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# Sync with Google Workspace

View in the help center:  
<https://bitwarden.com/help/workspace-directory/>

## Sync with Google Workspace

This article will help you get started using Directory Connector to sync users and groups from your Google Workspace (formerly "G Suite") Directory to your Bitwarden organization.

### Google Workspace setup

To setup directory sync with Google Workspace (formerly "G Suite"), you will need access to the **Google Workspace Admin Portal** and **Google Cloud Platform Console**. Directory Connector will require information obtained from these processes to function properly.

#### Create a cloud project

Complete the following steps to create a Google Cloud project to use to connect Directory Connector to your directory. If you already have a Google Cloud project available, skip to [Enable Admin SDK](#):

1. In the [GCP Console](#), select the **Create Project** button.
2. Enter a Bitwarden-specific name for the project (for example, `bitwarden-dc-project`) and select the **Create** button.

#### Enable Admin SDK

Complete the following steps to enable the Admin SDK API, to which Directory Connector will make requests:

1. In the [GCP Console](#), select the created or pre-existing project.
2. From the left-hand navigation, select **APIs & Services** → **Library**.
3. In the search box, enter `Admin SDK` and open the **Admin SDK API** service.
4. Select the **Enable** button.

#### Create service account

Complete the following steps to create a service account to use when making API calls:

1. In the [GCP Console](#), select the created or pre-existing project.
2. From the left-hand navigation, select **APIs & Services** → **Credentials**.
3. Select the **Create Credentials** button, and select **Service account** from the dropdown.
4. Fill in the **Service account details** section, and select the **Create** button.
5. In the **Grant this service account access to project** section, select **Project** → **Owner** from the **Role** dropdown and select the **Continue** button.
6. Select the **Done** button.

#### Obtain service account credentials

Complete the following steps to obtain the appropriate permissions for the created service account:

1. In the [GCP Console](#), select the created or pre-existing project.
2. From the left-hand navigation, select **IAM & Admin** → **Service Accounts**.

3. Select the created service account.
4. On the Service Account Details page, select the **Add Key** button and select **Create new key** from the dropdown.
5. Select the Key type **JSON** and select the **Create** button to download a JSON-formatted key to your local machine.
6. Back on the details tab of your service account, select the **Advanced settings** drop-down.
7. Enter a **Product name for the consent screen**.
8. Select the **Configure** link in the text box with the text "An OAuth consent screen must be configured in order to create an OAuth client".
9. Choose a **User Type** of **Internal** and select **Create**.
10. Give your app a name, like "Bitwarden Directory Connector," and at a minimum supply a User Support and Developer Contact email address. Select **Save** and **Continue**.
11. Select **Add or remote scopes**, and in the Manually add scopes section, paste the following:

*Plain Text*

```
https://www.googleapis.com/auth/admin.directory.user.readonly,https://www.googleapis.com/auth/admin.directory.group.readonly,https://www.googleapis.com/auth/admin.directory.group.member.readonly
```

Select **Add to table** and then **Update**.

12. Click **Save, Continue**, and finally **Back to Dashboard**.

## Allow read-access to Google Workspace

Complete the following steps to authorize the client to read your directory:

1. Open the [Google Admin Portal](#).
2. From the left-hand navigation, select **Security** → **API Controls**.
3. Select the **Manage Domain Wide Delegation** button.
4. Select the **Add new** button.
5. In the Client ID field, paste the created **Client ID**.

To retrieve the created Client ID, open the [GCP Console](#) and navigate to **API & Services** → **Credentials**.

6. In the OAuth scopes field, paste the following value to grant only read-access:

**Bash**

```
https://www.googleapis.com/auth/admin.directory.user.readonly,https://www.googleapis.com/auth/admin.directory.group.readonly,https://www.googleapis.com/auth/admin.directory.group.member.readonly
```

7. Select the **Authorize** button.

## Connect to your directory

Complete the following steps to configure Directory Connector to use your Google directory:

1. Open the Directory Connector [desktop app](#).
2. Navigate to the **Settings** tab.
3. From the **Type** dropdown, select **G Suite (Google)**.  
The available fields in this section will change according to your selected type.
4. Enter the **Domain** of your Google account.
5. Enter the email address of an **Admin User** with full access to your Google directory.
6. If you have one, enter the **Customer ID** of your directory. Many users will not have or be required to enter a Customer ID.
7. Select the **Choose File** button and select the [downloaded JSON key](#).

## Configure sync options

**Tip**

When you're finished configuring, navigate to the **More** tab and select the **Clear Sync Cache** button to prevent potential conflicts with prior sync operations. For more information, see [Clear Sync Cache](#).

Complete the following steps to configure the setting used when syncing using Directory Connector:

1. Open the Directory Connector [desktop app](#).
2. Navigate to the **Settings** tab.
3. In the **Sync** section, configure the following options as desired:

Option	Description
Interval	Time between automatic sync checks (in minutes).

Option	Description
Remove disabled users during sync	Check this box to remove users from the Bitwarden organization that have been disabled in your directory.
Overwrite existing organization users based on current sync settings	Check this box to always perform a full sync and remove any users from the Bitwarden organization if they are not in the synced user set.
More than 2000 users or groups are expected to sync	Check this box if you expect to sync 2000+ users or groups. If you don't check this box, Directory Connector will limit a sync at 2000 users or groups.
Sync users	<p>Check this box to sync users to your organization.</p> <p>Checking this box will allow you to specify a <b>User Filter</b>.</p>
User Filter	See <a href="#">Specify sync filters</a> .
Sync groups	<p>Check this box to sync groups to your organization.</p> <p>Checking this box will allow you to specify a <b>Group Filter</b>.</p>
Group Filter	See <a href="#">Specify sync filters</a> .

## Specify sync filters

Use comma-separated lists to include or exclude from a sync based on user email or group.

The Admin SDK API provides limited filtering capabilities for users and groups with a **query** parameter. To learn more:

- [Search for users](#)
- [Search for groups](#)

## User filters

The following filtering syntaxes should be used in the **User Filter** field:

### Include/Exclude users by email

To include or exclude specific users from a sync based on email address:

**Bash**

```
include:joe@example.com,bill@example.com,tom@example.com
```

**Bash**

```
exclude:joe@example.com,bill@example,tom@example.com
```

**Concatenate with query**

To concatenate a user filter with the **query** parameter, use a pipe (|):

**Bash**

```
include:john@example.com,bill@example.com|orgName=Engineering orgTitle:Manager
```

**Bash**

```
exclude:john@example.com,bill@example.com|orgName=Engineering orgTitle:Manager
```

**Use only query**

To use only the **query** parameter, prefix the query with a pipe (|):

**Bash**

```
|orgName=Engineering orgTitle:Manager
```

**Group filters****Note**

Syncing nested groups is not supported by Google Workspace.

The following filtering syntaxes should be used in the **Group Filter** field:

**Include/Exclude groups**

To include or exclude groups from a sync based on Group Name:

**Bash**

```
include:Group A,Group B
```

*Bash*

```
exclude:Group A,Group B
```

### Include groups with **wildcard**

*Bash*

```
|name:*marketing*
```

Wildcards **\*** are supported on both sides of the search parameter. Additionally, the search is not case sensitive.

### Concatenate with **query**

To concatenate a group filter with the **query** parameter, use a pipe (|):

*Bash*

```
include:name='Engineering'|email:admin*
```

*Bash*

```
exclude:name='Engineering'|email:admin*
```

### Use only **query**

To use only the **query** parameter, prefix the query with a pipe (|):

*Bash*

```
|memberKey=user@company.com
```

## Test a sync

### Tip

Before testing or executing a sync, check that Directory Connector is connected to the right cloud server (e.g. US or EU) or self-hosted server. Learn how to do so with the [desktop app](#) or [CLI](#).

To test whether Directory Connector will successfully connect to your directory and return the desired users and groups, navigate to the **Dashboard** tab and select the **Test Now** button. If successful, users and groups will be printed to the Directory Connector window according to the specified [sync options](#) and [filters](#):

TESTING

You can run tests to see how your directory and sync settings are working. Tests will not sync to your Bitwarden organization.

[Test Now](#)

Test since the last successful sync

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**Users**

- cap@test.com
- hulksmash@test.com
- ironman76@test.com
- mjolnir\_rocks@test.com

**Disabled Users**

No users to list.

**Deleted Users**

No users to list.

**Groups**

- Avengers
  - cap@test.com
  - hulksmash@test.com
  - ironman76@test.com
  - mjolnir\_rocks@test.com

Test sync results

## Start automatic sync

Once [sync options](#) and [filters](#) are configured and tested, you can begin syncing. Complete the following steps to start automatic syncing with Directory Connector:

1. Open the Directory Connector [desktop app](#).
2. Navigate to the **Dashboard** tab.
3. In the **Sync** section, select the **Start sync** button.

You may alternatively select the **Sync now** button to execute a one-time manual sync.

Directory Connector will begin polling your directory based on the configured [sync options](#) and [filters](#).

If you exit or close the application, automatic sync will stop. To keep Directory Connector running in the background, minimize the application or hide it to the system tray.

### Note

If you're on the [Teams Starter](#) plan, you are limited to 10 members. Directory Connector will display an error and stop syncing if you try to sync more than 10 members.

**This plan is no longer available for purchase.** This error does not apply to Teams plans.