BlackBerry Web Services for Enterprise Administration

For Microsoft .NET developers

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Getting Started Guide

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Overview: BlackBerry Web Services

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The BlackBerry Web Services for Enterprise Administration are a collection of document-style web services that you can use to create applications to manage your organization's BlackBerry Enterprise Server. You can use the BlackBerry Web Services to automate many of the tasks that administrators typically perform using the BlackBerry Administration Service. For example, you can create an application that automates the process of adding and activating user accounts on the BlackBerry Enterprise Server.

The BlackBerry Web Services are installed automatically when you install the BlackBerry Enterprise Server.

The BlackBerry Web Services use abstracted data objects, which allow your applications to be compatible with different versions of the BlackBerry Enterprise Server. The BlackBerry Web Services emphasize compatibility, ease-of-use, and flexibility, giving you the option to build your applications using various development languages and web service frameworks.

To use the BlackBerry Web Services, you should be proficient in one of the supported programming languages and in the use of common web services concepts such as XML, SOAP, and WSDL. You should be familiar with the configuration and administration of the BlackBerry Enterprise Server, including the management of user accounts, groups, IT policies, software configurations, and security settings.

The BlackBerry Web Services offer a subset of the functionality that is available in the BlackBerry Administration API. Going forward, the BlackBerry Web Services are the primary web services solution for the BlackBerry Enterprise Server. While the BlackBerry Administration API is still supported, you should consider using the BlackBerry Web Services when creating new applications, or consider modifying your existing applications to use the BlackBerry Web Services. Before you create or modify your applications, check the BlackBerry Web Services API reference to verify that the BlackBerry Web Services support the functionality that your application requires.

For more information about the BlackBerry Enterprise Server, visit www.blackberry.com/go/serverdocs to read the *BlackBerry Enterprise Server Feature and Technical Overview* and the *BlackBerry Enterprise Server Administration Guide*.

System requirements: BlackBerry Web Services

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Verify that the following software is installed on the computer that you want to use to develop applications for the BlackBerry Web Services.

Item	Requirement
Operating system	• Windows XP or later
Software development kit (SDK)	• Windows SDK The Windows SDK includes all of the utilities that are required to work with web services. The setup application for Microsoft Visual Studio automatically installs the required version of the Windows SDK.
Integrated development environment (IDE)	Any of the following: • Microsoft Visual Studio 2010 • Microsoft Visual Studio 2008 • Microsoft Visual Studio 2005
Web service framework	Use the following web service framework to bind web service requests and to generate the required client proxy files: • Microsoft .NET Framework 2.0 or later The setup application for Microsoft Visual Studio automatically installs the required version of the Microsoft .NET Framework.

3 Configuring a BlackBerry Enterprise Server for development

Before you develop applications to work with the BlackBerry Web Services, you must perform the following tasks for each BlackBerry Enterprise Server that you want to manage:

- Verify that your development computer has network access to the computers that host the BlackBerry Enterprise Server components and the BlackBerry Administration Service.
- Add the BlackBerry Administration Service certificate to the Trusted Root Certification Authorities certificate store so that your applications can authenticate with the BlackBerry Administration Service.
- Create the BlackBerry Administration Service administrator accounts that your applications can use to manage the BlackBerry Enterprise Server (or determine the existing accounts that your applications can use).
- Assign the appropriate roles to the administrator accounts. Certain tasks can only be performed if the administrator account has a role with the required permissions (for example, an administrator can create a user account only if the administrator has a role with the Create a user permission).

It is recommended that you install one or more instances of the BlackBerry Enterprise Server to use specifically for testing and debugging your applications. Using a test environment can prevent accidental changes to your organization's production environment. The version of the test BlackBerry Enterprise Server and BlackBerry Administration Service should match the version used in your production environment, to ensure that the features and functionality of the BlackBerry Web Services remain the same.

When you are ready to implement your applications in your organization's production environment, consider using a trusted certificate that is signed by a certification authority.

For more information about installing and configuring the BlackBerry Enterprise Server, visit www.blackberry.com/go/serverdocs to read the *BlackBerry Enterprise Server Installation and Configuration Guide* and the *BlackBerry Enterprise Server Administration Guide*.

Add the BlackBerry Enterprise Server as a trusted authority

You must add the self-signed SSL certificate of the BlackBerry Administration Service to the Trusted Root Certification Authorities certificate store so that your applications can authenticate with the BlackBerry Administration Service.

Before you begin: Use Windows Internet Explorer 6.0 or later to perform this task. For information about adding certificates using other browsers or versions, see the help or documentation for the browser.

1. In Windows Internet Explorer, browse to the login page for the BlackBerry Administration Service. The web address is **https://*<server_name>*/webconsole/app**, where <*server_name*> is the name of the computer that hosts the BlackBerry Administration Service.
2. Click **File** > **Properties**.
3. In the **Properties** window, click **Certificates**.
4. Click **Install Certificate**.
5. Click **Next**.
6. Select **Place all certificates in the following store**. Click **Browse**.
7. Click **Trusted Root Certification Authorities**. Click **OK**.
8. Click **Next**.
9. Click **Finish**.

Creating administrator accounts that your applications can use

When your application makes calls to the BlackBerry Web Services APIs, the application must use the login information of a BlackBerry Administration Service administrator account to authenticate with the BlackBerry Administration Service and authorize its use of the API. You can create a new administrator account that is reserved specifically for your custom applications, or you can use an existing administrator account.

When you have determined the administrative tasks that you want your application to perform, you must identify the BlackBerry Administration Service permissions that are required to perform the task, and you must assign a role with the required permissions to the administrator account. An API request can only be completed if the application uses an

administrator account with the required permissions. For example, an administrator can create a user account only if the administrator has a role with the Create a user permission.

You can assign one of the predefined roles that are available in the BlackBerry Administration Service, or you can create and assign a custom role. For more information about the permissions that are associated with predefined roles, see Administrative roles for the BlackBerry Enterprise Server.

Create a BlackBerry Administration Service administrator account

Follow these steps if you want to create a new administrator account that your application can use to complete management tasks on the BlackBerry Enterprise Server.

Before you begin: Ask your organization's BlackBerry Administration Service administrator to perform this task, or ask for access to an administrator account that you can use to perform this task.

1. Log in to the BlackBerry Administration Service using an administrator account that has a role with the Create an administrator user permission (for example, the Security Administrator role).
2. On the **BlackBerry solution management** menu, expand **Administrator user**.
3. Click **Create an administrator user**.
4. In the **Display name** field, type a display name for the administrator account.
5. In the **Authentication type** drop-down list, select the type of authentication that you want the administrator account to use.
6. Specify the login information for the administrator account. If you selected Active Directory authentication, specify a user name and domain. If you selected BlackBerry Administration Service authentication, specify a user name and password, and confirm the password.
7. In the **Administrator password** field, type the password of the administrator account that you used to log in to the BlackBerry Administration Service.
8. In the **Role** drop-down list, click the role that you want to assign to the administrator account. For more information about the permissions that are associated with predefined roles, see Administrative roles for the BlackBerry Enterprise Server.
9. Click **Create an administrator user**.

After you finish: If necessary, create a custom role and assign the custom role to the administrator account.

Administrative roles for the BlackBerry Enterprise Server

The BlackBerry Enterprise Server includes preconfigured administrative roles that you can assign to administrator accounts. Each role is designed for a different type of administrator, and grants different permissions to manage and make changes to the BlackBerry Enterprise Server, user accounts, and BlackBerry devices. The table below details the permissions that are associated with each role.

To meet the needs of your organization's environment, you can change the permissions that are associated with the preconfigured roles, or you can create custom roles. For more information about how to change or create roles, visit www.blackberry.com/go/serverdocs to read the *BlackBerry Enterprise Server Administration Guide*.

Permission name	Security role	Enterprise role	Senior Helpdesk role	Junior Helpdesk role	Server only role	User only role
User and device group						
Create a group	X	X	X			X
Delete a group	X	X				X
View a group	X	X	X	X		X
Edit a group	X	X	X	X		X
Create a user	X	X	X			X
Delete a user	X	X	X			X
View a user	X	X	X	X		X
Edit a user	X	X	X	X		X
View a device	X	X	X	X		X
Edit a device	X	X	X	X		X
View device activation settings	X	X				X
Edit device activation settings	X	X				X
Create an IT policy	X	X				X

Permission name	Security role	Enterprise role	Senior Helpdesk role	Junior Helpdesk role	Server only role	User only role
Delete an IT policy	X	X				X
View an IT policy	X	X	X	X		X
Edit an IT policy	X	X				X
Import an IT policy	X	X				X
Export an IT policy	X	X				X
Create a user-defined IT policy template	X	X				X
Delete a user-defined IT policy template	X	X				X
Resend data to devices	X	X	X			X
Edit a user-defined IT policy template	X	X				X
Import an IT policy template	X	X				X
Create a software configuration	X	X				X
View a software configuration	X	X	X	X		X
Edit a software configuration	X	X				X
Delete a software configuration	X	X				X
Create an application	X	X				X
View an application	X	X	X	X		X
Edit an application	X	X				X
Delete an application	X	X				X

Permission name	Security role	Enterprise role	Senior Helpdesk role	Junior Helpdesk role	Server only role	User only role
Create an administrator user	X					
Add or remove to user configuration	X	X	X			X
Export asset summary data	X	X				X
Import or export users	X	X	X			X
Export statistics	X	X				X
Import user updates	X	X				X
Assign the current device to a user	X	X	X	X		X
Delete all device data and remove device	X	X	X	X		X
Delete only the organization data and remove device	X	X	X	X		X
Specify an activation password	X	X	X	X		X
Turn off and on external services	X	X	X			X
Generate an activation email	X	X	X	X		X
Clear synchronization backup data	X	X	X			X
Clear user statistics	X	X	X			X
Reset user field mapping	X	X	X			X
Turn on redirection	X	X	X			X

Permission name	Security role	Enterprise role	Senior Helpdesk role	Junior Helpdesk role	Server only role	User only role
Turn off redirection	X	X	X			X
Add user from company directory	X	X	X			X
Import new users	X	X				X
Refresh available user list from company directory	X	X			X	
Edit GroupWise subscription for a user	X	X	X	X		X
Import or export email message filters for a user	X	X				X
Topology group						
View a server	X	X			X	
Edit a server	X	X			X	
View a component	X	X			X	
Edit a component	X	X			X	
View an instance	X	X			X	
Edit an instance	X	X			X	
Change the status of an instance	X	X			X	
Edit an instance relationship	X	X			X	
View a job	X	X				X
Edit a job	X	X				X
View default distribution settings for a job	X	X				X

Permission name	Security role	Enterprise role	Senior Helpdesk role	Junior Helpdesk role	Server only role	User only role
Edit default distribution settings for a job	X	X				X
Update peer-to-peer encryption key	X	X			X	
Manage deployment job tasks	X	X	X			X
Change the status of a job task	X	X				X
Delete an instance	X	X			X	
Edit license keys	X	X			X	
View license keys	X	X			X	
Clear instance statistics	X	X			X	
Synchronize instance system address book						
Clear and synchronize instance system address book						
Import or export email filters	X	X			X	
Clear statistics for a BlackBerry MDS Connection Service instance	X	X			X	
View rules for the BlackBerry MDS Connection Service	X	X	X	X	X	X
BlackBerry Administration Service setup group						
Send message	X	X	X	X		X
Create a role	X					

Permission name	Security role	Enterprise role	Senior Helpdesk role	Junior Helpdesk role	Server only role	User only role
Delete a role	X					
View a role	X	X				X
Edit a role	X					
Add or remove role	X					
View BlackBerry Administration Service software management	X	X			X	
Edit BlackBerry Administration Service software management	X	X				
Import or export groups within roles	X					
View reporting data		X				
View BlackBerry Monitoring Service information	X					
Edit BlackBerry Monitoring Service settings	X					

Create a role

If the predefined administrative roles do not meet your requirements, you can create a new role that you can assign to BlackBerry Administration Service administrator accounts. When you create a new role, by default, all of the permissions are turned off.

Before you begin: Ask your organization's BlackBerry Administration Service administrator to perform this task, or ask for access to an administrator account that you can use to perform this task.

1. Log in to the BlackBerry Administration Service using an administrator account that has the required permissions to create and change roles (for example, the Security Administrator role).
2. On the **BlackBerry solution management** menu, expand **Role**.

3. Click **Create a role**.
4. Type a name and description for the role.
5. Click **Save**.
6. In the **Role information** section, click the name of the role.
7. Click **Edit role**.
8. On the appropriate tabs, configure the permissions that you want to assign to the role.
9. Click **Save all**.

After you finish: Assign the role to an administrator account.

Create a role by copying an existing role

If the predefined administrative roles do not meet your requirements, you can copy an existing role and modify it as required. You can then assign the new role to BlackBerry Administration Service administrator accounts.

Before you begin: Ask your organization's BlackBerry Administration Service administrator to perform this task, or ask for access to an administrator account that you can use to perform this task.

1. Log in to the BlackBerry Administration Service using an administrator account that has the required permissions to create and change roles (for example, the Security Administrator role).
2. On the **BlackBerry solution management** menu, expand **Role**.
3. Click **Manage roles**.
4. Click the role that you want to copy.
5. Click **Copy role**.
6. Type a name and description for the role.
7. Click **Copy role**.
8. In the **Role information** section, click the name of the role.
9. Click **Edit role**.
10. On the appropriate tabs, configure the permissions that you want to assign to the role.
11. Click **Save all**.

After you finish: Assign the role to an administrator account.

Change the roles that are assigned to an administrator account

Before you begin: Ask your organization's BlackBerry Administration Service administrator to perform this task, or ask for access to an administrator account that you can use to perform this task.

1. Log in to the BlackBerry Administration Service using an administrator account that has the required permissions to assign and remove roles (for example, the Security Administrator role).
2. On the **BlackBerry solution management** menu, expand **Administrator user**.
3. Click **Manage users**.
4. Search for the administrator account and click the display name.
5. Click **Edit user**.
6. On the **Roles** tab, in the **Available roles** list, click the roles that you want to assign to the administrator account.
7. Click **Add**.
8. In the **Current roles** list, click the roles that you want to remove.
9. Click **Remove**.
10. Click **Save all**.

Generating the client proxy files 4

The BlackBerry Web Services use WSDL files to describe the classes that they expose. To integrate your applications with the BlackBerry Web Services, you must use a proxy generator to generate the client proxy files for the BWS and BWSUtil web services.

The BWS and BWSUtil proxy files are typically stored in one file as a combined set of proxy classes.

Each release of the BlackBerry Web Services introduces new features and functionality, improvements to existing features, and bug fixes. It is a best practice to generate and use a new set of proxy files whenever your organization implements a new version of the BlackBerry Enterprise Server, so that your application can leverage the most recent improvements and fixes for the BlackBerry Web Services.

Generate the proxy files for the BWS and BWSUtil web services

To avoid duplication type compiler errors, you can merge all of the generated proxy files for the BWS and BWSUtil web services into a single proxy file.

Before you begin: Create a folder to store the merged proxy file (for example, C:\Temp\BWS\proxy).

1. On the taskbar, click **Start** > **Run**.
2. Type **cmd**. Click **OK**.
3. Type **cd** *<file_path>* , where <*file_path*> is the path of the bin folder for your Microsoft SDKs. For example:

   ```
   cd C:\Program Files\Microsoft SDKs\Windows\v7.0A\bin
   ```

4. Press ENTER.
5. Type **wsdl /sharetypes /o:***<proxy_path>***\proxy.cs https://***<server_name>***/enterprise/admin/ws?wsdl https://***<server_name>***/enterprise/admin/util/ws?wsdl**, where <*proxy_path*> is the path of the folder you created to store the

merged proxy file, and <*server_name*> is the name of the computer that hosts the BlackBerry Administration Service. For example:

```
wsdl /sharetypes /o:C:\Temp\BWS\proxy.cs https://server1.test.rim.net/
enterprise/admin/ws?wsdl https://server1.test.rim.net/enterprise/admin/util/ws?
wsdl
```

6. Press ENTER.

Configuring your development environment

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This section describes how to configure your development environment so that you can integrate your applications with the BlackBerry Web Services.

Create a project

1. In Microsoft Visual Studio, on the **File** menu, click **New** > **Project**.
2. In the **New Project** dialog box, select the **Visual C#** project type and the **Console Application** template.
3. In the **Name** field, type a name for the project.
4. Click **OK**.

Import the BlackBerry Web Services proxy files to your project

Import the proxy files for the BWS and BWSUtil web services to make them available for use in your applications.

1. In Microsoft Visual Studio, in the **Solution Explorer** pane, right-click the project and click **Add** > **Existing Item**.
2. Navigate to the proxy file that you generated (for example, C:\Temp\BWS\proxy.cs).
3. Click **Add**.

6 Using the BlackBerry Web Services API reference

The API reference for the BlackBerry Web Services is available at docs.blackberry.com/BWS.

The API reference describes the interfaces, classes, methods, and data types of the BlackBerry Web Services. The API reference includes UML diagrams that illustrate the inheritance model used by all elements of the APIs, as well as code samples that demonstrate how to use each API.

The code samples in the API reference are written in Java, not Microsoft Visual C#, but are similar enough to Microsoft Visual C# to still prove useful.

Sample application

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To assist you in developing your applications and integrating them with the BlackBerry Web Services, you can visit https://github.com/blackberry/BWS-Samples to access a code sample for an application that performs the following tasks:

- Initializes the BWS and BWSUtil web services
- Authenticates the application with the BlackBerry Administration Service
- Collects and displays system information for the BlackBerry Enterprise Server
- Creates a specified user account
- Displays the details for a specified user account

This section of the guide examines the sample application and explains the purpose and structure of key sections of the code sample. The code sample was tested and verified with BlackBerry Enterprise Server 5.0.3 MR5.

Authenticating with the BlackBerry Administration Service and initializing the web services

Before an application can make calls to the BlackBerry Web Services, the application must initialize the BWS and BWSUtil web services. First, the application must use the login information of an administrator account to authenticate with the BlackBerry Administration Service and authorize its use of the web services. When authentication completes, the initialization process starts.

When the BWS and BWSUtil web services are initialized, they accept subsequent API calls from the application. If authentication or initialization is not successful, the application throws an exception. The exception contains a simple text message property that your application can access for more information.

Code sample: Authentication and initializing the web services

Visit https://github.com/blackberry/BWS-Samples to copy the full code sample to your development tool. This topic highlights and explains key sections of the code that are used to authenticate the application with the BlackBerry Administration Service and initialize the BWS and BWSUtil web services. This topic refers to lines 1 to 265 and the main method of the code sample.

Before you run the code sample, verify that you have completed the configuration tasks described earlier in this guide. Also, verify that your project includes the System.Web.Services reference.

Define metadata

The following code defines the metadata that describes the application's requests to the BlackBerry Web Services. This includes the client version of the BlackBerry Web Services, locale information, the computer that hosts the BlackBerry Administration Service, and the login information for the administrator account that the application uses. You must specify the host name, user name, and password values in the main method (the last section of the code sample). The variables are defined as global variables.

The code also defines a RequestMetadata object to use for initialization. This object is defined as a global variable.

```
// The request Metadata information.
// This is the version of the WSDL used to generate the proxy, not the version of
the server.
private const string ClientVersion = "<client_version>";

/*
* To use a different locale, call getLocales() in the BWSUtilService web service
* to see which locales are supported.
*/
private const string Locale = "en_US";
private const string OrgUid = "0";
private static readonly RequestMetadata Metadata = new RequestMetadata();

// Authentication type name.
private const string AuthenticatorName = "BlackBerry Administration Service";

// Hostname to use when connecting to web service.
private static string BWSHostName = null; // e.g. BWSHostName =
"server01.yourcompany.net".
private static string Username = null; // e.g. Username = "admin".
private static string Password = null; // e.g. Password = "password".
```

From the main method:

```
// Hostname to use when connecting to web service.
BWSHostName = "<BWSHostName>"; // e.g. BWSHostName = "server01.yourcompany.net".
Username = "<username>"; // e.g. Username = "admin".
Password = "<password>"; // e.g. Password = "password".
```

Assign values to the Metadata global object

The following code assigns the values of the metadata global variables to the Metadata global object.

```
Metadata.clientVersion = ClientVersion;
Metadata.locale = Locale;
Metadata.organizationUid = OrgUid;
```

Initialize and set the URL properties of the web services

The following code initializes and sets the values for the URL properties of the web services so that the application can connect to the BlackBerry Web Services.

```
logMessage("Initializing BWS web service stub");
bwsService = new BWSService();
logMessage("BWS web service stub initialized");
logMessage("Initializing BWSUtil web service stub");
bwsUtilService = new BWSUtilService();
logMessage("BWSUtil web service stub initialized");
// These are the URLs that point to the web services used for all calls.
bwsService.Url = "https://" + BWSHostName + "/enterprise/admin/ws";
bwsUtilService.Url = "https://" + BWSHostName + "/enterprise/admin/util/ws";
```

Configure timeout properties

The following code configures a 60 second connection timeout for the BlackBerry Web Services.

```
// Set the connection timeout to 60 seconds.
bwsService.Timeout = 60000;
bwsUtilService.Timeout = 60000;
```

Define the authenticator object

The following code defines the Authenticator object that the application requires for the overall authentication and initialization process. In the two sections following this code, the application uses the authenticator object to collect the login information and the encoded user name that the application uses to authenticate with the BlackBerry Web Services.

```
Authenticator authenticator = GetAuthenticator(AuthenticatorName);
if (authenticator != null)
{
    string encodedUsername = GetEncodedUserName(Username, authenticator);
    if (!string.IsNullOrEmpty(encodedUsername))
    {
```

```
        /*
        * Set the HTTP basic authentication on the BWS service.
        * BWSUtilService is a utility web service that does not require
        * authentication.
        */
        bwsService.Credentials = new NetworkCredential(encodedUsername, Password);

        /*
        * Send an HTTP Authorization header with requests after authentication
        * has taken place.
        */
        bwsService.PreAuthenticate = true;
        returnValue = true;
    }
    else
    {
        logMessage("'encodedUsername' is null or empty");
    }
}
else
{
    logMessage("'authenticator' is null");
}
```

Authenticate with the BlackBerry Web Services

The following code retrieves the encoded login information for the BlackBerry Administration Service administrator account that the application uses, and authenticates the application with the BlackBerry Web Services.

```
public static string GetEncodedUserName(string username, Authenticator
authenticator)
{
    const string methodName = "GetEncodedUserName()";
    const string bwsApiName = "bwsUtilService.getEncodedUsername()";
    logMessage("Entering {0}", methodName);
    string returnValue = null;

    GetEncodedUsernameRequest request = new GetEncodedUsernameRequest();
    request.metadata = Metadata;
    request.username = username;
    request.orgUid = Metadata.organizationUid;
    request.authenticator = authenticator;

    CredentialType credentialType = new CredentialType();
    credentialType.PASSWORD = true;
    credentialType.value = "PASSWORD";
    request.credentialType = credentialType;

    GetEncodedUsernameResponse response = null;

    try
    {
        logRequest(bwsApiName);
        response = bwsUtilService.getEncodedUsername(request);
```

```
            logResponse(bwsApiName, response.returnStatus.code, response.metadata);
        }
        catch (WebException e)
        {
            // Log and re-throw exception.
            logMessage("Exiting {0} with exception \"{1}\"", methodName, e.Message);
            throw e;
        }

        if (response.returnStatus.code.Equals("SUCCESS"))
        {
            returnValue = response.encodedUsername;
        }
        else
        {
            logMessage("Error Message: \"{0}\"", response.returnStatus.message);
        }

        logMessage("Exiting {0} with value \"{1}\"", methodName, returnValue == null ?
"null" :
            returnValue);
        return returnValue;
}
```

After the authentication and initialization process completes, the BlackBerry Web Services are ready to accept API calls from the application.

Creating a user account

When the application successfully completes the authentication and initialization process, it can send API calls to the BlackBerry Web Services. The sample application includes API calls to retrieve and display system data for the BlackBerry Enterprise Server, to retrieve and display details for a user account, and to create a new user account using an email address.

These topics highlight the section of the code sample that is used to create a new user account. The following table describes the types of user accounts that you can create (the sample application creates a BlackBerry-enabled user account). For more details about creating user accounts, visit docs.blackberry.com/BWS to review the BlackBerry Web Services API reference and the BWS.createUsers API.

User type	Description
Administrator account - BlackBerry-enabled	A user account that is assigned login information and an administrative role so that the user can log in to the BlackBerry Administration Service and perform managements tasks. The user can be assigned a device. To create this administrator account with the BlackBerry Web Services:

User type	Description
	• The AccountAttributes object is not null • The UserAttributes object is not null • The roleUID property is specified
Administrator account - Not BlackBerry-enabled	A user account that is assigned login information and an administrative role so that the user can log in to the BlackBerry Administration Service and perform managements tasks. The user cannot be assigned a device. To create this administrator account with the BlackBerry Web Services: • The AccountAttributes object is null • The UserAttributes object is not null • The roleUID property is specified
User account - BlackBerry-enabled	A standard user account that does not require login information for the BlackBerry Administration Service or an administrative role. An administrator can assign a device to the user account. To create this user account with the BlackBerry Web Services: • The AccountAttributes object is not null • The UserAttributes object is null
User account - Not BlackBerry-enabled	A user account that does not require login information for the BlackBerry Administration Service or an administrative role. An administrator cannot assign a device to the user account. Create this type of user account only if you want an administrator to give the user administrative privileges by assigning the user to a group with an administrative role. To create this user account with the BlackBerry Web Services: • The AccountAttributes object is null • The UserAttributes object is not null • The roleUID property is not specified

Code sample: Creating a user account

Visit https://github.com/blackberry/BWS-Samples to copy the full code sample to your development tool. This topic highlights and explains key sections of the code that are used to create a new BlackBerry-enabled user account. This topic refers to lines 516 to 601 and the main method of the code sample.

Before you run the code sample, verify that you have completed the configuration tasks described earlier in this guide. Also, verify that your project includes the System.Web.Services reference.

Specify the email address for the new user

The following code from the main method defines the CreateNewUserEmail variable that will be used to create the new user account. Specify the email address of the user account that you want the application to create.

```
// Email address used to create a new user with the createUsers() API call.
CreateNewUserEmail = "\"user01@example.net\"";
```

Create the CreateUsersRequest object

The following code creates the CreateUsersRequest object that is used to send the API call to the BlackBerry Web Services, and assigns the value of the Metadata global variable (see Code sample: Authentication and initializing the web services) to the metadata property of the CreateUsersRequest object.

```
// Create the request object.
CreateUsersRequest createUsersRequest = new CreateUsersRequest();
createUsersRequest.metadata = Metadata;
```

Create the NewUser object

The following code creates a NewUser object to hold the values of the account attributes for the user account.

```
NewUser newUser = new NewUser();
```

Create the AccountAttributes object

The following code creates an AccountAttributes object, which is used to set the value of the email address for the user account. The global variable CreateNewUserEmail contains the email address value.

```
// To create an administrator user, create and set the "UserAttributes".
AccountAttributes accountAttributes = new AccountAttributes();

/*
* Check if value of the variable "CreateNewUserEmail" is enclosed in double-quotes,
* otherwise the string would infer a substring match search.
*/
if (!CreateNewUserEmail.StartsWith("\"") || !CreateNewUserEmail.EndsWith("\""))
{
```

```
    logMessage("Warning: Email Address \"{0}\" is not enclosed in double-quotes",
        CreateNewUserEmail);
}
// Value of the variable "CreateNewUserEmail" is used to create a BlackBerry-
enabled user.
logMessage("Creating a user with email address \"{0}\"", CreateNewUserEmail);
accountAttributes.emailAddress = CreateNewUserEmail;
```

Set the attributes of the user account

The following code uses the NewUser object (called newUser) with the AccountAttribute object (called accountAttributes) to set the attributes of the user account. In this code sample, a null value is assigned to the newUser.server property to randomly select the BlackBerry Enterprise Server to create the user on.

```
newUser.accountAttributes = accountAttributes;
// Randomly select a BlackBerry Enterprise Server on which to create the user.
newUser.server = null;
```

Prepare the API call

The following code creates a newUsers List variable to hold the newUser object. The sample code assigns the newUser object to the createUsersRequest.newUsers property. The createUsersRequest object is ready to call the createUsers API.

```
List<NewUser> newUsers = new List<NewUser>();
newUsers.Add(newUser);
createUsersRequest.newUsers = newUsers.ToArray();
```

Send the API call and verify that the API call was successful

The following code calls the createUsers API using bwsService.createUsers(createUsersRequest) and stores the response from the API call in a CreateUsersResponse object called response. The code checks the return status message stored in the CreateUsersResponse object to verify that the call to the API was successful. If the call was successful, the code iterates through the individual responses and displays the results. Otherwise, it displays any errors that were found in the individual responses.

```
CreateUsersResponse response = null;

try
{
    logRequest(bwsApiName);
    response = bwsService.createUsers(createUsersRequest);
    logResponse(bwsApiName, response.returnStatus.code, response.metadata);
}
catch (WebException e)
{
    // Log and re-throw exception.
    logMessage("Exiting {0} with exception \"{1}\"", methodName, e.Message);
    throw e;
}

if (response.returnStatus.code.Equals("SUCCESS"))
```

```
{
    if (response.individualResponses != null)
    {
        foreach (IndividualResponse individualResponse in
response.individualResponses)
        {
            displayResult("User created with UID \"{0}\" using Email Address
\"{1}\"", individualResponse.uid, accountAttributes.emailAddress);
        }

        returnValue = true;
    }
}
else
{
    logMessage("Error Message: \"{0}\"", response.returnStatus.message);
    if (response.individualResponses != null)
    {
        foreach (IndividualResponse individualResponse in
response.individualResponses)
        {
            logMessage("Individual Response - Code: \"{0}\", Message: \"{1}\"",
                individualResponse.returnStatus.code,
individualResponse.returnStatus.message);
        }
    }
}
```

Revision history

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Date	Description
Nov 2012	The code sample at https://github.com/blackberry/BWS-Samples was updated to improve logging and to add timestamp information. Updated the following topics to capture the changes to the sample application: • Code sample: Authentication and initializing the web services • Code sample: Creating a user account

Related resources

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To view the API reference for the latest version of the BlackBerry Web Services, and to read the BlackBerry Web Services documentation, visit http://docs.blackberry.com/BWS.

To read the documentation for the BlackBerry Enterprise Server, visit blackberry.com/go/serverdocs.

Resource	Information
BlackBerry Web Services for Enterprise Administration - API Reference	• Details for all available web services • Code samples
BlackBerry Web Services for Enterprise Administration - Feature and Technical Overview	• Architecture • BlackBerry Web Services features
BlackBerry Web Services for Enterprise Administration - Release Notes	• Description of new and changed APIs and classes • Fixed issues • Known issues
BlackBerry Enterprise Server Feature and Technical Overview	• BlackBerry Enterprise Server features • System architecture • Data and process flows
BlackBerry Enterprise Server Installation and Configuration Guide	• System requirements • Installation instructions
BlackBerry Enterprise Server Administration Guide	• System configuration and management

Glossary

10

API	application programming interface
FQDN	fully qualified domain name
IP	Internet Protocol
SOAP	Simple Object Access Protocol
SSL	Secure Sockets Layer
TLS	Transport Layer Security
WSDL	Web Services Description Language
XML	Extensible Markup Language

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