>
<td></td>
<td>By default, the database server name property is &quot;configuration.database.gc.server=localhost&quot;.</td>
</tr>
<tr>
<td>Database instance name (BlackBerry Control)</td>
<td>This property specifies the BlackBerry Control database instance name to create or upgrade to BlackBerry UEM.</td>
</tr>
<tr>
<td>Property</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>If you use a Microsoft SQL Server instance name; by default, the database instance name property is &quot;configuration.database.gc.instance=Microsoft_SQL_Server_instance name&quot;.</td>
<td><strong>Note:</strong> The default Microsoft SQL Server instance name in the CreateDB.properties file is <strong>UEM</strong>. If you use another Microsoft SQL Server instance name than <strong>UEM</strong>, configure the database instance name property to change <strong>UEM</strong> to your Microsoft SQL Server instance name. If you do not use a Microsoft SQL Server named instance, verify that the <strong>Microsoft_SQL_Server_instance name</strong> value is deleted.</td>
</tr>
<tr>
<td>Database port (BlackBerry Control)</td>
<td>This property specifies the port that the database server uses. If you use a dynamic port configuration, verify that you have no ports listed for this property. By default, the database port property uses a dynamic port configuration and you do not need to configure this property. If you use a static port configuration, configure your database port as &quot;configuration.database.gc.port=static_port_number&quot;. <strong>Note:</strong> If you specify a static port, leave the database instance name property blank.</td>
</tr>
<tr>
<td>Database name (BlackBerry Control)</td>
<td>This property specifies the name of the Microsoft SQL Server database for BlackBerry Control. By default, the database name property is &quot;configuration.database.gc.name=Control&quot;.</td>
</tr>
</tbody>
</table>
| Authentication type (BlackBerry Control) | This property specifies the authentication type as follows:  
  - Windows authentication - by default, configured as **INTEGRATED** in this properties file  
  - Microsoft SQL Server authentication - can be configured as **USER** in this properties file  
If you use Windows authentication, by default your authentication type is "configuration.database.gc.authenticationtype=INTEGRATED". **Note:** If you use Windows authentication, you do not need to configure a user and password in the createdb.properties file.                                                                                                                                     |
If you use Microsoft SQL Server authentication, configure your authentication type as "configuration.database.gc.authenticationtype=USER".

Password property - Microsoft SQL Server database authentication (USER) (BlackBerry Control)

If you use Microsoft SQL Server database authentication, these properties specify the username and password for the database account that has database creator permissions.

By default, the username property you configure for Microsoft SQL Server authentication (USER) is "configuration.database.gc.user=user_name".

By default, the password property you configure for Microsoft SQL Server authentication (USER) is "configuration.database.gc.password=password".

Performing a test upgrade of the BlackBerry UEM database

You can perform a test upgrade of the BlackBerry UEM database to help you identify and address issues that might occur during the database upgrade without affecting your production environment. You can also find out how long it takes to upgrade the BlackBerry UEM database.

When you perform a test upgrade of the BlackBerry UEM database, you:

1. Back up the BlackBerry UEM database.
2. Restore the backup version of the BlackBerry UEM database to a database server that does not host the BlackBerry UEM database.
3. Run CreateDB using the command prompt window.

Perform a test upgrade of the BlackBerry UEM database

This task should be performed by a database administrator with the appropriate permissions to back up, restore, and upgrade the BlackBerry UEM database.

**Note:** If you do not want to run CreateDB on the database server, you must run it on a computer where BlackBerry UEM is installed. The computer must be able to connect to the computer that hosts the database server that you want to perform a test upgrade of the BlackBerry UEM database on.

**Before you begin:** Verify that you configured the correct permissions on the database server that you want to perform a test upgrade of the BlackBerry UEM database on.

1. Log in to the computer that hosts the database server for the BlackBerry UEM database.
2. Back up the BlackBerry UEM database.
3. Log in to a computer that hosts a database server that you want to perform a test upgrade of the BlackBerry UEM database on.
4. Restore the backup version of the BlackBerry UEM database.

5. Copy the BlackBerry UEM installation files to the computer.
   Do not copy used installation files from another computer. You must re-extract the installation files on each computer.

6. Extract the contents to a folder on the computer.

7. Navigate to `<extracted_folder>\tools\ext\UnlimitedJCEPolicyJDK8`.

8. Copy all of the files from the `UnlimitedJCEPolicyJDK8` folder in the `security` folder.

9. Navigate to `<java_install_dir>\lib\security`.

10. Paste all of the files that you copied from the `UnlimitedJCEPolicyJDK8` folder in the `security` folder.

11. Navigate to `<extracted_folder>\db`.

12. Open the `CreateDB.properties` file in a text editor.

13. Change the file to include information that is specific to your organization’s environment.

   For more information on the contents of the `createDB.properties` file, see `CreateDB.properties file`.

14. Save and close the file.

15. Open a command prompt window.

16. Change the directory to `<extracted_folder>\db`.

17. Type `CreateDB.bat install CreateDB.properties` and press ENTER.

**BlackBerry UEM Readiness Tool**

You can use the BlackBerry UEM Readiness Tool to check system requirements before you run the BlackBerry UEM setup application. The BlackBerry UEM Readiness Tool is included with the BlackBerry UEM software. You can also download the tool from the BlackBerry UEM and BES Downloads web page.

The BlackBerry UEM Readiness Tool checks the following requirements:

- Proxy server setting validation
- Minimum operating system requirements
- Minimum hard disk space
- Secure connection
- SRP connection
- Connection to the BlackBerry Dynamics NOC
- Required ports
- Account permissions
- Database validation
The BlackBerry UEM Readiness Tool does not check for Microsoft .NET Framework 4.5.

Configuring database high availability using Microsoft SQL Server AlwaysOn

Before you install BlackBerry UEM, decide if you want to configure high availability for the BlackBerry UEM database. Database high availability allows you to retain database service and data integrity if issues occur with the BlackBerry UEM database.

You can use one of the following Microsoft SQL Server features for database high availability:

- AlwaysOn Failover Cluster Instances (FCI) for Microsoft SQL Server 2012, 2014, or 2016 (Standard Edition)
- Database mirroring for Microsoft SQL Server 2012 or 2014

If you want to use an AlwaysOn feature, you must complete configuration steps before you install BlackBerry UEM. This section gives you instructions for configuring database high availability using AlwaysOn.

You can configure database mirroring any time after you install BlackBerry UEM. For instructions, see the Configuration content.

**Note:** Microsoft recommends using AlwaysOn because database mirroring will be deprecated in a future version of Microsoft SQL Server.

AlwaysOn high availability

BlackBerry UEM supports AlwaysOn using a Failover Cluster Instance (FCI) or availability group. Both methods require a Windows Server Failover Clustering (WSFC) cluster where independent servers interact to provide a high availability solution for databases. For more information about WSFC, visit the MSDN Library to see Windows Server Failover Clustering (WSFC) with SQL Server.

**Instance-level high availability using an AlwaysOn Failover Cluster Instance**
An FCI is an instance of Microsoft SQL Server that is installed across multiple computers (or “nodes”) in a WSFC cluster. The nodes are members of a resource group, and all nodes have shared access to the BlackBerry UEM database. One of the nodes has ownership of the resource group and gives the BlackBerry UEM components access to the BlackBerry UEM database. If the node that owns the resource group becomes unavailable (for example, a hardware or OS failure), a different node takes ownership of the resource group. As a result, BlackBerry UEM database service continues with minimal interruption.

For more information, visit the MSDN Library to see AlwaysOn Failover Cluster Instances (SQL Server).

Database-level high availability using an AlwaysOn availability group
To use an availability group, you configure a WSFC cluster with multiple nodes. Each node is a separate computer that has an instance of Microsoft SQL Server. One of the nodes hosts the primary BlackBerry UEM database and gives the BlackBerry UEM components read-write access. This node is the “primary replica.” The WSFC cluster can have one to eight other nodes, each hosting a secondary database (a read-only copy of the BlackBerry UEM database). These nodes are “secondary replicas.”

The primary database synchronizes data with the secondary databases. Data is synchronized with each secondary database independently. If one secondary database is unavailable, it does not affect the other secondary databases. You can configure the data synchronization to be asynchronous (delayed synchronization with minimal transaction latency) or synchronous (faster synchronization with increased transaction latency). Automatic failover requires the primary replica and secondary replicas to use synchronous-commit mode.

If you configure an availability group for automatic failover and the primary database becomes unavailable, one of the secondary replicas becomes the primary replica. That replica’s secondary database becomes the primary database. As a result, BlackBerry UEM database service continues with minimal interruption.

For more information, visit the MSDN Library to see Overview of AlwaysOn Availability Groups (SQL Server) and AlwaysOn Availability Groups (SQL Server).

Preinstallation tasks

Before you install BlackBerry UEM, perform the following actions:

- Create a WSFC cluster. It is recommended to use static port 1433 for the database server. For requirements and instructions, visit the Technet Library to see Create a Failover Cluster.
- If you want to use an AlwaysOn FCI:
  - Verify that your environment meets Microsoft requirements. Visit the MSDN Library to see Before Installing Failover Clustering.
  - Configure the FCI. Visit the MSDN Library to see Create a New SQL Server failover Cluster (Setup).
- If you want to use an AlwaysOn availability group:
  - Verify that your environment meets Microsoft requirements. Visit the MSDN Library to see Prerequisites, Restrictions, and Recommendations for AlwaysOn Availability Groups (SQL Server).
  - Enable the availability groups feature and complete the initial setup tasks, including creating an availability group listener. You will set up the primary replica and secondary replicas after you install BlackBerry UEM and create the BlackBerry UEM database. Visit the MSDN Library to see Getting Started with AlwaysOn Availability Groups.

Install BlackBerry UEM and configure support for database high availability

1. Verify that your environment meets the requirements for installing BlackBerry UEM.
2. Follow the instructions in Installing or upgrading the BlackBerry UEM software. When you run the setup application:
• On the **Database information** screen, when you specify the **Microsoft SQL Server name**, type one of the following:
  - If you are using an AlwaysOn FCI, type the SQL Virtual Server Network Name for the WSFC cluster (for example, CompanySQLCluster).
  - If you are using an AlwaysOn availability group, type the Availability Group Listener Virtual Network Name (for example, CompanyListener).

• On the **Database information** screen, it is recommended that you use the **Static** port option and use the default port 1433.

3. Complete any postinstallation tasks described in this guide.

**After you finish:**

• If you want to install another BlackBerry UEM instance connecting to the same BlackBerry UEM database, repeat these steps.

• If you are using an FCI, use the Failover Cluster Manager tool to manage the FCI and failover settings.

• If you are using an availability group, use Microsoft SQL Server Management Studio to set up the primary replica and secondary replicas and to configure failover settings. Visit the MSDN Library to see Getting Started with AlwaysOn Availability Groups and Use the Availability Group Wizard (SQL Server Management Studio). Choose the option to create a full backup for the secondary databases and specify a shared network location that all replicas can access.

**Related information**
Prerequisites: Installing or upgrading the BlackBerry UEM software, on page 41

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**Prerequisites: Installing or upgrading the BlackBerry UEM software**

For installation and upgrade:

• Verify that you opened the necessary ports on your organization’s firewall.

• Verify that you installed all required third-party applications.

• Ensure that Windows is up to date and that you perform any reboot required for the update.

• If you perform the installation or upgrade process on a computer that has more than one NIC, verify that the production NIC is first in the bind order in the Windows network settings.

• If your organization uses a proxy server for Internet access, verify that you have the computer name, port number, and credentials for the proxy server.

• When you run the setup application, use only standard characters to specify values. Unicode characters are not supported.
• If a Windows host operating system is configured in a workgroup instead of a domain, verify that you configured the primary DNS suffix. For information on configuring the primary DNS suffix, visit the Microsoft support website.

• If you plan to install BlackBerry UEM in a DMZ, read Installing BlackBerry UEM in a DMZ. You cannot install BlackBerry UEM in a DMZ if you want to configure BlackBerry Control. BlackBerry Control must connect to a domain server.

• If you plan to use an existing Microsoft SQL Server to host the BlackBerry UEM database, ensure that the no count setting for the SQL Server is disabled.

For upgrade only:

• If you are upgrading from Good Control or Good Proxy, verify that the Good Control license is a production license (not a development license). You can check the type of license you have in the Admins section of https://community.blackberry.com.

• If you want to upgrade to BlackBerry UEM on the same computer as BES10, the setup application may identify that you must remove your static JRE version or install a newer, dynamic JRE version. Install the JRE version listed for BlackBerry UEM in the Compatibility matrix before you run the setup application.

• Verify that the BlackBerry UEM service account has local administrator permissions on each computer.

• Do not add any files to the folder that contains the BlackBerry UEM installation files. The setup application removes these files during the upgrade.

• Perpetual licenses are issued for specific versions of BlackBerry UEM and are not compatible with later versions. If perpetual licenses are covered by a valid support contract, automatic version updates are supported.

• The Microsoft SQL Server account must have dbo as its default schema.

• Any tables that exist in the Good Control database must belong to the dbo schema.

Installing or upgrading the BlackBerry UEM software

Install a new BlackBerry UEM instance

When you run the setup application, use only standard characters to specify values. Unicode characters are not supported.

If you want to install the device connectivity components only (also known as the BlackBerry Connectivity Node), see Creating server groups and installing BlackBerry Connectivity Node instances.

Before you begin:

• If you install BlackBerry UEM behind a firewall, it cannot connect to the BlackBerry Infrastructure until you configure the proxy server. BlackBerry UEM prompts you the first time you log in to the BlackBerry UEM management console.

• Installing BlackBerry UEM to a mapped network drive is not supported.
**Note:** Do not add any files to the folder that contains the BlackBerry UEM installation files. The setup application deletes these files when you reinstall or upgrade BlackBerry UEM.

1. Log in to the computer that you want to install BlackBerry UEM on using the service account.

2. Copy the BlackBerry UEM installation files to the computer and extract the contents to a folder.
   Do not copy used installation files from another computer. You must re-extract the installation files on each computer.

3. In the BlackBerry UEM installation folder, double-click **Setup.exe**. If a Windows message appears and requests permission for Setup.exe to make changes to the computer, click **Yes**.

4. In the **Language selection** dialog box, select your language.

5. Click **OK**.

6. In the BlackBerry UEM setup application screen, click **Next**.

7. In the **License agreement** dialog box, perform the following actions:
   a. Select your country or region.
   b. Read the license agreement. To accept the license agreement, select **I accept the terms of the license agreement**.
   c. Click **Next**.

8. In the **Component selection** dialog box, check the boxes for the components you want to install on the computer. Click **Next**.
   For information about the components, see the Planning content. If you want to install the device connectivity components only (also known as the BlackBerry Connectivity Node), see Creating server groups and installing BlackBerry Connectivity Node instances.

9. In the **Installation requirements** dialog box, you can check to see if your computer has met the requirements to install BlackBerry UEM. Click **Next**.
   The setup application may display a warning that indicates that Microsoft .NET Framework 4.5 is not installed. You can ignore this warning and proceed with the installation. The setup application will automatically install Microsoft .NET Framework 4.5 for you if it is not detected on your computer. If a later version of Microsoft .NET Framework is already installed, the BlackBerry UEM setup application does not install Microsoft .NET Framework 4.5.

10. In the **Setup type** dialog box, select **Create a BlackBerry UEM database**, and then perform one of the following actions:
    - Select **Install and use Microsoft SQL Server 2016 Express SP1 on this computer** if you do not have Microsoft SQL Server installed.
    - If you already have a supported version of Microsoft SQL Server installed, select **Use an existing Microsoft SQL Server instance in your organization's environment**.
    You can install the database server on the same computer or use an existing database server in your organization's environment (local or remote).

11. Click **Next**.
12. If you selected Use an existing Microsoft SQL Server instance in your organization's environment, in the BlackBerry UEM database dialog box, fill out the fields:
   a. In the Microsoft SQL Server name field, type the name of the computer that hosts the database server.
   b. In the Database name field, type a name for the new database.
   c. If you configured the database server to use static ports, select the Static option. If the static port number is not 1433, in the Port field, type the port number.
   d. By default, the setup application uses Windows authentication to connect to the existing database. If you select Microsoft SQL Server authentication, specify a Windows account that has access to the Microsoft SQL Server.
   e. Click Next.

13. In the BlackBerry UEM configuration dialog box, click Next to confirm the in the BlackBerry UEM host name used to generate the BlackBerry Control certificate.

14. In the Folder locations dialog box, perform the following actions:
   a. Specify the location of the installation folder and log file folder.
   b. If you receive a message saying there is not enough space remaining, create extra space to install BlackBerry UEM on your computer.
   c. If you receive a message asking you to create the installation and log file folder locations, click Yes.

15. Click Next.

16. In the Service account dialog box, type the Windows password and click Next.

17. In the Installation summary dialog box, click Install to install BlackBerry UEM.

18. In the Installing dialog box, click Next when the installation is complete.

19. In the Console addresses dialog box, perform one of the following actions:
   - Click Close if you do not want to export your console addresses to a file.
   - Select the Export the console addresses to a file check box and save the file on your computer. Click Close.

After you finish:
- You can install more than one BlackBerry UEM instance in the domain to create a high availability configuration that minimizes service interruptions for device users. For more information about high availability, see the Configuration content.
- If you want to configure BlackBerry UEM to use a proxy server, see the Configuration content.
- Do not create a shared folder within the installation folder after you install BlackBerry UEM. If you reinstall or upgrade BlackBerry UEM, all of the files and folders in the installation folder are deleted, including the shared folder.
- If an error message for RRAS appears in the Server Manager window, you can disregard it.
Upgrade BlackBerry UEM version 12.6 and later to BlackBerry UEM version 12.8

**Before you begin:** If you are upgrading multiple instances of BlackBerry UEM, see Upgrade a domain that consists of multiple instances of BlackBerry UEM.

1. Log in to the computer using the service account that runs the BlackBerry UEM services.
2. Copy the BlackBerry UEM installation files to the computer and extract the contents to a folder. Do not copy used installation files from another computer. You must re-extract the installation files on each computer.
3. Navigate to `<extracted_folder>`.
4. In the BlackBerry UEM installation files, double-click `setup.exe`. If a Windows message appears and requests permission for setup.exe to make changes to the computer, click Yes.
5. In the Language selection dialog box, select your language.
6. Click OK.
7. In the BlackBerry UEM setup application screen, click Next to start the upgrade process.
8. In the License agreement dialog box, perform the following actions:
   a. Select your country or region.
   b. Read the license agreement. To accept the license agreement, select I accept the terms of the license agreement.
   c. Click Next.
9. In the Installation requirements dialog box, you can check to see if your computer has met the requirements to install BlackBerry UEM. Click Next.
   The setup application may display a warning that indicates that Microsoft .NET Framework 4.5 is not installed. You can ignore this warning and proceed with the installation. The setup application will automatically install Microsoft .NET Framework 4.5 for you if it is not detected on your computer. If a later version of Microsoft .NET Framework is already installed, the BlackBerry UEM setup application does not install Microsoft .NET Framework 4.5.
10. If the Database integration dialog box appears (it does not appear if you already have a Good Control database integrated with this BlackBerry UEM database), perform one of the following actions:
    - Select I do not have a Good Control database that I want to integrate with.
    - Select I have an existing Good Control database that I want to integrate with.
11. Click Next.
12. In the BlackBerry Control database dialog box, type the information that the setup application uses to create or connect to the BlackBerry Control database and click Next.
13. In the Service account dialog box, type the Windows password and click Next.
14. In the **Installation summary** dialog box, click **Install**.

15. When the upgrade process completes, click **Next**, then **Close**.

**After you finish:**
To confirm that the upgrade was successful, in Windows Services, check that the BlackBerry Control and BlackBerry Proxy services appear.

### Upgrade a domain that consists of multiple instances of BlackBerry UEM

**CAUTION:** If the recommended upgrade path is to upgrade BlackBerry UEM versions in stages, then you must upgrade all instances to the first stage, restart them and upgrade them all to the second stage. For example, if you are running BES12 version 12.4, you must upgrade all instances to BlackBerry UEM version 12.6 before you upgrade them to BlackBerry UEM version 12.8. After you upgrade the instances to version 12.6, restart them and upgrade them to BlackBerry UEM version 12.8.

**Tip:** During the first stage of the upgrade, you can set the start.windows.services parameter in the deployer.properties file to false when you upgrade each instance so that the services do not start automatically and you can proceed to the second stage.

1. Shut down all instances of BlackBerry UEM in the domain.
2. Upgrade one BlackBerry UEM instance to BlackBerry UEM version 12.8.
   - The setup application also backs up and upgrades the BlackBerry UEM database. After the upgrade, the BlackBerry UEM instance starts automatically.
3. Upgrade the other BlackBerry UEM instances.

### Upgrade Good Control to BlackBerry UEM

Upgrade an existing Good Control server to BlackBerry UEM.

1. Log in to the computer using the service account that runs the Good Control services.
2. Copy the BlackBerry UEM installation files to the computer and extract the contents to a folder.
   - Do not copy used installation files from another computer. You must re-extract the installation files on each computer.
3. Stop the Good Control services.
4. Navigate to `<extracted_folder>`.
5. In the BlackBerry UEM installation files, double-click **setup.exe**.
   - If a Windows message appears and requests permission for setup.exe to make changes to the computer, click **Yes**.
6. In the **Language selection** dialog box, select your language.
7. Click **OK**.
8. In the BlackBerry UEM setup application screen, click Next to start the upgrade process.

9. In the License agreement dialog box, perform the following actions:
   a. Select your country or region.
   b. Read the license agreement. To accept the license agreement, select I accept the terms of the license agreement.
   c. Click Next.

10. In the Installation requirements dialog box, you can check to see if your computer has met the requirements to install BlackBerry UEM. Click Next.
    The setup application may display a warning that indicates that Microsoft .NET Framework 4.5 is not installed. You can ignore this warning and proceed with the installation. The setup application will automatically install Microsoft .NET Framework 4.5 for you if it is not detected on your computer. If a later version of Microsoft .NET Framework is already installed, the BlackBerry UEM setup application does not install Microsoft .NET Framework 4.5.

11. In the Setup type dialog box, perform one of the following actions:
    - If you do not have a BlackBerry UEM database in your environment, select Create a new BlackBerry UEM database. Select either Install and use Microsoft SQL Server 2016 Express SP1 on this computer or Use an existing Microsoft SQL Server instance in your organization's environment.
    - If you already have a BlackBerry UEM instance in your environment, select Use an existing BlackBerry UEM database.

12. In the BlackBerry UEM database dialog box, perform the following actions:
    a. In the Microsoft SQL Server name field, type the name of the computer that hosts the database server.
    b. In the Database name field, type a name for the new or existing database.
    c. If you configured the database server to use static ports, select the Static option. If the static port number is not 1433, in the Port field, type the port number.
    d. By default, the setup application uses Windows authentication to connect to the existing database. If you select Microsoft SQL Server authentication, specify a Windows account that has access to the Microsoft SQL Server.
    e. Click Next.

13. In the BlackBerry Control database dialog box, type the information that the setup application uses to connect to the BlackBerry Control database and click Next.

14. In the BlackBerry UEM configuration dialog box, click Next to confirm the BlackBerry UEM host name used to generate the BlackBerry Control certificate.

15. If the Ports dialog box appears, free the specified ports and click Check again. Once the required ports are free, click Next.

16. In the Folder locations dialog box, perform the following actions:
    a. Specify the location of the installation folder and log file folder.
b. If you receive a message saying there is not enough space remaining, create extra space to install BlackBerry UEM on your computer.

c. If you receive a message asking you to create the installation and logs folder locations, click Yes.

17. Click Next.

18. In the Service account dialog box, type the Windows password and click Next.

19. In the Installation summary dialog box, click Install.

20. When the upgrade process completes, click Next.

21. Click Close.

After you finish:

- To confirm that the upgrade was successful, in Windows Services, check that the BlackBerry Control and BlackBerry Proxy services appear and that the Good Control and Good Proxy services no longer appear.

- To access the BlackBerry Control console, go to https://<server_name>:17443, where <server_name> is the FQDN of the computer that hosts the BlackBerry Control service. The BlackBerry Control console is available until you synchronize BlackBerry Control and BlackBerry UEM.

Upgrade Good Proxy to a BlackBerry Connectivity Node instance

Before you begin: Verify that the Good Control server has been upgraded before you upgrade the Good Proxy server.

1. Log in to the computer using the service account that runs the Good Proxy services.

2. Copy the BlackBerry UEM installation files to the computer and extract the contents to a folder. Do not copy used installation files from another computer. You must re-extract the installation files on each computer.

3. Stop the Good Proxy services.
4. Navigate to `<extracted_folder>`.

5. In the BlackBerry UEM installation files, double-click `setup.exe`.
   If a Windows message appears and requests permission for `setup.exe` to make changes to the computer, click Yes.

6. In the Language selection dialog box, select your language.

7. Click OK.

8. In the BlackBerry UEM setup application screen, click Next to start the upgrade process.

9. In the License agreement dialog box, perform the following actions:
   a. Select your country or region.
   b. Read the license agreement. To accept the license agreement, select I accept the terms of the license agreement.
   c. Click Next.

10. In the Installation requirements dialog box, you can check to see if your computer meets the requirements to install BlackBerry UEM. Click Next.
    The setup application may display a warning that indicates that Microsoft .NET Framework 4.5 is not installed. You can ignore this warning and proceed with the installation. The setup application will automatically install Microsoft .NET Framework 4.5 for you if it is not detected on your computer. If a later version of Microsoft .NET Framework is already installed, the BlackBerry UEM setup application does not install Microsoft .NET Framework 4.5.

11. The BlackBerry UEM configuration dialog box, displays the default host name for BlackBerry UEM. Click Next to confirm the host name.

12. In the Folder locations dialog box, perform the following actions:
    a. Specify the location of the installation folder and log file folder.
    b. If you receive a message saying that there is not enough space remaining, create extra space to install BlackBerry UEM on your computer.
    c. If you receive a message asking you to create the installation and log file folder locations, click Yes.

13. Click Next.

14. In the Service account dialog box, type the Windows password and click Next.

15. In the Installation summary dialog box, click Install.

16. When the upgrade process completes, click Next. Click Close.

**Install or upgrade BlackBerry UEM using the command prompt window**

You can install BlackBerry UEM server software using the command prompt window. Prior to installing the software using this method, you as an individual or on behalf of your company or other entity on whose behalf you are authorized to act must
acknowledge your acceptance of the terms and conditions of the BlackBerry Solution License Agreement for your jurisdiction in the manner provided below. Please review the BlackBerry Solution License Agreement for your jurisdiction (“BBSLA”) at the following link: [http://us.blackberry.com/legal/blackberry-solution-license-agreement.html](http://us.blackberry.com/legal/blackberry-solution-license-agreement.html) prior to installing or using the BlackBerry UEM server software. By acknowledging your acceptance of the BBSLA in the manner provided below or by installing or using the software, you are agreeing to be bound by the terms and conditions of the BBSLA.

You can install or upgrade to BlackBerry UEM using the command prompt window.

1. Download the BlackBerry UEM software.
2. Extract the BlackBerry UEM installation files.
3. Open a text editor in administrator mode.
4. Use the text editor to open the deployer.properties file.
5. Change the deployer.properties file to include information that is specific to your organization’s environment.
6. In a command prompt window, in the directory where you extracted the BlackBerry UEM installation files, type `setup.exe --script --iAcceptBESEULA`
   - Add the parameter `--installSQL` if you want to install a local Microsoft SQL Server database.
   - Add the parameter `--showlog` if you want to see the progress of the installation on the computer screen.

## Install the BlackBerry UEM components on separate computers using the command prompt window

You can install BlackBerry UEM server software using the command prompt window. Prior to installing the software using this method, you as an individual or on behalf of your company or other entity on whose behalf you are authorized to act must acknowledge your acceptance of the terms and conditions of the BlackBerry Solution License Agreement for your jurisdiction in the manner provided below. Please review the BlackBerry Solution License Agreement for your jurisdiction (“BBSLA”) at the following link: [http://us.blackberry.com/legal/blackberry-solution-license-agreement.html](http://us.blackberry.com/legal/blackberry-solution-license-agreement.html) prior to installing or using the BlackBerry UEM server software. By acknowledging your acceptance of the BBSLA in the manner provided below or by installing or using the software, you are agreeing to be bound by the terms and conditions of the BBSLA.

After you install BlackBerry UEM on a computer, you can install the BlackBerry UEM management console, the primary BlackBerry UEM components, and the BlackBerry Connectivity Node on separate computers using the command prompt window. For more information about the BlackBerry Connectivity Node, see [Creating server groups and installing BlackBerry Connectivity Node instances](#).

1. Download the BlackBerry UEM software.
2. Extract the BlackBerry UEM installation files.
3. Open a text editor in administrator mode.
4. Use the text editor to open the deployer.properties file.
5. Change the following properties in the `deployer.properties` file:
• Add or change information that is specific to your organization’s environment.
• If you want to install the BlackBerry UEM management console, set the `deploy.ui` property to `True`, and set the `deploy.mdm.ec` and `deploy.bcn` properties to `False`.
• If you want to install the primary BlackBerry UEM components, set the `deploy.mdm.ec` property to `True`, and set the `deploy.ui` and `deploy.bcn` properties to `False`.
• If you want to install the BlackBerry Connectivity Node, set the `deploy.bcn` property to `True`, and set the `deploy.ui` and `deploy.mdm.ec` properties to `False`.

6. In a command prompt window set to the folder where you extracted the BlackBerry UEM installation files, type `setup.exe --script --iAcceptBESEULA`.
   Add the parameter `--showlog` if you want to see the progress of the installation on the computer screen when you use the command prompt window.

**deployer.properties file**

The following properties apply to the deployer.properties file.

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>db.authentication.type</code></td>
<td>For Microsoft SQL Server authentication, type USER. For Windows authentication, type INTEGRATED. The default entry is INTEGRATED.</td>
</tr>
<tr>
<td><code>db.backup.folder</code></td>
<td>Specify a location for the database backup file. To use the default backup folder, enter a period (.). To skip a database backup, leave this field blank. The default entry is a period (.).</td>
</tr>
<tr>
<td><code>db.gc.authentication.type</code></td>
<td>For Microsoft SQL Server authentication, type USER. For Windows authentication, type INTEGRATED. The default entry is INTEGRATED.</td>
</tr>
<tr>
<td><code>db.gc.host1</code></td>
<td>Specify the name of the database server that hosts the BlackBerry Control database. The default entry is localhost.</td>
</tr>
<tr>
<td><code>db.gc.instance</code></td>
<td>If your environment uses named instances, specify the name of the database instance. If your environment does not use named instances, leave it blank. The default entry is UEM.</td>
</tr>
<tr>
<td><code>db.gc.name</code></td>
<td>Specify the name of the BlackBerry Control database. The default BlackBerry Control database name is Control.</td>
</tr>
<tr>
<td><strong>Property</strong></td>
<td><strong>Description</strong></td>
</tr>
<tr>
<td>------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>db.gc.pass</td>
<td>This field is required if you are using Microsoft SQL Server authentication. Specify the password for the Microsoft SQL Server database. Leave this blank if you are using Windows authentication.</td>
</tr>
<tr>
<td>db.gc.port</td>
<td>Specify the port that the database server uses to connect to BlackBerry UEM. For a dynamic port, leave this field blank. For a static port, type the port number. The default entry is blank.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> If you specify a static port, leave the db.instance field blank.</td>
</tr>
<tr>
<td>db.gc.static.port.enablement</td>
<td>For a dynamic port, set this field to #. For a static port, leave this field blank. The default entry is#.</td>
</tr>
<tr>
<td>db.gc.user</td>
<td>This field is required if you are using Microsoft SQL Server authentication. Specify the username for the Microsoft SQL Server database. Leave this blank if you are using Windows authentication.</td>
</tr>
<tr>
<td>db.host1</td>
<td>Specify the name of the database server that hosts the BlackBerry UEM database. The default entry is localhost.</td>
</tr>
<tr>
<td>db.instance</td>
<td>If your environment uses named instances, specify the name of the database instance. If your environment does not use named instances, leave it blank. The default entry is UEM.</td>
</tr>
<tr>
<td>db.name</td>
<td>Specify the name of the BlackBerry UEM database. The default BlackBerry UEM database name is UEM.</td>
</tr>
<tr>
<td>db.pass</td>
<td>This field is required if you are using Microsoft SQL Server authentication. Specify the password for the Microsoft SQL Server database. Leave this blank if you are using Windows authentication.</td>
</tr>
<tr>
<td>db.port</td>
<td>Specify the port that the database server uses to connect to BlackBerry UEM. For a dynamic port, leave this field blank. For a static port, type the port number. The default entry is blank.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> If you specify a static port, leave the db.instance field blank.</td>
</tr>
<tr>
<td>db.static.port.enablement</td>
<td>For a dynamic port, set this field to #. For a static port, leave this field blank. The default entry is#.</td>
</tr>
</tbody>
</table>
### Install properties

<table>
<thead>
<tr>
<th><strong>Property</strong></th>
<th><strong>Description</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>db.user</td>
<td>This field is required if you are using Microsoft SQL Server authentication. Specify the username for the Microsoft SQL Server database. Leave this blank if you are using Windows authentication.</td>
</tr>
<tr>
<td>deploy.bcn</td>
<td>Set to true to install the device connectivity components. The default entry is true.</td>
</tr>
<tr>
<td>deploy.mdm.ec</td>
<td>Set to true to install the primary BlackBerry UEM components. The default entry is true.</td>
</tr>
<tr>
<td>deploy.ui</td>
<td>Set to true to install the BlackBerry UEM management console. The default entry is true.</td>
</tr>
<tr>
<td>install.path</td>
<td>Specify the location for the installation files. The default location for the installation files is C:/Program Files/BlackBerry/UEM.</td>
</tr>
<tr>
<td>logging.common.path</td>
<td>Specify the location for the log files. The default location for the log files is C:/Program Files/BlackBerry/UEM/Logs.</td>
</tr>
<tr>
<td>service.account.password</td>
<td>This field is required. Specify the password for the Windows service account.</td>
</tr>
<tr>
<td>service.account.name</td>
<td>This field is automatically populated.</td>
</tr>
<tr>
<td>start.windows.services</td>
<td>Set to true to start the BlackBerry UEM services after the installation is complete. Set to false if you do not want the BlackBerry UEM services to start after the upgrade is complete. The default entry is true.</td>
</tr>
<tr>
<td>ui.port</td>
<td>Specify the port used by the BlackBerry UEM management console. The default port is 443.</td>
</tr>
</tbody>
</table>

### Installing BlackBerry UEM in a DMZ

You can install BlackBerry UEM in a DMZ, outside of your organization’s firewall.

If you install BlackBerry UEM in a DMZ:

- Verify that you open the required ports on your organization’s firewall. For more information, see Port requirements.
- Manually stop the BlackBerry Control and BlackBerry Proxy services and do not restart them.
**Note:** You cannot install BlackBerry UEM in a DMZ if you want to configure BlackBerry Control. BlackBerry Control must connect to a domain server.

**Related information**

Install a new BlackBerry UEM instance, on page 42

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**Creating server groups and installing BlackBerry Connectivity Node instances**

You can install one or more instances of the BlackBerry Connectivity Node to add additional instances of the device connectivity components to your organization’s domain. Each BlackBerry Connectivity Node instance contains the following BlackBerry UEM components: BlackBerry Secure Connect Plus, the BlackBerry Gatekeeping Service, the BlackBerry Secure Gateway, BlackBerry Proxy, and the BlackBerry Cloud Connector.

You can also create server groups. A server group contains one or more instances of the BlackBerry Connectivity Node. When you create a server group, you specify the regional data path that you want the components to use to connect to the BlackBerry Infrastructure. You can associate email and enterprise connectivity profiles with a server group. Any device that is assigned those profiles uses that server group’s regional connection to the BlackBerry Infrastructure when it uses any of the components of the BlackBerry Connectivity Node.

For more information about planning for server groups and BlackBerry Connectivity Node instances, see the Planning content.

To create server groups and install one or more instances of the BlackBerry Connectivity Node, perform the following actions:

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Create server groups (optional).</td>
</tr>
<tr>
<td>2</td>
<td>Change the default settings for BlackBerry Connectivity Node instances (optional).</td>
</tr>
<tr>
<td>3</td>
<td>Install a BlackBerry Connectivity Node instance.</td>
</tr>
<tr>
<td>4</td>
<td>Activate a BlackBerry Connectivity Node instance.</td>
</tr>
<tr>
<td>5</td>
<td>Configure proxy settings for a BlackBerry Connectivity Node instance (optional).</td>
</tr>
<tr>
<td>6</td>
<td>Add a BlackBerry Connectivity Node instance to a server group (optional).</td>
</tr>
</tbody>
</table>
Create a server group

Before you begin: Install an additional BlackBerry Connectivity Node

1. On the menu bar, click **Settings > External integration > BlackBerry Connectivity Node setup**.

2. Click 🔄.

3. Type a name and description for the server group.

4. In the **Country** drop-down list, select the country where one or more instances of the BlackBerry Connectivity Node will be installed. The BlackBerry Connectivity Node instances that are added to the server group will use the selected country’s regional connection to the BlackBerry Infrastructure.

   **Note:** You cannot change this setting after the server group is created.

5. By default, the BlackBerry Gatekeeping Service in each BlackBerry Connectivity Node instance is active. If you want gatekeeping data to be managed only by the BlackBerry Gatekeeping Service that is installed with the primary BlackBerry UEM components, select the **Override BlackBerry Gatekeeping Service settings** check box to disable each BlackBerry Gatekeeping Service in the server group.

6. If you want to use DNS settings for BlackBerry Secure Connect Plus that are different from the default settings that are configured at **Settings > Infrastructure > BlackBerry Secure Connect Plus**, select the **Override DNS servers** check box. Perform the following tasks:
   a. In the **DNS servers** section, click +. Type the DNS server address in dot-decimal notation (for example, 192.0.2.0). Click **Add**. Repeat as necessary.
   b. In the **DNS search suffix** section, click +. Type the DNS search suffix (for example, domain.com). Click **Add**. Repeat as necessary.

   For more information, see “Enabling and configuring enterprise connectivity and BlackBerry Secure Connect Plus” in the Administration content.

7. If you want to configure logging settings for the BlackBerry Connectivity Node instances in the server group, select the **Override logging settings** check box. Perform any of the following tasks:
   - In the **Server log debug levels** drop-down list, select the appropriate log level.
   - If you want to route log events to a syslog server, select the **Syslog** check box and specify the host name and port of the syslog server.
   - If you want to specify maximum limits for log file size and age, select the **Enable local file destination** check box. Specify the size limit (in MB) and the age limit (in days).

8. Click **Save**.

After you finish:
- If you disabled the BlackBerry Gatekeeping Service instances in a server group and you want to enable them again, in **Settings > External integration > BlackBerry Connectivity Node setup**, select the server group and select the **Enable**
the BlackBerry Gatekeeping Service check box. Each instance must be able to access your organization’s gatekeeping server.

- Install a BlackBerry Connectivity node instance. You can add an instance to a server group when you activate a BlackBerry Connectivity Node instance or manually in the management console (see Manage server groups).
- For more information about associating an email profile with a server group, see “Create an email profile” in the Administration content.
- For more information about associating an enterprise connectivity profile with a server group, see “Enabling and configuring enterprise connectivity and BlackBerry Secure Connect Plus” in the Administration content.

## Change the default settings for BlackBerry Connectivity Node instances

By default, the BlackBerry Gatekeeping Service in each BlackBerry Connectivity Node instance is active. If you want gatekeeping data to be managed only by the BlackBerry Gatekeeping Service that is installed with the primary BlackBerry UEM components, you can change the default behavior to disable the BlackBerry Gatekeeping Service in each instance. You can also specify the default logging settings for all BlackBerry Connectivity Node instances.

The default settings apply to each BlackBerry Connectivity Node instance that is not in a server group. When an instance is part of a server group, it uses the default settings configured for that server group.

1. In the BlackBerry UEM management console, on the menu bar, click **Settings > External integration > BlackBerry Connectivity Node setup**.
2. Click ![Settings](settings-icon.png).
3. If you want to disable the BlackBerry Gatekeeping Service in each instance, select the **Override BlackBerry Gatekeeping Service settings** check box.
4. If you want to configure logging settings, select the **Override logging settings** check box. Perform any of the following tasks:
   - In the **Server log debug levels** drop-down list, select the appropriate log level.
   - If you want to route log events to a syslog server, select the **Syslog** check box and specify the host name and port of the syslog server.
   - If you want to specify maximum limits for log file size and age, select the **Enable local file destination** check box. Specify the size limit (in MB) and the age limit (in days).
5. Click **Save**.

**After you finish:** If you disabled the BlackBerry Gatekeeping Service instances and you want to enable them again, select the **Enable the BlackBerry Gatekeeping Service** check box. Each instance must be able to access your organization’s gatekeeping server.
Install a BlackBerry Connectivity Node instance

You must install each BlackBerry Connectivity Node instance on a separate computer. Perform the following steps for each instance you want to install.

1. Log in to the computer that you want to install the BlackBerry Connectivity Node instance on.
   Unless you are installing the BlackBerry Connectivity Node instance in a DMZ, it is a best practice to use the same service account that was used to install the primary BlackBerry UEM components.

2. Copy the BlackBerry UEM installation files to the computer.
   Do not copy used installation files from another computer. You must re-extract the installation files on each computer.

3. In the BlackBerry UEM installation folder, double-click Setup.exe. If a Windows message appears and requests permission for Setup.exe to make changes to the computer, click Yes.

4. In the Language selection dialog box, select your language.

5. Click OK.

6. In the BlackBerry UEM setup application screen, click Next.

7. In the License agreement dialog box, select your country or region, then review and accept the license agreement.

8. Click Next.

9. In the Component selection dialog box, clear the Management console and Primary components check boxes, and select the Device connectivity components check box.
   For information about the components that will be installed, see the Architecture content and the Planning content.

10. Click Next.

11. In the Installation requirements dialog box, you can check to see if your computer has met the requirements to install the BlackBerry Connectivity Node. Click Next.
   The setup application may display a warning that indicates that Microsoft .NET Framework 4.5 is not installed. You can ignore this warning and proceed with the installation. The setup application will automatically install Microsoft .NET Framework 4.5 for you if it is not detected on your computer. If a later version of Microsoft .NET Framework is already installed, the BlackBerry UEM setup application does not install Microsoft .NET Framework 4.5.

12. In the BlackBerry UEM configuration dialog box, confirm the host name. Click Next.

13. In the Folder locations dialog box, perform the following actions:
   a. Specify the location of the installation folder and log file folder.
   b. If you receive a message saying there is not enough space remaining, create extra space to install the BlackBerry Connectivity Node.
   c. If you receive a message asking you to create the installation and logs folder locations, click Yes.

14. Click Next.
15. In the Service account dialog box, type the password for the service account. Click Next.

16. In the Installation summary dialog box, click Install.

17. In the Installing dialog box, click Next when the installation is complete.

18. In the Console addresses dialog box, you can select the Export the console addresses to a file check box to save the address of the BlackBerry Connectivity Node console (http://localhost:8088) to a text file on your computer.

You can open the BlackBerry Connectivity Node console at any time from the Start menu.

19. Click Close. If you chose to save the address of the console, specify the location.

After you finish: Activate a BlackBerry Connectivity Node instance.

### Activate a BlackBerry Connectivity Node instance

To activate a BlackBerry Connectivity Node instance, you must generate and download an activation file from the BlackBerry UEM management console and upload it to the BlackBerry Connectivity Node console. The activation process connects that instance to the primary BlackBerry UEM components.

The activation file is valid for 60 minutes only after you download it. If you generate and download multiple activation files, only the latest file is valid. If you need to activate multiple instances of the BlackBerry Connectivity Node, complete the steps below for each instance.

**Note:** When a new BlackBerry Connectivity Node is configured, the first packet is not encrypted (non-SSL) and is used to establish encrypted (SSL) communications. All subsequent packets are encrypted (SSL). If your organization has a firewall rule for port 443 that allows only SSL packets, you must set a firewall exception for the initial activation of the BlackBerry Connectivity Node. You can remove the exception after activation.

1. In the BlackBerry UEM management console, on the menu bar, click Settings > External integration > BlackBerry Connectivity Node setup.

2. Click 📋.

3. If you want to add the BlackBerry Connectivity Node instance to an existing server group when you activate it, in the Server group drop-down list, click the appropriate server group.

4. Click Generate.

5. Save the activation file to the computer that hosts the BlackBerry Connectivity Node.

6. On the computer that hosts the BlackBerry Connectivity Node, open the BlackBerry Connectivity Node console from the Start menu or open a browser window and navigate to http://localhost:8088.

7. Select a language from the drop-down list. Click Next.

8. Optionally, you can do any of the following:

   - If you want to use a proxy setting other than the default (port 443) to connect to the BlackBerry Infrastructure (<region>.bbsecure.com) to activate the BlackBerry Connectivity Node, click the "here" link to configure the proxy settings and enter the information for the enrollment proxy.
**Note:** The proxy must be able to access port 443 to the BlackBerry Infrastructure. You cannot change the enrollment proxy setting after you activate the BlackBerry Connectivity Node.

- If you want to send data through an HTTP proxy before it reaches the BlackBerry Dynamics NOC, click the "here" link. Click **Enable HTTP proxy** and configure the proxy settings. You cannot change the proxy settings once they are saved.

  **Note:** The proxy must be able to access port 443 to the BlackBerry Dynamics NOC. For more information about port requirements, see *Outbound connections: BlackBerry UEM to the BlackBerry Dynamics NOC*.

- You have the option of configuring other proxy settings at this point as well. For more information about the available proxy options, see *Configure proxy settings for a BlackBerry Connectivity Node instance*.

9. Type a name for the BlackBerry Connectivity Node. Click **Next**.

10. Click **Browse**. Navigate to and select the activation file.

11. Click **Activate**.

   If you want to add a BlackBerry Connectivity Node instance to an existing server group when you activate it, your organization’s firewall must allow connections from that server over port 443 through the BlackBerry Infrastructure (<region>.bbsecure.com) to activate the BlackBerry Connectivity Node and to the same bbsecure.com region as the main BlackBerry Connectivity Node instance.

To view the status of a BlackBerry Connectivity Node instance, in the BlackBerry UEM management console, on the menu bar, click **Settings > External integration > BlackBerry Connectivity Node setup**.

**After you finish:**
- Optionally, **Configure proxy settings for a BlackBerry Connectivity Node instance**.
- To add a BlackBerry Connectivity Node instance to a server group, or remove an instance from a server group, see **Manage server groups**.
- For instructions for configuring the BlackBerry Gatekeeping Service, see **the Configuration content**.
- For instructions for configuring BlackBerry Proxy and creating clusters, see **the Configuration content**. For more information about configuring connectivity for BlackBerry Dynamics apps, see **the Administration content**.
- For instructions for enabling BlackBerry Secure Connect Plus, see **the Administration content**.
- For more information about enabling the BlackBerry Secure Gateway, see **the Administration content**.

**Configure proxy settings for a BlackBerry Connectivity Node instance**

You can configure the components of the BlackBerry Connectivity Node to send data through a TCP proxy server (transparent or SOCKS v5) or an instance of the BlackBerry Router before it reaches the BlackBerry Infrastructure. For more information about installing the BlackBerry Router, see **Installing a standalone BlackBerry Router**.
1. On the computer that hosts the BlackBerry Connectivity Node, open the BlackBerry Connectivity Node console from the Start menu or open a browser and navigate to http://localhost:8088.

2. Click **General settings > Proxy**.

3. Perform any of the following tasks:

<table>
<thead>
<tr>
<th>Task</th>
<th>Steps</th>
</tr>
</thead>
</table>
| Send data through a BlackBerry Router to the BlackBerry Infrastructure | 1. Select the **BlackBerry Router** option.  
2. Click +.  
3. Type the FQDN or IP address of the BlackBerry Router. Click **Add**.  
4. In the **Port** field, type the port number that the BlackBerry Connectivity Node can use to connect to any BlackBerry Router you added. The default port is 3102.  
5. Click **Save**. |
| Send data through a SOCKS v5 proxy server (no authentication) to the BlackBerry Infrastructure | 1. Select the **Proxy server** option.  
2. Select the **Enable SOCKS v5** check box.  
3. Click +.  
4. Type the IP address or host name of the SOCKS v5 proxy server. Click **Add**.  
5. Repeat steps 3 and 4 for each SOCKS v5 proxy server that you want to configure.  
6. In the **Port** field, type the port number.  
7. Click **Save**. |
| Send data through a transparent proxy server to the BlackBerry Infrastructure | Perform any of the following tasks:  
- In the **BlackBerry Connectivity Node** fields, type the FQDN or IP address and port number of the proxy server.  
- In the **Device connectivity components** fields, type the FQDN or IP address and port number of the proxy server. This setting applies to the BlackBerry Gatekeeping Service and the BlackBerry Secure Gateway.  
- In the **BlackBerry Secure Connect Plus** fields, type the FQDN or IP address and port number of the proxy server.  
4. Click **Save**. |

4. Click **Save**.

**Manage server groups**

You can add a BlackBerry Connectivity Node instance to a server group at any time, or remove an instance from a server group at any time. If you add an instance to a server group, that instance uses the settings that have been configured for that server group (for example, the components of that instance will use the specified regional connection to the BlackBerry...
Installing a standalone BlackBerry Router

The BlackBerry Router is an optional component that you can install in a DMZ outside your organization’s firewall. The BlackBerry Router connects to the Internet to send data between BlackBerry UEM and devices that use the BlackBerry Infrastructure.

The BlackBerry Router functions as a proxy server and can support SOCKS v5 (no authentication).

If you want to configure BlackBerry UEM to use a TCP proxy server, see the Configuration content.

Note: If you want to upgrade your router from BlackBerry UEM version 12.6 or 12.7 to version 12.8, you cannot directly upgrade it. You must first uninstall the existing router and then install a new one.

Note: If your current environment contains a TCP proxy server, you do not need to install the BlackBerry Router.

Install a standalone BlackBerry Router

Before you begin:

- You must install a standalone BlackBerry Router on a computer that does not host any other BlackBerry UEM components. You cannot install the BlackBerry Router on a computer that hosts any components that manage BlackBerry OS (version 5.0 to 7.1) devices.
- Verify that you have the name of the SRP host. The SRP host name is usually <country code>.srp.blackberry.com (for example, us.srp.blackberry.com). To verify the SRP host name for your country, visit the SRP Address Lookup page.

1. Download and extract the BlackBerry UEM Installation file (.zip) on your computer.
2. In the router folder, extract the mdm.deployment.router.zip file. This .zip file contains an Installer folder with the Setup.exe file that you use to install the BlackBerry Router.
   The installation runs in the background and displays no dialog boxes. Once the installation completes, the BlackBerry Router service appears in the Services window.
Logging in to BlackBerry UEM for the first time

The first time that you log in to the management console after you install BlackBerry UEM, you must enter your organization name, SRP ID, and SRP authentication key.

**CAUTION:** Do not reuse the SRP ID from previous BES5, BES10, BES12, or BlackBerry UEM instances when you install a new instance of BlackBerry UEM. You can view the SRP ID and authentication key for your BES10 and BlackBerry UEM instances in **myAccount**, under **Account Support > SRP Management**.

**Note:** If you want to access the BlackBerry Control console, go to https://<server_name>:17443, where <server_name> is the FQDN of the computer that hosts the BlackBerry Control service. The BlackBerry Control console is available until you synchronize BlackBerry Control and BlackBerry UEM.

Log in to BlackBerry UEM for the first time

**Before you begin:** Verify that you have the BlackBerry UEM SRP identifier and SRP authentication key available.

If the setup application is still open, you can access the management console directly from the Console addresses dialog box.

**Note:** You may be prompted to provide the IP address and port number of the BlackBerry Router or a TCP proxy server.

**Note:** If you receive an error message that your SRP ID cannot be used with the BlackBerry UEM instance you installed, visit support.blackberry.com/kb to read article KB37117.

1. In the browser, type https://<server_name>:<port>/admin, where <server_name> is the FQDN of the computer that hosts the management console. The default port for the management console is port 443.

2. In the **Username** field, type **admin**.

3. In the **Password** field, type **password**.

4. Click **Sign in**.

5. In the Server location drop-down selection, select the country of the computer that has BlackBerry UEM installed on it, and click **Next**.

6. Type the name of your organization, the SRP identifier, and the SRP authentication key.

7. Click **Submit**.

8. Change the temporary password to a permanent password.

9. Click **Submit**.

**After you finish:**

- When you log in to the management console, you can choose to complete or close the **Welcome to BlackBerry UEM** dialog box. If you close the dialog box, it will not appear during subsequent login attempts.
Removing the BlackBerry UEM software

You can use the uninstall application to remove the BlackBerry UEM software from a server. The uninstall application can also remove the log files for the existing installation.

The uninstall application removes the software from the local server, but it does not do the following:

• Remove the BlackBerry UEM server from the BlackBerry UEM database
• Remove the database instance that hosts the BlackBerry UEM database
• Remove the BlackBerry UEM database
• Deregister the components from the BlackBerry Dynamics NOC

Therefore, before you reinstall the BlackBerry UEM software, you must remove the BlackBerry UEM instance from the management console. When you remove a BlackBerry UEM instance from the management console, the BlackBerry Control and BlackBerry Proxy instances are deregistered from the BlackBerry Dynamics NOC. This is a necessary step for decommissioning.

**Note:** If this installation was originally BES12 version 12.5 or earlier, before you reinstall, visit [http://support.blackberry.com/kb](http://support.blackberry.com/kb) to read article 45102.

**Note:** If the BlackBerry UEM instance is connected to your Google Cloud or G Suite domain, you must remove the Google domain connection before you uninstall BlackBerry UEM.

**CAUTION:** You cannot uninstall BlackBerry UEM and continue to use BES5 after you have upgraded from BES5 to BlackBerry UEM. If you uninstall BlackBerry UEM after the upgrade, BES5 will not function correctly.

Remove the BlackBerry UEM software

**Important:** When you decommission a BlackBerry UEM node or legacy BlackBerry Dynamics server, make sure that active containers have contacted the new nodes to obtain an updated connectivity profile before the old nodes are removed. Bring up the new nodes and keep the old nodes running for a transitional period. For example, if you set the connectivity verification period to 30 days and the inactivity threshold to 60 days, allow 60 days for the transition to complete.

**Before you begin:**

• If you have it configured, remove the Google domain connection. For more information, see the Administration content.

• If you are troubleshooting, back up the following data before decommissioning:
  • c:\good
  • \Program Files\BlackBerry\UEM\Logs
  • BlackBerry UEM database
  • BlackBerry Control database
1. On the taskbar, click **Start > Control Panel**.
2. Click **Uninstall a program**.
3. Click **BlackBerry UEM**.
4. Click **Uninstall**.
5. If the uninstall application prompts you to restart the computer to finish removing the BlackBerry UEM software, click **OK**.

**After you finish:** You can remove third-party software that the setup application installed during the BlackBerry UEM installation process (for example, you can remove the JRE software from the computer).

### Remove a BlackBerry UEM instance from the database

If you uninstall a BlackBerry UEM instance, you must complete the following steps to remove the data for that instance from the BlackBerry UEM database. If you do not, the BlackBerry UEM log files indicate that the instance that you removed is not available.

**Before you begin:** Uninstall a BlackBerry UEM instance.

1. On the menu bar, click **Settings > Infrastructure > Instances**.
2. For the BlackBerry UEM instance that you removed, click ![Instance Icon].
3. Click **Delete**.

### Removing the BlackBerry Connectivity Node software

You can use the uninstall application to remove the BlackBerry UEM connectivity software from a server. The uninstall application can also remove the log files for the existing installation.

The uninstall application removes the software from the local server, but it does not do the following:

- Remove the BlackBerry Connectivity Node instance from the BlackBerry UEM database
- Remove the database instance that hosts the BlackBerry UEM database
- Remove the BlackBerry UEM database
- Deregister the components from the BlackBerry Dynamics NOC

Therefore, before you reinstall the BlackBerry UEM connectivity software, you must remove the BlackBerry Connectivity Node instance from the management console. When you remove a BlackBerry Connectivity Node instance from the management console, the BlackBerry Proxy instance is deregistered from the BlackBerry Dynamics NOC. This is a necessary step for decommissioning.
Note: If you upgraded a Good Proxy server to a BlackBerry Connectivity Node instance, the BlackBerry Proxy service will be registered with the BlackBerry Dynamics NOC. If you have not yet synchronized your environment, remove the Good Proxy instance using the Good Control console. If you have synchronized your environment, before you can properly remove the BlackBerry Connectivity Node, you must activate it, then remove it. See Activate a BlackBerry Connectivity Node instance.

Remove the BlackBerry Connectivity Node software

Before you begin: If you are troubleshooting, back up the following data before decommissioning:

- c:\good
- \Program Files\BlackBerry\UEM\Logs

1. On the taskbar, click Start > Control Panel.
2. Click Uninstall a program.
3. Click BlackBerry UEM.
4. Click Uninstall.
5. If the uninstall application prompts you to restart the computer to finish removing the BlackBerry UEM software, click OK.

After you finish: You can remove third-party software that the setup application installed during the BlackBerry UEM installation process (for example, you can remove the JRE software from the computer).

Remove a BlackBerry Connectivity Node instance from the database

If you uninstall a BlackBerry Connectivity Node instance, you must complete the following steps to remove the data for that instance from the BlackBerry UEM database. If you do not, the BlackBerry UEM log files indicate that the instance that you removed is not available.

Before you begin: Uninstall the BlackBerry UEM connectivity software.

1. On the menu bar, click Settings > External integration > BlackBerry Connectivity Node setup.
2. Select the checkbox beside the BlackBerry Connectivity Node that you want to remove.
3. Click .
4. Click Delete.

Additional information
Best practice: Running BlackBerry UEM

<table>
<thead>
<tr>
<th>Best practice</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not change the startup type for the BlackBerry UEM services.</td>
<td>When you install or upgrade to BlackBerry UEM, the setup application configures the startup type for the BlackBerry UEM services as either automatic or manual. To avoid errors in BlackBerry UEM, do not change the startup type for the BlackBerry UEM services.</td>
</tr>
<tr>
<td>Do not change the account information for the BlackBerry UEM services.</td>
<td>When you install or upgrade BlackBerry UEM, the setup application configures the account information for the BlackBerry UEM services. Do not change the account information for BlackBerry UEM unless the BlackBerry UEM documentation specifies that you can.</td>
</tr>
<tr>
<td>Do not manually restart the BlackBerry Work Connect Notification Service.</td>
<td>You can manually restart the BlackBerry Affinity Manager service, which controls the restart of the BlackBerry Work Connect Notification Service.</td>
</tr>
</tbody>
</table>

Installing the BlackBerry Collaboration Service

The BlackBerry Collaboration Service is an optional service that you can install in your BlackBerry UEM environment. The BlackBerry Collaboration Service provides an encrypted connection between your organization’s instant messaging server and the BlackBerry Enterprise IM app on BlackBerry 10 devices so that users can start and manage instant messaging conversations on their devices.

You can install the BlackBerry Collaboration Service any time after you install BlackBerry UEM. For instructions, see the Installation and configuration content.

Note: You cannot install BlackBerry Collaboration Service 12 until you log in to BlackBerry UEM for the first time to register your SRP ID and SRP authentication key.

BlackBerry UEM Configuration Tool

If your organization plans to support more than 500 users, use the BlackBerry UEM Configuration Tool to calculate the number of SRP IDs you require. After you install BlackBerry UEM, run the BlackBerry UEM Configuration Tool to import the SRPs into the BlackBerry UEM database before you add or migrate users. The BlackBerry UEM Configuration Tool is included with the BlackBerry UEM software. You can also download the tool from the BlackBerry UEM and BES Downloads web page.

The BlackBerry UEM Configuration Tool allows you to:

- Update or change the following BlackBerry UEM database properties:
  - Microsoft SQL Server name
  - Database name
- Port configuration
- Database authentication
- Windows username
- Windows password

- Calculate the number of SRP IDs required for BlackBerry UEM based on the projected total number of users
- Import extra SRP IDs into the BlackBerry UEM database

For more details on the BlackBerry UEM Configuration Tool, visit http://support.blackberry.com/kb to read article KB36443.
For more information about obtaining and importing SRP IDs, visit http://support.blackberry.com/kb to read article KB36435.
### Glossary

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td><strong>BES5</strong></td>
<td>BlackBerry Enterprise Server 5</td>
</tr>
<tr>
<td><strong>BES10</strong></td>
<td>BlackBerry Enterprise Service 10</td>
</tr>
<tr>
<td><strong>BES12</strong></td>
<td>BlackBerry Enterprise Service 12</td>
</tr>
<tr>
<td><strong>BlackBerry UEM domain</strong></td>
<td>A BlackBerry UEM domain consists of a BlackBerry UEM database and a BlackBerry Control database and any BlackBerry UEM instances that connect to them.</td>
</tr>
<tr>
<td><strong>BlackBerry UEM instance</strong></td>
<td>A BlackBerry UEM instance refers to one installation of the BlackBerry UEM Core and all associated BlackBerry UEM components that communicate with it. The components can be installed on the same server or multiple servers. There can be more than one BlackBerry UEM instance in a BlackBerry UEM domain.</td>
</tr>
<tr>
<td><strong>DMZ</strong></td>
<td>A demilitarized zone (DMZ) is a neutral subnetwork outside of an organization's firewall. It exists between the trusted LAN of the organization and the untrusted external wireless network and public Internet.</td>
</tr>
<tr>
<td><strong>DNS</strong></td>
<td>Domain Name System</td>
</tr>
<tr>
<td><strong>EMM</strong></td>
<td>Enterprise Mobility Management</td>
</tr>
<tr>
<td><strong>FQDN</strong></td>
<td>fully qualified domain name</td>
</tr>
<tr>
<td><strong>HTTPS</strong></td>
<td>Hypertext Transfer Protocol over Secure Sockets Layer</td>
</tr>
<tr>
<td><strong>IOPS</strong></td>
<td>input/output operations per second</td>
</tr>
<tr>
<td><strong>IP</strong></td>
<td>Internet Protocol</td>
</tr>
<tr>
<td><strong>IP address</strong></td>
<td>An Internet Protocol (IP) address is an identification number that each computer or mobile device uses when it sends or receives information over a network, such as the Internet. This identification number identifies the specific computer or mobile device on the network.</td>
</tr>
<tr>
<td><strong>IT policy</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>IPsec</strong></td>
<td>Internet Protocol Security</td>
</tr>
<tr>
<td><strong>JRE</strong></td>
<td>Java Runtime Environment</td>
</tr>
<tr>
<td><strong>LAN</strong></td>
<td>local area network</td>
</tr>
<tr>
<td><strong>NIC</strong></td>
<td>network interface card</td>
</tr>
<tr>
<td><strong>RRAS</strong></td>
<td>Routing and Remote Access service</td>
</tr>
<tr>
<td><strong>SRP</strong></td>
<td>Server Routing Protocol</td>
</tr>
<tr>
<td><strong>SRP ID</strong></td>
<td>The SRP ID is a unique identifier that an EMM solution from BlackBerry uses to identify itself to the BlackBerry Infrastructure during SRP authentication.</td>
</tr>
<tr>
<td><strong>TCP</strong></td>
<td>Transmission Control Protocol</td>
</tr>
<tr>
<td><strong>UEM</strong></td>
<td>Unified Endpoint Manager</td>
</tr>
</tbody>
</table>
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