



BlackBerry UEM

Installation and Upgrade

12.20

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Preinstallation and preupgrade tasks

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

Task	Install UEM	Upgrade to UEM
Review the Planning Guide .	Yes	Yes
Log into myAccount and download the BlackBerry UEM software under Product Resources > Software Downloads .	Yes	Yes
Configure permissions for the service account	Yes	Yes
Set an environment variable to point to the Java location on each server where you will install UEM.	Yes	Yes
Configure connections for the UEM database	Yes	Yes
Back up the databases	No	Optional
Create or upgrade a UEM database using CreateDB	Optional	Optional
Perform a test upgrade of the UEM database	No	Optional
Activate all BlackBerry Connectivity Nodes	No	Yes
Using the BlackBerry UEM Readiness Tool	Optional	Optional

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 with default policy settings on the computer that you install BlackBerry UEM on, and must have the Log on as a service permission. The Windows service account must also have permission to access the Microsoft SQL Server unless you are using direct SQL Server authentication.

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**.
10. On the taskbar, click **Start > Administrative Tools > Local Security Policy**.
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.

Set an environment variable for the Java location

BlackBerry UEM requires you to install a JRE 17 implementation on the servers where you will install UEM, and that you have an environment variable that points to the Java home location. For more information about supported JRE versions, [see the Compatibility matrix](#).

When you begin the installation, UEM verifies that it can find Java. If UEM can't find Java, the setup application will stop on the requirements panel and you must set an environment variable for the Java location and ensure that the Java bin folder is included in the Path system variable. Note that you must close down the installer at this time and restart it only after the environment variable has been created or updated.

Visit support.blackberry.com to read article 52117.

Before you begin:

- Ensure that you have installed JRE 17 on the server where you will be installing UEM.
 - If you have deployed any discrete plug-ins, such as the BlackBerry Workspaces plug-in for UEM, we recommend that you upgrade the plug-in to the latest version before you upgrade your instance of UEM; otherwise, the plug-in functionality will fail until it is upgraded.
1. Open the **Windows Advanced system settings** dialog box.
 2. Click **Environment Variables**.
 3. Under the **System variables** list, click **New**.
 4. In the **Variable name** field, type `BB_JAVA_HOME`.
 5. In the **Variable value** field, type the path to the JRE (Java Runtime Environment) folder and click **OK**.
 6. In the **System variables** list, select **Path** and click **Edit**.
 7. If the Path doesn't include the Java bin folder, click **New** and add `%BB_JAVA_HOME%\bin` to the Path.
 8. Move the `%BB_JAVA_HOME%\bin` entry high enough in the list that it won't be superseded by another entry and click **OK**.

Configuring connections for the BlackBerry UEM database

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 database using Windows authentication or Microsoft SQL Server authentication.

You can connect to the BlackBerry UEM database 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 database

BlackBerry UEM connects to the BlackBerry UEM database 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, 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.

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:

Database role	Description
db_owner	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.

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 and BlackBerry Control databases. For more information, see the Microsoft documentation for Microsoft SQL Server.

Creating or upgrading a BlackBerry UEM database using CreateDB

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:

- You must run CreateDB from a computer that has the full BlackBerry UEM installation files extracted on it. 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.
 - Ensure you are using the latest supported version of Java. For details, see the [BlackBerry UEM Compatibility Matrix](#).
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>\db`.
 4. Open the **CreateDB.properties** file in a text editor.
 5. 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](#).
 6. Save and close the file.

7. Open a command prompt window.
8. Change the directory to `<extracted_folder>\db`.
9. Type one of the following commands to create or upgrade a BlackBerry UEM database:

Database configuration	Steps
Create a BlackBerry UEM database	Type <code>CreateDB.bat install CreateDB.properties</code> . Press ENTER .
Upgrade a BlackBerry UEM database	Type <code>CreateDB.bat upgrade CreateDB.properties</code> . Press ENTER .

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`.

Property	Description
Database type (BlackBerry UEM)	This property specifies the type of database for BlackBerry UEM. By default, the database type property is <code>"configuration.database.ng.type=SQL_SERVER"</code> . You should not modify this property as it is a default setting.
Database server name (BlackBerry UEM)	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 <code>"configuration.database.ng.server=localhost"</code> .
Database instance name (BlackBerry UEM)	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 <code>"configuration.database.ng.instance=Microsoft_SQL_Server_instance_name"</code> . Note: The default Microsoft SQL Server instance name in the <code>CreateDB.properties</code> file is <code>UEM</code> . If you use another Microsoft SQL Server instance name than <code>UEM</code> , configure the database instance name property to change <code>UEM</code> to your Microsoft SQL Server instance name. If you do not use a Microsoft SQL Server named instance, verify that the <code>Microsoft_SQL_Server_instance_name</code> value is deleted.

Property	Description
Database port (BlackBerry UEM)	<p>This property specifies the port that the database server uses.</p> <p>If you use a dynamic port configuration, verify that you have no ports listed for this property.</p> <p>By default, the database port property uses a dynamic port configuration and you do not need to configure this property.</p> <p>If you use a static port configuration, configure your database port as "configuration.database.ng.port=<i>static_port_number</i>".</p> <p>Note: If you specify a static port, leave the database instance name property blank.</p>
Database name (BlackBerry UEM)	<p>This property specifies the name of the Microsoft SQL Server database for BlackBerry UEM.</p> <p>By default, the database name property is "configuration.database.ng.name=<i>UEM</i>".</p>
Authentication type (BlackBerry UEM)	<p>This property specifies the authentication type as follows:</p> <ul style="list-style-type: none"> • Windows authentication - by default, configured as INTEGRATED in this properties file • Microsoft SQL Server authentication - can be configured as USER in this properties file <p>If you use Windows authentication, by default your authentication type is "configuration.database.ng.authenticationtype=INTEGRATED".</p> <p>Note: If you use Windows authentication, you do not need to configure a user and password in the createdb.properties file.</p> <p>If you use Microsoft SQL Server authentication, configure your authentication type as "configuration.database.ng.authenticationtype=USER".</p>
Username and Password - Microsoft SQL Server authentication (USER) (BlackBerry UEM)	<p>If you use Microsoft SQL Server database authentication, these properties specify the username and password for the database account that has database creator permissions.</p> <p>By default, the username property you configure for Microsoft SQL Server authentication (USER) is "configuration.database.ng.user=<i>user_name</i>".</p> <p>By default, the password property you configure for Microsoft SQL Server authentication (USER) is "configuration.database.ng.password=<i>password</i>".</p>

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.

To perform a test upgrade of the BlackBerry UEM database, complete the following steps:

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>\db`.
8. Open the **CreateDB.properties** file in a text editor.
9. 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](#).
10. Save and close the file.
11. Open a command prompt window.
12. Change the directory to `<extracted_folder>\db`.
13. Type `CreateDB.bat upgrade 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 UEM software. You can also download the tool from *myAccount*

The BlackBerry UEM Readiness Tool checks the following requirements:

- Proxy server setting validation
- Minimum operating system requirements
- JRE version
- Minimum hard disk space
- Secure connection
- SRP connection

- Connection to the BlackBerry Dynamics NOC
- Required ports
- Account permissions
- Database validation

Note:

- The BlackBerry UEM Readiness Tool does not check for Microsoft .NET Framework 4.8.
- The BlackBerry UEM Readiness Tool performs a simple CONNECT to determine that ports are open. It does not validate that traffic will flow properly. For example, the BlackBerry UEM Readiness Tool cannot detect issues related to traffic monitoring, SSL termination, or other systems that might reactively close sessions.

Steps to install BlackBerry UEM

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

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

Step	Action
1	Review the port requirements.
2	Review the preinstallation and preupgrade requirements.
3	Complete the preinstallation tasks.
4	Install a new BlackBerry UEM instance.
5	Log in to BlackBerry UEM.

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 4.8 (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 UEM setup application does not install Microsoft .NET Framework 4.8.
- Microsoft Visual C++ 2017 Redistributable Package
- Microsoft SQL Server 2017 Express SP1 (if it is selected during the installation process)
- Microsoft SQL Server 2012 Native Client
- RRAS for Windows Server 2012, 2016, 2019, or 2022

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 UEM. For more information about installing RRAS manually, [visit technet.microsoft.com](http://technet.microsoft.com).

If your environment does not require IIS, you can manually uninstall it after installing UEM.

If you are installing Microsoft SQL Server 2017 Express SP1, you must uninstall the Microsoft SQL Server 2012 Native Client before you install UEM.

If you want to install Microsoft SQL Server 2017 Express SP1 on a computer that does not host BlackBerry UEM, you can copy the UEM installation files to the computer that you want to install Microsoft SQL Server 2017 Express SP1 on. In the UEM installation files, navigate to the **Tools > ext** folders and run the sqlexpress.exe file (64-bit).

Supported upgrade environments

When you upgrade to the latest version of BlackBerry UEM, you upgrade the management console and the database.

The following are the supported upgrade paths:

- You can use the setup application to upgrade from up to two previous versions of UEM. If you have BES12 version 12.6 or earlier, you must first upgrade all instances to UEM version 12.8.1, synchronize the environment, then upgrade by two UEM versions at a time to the latest UEM version.
- If you have Good Control version 4.0 and later and Good Proxy version 4.0 and later, you must first upgrade all instances to UEM version 12.8.1, synchronize the environment, then upgrade by two UEM versions at a time to the latest UEM version.
- You can install UEM and migrate policy sets, connectivity profiles, app groups, app usage (for certificates), and certificates from Good Control (standalone) version 5.0 to UEM.

Note: For details about supported upgrade paths, see [KB 38980](#). For information about performing Good Control synchronization, see [KB 39172](#).

If you are upgrading an environment that has activated BlackBerry Dynamics applications on devices, connections to the application servers, including the mail server, will continue to supported. For example, the BlackBerry Work application will continue to receive email during the upgrade. BlackBerry Dynamics applications cannot be activated during the upgrade. All servers in the environment must be upgraded before any BlackBerry Dynamics applications can be activated. Upgrade all servers in the environment within 24 hours of the first server upgrade.

Steps to upgrade BlackBerry UEM version 12.18 or later to UEM version 12.20

The BlackBerry UEM version 12.20 setup application upgrades the UEM software and database to UEM version 12.20.

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

When you upgrade UEM version 12.18 or later to UEM version 12.20, you perform the following actions:

Step	Action
1	Review the port requirements.
2	Review the preinstallation and preupgrade requirements.
3	Complete the preupgrade tasks.
4	Verify the prerequisites.
5	Upgrade the BlackBerry UEM software.
6	Review the post-upgrade checklist.

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 UEM behind a firewall, it cannot connect to the BlackBerry Infrastructure until you configure the proxy server. UEM prompts you the first time you log in to the UEM management console.
- Installing UEM to a mapped network drive is not supported.
- You must perform a new extraction of the BlackBerry UEM software on every server that you are installing or upgrading BlackBerry UEM on. Do not copy already extracted BlackBerry UEM software from another server.

Note: Do not add any files to the folder that contains the UEM installation files (the default is C:\Program Files\BlackBerry\UEM). During an upgrade, the installer removes the contents of the UEM software directory, including its own installation files.

1. Log in to the computer that you want to install UEM on using the service account.
2. Copy the UEM .zip file 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 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 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 UEM. Click **Next**.
The setup application may display a warning that indicates that Microsoft .NET Framework 4.8 is not installed. You can ignore this warning and proceed with the installation. The setup application will automatically install Microsoft .NET Framework 4.8 for you if it is not detected on your computer. If a later version of Microsoft .NET Framework is already installed, the UEM setup application does not install Microsoft .NET Framework 4.8.
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 2017 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:

- In the **Microsoft SQL Server name** field, type the name of the computer that hosts the database server. 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).
- In the **Database name** field, type a name for the new database.
- 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.
- 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.
- Click **Next**.

13. In the **BlackBerry UEM configuration** dialog box, click **Next** to confirm the UEM host and domain names.

14. In the **Folder locations** dialog box, perform the following actions:

- Specify the location of the installation folder and log file folder.
- If you receive a message saying there is not enough space remaining, create extra space to install UEM on your computer.
- 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 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:

- For high availability:
 - You can [install an additional 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 Planning content](#).
 - 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.
- If you want to configure UEM to use a proxy server, [see the Configuration content](#).

- Do not create a shared folder within the installation folder after you install UEM. If you reinstall or upgrade 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.

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 UEM database. You can run the following script on the database to check the minimum ports that must be open between each 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.

```
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',
'tomcat.udui.http.port',
'tomcat.dynamics.apps.https.port',
'ui.port.internal-api',
'tomcat.ipc.https.port',
'good.proxy.appservers.http.listening.port',
'good.control.container.management.listening.port',
'good.proxy.appservers.ssl.listening.port',
'good.proxy.container.ssl.listening.port')
ORDER BY name;
```

Install an additional BlackBerry UEM instance

You can install additional BlackBerry UEM instances to create a high availability domain. Verify that the computer satisfies the system requirements for installing a BlackBerry UEM instance, and complete the necessary preinstallation and postinstallation tasks.

When you install additional BlackBerry UEM instances:

- Install each instance on a separate computer.
- In the setup application, on the **Setup type** screen, select **Use an existing BlackBerry UEM database**.
- On the **Database information** screen, specify the information for the BlackBerry UEM database that you created when you installed the original BlackBerry UEM instance.

After you install an additional BlackBerry UEM instance and complete the necessary postinstallation tasks, active-active high availability is available in the domain. User and device data is load-balanced across the BlackBerry UEM instances.

Upgrade BlackBerry UEM version 12.18 and later to BlackBerry UEM version 12.20

Before you begin:

- If you are upgrading multiple instances of BlackBerry UEM, see [Upgrade a domain that consists of multiple instances of BlackBerry UEM](#).
 - When you extract the setup files, ensure that they are not saved to the UEM software installation directory (by default, C:\Program Files\BlackBerry\UEM). During an upgrade, the setup application removes the contents of the UEM software directory, including its own installation files.
 - It is a best practice to take a manual backup of the UEM database before you upgrade in case the account that you use for database authentication does not have enough permissions to perform a database backup.
 - If you are upgrading your environment in stages, test your environment after each stage of the upgrade to make sure everything is working as expected. If it is not, resolve any issues before proceeding to the next stage of the upgrade.
 - After you run the UEM setup application, it may display a warning that a restart is required. Restart the computer to ensure that the software is updated.
1. Log in to the computer using the service account that runs the UEM services.
 2. Copy the UEM .zip file 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 extracted 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. Click **Next**.
 7. In the **License agreement** dialog box, perform the following actions:
 - a) Select your country or region.
 - b) Read and accept the license agreement.
 - c) Click **Next**.
 8. In the **Installation requirements** dialog box, verify that computer has met the requirements to install UEM. Click **Next**.
The setup application may display a warning that indicates that Microsoft .NET Framework 4.8 is not installed. You can ignore this warning and proceed with the installation. The setup application will automatically install Microsoft .NET Framework 4.8 if it is not detected on the computer. If a later version of Microsoft .NET Framework is already installed, the UEM setup application does not install Microsoft .NET Framework 4.8.
 9. In the **Service account** dialog box, type the Windows password and click **Next**.
 10. In the **Installation summary** dialog box, click **Install**.

Upgrade a domain that consists of multiple instances of BlackBerry UEM

Note: If the recommended upgrade path is to upgrade 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 UEM version 12.11, you must upgrade all instances by two UEM versions at a time to the latest UEM version.

If you're upgrading your environment in stages, test your environment after each stage of the upgrade to make sure everything is working as expected. If it is not, resolve any issues before proceeding to the next stage of the upgrade.

1. If the upgrade path is from BlackBerry UEM version 12.9.1 or earlier, shut down all instances of UEM in the domain.
2. Upgrade one UEM core instance.
The setup application also backs up and upgrades the UEM database. After the upgrade, the UEM instance starts automatically.
When you upgrade a core instance, you must use an upgraded management console instance to connect to that core and manage the domain.
3. Upgrade the other UEM core or management console instances. You can upgrade these remaining UEM instances more than one at a time.
4. Upgrade any BlackBerry Connectivity Node-only instances (that contain only the device connectivity components) last. You can upgrade more than one BlackBerry Connectivity Node-only instance at a time.

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> 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> 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**, **deploy.core**, and **deployment.ui.only** properties 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.

Property	Description
<code>install.path</code>	Specify the location for the installation files. The default location for the installation files is <code>C:/Program Files/BlackBerry/UEM</code> .
<code>logging.common.path</code>	Specify the location for the log files. The default location for the log files is <code>C:/Program Files/BlackBerry/UEM/Logs</code> .
<code>db.host1</code>	Specify the name of the database server that hosts the BlackBerry UEM database. The default entry is <code>localhost</code> .
<code>db.instance</code>	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 <code>UEM</code> .

Property	Description
db.port	<p>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.</p> <p>The default entry is blank.</p> <p>Note: If you specify a static port, leave the db.instance field blank.</p>
db.static.port.enablement	<p>For a dynamic port, set this field to #. For a static port, leave this field blank.</p> <p>The default entry is #.</p>
db.name	<p>Specify the name of the BlackBerry UEM database.</p> <p>The default BlackBerry UEM database name is UEM.</p>
db.authentication.type	<p>For Microsoft SQL Server authentication, type USER. For Windows authentication, type INTEGRATED.</p> <p>The default entry is INTEGRATED.</p>
db.user	<p>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.</p>
db.pass	<p>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.</p>
service.account.name	<p>This field is automatically populated</p>
service.account.password	<p>This field is required. Specify the password for the Windows service account.</p>
db.backup.folder	<p>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.</p> <p>The default entry is a period (.).</p>
deploy.bcn	<p>Set to true to install the device connectivity components.</p> <p>The default entry is true.</p>
deploy.mdm.ec	<p>Set to true to install the primary BlackBerry UEM components.</p> <p>The default entry is true.</p>
deploy.ui	<p>Set to true to install the BlackBerry UEM management console.</p> <p>The default entry is true.</p>

Property	Description
deploy.ui.only	Set to true to install the BlackBerry UEM management console. The default entry is true.
ui.port	Specify the port used by the BlackBerry UEM management console. The default port is 443.
start.windows.services	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.
alternate.machine.fqdn	Optionally, specify an alternate FQDN to represent this computer in the BlackBerry UEM domain.

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.
- Review the [Preinstallation and preupgrade requirements](#), including the required DNS configuration tasks.
- Manually stop the BlackBerry Proxy service.

Installing or upgrading BlackBerry UEM in a dark site environment

BlackBerry UEM for dark sites provides a secure mobile device management solution without requiring UEM to connect to the BlackBerry Infrastructure and other services on the Internet. Because UEM does not connect to the Internet, some features are not supported. The following are some considerations to note when you set up UEM in a dark-site environment:

Item	Consideration
Supported components	Only the following components are enabled for UEM installed in a dark site environment: <ul style="list-style-type: none"> • UEM management console • BlackBerry UEM Core • BlackBerry Gatekeeping Service to control which devices can access Exchange ActiveSync

Item	Consideration
Supported activation types	<p>UEM for dark sites supports activation of only iOS and Samsung Knox devices. You can activate devices with the following activation types:</p> <ul style="list-style-type: none"> • MDM controls (iOS only) • Work space only (Android Enterprise fully managed device) • Work and personal - full control (Android Enterprise fully managed device with work profile) • Work and personal - user privacy (Android Enterprise with work profile) • Work and personal - full control (Samsung Knox) <p>UEM for dark sites does not support Knox Mobile Enrollment.</p>
Unsupported components	<p>Features that require devices to connect to your organization's resources through the BlackBerry Infrastructure are not supported, including:</p> <ul style="list-style-type: none"> • BlackBerry Secure Connect Plus • BlackBerry Secure Gateway • Using UEM as a proxy for SCEP requests • BlackBerry Proxy
Unsupported device features	<ul style="list-style-type: none"> • BlackBerry Dynamics is not supported. • For supported activation types, not all all device features are supported. In activation profiles, do not enable the following options: <ul style="list-style-type: none"> • Enable MDM controls activation type for Android devices • Turn on registration with the BlackBerry Infrastructure • Google Play Integrity is not supported. • Compliance profiles are not supported for iOS devices because the BlackBerry UEM Client for iOS cannot be installed in dark site environments. • The default email app on Samsung Knox devices needs to connect to the Samsung infrastructure before it will send and receive data. You can choose to allow this connection or use a different email app on Samsung Knox devices.
Licensing	<p>You must manually import license information into UEM.</p> <p>If your organization is using Samsung Knox devices in a dark site environment, an on-premises Samsung Knox License On-Premises server was installed with UEM.</p> <p>Devices communicate with the Knox License On-Premises server using your work Wi-Fi network. If you are activating devices with Android Enterprise activation types and the Knox License On-Premises server certificate is signed by an internal CA, you need to send the Knox License On-Premises server certificate to devices using a CA certificate profile.</p>

Item	Consideration
APNs	<p>To manage iOS devices, UEM must send notifications to devices through an APNs server. When devices receive a notification from APNs, they contact UEM for updates.</p> <p>Note: The process for obtaining an APNs certificate is different for dark site environments. After you download and save the unsigned CSR certificate from BlackBerry, you must send it to your BlackBerry customer support representative to have it signed by the BlackBerry CA. Once they return the signed certificate, you can complete the instructions to register the certificate.</p>
VPN	<p>After activation, iOS devices connect to UEM and your resources using a VPN connection. To use VPN, you must install an appropriate VPN app on devices and set up a VPN profile in UEM.</p> <p>Samsung Knox can connect to UEM and your resources over a VPN connection. For information, see Set up VPN using Knox StrongSwan in the Configuration content.</p>

Install or upgrade BlackBerry UEM in a dark site environment

BlackBerry UEM for dark sites provides a secure mobile device management solution without requiring UEM to connect to the BlackBerry Infrastructure and other services on the Internet.

1. Log on as a user with local administrator privileges to the server where you are installing or upgrading BlackBerry UEM.
2. Download and extract the BlackBerry UEM installation files.
3. Modify the `deployer.properties` file with the parameters for your environment. The `deployer.properties` file is located in the same folder as the `setup.exe` file.
 - a) In the `service.account.password=` field, type the password for the account you are logged in as.
 - b) If you want to use an existing Microsoft SQL Server, type the information in the appropriate fields for that server.

For information about how to fill out the fields, see [deployer.properties file](#) in the BlackBerry UEMInstallation and upgrade content.

4. Open a command prompt window as an administrator, and in the directory where you extracted the BlackBerry UEM installation files, type one of the following commands:

Option	Command
To use an existing Microsoft SQL Server database	<pre>setup.exe --script --iacceptbeseula --propertyFiles darksite.properties --showlog</pre>
To install a local Microsoft SQL Server database	<pre>setup.exe --script --iacceptbeseula --propertyFiles darksite.properties --showlog --installSQL</pre>

After you finish:

- Log in to the UEM instance. Verify that you have recorded the SRP ID, SRP authentication and a UEM license file name. You will enter this information when you log in. You can obtain the license file from your BlackBerry Sales representative.
- Set [Set Samsung Knox license keys in BlackBerry UEM](#).

Adding licenses to BlackBerry UEM for dark sites

When BlackBerry UEM is installed in a dark-site environment, you must manually import license information into UEM.

If you are managing Samsung Knox devices, you must also create and import the Samsung Knox KPE license keys. You can use your Samsung portal account to create the Samsung license keys.

Import BlackBerry UEM licenses

Before you begin: Obtain a BlackBerry UEM license file from your BlackBerry Sales representative.

1. On the menu bar, click **Settings > Licensing**.
2. On the **Licensing Summary** page, click **Import license**.
If you want to update the existing licenses, click **Update licenses** instead.
3. Click **Browse**.
4. Select the license file that you want to use.
5. Click **Open**.

Set Samsung Knox license keys in BlackBerry UEM

If you are managing Samsung Knox devices in a dark site environment, you must set Samsung Knox license keys in BlackBerry UEM.

Note:

- If you are using Samsung Knox ELM and KLM license keys, and you do not plan to activate or reactivate Android devices that are using BlackBerry UEM Client version 12.40.x and later, you can continue to use those keys.
 - If you plan to activate Android devices that are using BlackBerry UEM Client version 12.40.x and later, you must import the KPE standard license key and KPE premium license keys into BlackBerry UEM.
1. On the menu bar, click **Settings > Licensing**.
 2. On the **Licensing Summary** page, click **Set KNOX license keys**.
 3. Paste the Samsung Knox KPE Standard license key in the **Samsung KNOX ELM** field and the Samsung Knox KPE Premium license key into the **KLM Samsung KNOX** field.
 4. Click **Save**.

Post-upgrade checklist

Review this checklist after you upgrade to the latest version of BlackBerry UEM.

Item
Confirm that all servers and components have been upgraded to the same version.
Do not manually start any services that are not set to Automatic.
Validate that all UEM services that are set to Automatic are started.
Confirm device connectivity. Device connectivity may be functional after at least one BlackBerry UEM Core server and at least one BlackBerry Connectivity Node are upgraded, but in larger environments, full functionality should not be expected until all servers are fully upgraded.
Launch the UEM management console and validate its functionality. See Logging in to BlackBerry UEM for the first time .
Validate that all installed UEM instances are visible and running (Settings > Infrastructure).
Configure UEM. See the Configuration content .
If you use Knox Mobile Enrollment, confirm that the configuration.json file is up to date. For instructions, see KB 108125 .

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.

Optionally, you can designate each BlackBerry Connectivity Node in a server group to handle a single connection type: BlackBerry Secure Connect Plus only, BlackBerry Secure Gateway only, or BlackBerry Proxy only. This frees up server resources to allow fewer servers required for the same number of users or containers.

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:

Step	Action
1	Create server groups (optional).
2	Change the default settings for BlackBerry Connectivity Node instances (optional).
3	Install a BlackBerry Connectivity Node instance.
4	Activate a BlackBerry Connectivity Node instance.
5	Configure proxy settings for a BlackBerry Connectivity Node instance (optional).
6	Add a BlackBerry Connectivity Node instance to a server group (optional).

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.
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 [Using BlackBerry Secure Connect Plus for connections to work resources](#) 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. If you want to designate the BlackBerry Connectivity Node for only one connection type, select the **Enable single-service performance mode** check box. In the drop-down menu, select the connection type (**BlackBerry Secure Connect Plus only**, **BlackBerry Secure Gateway only**, or **BlackBerry Proxy only**).
9. If you want to specify the BlackBerry Secure Gateway settings for the BlackBerry Connectivity Node instance in the server group, select the **Override BlackBerry Secure Gateway settings** check box. For iOS devices running iOS 13.0 or later that use modern authentication to connect to Microsoft Exchange Online specify the discovery endpoint and mail server resource.
 - a) Select the **Enable OAuth for mail server authentication** check box.
 - b) In the **Discovery endpoint** field, specify the URL to use for discovery requests using OAuth for authentication. Enter the discovery endpoint in the format `https://<identity provider>/well-known/openid-configuration` (for example, `https://login.microsoftonline.com/common/.well-known/openid-configuration`) or `https://login.windows.net/common/.well-known/openid-configuration`).
 - c) In the **Mail server resource** field, specify the URL of the mail server resource to use for authorization and token requests using OAuth. For example, `https://outlook.office365.com`.

10. 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 [Using BlackBerry Secure Connect Plus for connections to work resources](#) 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 specify the default logging settings for all BlackBerry Connectivity Node instances. You can also enable the BlackBerry Secure Gateway settings for all BlackBerry Connectivity Node instances and specify the discovery endpoint and mail server resource that iOS devices that run iOS 13.0 or later must use to authenticate to Microsoft Exchange Online using modern authentication.

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 .
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. If you want to specify the BlackBerry Secure Gateway in each instance, select the **Override BlackBerry Secure Gateway settings** check box. For iOS devices that run 13.0 or later and use modern authentication to the connect to Microsoft Exchange Online, complete the following steps to specify the discovery endpoint and mail server resource:
 - a) Select the **Enable OAuth for mail server authentication** check box.
 - b) In the **Discovery endpoint** field, specify the URL to use for discovery requests using OAuth. Enter the discovery endpoint in the format `https://<identity provider>/well-known/openid-configuration` (for example, `https://login.microsoftonline.com/common/.well-known/openid-configuration`, or `https://login.windows.net/common/.well-known/openid-configuration`).
 - c) In the **Mail server resource** field, specify the URL of the mail server resource to use for authorization and token requests using OAuth (for example, `https://outlook.office365.com`).
6. 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.

Prerequisites: Install a BlackBerry Connectivity Node instance

- Verify that the computer is running Windows PowerShell 2.0 or later. This is required for the setup application to install RRAS for BlackBerry Secure Connect Plus and the BlackBerry Gatekeeping Service.

Note: If the setup application cannot install RRAS on the computer, you must stop the installation, install RRAS manually, and restart the installation.

- Use a Windows account with permissions to install and configure software on the computer that will host the BlackBerry Connectivity Node.
- Verify that the following outbound ports are open in your organization's firewall so that the BlackBerry Connectivity Node components (and any associated proxy servers) can communicate with the BlackBerry Infrastructure (*region.bbsecure.com*):
 - 443 (HTTPS) to activate the BlackBerry Connectivity Node
 - 3101 (TCP) for all other outbound connections
- [Set an environment variable for the Java location](#)

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.

Before you begin: Review [Prerequisites: Install a BlackBerry Connectivity Node instance](#).

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 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 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 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 4.8 is not installed. You can ignore this warning and proceed with the installation. The setup application will automatically install Microsoft .NET Framework 4.8 for you if it is not detected on your computer. If a later version of

Microsoft .NET Framework is already installed, the UEM setup application does not install Microsoft .NET Framework 4.8.

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 UEM management console and upload it to the BlackBerry Connectivity Node console. The activation process connects that instance to the primary 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.

When you configure a new BlackBerry Connectivity Node, 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 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.

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.

The proxy must be able to access port 443 to the BlackBerry Dynamics NOC.

- You have the option of configuring other proxy settings at this point. 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 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 [Setting up network connections for BlackBerry Dynamics apps](#) in the Administration content.
- For instructions for enabling BlackBerry Secure Connect Plus, see [Enabling and configuring enterprise connectivity and BlackBerry Secure Connect Plus](#) in 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) before it reaches the BlackBerry Infrastructure.



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:

Task	Steps
Send data through a SOCKS v5 proxy server (no authentication) to the BlackBerry Infrastructure	<ol style="list-style-type: none"> a. Select the Proxy server option. b. Select the Enable SOCKS v5 check box. c. Click +. d. Type the IP address or host name of the SOCKS v5 proxy server. Click Add. e. Repeat steps 3 and 4 for each SOCKS v5 proxy server that you want to configure. f. In the Port field, type the port number. g. Click Save.
Send data through a transparent proxy server to the BlackBerry Infrastructure	<p>Perform any of the following tasks:</p> <ul style="list-style-type: none"> • 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**.

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 Infrastructure). If you remove an instance from a server group, that instance uses the default settings that are configured on the BlackBerry Connectivity Node setup screen (see [Change the default settings for BlackBerry Connectivity Node instances](#)).

1. In the BlackBerry UEM management console, on the menu bar, click **Settings > External integration > BlackBerry Connectivity Node setup**.
2. Select a BlackBerry Connectivity Node instance.
3. Perform one of the following tasks:
 - a) To add an instance to a server group, click . Select the appropriate server group. Click **OK**.
 - b) To remove an instance from a server group, click . In the confirmation dialog box, click **OK**.

Install a standalone BlackBerry Router

The BlackBerry Router is an optional component that you can install in a DMZ outside of 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). For more information about configuring the BlackBerry Router as a TCP proxy server, [see the Configuration content](#).

Before you begin:

- Note that you must install a standalone BlackBerry Router on a computer that does not host any other UEM components.
 - Note that the installer for the BlackBerry Router requires JRE 8 (latest update version, 64-bit). For more information, see [KB 52117](#).
 - 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*).
 - If the server is not part of a domain, you must specify the service account credentials as server name\user. For more information about configuring the service account, see [Configure permissions for the service account](#).
1. On the computer where you want to install the BlackBerry Router, download and extract the UEM Installation file (.zip).
 2. In the **router** folder, extract the **mdm.deployment.router** zip file.
 3. In the **deployer.properties** file, edit the **router.networkaccessnode** property with the correct country code and SRP host. For example, *us.srp.blackberry.com*.
 4. In the **Installer** folder, double-click the **Setup.exe** file 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 BlackBerry UEM instances in *myAccount*, under **My Organization > Servers**. If you do not already have a BlackBerry Online Account, visit [myAccount](#) and click Sign up.

Log in to BlackBerry UEM for the first time

If the setup application is still open, you can access the management console directly from the Console addresses dialog box. You may be prompted to provide the IP address and port number of a TCP proxy server. If you receive an error message that your SRP ID cannot be used with the BlackBerry UEM instance you installed, see [KB 37117](#).

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

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 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 dialog box. If you close the dialog box, it will not appear during subsequent login attempts.
- After first login, note that the management console URL changes to include additional tenant information: `https://<server_name>:<port>/admin/index.jsp?tenant=<tenant_ID>&redirect=no`
- If you [integrate UEM with Entra ID](#), the console URL changes to: `https://<server_name>:<port>/admin/index.jsp?tenant=<tenant_ID>`

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
- Remove the BlackBerry Proxy instance from the BEMS BlackBerry Dynamics configuration



Warning: If your environment is running an on-premises BEMS instance, verify that the BlackBerry UEM that is being decommissioned is not listed in the BEMS Dashboard > BlackBerry Dynamics configuration screen. If the UEM instance is listed and it is used by BEMS as the primary BlackBerry Proxy server, you must specify another BlackBerry Proxy server or users cannot access the BEMS-Docs repositories and will eventually stop receiving new email notifications. To verify if the UEM instance is listed, see [Configure the BlackBerry Dynamics server in BEMS](#) in the Configuring BEMS-Core content.

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 the BlackBerry UEM instance is connected to your Google Cloud or Google Workspace domain, you must remove the Google domain connection before you uninstall BlackBerry UEM.

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 Configuration content](#).
 - If you are troubleshooting, back up the following data before decommissioning:
 - \Program Files\BlackBerry\UEM\Logs
 - BlackBerry UEM database
1. On the taskbar, click **Start > Control Panel > Programs > Programs and Features**.
 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 the BlackBerry UEM connectivity software.
- Make sure you are logged on as a user that has permission to remove the instance. (By default, the Security Administrator or Enterprise Administrator role.)

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

Rebuilding a BlackBerry UEM server instance

You can rebuild a BlackBerry UEM instance after a hardware or other failure.

If possible, you should restore the BlackBerry UEM instance using a server snapshot or image.

If no server snapshot or image exists, remove the BlackBerry UEM instance information from the BlackBerry UEM database before you reinstall it. (For more information, see [Remove a BlackBerry UEM instance from the database.](#))

After you have removed the BlackBerry UEM instance from the database, install the instance on the new server.

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
- Deregister the components from the BlackBerry Dynamics NOC
- Remove the BlackBerry Proxy instance from the BEMS BlackBerry Dynamics configuration



Warning: If your environment is running an on-premises BEMS instance, verify that the BlackBerry UEM that is being decommissioned is not listed in the UEM instance BEMS Dashboard > BlackBerry Dynamics configuration screen. If the BlackBerry UEM is listed and it is used by BEMS as the primary BlackBerry Proxy server, you must specify another BlackBerry Proxy server or users cannot access the BEMS-Docs repositories and will eventually stop receiving new email notifications. To verify if the UEM instance is listed, see [Configure the BlackBerry Dynamics server in BEMS](#) in the Configuring BEMS-Core content.

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. 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 \Program Files\BlackBerry\UEM\Log before decommissioning.

1. On the taskbar, click **Start > Control Panel > Programs > Programs and Features**.
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.

- Make sure you are logged on as a user that has permission to remove the instance. (By default, the Security Administrator or Enterprise Administrator role.)
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**.

Rebuilding a BlackBerry Connectivity Node instance

You can rebuild a BlackBerry Connectivity Node after a hardware failure or other failure.

If possible, restore the BlackBerry Connectivity Node using a server snapshot or image.

If no server snapshot or image exists, remove the BlackBerry Connectivity Node instance from the BlackBerry UEM database. (For more information, see [Remove a BlackBerry Connectivity Node instance from the database.](#))

After you have removed the BlackBerry Connectivity Node instance from the database, install the instance on the new server.

Troubleshooting BlackBerry UEM installation or upgrade

In some cases you might need to troubleshoot a BlackBerry UEM installation or upgrade issue. Some isolated cases may require you to return to the previous version of the software and then retry the upgrade. The approach to take depends on the current state of your environment and the BlackBerry UEM software versions involved in the upgrade.

For detailed information about troubleshooting BlackBerry UEM installation and upgrade, visit support.blackberry.com/community to read article 49655.

Best practices for running BlackBerry UEM

Best practice	Description
Do not change the startup type for the BlackBerry UEM services.	<p>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.</p> <p>To avoid errors in BlackBerry UEM, do not change the startup type for the BlackBerry UEM services.</p>
Do not change the account information for the BlackBerry UEM services.	<p>When you install or upgrade BlackBerry UEM, the setup application configures the account information for the BlackBerry UEM services.</p> <p>Do not change the account information for BlackBerry UEM unless the BlackBerry UEM documentation specifies that you can.</p>

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 *myAccount*.

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, see [KB 36443](#).

For more information about obtaining and importing SRP IDs, see [KB 36435](#).

Configuring BlackBerry UEM for disaster recovery

You can configure your BlackBerry UEM environment so that it continues to function in the event of a severe disruption.

Two general principles underlie the configuration of UEM for disaster recovery:

- Avoid cross-site configuration, connectivity traffic, and database access because the network latency and server searches between two sites can lead to slower response times and undesired timeouts.
- Configure the secondary site with servers up and all BlackBerry services off because this allows rapid connectivity timeouts at the application layers, rather than slower TCP timeouts. In addition, it allows security patches for the operating system to be applied regularly in a timely fashion.

For more information, see [KB 36694](#). For information about disaster recovery for BEMS, see the [BEMS content](#).

Servers and services

When the main network is running properly, the disaster recovery servers are powered on, but their services are stopped. This configuration allows for server maintenance such as security patches. Because the services are off, TCP connections are quickly rejected if there is an attempt to connect to one of the disaster recovery servers.

In a disaster recovery event, the primary servers go offline. An administrator must manually start the services on the disaster recovery servers after the failover of the databases is complete.

The high availability configuration for all clusters is at least $n + 1$ (the number of servers you require plus one or more servers for high availability).

Failover steps for a disaster recovery event

1. Stop services at the primary site. If possible, stop the services on all servers at the primary site.
2. Failover all third-party services, such as:
 - Microsoft Active Directory
 - Microsoft Exchange
 - Skype for Business
 - Microsoft SharePoint
3. Failover the databases:
 - BlackBerry UEM database
 - BEMS-Core1 database (BEMS-Mail cluster (Push Notifications) database)
 - BEMS-Core2 database (BEMS-Presence cluster database)
 - BEMS-Core3 and Connect databases (BEMS-Connect cluster databases)
 - BEMS-Core4 and Docs databases (BEMS-Docs cluster databases)
4. At the disaster recovery site, reconfigure the database access for the services to connect to the appropriate databases.
 - If the databases are using Always On Availability Groups for their disaster recovery configuration, then no action is required.
 - For configurations that do not use Always On Availability Groups, reconfigure the UEM Core database access by using the UEM Configuration Tool on each server to update the db.properties file.
5. Start services at the disaster recovery site.

Start the UEM Core, BlackBerry Connectivity Node, and BlackBerry Proxy services first, then the BEMS services. You may need to enable the startup mode if it is disabled.

6. Reconfigure the BEMS databases in the BEMS dashboard. Restart the BEMS services.
7. Verify that the BlackBerry Presence and BlackBerry Connect services are stopped before you change the settings.
8. For the BlackBerry Presence and BlackBerry Connect clusters, reconfigure the Lync front-end pool configuration. Restart the applicable services.
9. For the BlackBerry Connect cluster, BEMS-Connect Service Configuration, reconfigure the BlackBerry Proxy startup server to point to the BlackBerry Proxy server at the disaster recovery site. Restart the applicable services.

10.Reconfigure the network FQDN endpoints.

Reconfigure the first FQDN (for example, cluster1.external.org.com) to point to an endpoint at the secondary site that has no BlackBerry Proxy servers attached. This is generally done through a Global Traffic Manager or equivalent and enables fast fail for attempted connections to the original primary site.

11.Optionally, swap the primary and secondary servers.

If the outage will be long-term, use the BlackBerry UEM console to swap the primary and secondary priorities for all App servers.

Leave the BlackBerry Proxy configuration unchanged.

12.To failback, follow steps 1 through 9, reversing the primary and disaster recovery sites.

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