Developer Bootstrap:
Good Control Essentials

Contents

Revision history

Date	Description
2016-12-19	Version numbers updated for latest release; no content changes.
2016-05-16	First issued

Introduction

This "developer bootstrap" guide includes the bare minimum of information that a developer of BlackBerry Dynamics applications needs to get started with the Good Control server to test applications.

This material is extracted from the larger set of BlackBerry Dynamics documentation listed in BlackBerry Dynamics documentation , particularly the Good Control Online Help. Only the bare minimum of information is included here.

Background and assumptions

This bootstrap guide assumes the following:

- You have a compiled BlackBerry Dynamics-based application that you want to test on a real device.
- You have either installed Good Control and Good Proxy on your own premises, as detailed in the BlackBerry Dynamics Server Installation guide (perhaps on the "single machine" configuration for proof of concept), or you are using BlackBerry Cloud as your service.
- You are not relying on an application server. (If you do need an application server, see the topic "Specifying App Servers in the Good Control Online Help.)
- As a developer, you are simultaneously the administrator and an end-user of the Good Control system you are deploying, and want to setup user accounts for yourself or a group of developers.
- You will sideload your applications to your devices. That is, you are not relying on the app distribution mechanisms of Good Control and of the many types of applications supported by Good Control. You are going to work with the "BlackBerry Dynamics Entitlement ID Only" type of application.

Activating Your First GD Application

Before your first application can be registered, the following conditions must be met.

- You have installed the Good Control (GC) and Good Proxy (GP) servers using the license you generated on the BlackBerry Developer Network (BDN) portal.
- You have a BlackBerry Dynamics (GD) client application. If your organization does not have any GD applications, sample GD applications supplied by BlackBerry are available for download on the BDN portal.
- The application server, if any, is installed at a known address.

To set up your first GD application and prepare for activation

Follow these steps in the GC console.

1. Adding applications .

   Adding or "registering" an application means that GC can manage access to it and includes specifying the GD App ID and version configured in the client. Conversely, it also enables the client application to access the application server, when necessary.

2. Entitling end-users to applications or denying them .

   Permits all GC users to install and run this application.

3. Add a user.

   See Adding A Single User Account via Active Directory , Adding Multiple User Accounts via Active Directory , or Importing Multiple User Accounts from CSV File .

4. Provision an access key for the user.

   This sends an email to the user at the email address that was imported from Active Directory. The email contains an access key the user need to activate the application on his device.

To set up the user's device

1. Download and Install the application.

   In normal operation in production, you can download via the App Store or an enterprise application distribution server, depending on how your organization publishes GD applications.

   But for development testing of **GD App ID and Version Only** applications on, sideloading your application onto the device is the recommended mechanism

2. Launch and activate the Application.

   When the user launches the application, they are prompted for their email address and the access key sent to their email account. If this information is entered correctly, the application is activated.

The GD application is now running on a device. We recommend browsing the rest of this guide, reading documentation available on the BDN portal, and exploring the GC console to learn how you can fine tune access to your applications.

Add Users

Adding A Single User Account via Active Directory

The process for creating a single new user account in GC via Active Directory is identical to the process described in Adding Multiple User Accounts via Active Directory , except instead of selecting multiple records to import, you select only a single record.

The new user is automatically added to the Everyone group and inherits all application permissions from the Everyone group by default. If the user requires access to additional applications, or if you need to restrict the user from activating and running certain products or entitlement versions, you can add the user to other groups that have the required permissions applied, or you can apply the permissions directly to the user.

The new user is also automatically assigned the default policy set. You can change the policy set for a user at any time from the user management screen. For more information, see Viewing an existing user account and Changing the policy set assigned to users.

Import Users by AD Group

You can import users from specific Active Directory (AD) groups into Good Control. You can set default characteristics for all users in the AD group, such as default policy set and more.

To import from a specific AD group, in Good Control:

1. Navigate to **Users and Groups**.
2. Click **Add Users**.
3. In the search box for **Import from Directory Service**, enter text that matches the name of the desired AD group.
4. Click **Search**.
5. In the displayed list of groups, find the desired group.
6. Under **Actions**, click the right-pointing arrow.
7. On the displayed screen make any setting changes you want:

Setting	Desription
Auto Sync	Check this if in the future you want new users in this AD group to be added to the GC.
Device Enrollment Key	Check this if users in this AD group should be sent a device management enrollment key.
Policy Set	From the pulldown menu, select the desired policy set to be applied to the imported users.
App Groups	Click the pencil icon. From the displayed list of defined app groups, check the desired groups to which the imported user should be added.

8. Check **Preview Users** if you want. A list of user information to be imported is displayed.
9. Click **Add Users**.

A job is created and scheduled to import the group.

Adding Multiple User Accounts via Active Directory

You can create a GC user account for any user in your organization's Active Directory.

When the first GC server in your cluster was installed, GC was configured to query for new users from the Active Directory domain that the administrator account under of the GC service belongs to. You can configure your GC servers to query for users from other trusted domains by adding these domains on the **Server Configuration** > **Settings** screen. For more information, see Configuring properties for querying Active Directory.

Important: Make sure that you add only valid email addresses to Good Control; that is, active email address that represent real human beings. Do not add aliases, spam email addresses, or "junk" email addresses to Good Control.

If you add such email addresses to Good Control and then later delete them, the human beings who "own" such email addresses who attempt to login will not be able to login.

To create new GC user accounts from AD:

1. Go to the **Users** > **Add Users** screen.

    With the search box on this screen, GC finds groups and users in Active Directory that match your search terms. If you do not specify search terms or they match too many Active Directory groups or users, GC displays a truncated list of results and a warning message.

    Note: Depending on the amount of memory of your GC server, attempting to import more than 20,000 users at a time can result in an error message; the import does not succeed. Make sure you import users in batches smaller than 20,000 users, or increase the memory on your GC server.

2. Use the search box to find a group in Active Directory. Click the group to view a list of users in that group.

    Users who already have GC user accounts do not appear in this list If you cannot locate a user you want to make an account for, you can search the existing GC user list to see if the user already has an account.

3. Select the users that you need to import into GC by clicking each individual user in the list to toggle its selection, or by pressing Ctrl+A to select all users in the list. Pressing Ctrl+U deselects all users.

    At the top of the screen, you can set that policy set assigned to new GC users, the groups the users belong to, and how many access keys are provisioned for each new user. Users are still added to the Everyone group, even if you do not select any groups for the new users.

4. If you want to see a preview of the records to be imported, click the **Preview** checkbox.

    Important: Be careful with preview. If the number of records to be imported is large (thousands of records), your browser might become unresponsive.

5. When you are satisfied with the settings, click **Add Users**.

    The GC server then creates a job for processing the new user accounts and puts the job in a queue. GC then displays the job details screen.

When the job is finished, GC displays a list of new users associated with the job, along with any errors encountered during account creation.

You can return to this screen at any time to view the job status. First, click the **Reporting** > **Server Jobs** main navigation link to view a list of all GC jobs, then find select a job from the list to view more information. For additional details, see Viewing the status of a job.

Adding User Accounts

You can create individual user accounts, one at a time, and manage the account's assigned policy sets.

> **Note:** Every user in GC must have a valid email address. GC verifies the existence of the email address by contacting your organization's mail (SMTP) service. Make sure that the GC server can communicate with your SMTP server.

> **Important:** Make sure that you add only valid email addresses to Good Control; that is, active email address that represent real human beings. Do not add aliases, spam email addresses, or "junk" email addresses to Good Control. If you add such email addresses to Good Control and then later delete them, the human beings who "own" such email addresses who attempt to login will not be able to login.

To add a user account:

1. Go to **Users** > **Add Users.**
2. Enter the required email address and optional first and last names.
3. If you see an error message, check your SMTP settings. See the note above for explanation.
4. Click **Add User**.

The new user account is created. The system displays the policy set management screens for you to alter the assigned policy for the new user.

Importing Multiple User Accounts from CSV File

You can create GC user accounts by importing comma-separated value (CSV) records from a file you upload to GC.

- Do not import via CSV file any users who are already defined in Active Directory. Active Directory maintains metadata about users that are not included in the CSV file. With import via CSV, user records are created locally to the GC and are not added into Active Directory. Instead, see Adding Multiple User Accounts via Active Directory .
- Make sure that you add only valid email addresses to GC; that is, active email address that represent real human beings. Do not add aliases, spam email addresses, or "junk" email addresses to GC. If you add such email addresses to GC and then later delete them, the human beings who "own" such email addresses who attempt to login will not be able to login.

CSV Record Layout and Limits

- Your CSV file must start with a header line that includes the following comma-separated field names:

  `email,firstname,lastname`

  The `email` header field name must be first. The `firstname` and `lastname` fields can be in any order, as long as that order matches your data.
- The `email` field is required for every record. The other fields are optional.

  The `email` field must not contain spaces, commas, or any other characters that are illegal in an email address.

  The `email` field must conform to the Internet style email address `word@word.word` with no punctuation other than `@` and `.`.

- Your data rows must follow the header in sequence with no blank records.
- If your first name or last name fields themselves contain commas, the fields must follow standard quoting, like this example: **"Firstname, Some Other String"**.
- Limits:
    - 1,000 records per file/import
    - 2 MB file size

Import Process

To create new GC user accounts by importing from a CSV file:

1. Prepare your CSV file conforming to the layout and limits detailed above.
2. In the GC console, go to **Users** > **Add Users**.
3. Under the heading **Add or Import Custom Users not in a Directory Service**, click **Add Custom Users**.
4. Click the **Import Users** tab.
5. To change the default application policy for the imported users, from the **Policy Set** pulldown menu, select the desired policy set.
6. If you want to set the default application groups for the imported users, next to **Application Groups**, click the pencil icon, from the displayed list select the desired groups, and click **OK**.
7. To start the import process, click **Upload**.
8. Browse your own computer to find the CSV file to import.
9. Click **Import** to continue or **Cancel** to stop.
10. Click **OK** to continue, or **Cancel** to stop.

The GC server queues a job to process the new user accounts and displays the job details screen. When the job is finished, GC displays a list of new users associated with the job, along with any errors encountered during account creation. For additional details, see Viewing the status of a job.

> **Note:** Be patient as the job progresses.

The newly created users are notified by email when their accounts have been created.

> **Important:** If you import both from a CSV file and also from your directory service, any user whose information is in both sources is given two unique accounts, with independent account names and passwords. Inform such users that they must keep track of their credentials to use the correct password depending on which account they need to log in.

Possible Error Messages

Errors can occur at different phases of the import.

- **Pre-processing**: The system analyzes ("sanity checks") a portion of the file before starting the batch job to process it entirely.
- **Processing**: The system processes the records and displays other encountered errors, if any.

Message	When Occurs	Workaround
Invalid file format: must be CSV.	Pre-processing	Use a CSV file.
Limit on number of records to import exceeded. Import terminated. No new records created.	Pre-processing	Only 1,000 records per file are allowed.
CSV file has no rows to import.	Pre-processing	Make sure that your file conforms to the heading layout and has data records.
Invalid header in CSV file.	Pre-processing	Make sure your file has the required header on the first row.
Maximum file size exceeded	Pre-processing	The file size must not be greater than 10MB.
User already exists.	Processing	No workaround. No new record created.
Invalid data format	Pre-processing	Use a CSV file.

Adding applications

These are the steps for adding an application to application management.

Adding a custom application

You need the following:

- The BlackBerry Dynamics App ID and application version for the application, if it is Good-based
- The application's compiled binary file, either Android package (.apk) or Apple bundle (.ipa).

In Good Control:

1. Navigate to **Manage Apps**.
2. Click the **Enterprise** tab.
3. Click **Add App**.
4. From the dialog, click the radio button for **Custom**.
5. Click **Next**.
6. Click **Choose File**.
7. Navigate your computer to select the desired binary: Android package (.apk), Apple bundle (.ipa), or Microsoft Windows (.appxupload) file.
8. Click **Add App** to upload or **Cancel** to discard.

   GC displays information about the uploaded binary: its version, operating system, form, size, BlackBerry Dynamics App ID and application version.

9. Click **Back** to select a different file, **Cancel** to discard, or **Add App** to finish.

Adding BlackBerry Dynamics app IDand version only

You need the following:

- The BlackBerry Dynamics App ID and application version for the application

In Good Control:

1. Navigate to **Manage Apps**.
2. Click the **Enterprise** tab.
3. Click **Add App**.
4. From the dialog, click the radio button for **BlackBerry Dynamics Entitlement and Version Only**.
5. Click **Next**.

6. Enter the values for the following fields.

    - Display name. This name must be unique among the apps that you manage.

    - BlackBerry Dynamics Entitlement ID. For details on acceptable values, see Key Concepts.

    - BlackBerry Dynamics Entitlement Version. For details on acceptable values, see Key Concepts.

    - Custom Description displayed in the GC console.

7. Click **Add App** to finish or **Cancel** to discard.

Specifying app servers

If you have a BlackBerry Dynamics-based application (one with a BlackBerry Dynamics App ID and version) that is served from an application server or web server, you can specify the name of that application server and the priority of the Good Proxy clusters used for communication with it.

To specify an application server and its GP cluster priority for a BlackBerry Dynamics-based application, in Good Control:

1. Navigate to **Manage Apps** > *edit an application* > **BlackBerry Dynamics** tab.

2. For **Host Name**, specify the fully qualified domain name of the application server where this application is.

3. Specify any required port number.

4. For **Priority**, select one of **Primary**, **Secondary**, or **Tertiary**.

5. For **Primary GP Cluster**, from the pulldown menu, select the name of the desired cluster.

6. For **Secondary GP Cluster**, from the pulldown menu, select the name of the desired cluster.

7. To add another row, under **Action**, click the plus sign (+), and repeat the steps above as many times as needed.

8. For the **Configuration** field, see the discussion below.

9. Click **Save** to retain your changes or **Cancel** to discard them.

Configuration field

In the **Configuration** field you can add text in the format reqquired by the application developer (typically JSON/XML). This configuration is sent to all the clients for any user; that is, it is a global setting.

The **Configuration** field is an older mechanism for passing initialization or other information that should be passed to the application when it starts. The preferred mechanism is application-specific policies, described in Configuring Application Specific Policy Rules. Application-specific policies allows for configuration to be user-group-, the administrator does not have to worry about formatting in JSON/XML.

Adding new BlackBerry Dynamics entitlement versions (BlackBerry Dynamics app versions)

Imagine you have an update available for a BlackBerry Dynamics-based application that has already been deployed, and you want to require an upgrade to this new version, because of new features and bug fixes.

You can accomplish this by adding a new BlackBerry Dynamics entitlement version (formerly known as BlackBerry Dynamics app version).

> **Note:** Be sure you understand the effects of adding a new entitlement version. See the details and guidance in About BlackBerry Dynamics Entitlement ID and Version, in particular the advice on when and when not to change the entitlement version.

Prerequisites:

- Make sure you have added at least one version of the BlackBerry Dynamics-based app to BlackBerry application management.

In Good Control:

1. Navigate to **Manage Apps**.
2. In the list, find the desired application you want to update and click its line in the list.
3. **BlackBerry Dynamics** tab
4. For the **Version** heading, click **Edit**.
5. In the text box next to **Add Version**, enter the new entitlement version, making sure to follow the specified in About BlackBerry Dynamics Entitlement ID and Version.
6. Click **Add Version**.
7. Following the remaining prompts.
8. Click **Update** to save your change or **Cancel** to discard them.

Entitling end-users to applications or denying them

Your end-users must be entitled to view or run the applications defined in the application catalog. You can also deny them the right to applications. You can entitle or deny end-users in several ways:

- WIth app groups
- Per individual end-user

Sequence of app version entitling and denying: entitle, then deny

> **Important:** If you are entitling a new app version and denying an older version, be sure to entitle the new version first before you deny access to the older version. If you deny the older versions first, the app will be wiped from the device.

Activating an Application for a User

If a user wants to install and run a GD application on a device, you must first grant the permission to their GC account so they can run that application.

The user also needs an access key, which must be entered correctly on the device when the user runs the application for the first time. The access key is a 15 character code that is sent in an email to the user's company email address. Access keys have the following properties:

- They can only be used one time.

- They are not specific to an application. For example, a user sent four access keys can use them to activate any four applications he is entitled to.

- They do not support re-activation. If a GD application is uninstalled and then reinstalled on the same device, a new activation key is required. This also pertains to new or factory-reset devices and device emulators that do not preserve state. However, a user issued multiple keys can use them to activate the same application multiple times.

- They can be configured to expire after a specified period of time. For any policy set, in the Provisioning Policies section, you can select the option labeled **Access Keys expire after** and use the pulldown to choose the number of days before an access key expires if it is not used.

To provision an access key for a user, in Good Control:

1. Navigate to the **Users and Groups** screen.
2. Find the user in the list of accounts,.
3. Click the username to edit the record.
4. Click the **Access Keys** tab.
5. Click **New Access Key**.

A new access key is generated and sent to this user.

If you are logged into Good Control with administrative permissions, the generated access key is displayed directly on screen. You can note it without having to open the sent email.

Action by the User

Activation keys are then sent to the user's corporate email address. Each email message contains one key. Hashes of the activation keys are also copied to the GD NOC to enable container validation.

When the user receives the activation email, as long as the key has not yet expired, he can activate a GD application on a device with these steps.

1. The user must download the GD application to their device, if they have not already done so.
2. The user must launch the GD application. The BlackBerry Dynamics user activation screen is displayed.
3. The user must enter the activation key and their corporate email address, both in the activation email, into the user activation screen.

The client then sends the activation key to the GD NOC. If the correct key is entered, the application is activated and becomes usable on the device. Because the key is used once only during activation, it is dropped from the account screen's **Keys** tab.

BlackBerry Dynamics documentation

Category	Title	Description
Cross-platform	• *Getting Started Guide for Marketplace Partners* • *Good Control/Good Proxy Platform Overview for Administrators and Developers*	Overviews of the BlackBerry Dynamics system
	• *Good Control Device and Application Management* • *Good Control Device Management Enrollment: Good Agent for iOS* • *Good Control Device Management Enrollment: Good Agent for Android*	Device and application management on Good Control, including app distribution, with client-side device enrollment details
Security	*BlackBerry Dynamics Security White Paper*	Description of the security aspects of BlackBerry Dynamics
	BlackBerry Dynamics and Fingerprint Authentication	Discussion of the implementation of BlackBerry security with fingerprint recognition systems: Apple Touch ID and Android Fingerprint
Servers	• *BlackBerry Secure Enterprise Planning Guide* • *BlackBerry Secure Servers Compatibility Matrix* • *BlackBerry Performance Calculator*	Guidelines and tools for planning your BlackBerry Secure Enterprise deployment
	Good Control/Good Proxy Server Preinstallation Checklist	Same checklist extracted from the installation guide below
	Good Control/Good Proxy Server Installation	Details on installing Good Control, Good Proxy, and the GC database
	Kerberos Constrained Delegation for Good Control	Configuration details for integrating the Kerberos authentication system with BlackBerry Dynamics
	Direct Connect for Good Control	Configuring BlackBerry Dynamics servers to securely access internal resources from the external Internet
	Good Control Easy Activation Overview	A look at the Easy Activation feature
	Good Control/Good Proxy Server Backup and Restore	Minimal steps for backing up and restoring the BlackBerry Dynamics system
	Good Control Online Help	Printable copy of the GC console online help
	PKI Cert Creation via Good Control: Reference Implementation	A reference implementation in Java for creating end-user PKI certificates via Good Control and a Certificate Authority (CA)

Category	Title	Description
	Good Control Cloud Online Help	Printable copy of the Cloud GC console online help
	Technical Brief: BlackBerry Dynamics Application Policies	Description of formatting application policies for use in Good Control, with examples.
	Good Control Web Services	Programmatic interfaces on Good Control ● Basic control and application management: SOAP over HTTPS. Documentation is in the WSDL files included with GC. ● Device management: HTTP API (with JSON) for device management. Zipfile of API reference.
Software Development	*Developer Bootstrap: Good Control Essentials*	Bare minimum of information that a developer of BlackBerry Dynamics applications needs to get started with the Good Control server to test applications.
	BlackBerry Dynamics Shared Services Framework	Description of the BlackBerry Dynamics shared services framework for software developers
Android	● *Getting Started with the BlackBerry Dynamics SDK for Android* ● *API Reference for Android*	Working with the BlackBerry Dynamics SDK for Android and the essential reference for developers
iOS	● *Getting Started with the BlackBerry Dynamics SDK for iOS* ● *API Reference for iOS*	Working with the BlackBerry Dynamics SDK for iOS and the essential reference for developers
macOS	● *Getting Started with the BlackBerry Dynamics SDK for macOS* ● *API Reference for macOS*	Working with the BlackBerry Dynamics SDK for macOS and the essential reference for developers
Windows	● *Getting Started with the BlackBerry Dynamics SDK for Universal Windows Platform (UWP)* ● *API Reference for UWP*	Working with the BlackBerry Dynamics SDK for Universal Windows Platform (UWP) and the essential reference for developers
iOS, Android	*BlackBerry Launcher Library*	Source code and header files for implementing the popular BlackBerry Launcher interface
Cross-platform	*BlackBerry Dynamics Cordova for iOS and Android*	Working with the BlackBerry Dynamics SDK and the Cordova plugins
	BlackBerry Dynamics Secure HTML5 Bundle Getting Started Guide for Developers	Working with the BlackBerry Dynamics SDK and the secure HTML5 bundle
	BlackBerry Dynamics Bindings for Xamarin for Android and for iOS and the *API Reference for Xamarin.iOS*	Working with the BlackBerry Dynamics SDK and the Xamarin cross-platform integrated development environment

Category	Title	Description
		For Xamarin.Android, no separate API reference is needed; see the standard BlackBerry Dynamics SDK *API Reference for Android*