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# Splunk SIEM

View in the help center:

<https://bitwarden.com/help/splunk-siem/>

## Splunk SIEM

Splunk Enterprise is a security information and event management (SIEM) platform that can be used with Bitwarden organizations. Organizations can monitor [event](#) activity with the [Bitwarden Event Logs](#) app on their Splunk dashboard.

### Setup

#### Create a Splunk account

Installing the Bitwarden app on Splunk requires a Splunk Enterprise account. Bitwarden event monitoring is available on:

- Splunk Enterprise
- Splunk Cloud Classic
- Splunk Cloud Victoria

#### Install Splunk

For on-premise Splunk users, the next step is to install Splunk Enterprise. Follow the [Splunk documentation](#) to complete an install of the Splunk Enterprise software.

#### Note

Splunk Enterprise versions 8.X are no longer supported. Currently Bitwarden is supported on versions 9.0, 9.1, and 9.2.

#### Create an index

Before connecting your Bitwarden organization to your Splunk Dashboard, create an index that will maintain Bitwarden data.

1. Open the **Settings** menu located on the top navigation bar and select **Indexes**.
2. Once you are on the indexes screen, select **New Index**. A window will appear for you to create a new index for your Bitwarden app.

⇒Splunk Cloud

### New Index ✕

Index name

Index Data Type 📄 Events 📊 Metrics  
The type of data to store (event-based or metrics).

Max raw data size  MB ▾  
Maximum aggregated size of raw data (uncompressed) contained in index. Set this to 0 for unlimited. Max raw data size values less than 100MB, other than 0, are not allowed.

Searchable retention (days)   
Number of days the data is searchable

Cancel Save

New Index

## ⇒ Splunk Enterprise

## New Index ✕

### General Settings

**Index Name**   
Set index name (e.g., INDEX\_NAME). Search using index=INDEX\_NAME.

**Index Data Type** 📄 Events 📊 Metrics  
The type of data to store (event-based or metrics).

**Home Path**   
Hot/warm db path. Leave blank for default (\$SPLUNK\_DB/INDEX\_NAME/db).

**Cold Path**   
Cold db path. Leave blank for default (\$SPLUNK\_DB/INDEX\_NAME/coldb).

**Thawed Path**   
Thawed/resurrected db path. Leave blank for default (\$SPLUNK\_DB/INDEX\_NAME/thawedb).

**Data Integrity Check** Enable Disable  
Enable this if you want Splunk to compute hashes on every slice of your data for the purpose of data integrity.

**Max Size of Entire Index**  GB ▾  
Maximum target size of entire index.

**Max Size of Hot/Warm/Cold Bucket**  GB ▾  
Maximum target size of buckets. Enter 'auto\_high\_volume' for high-volume indexes.

**Frozen Path**   
Frozen bucket archive path. Set this if you want Splunk to automatically archive frozen buckets.

**App** Search & Reporting ▾

### Storage Optimization

**Tsidx Retention Policy** Enable Reduction Disable Reduction  
Warning: Do not enable reduction without understanding the full implications. It is extremely difficult to rebuild reduced buckets. [Learn More](#) [🔗](#)

**Reduce tsidx files older than**  Days ▾  
Age is determined by the latest event in a bucket.

Save Cancel

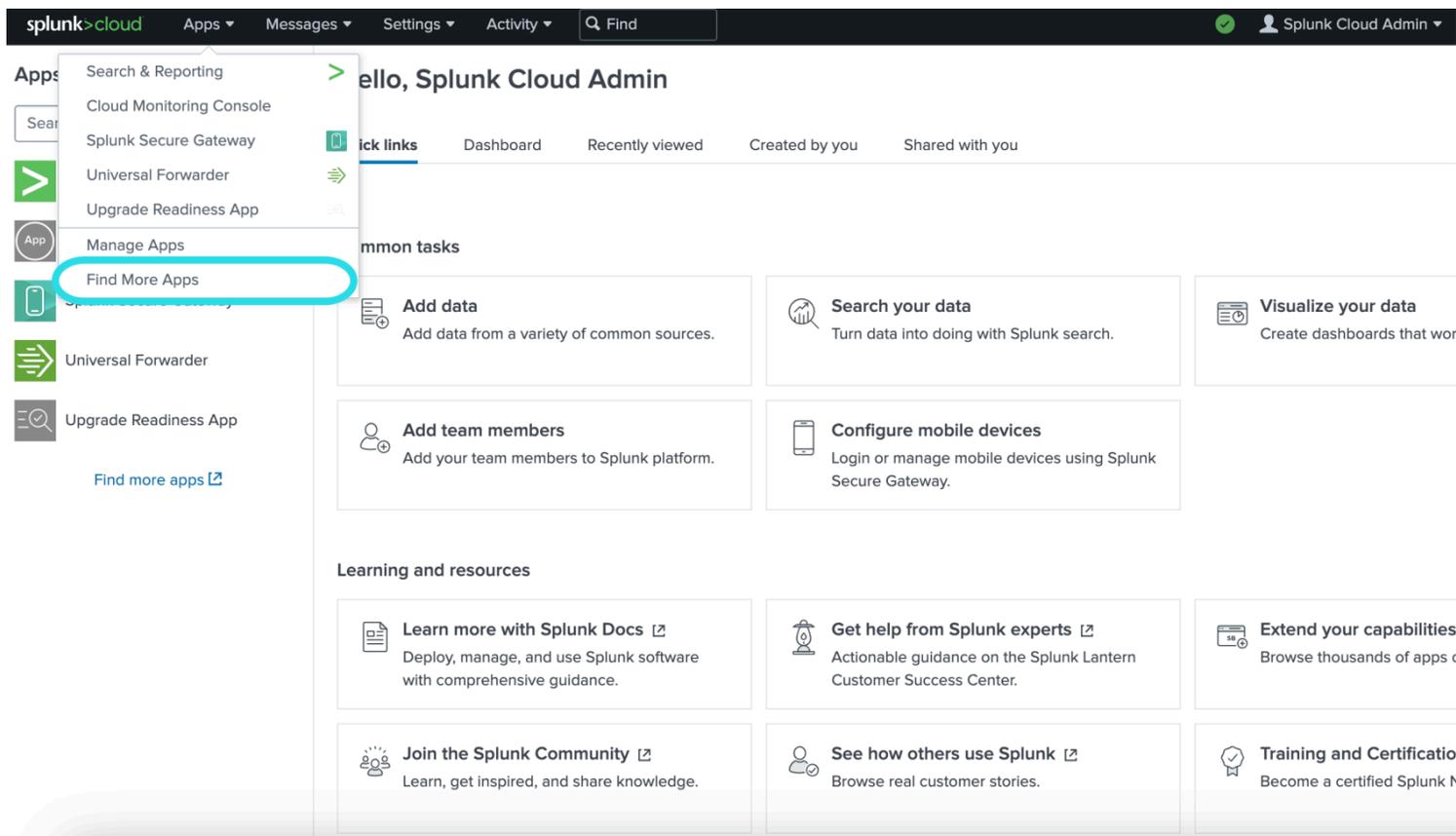
New Index Enterprise

3. In the **Index Name** field, enter **bitwarden\_events**.
4. Apply your required values for **Max raw data size** and **Searchable retention**.
5. When you are finished, select **Save**.

## Install the Splunk Bitwarden app

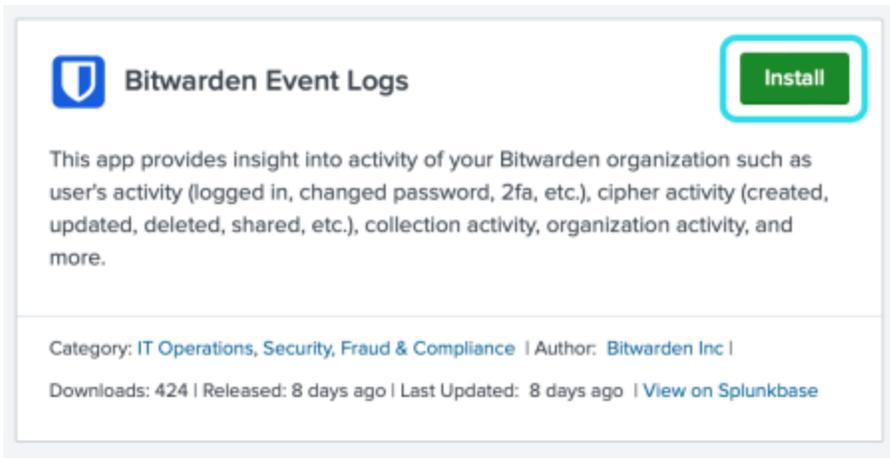
After your Bitwarden index has been created, navigate to your Splunk dashboard.

1. Open the **Apps** drop down menu and select **Find More Apps**.



Splunk apps dashboard

2. Select **Browse more apps**.
3. Search **Bitwarden Event Logs** in the app catalogue. Select **Install** for the **Bitwarden Event Logs** app.



**Bitwarden Event Logs** [Install](#)

This app provides insight into activity of your Bitwarden organization such as user's activity (logged in, changed password, 2fa, etc.), cipher activity (created, updated, deleted, shared, etc.), collection activity, organization activity, and more.

Category: [IT Operations, Security, Fraud & Compliance](#) | Author: [Bitwarden Inc](#) | Downloads: 424 | Released: 8 days ago | Last Updated: 8 days ago | [View on Splunkbase](#)

Bitwarden event logs app

4. In order to complete the installation, you will need to enter your [Splunk](#) account. Your Splunk account may not be the same credentials used to access your Splunk portal.

## Login and Install ✕

Enter your Splunk.com username and password to download the app.

[Forgot your password?](#)

The app, and any related dependency that will be installed, may be provided by Splunk and/or a third party and your right to use these app(s) is in accordance with the applicable license(s) provided by Splunk and/or the third-party licensor. Splunk is not responsible for any third-party app (developed by you or a third party) and does not provide any warranty or support. Installation of a third-party app can introduce security risks. By clicking “Agree” below, you acknowledge and accept such risks. If you have any questions, complaints or claims with respect to an app, please contact the applicable licensor directly whose contact information can be found on the Splunkbase download page.

[Bitwarden Event Logs](#) is governed by the following license: [3rd\\_party\\_eula](#)

I have read the terms and conditons of the license(s) and agree to be bound by them. I also agree to Splunk's [Website Terms of Use](#).

Login and install Bitwarden app on Splunk

5. After you have entered your information, select **Agree and Install**.

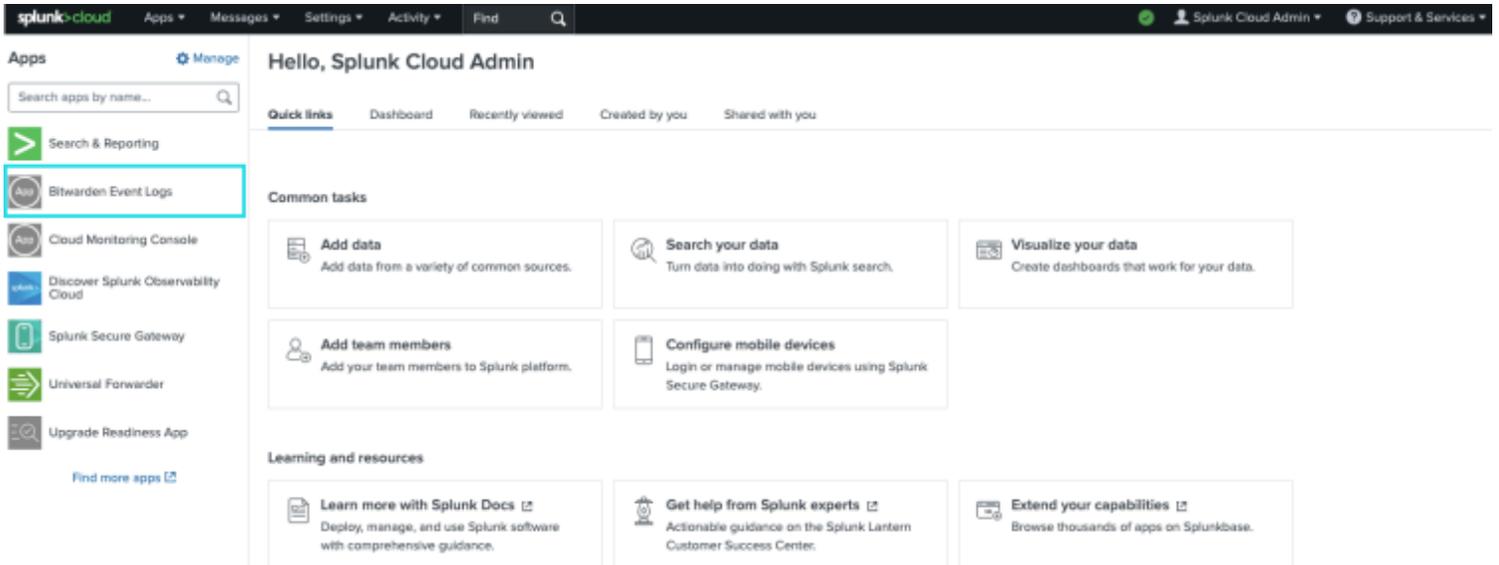
**Note**

Following the Bitwarden Event Logs app download, you may be required to restart Splunk.

**Connect your Bitwarden organization**

Once the Bitwarden Event Logs app has been installed in your Splunk Enterprise instance, you can connect your Bitwarden organization using your Bitwarden [API key](#).

1. Go to the dashboard home and select the **Bitwarden Event Logs** app:



Bitwarden on Splunk dashboard

2. Next, on the App configuration page, select **Continue to app setup page**. This is where you will add your Bitwarden organization's information.

Search Dashboards ▾ Setup

## Setup

Enter the information below to complete setup.

**Your API key can be found in the Bitwarden organization admin console.**

Client Id

Client Secret

**Choose a Splunk index for the Bitwarden event logs.**

Index

**Self-hosted Bitwarden servers may need to reconfigure their installation's URL.**

Server URL

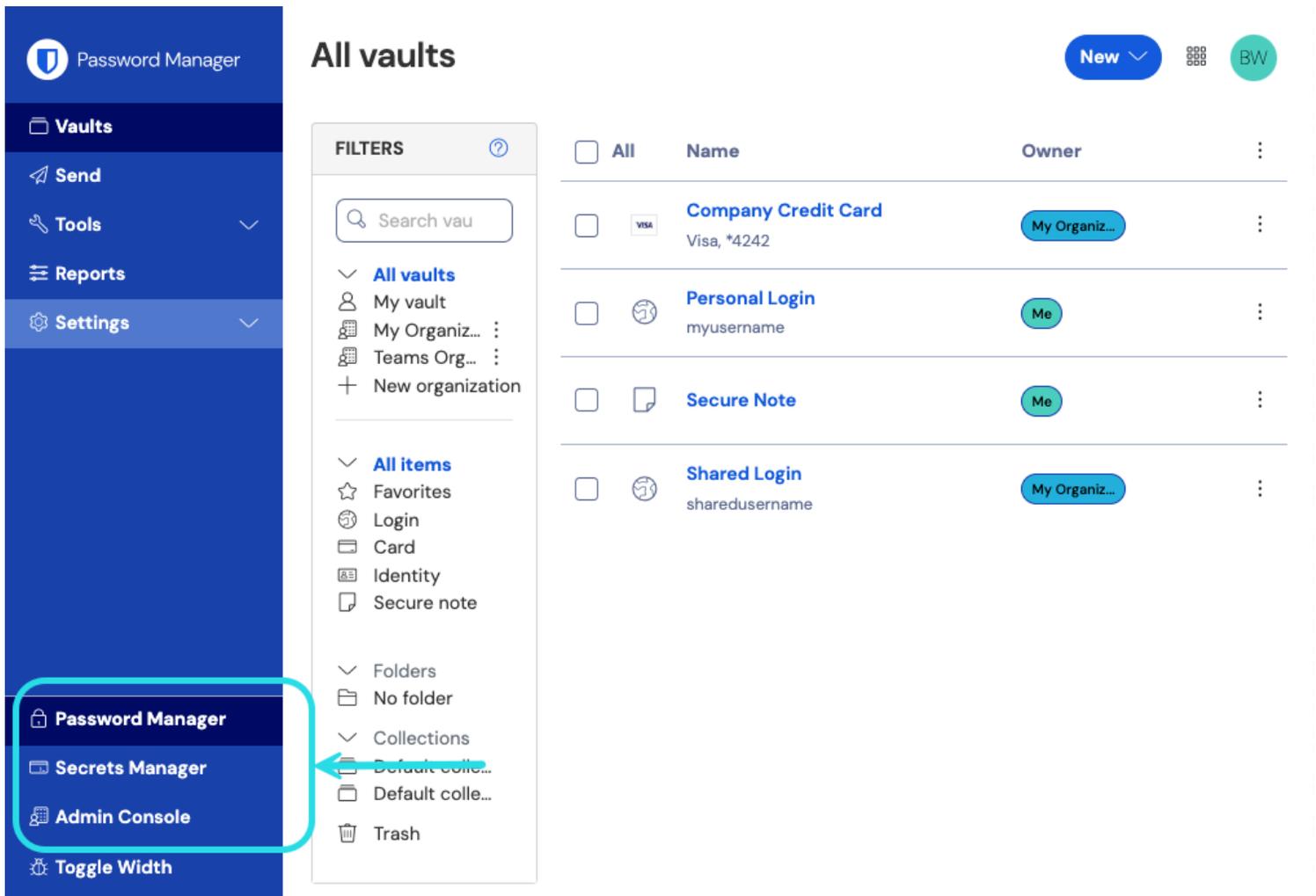
**Choose the earliest Bitwarden event date to retrieve (Default is 1 year).**

**This is intended to be set only on first time setup. Make sure you have no other Bitwarden events to avoid duplications.**

Start date (optional)

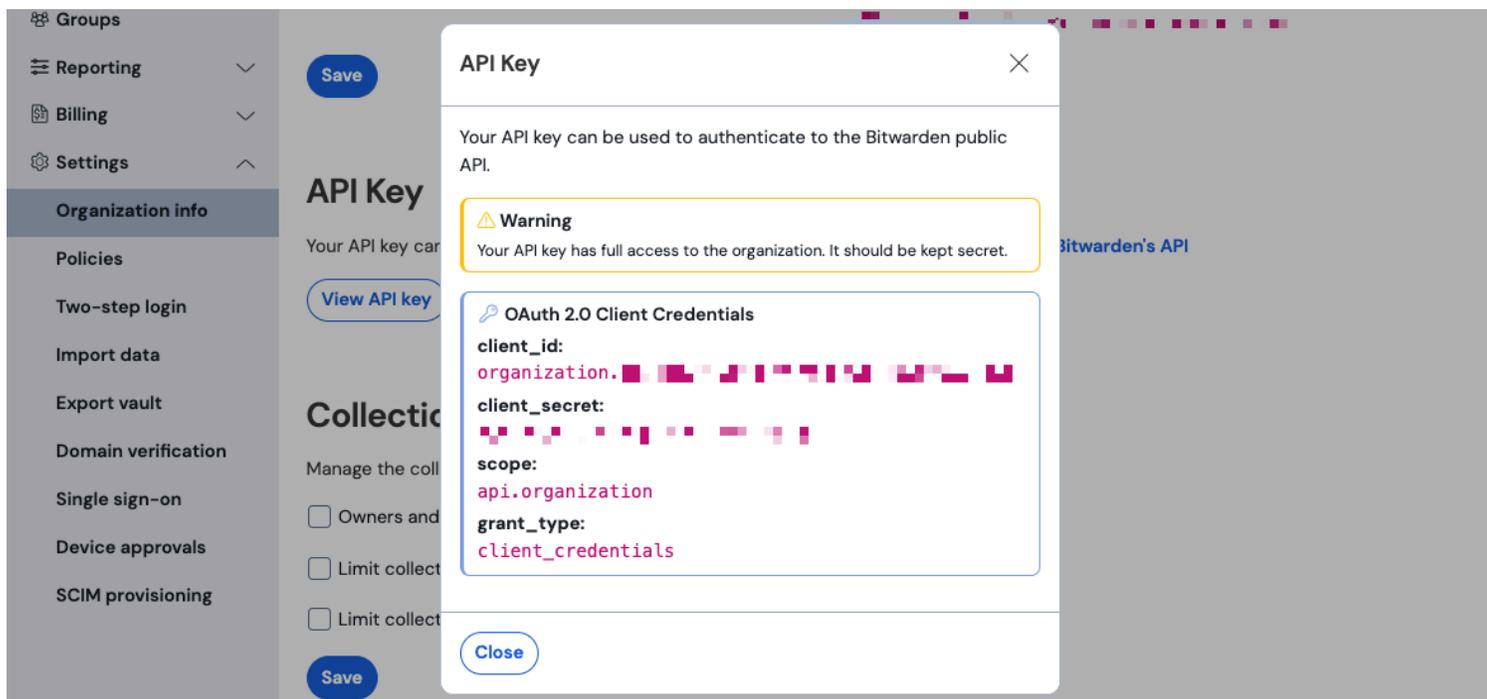
Setup Bitwarden menu

3. Keep this screen open, on another tab, log in to the Bitwarden web app and open the Admin Console using the product switcher:



Product switcher

4. Navigate to your organization's **Settings** → **Organization info** screen and select the **View API key** button. You will be asked to re-enter your master password in order to access your API key information.



Organization api info

5. Copy and paste the `client_id` and `client_secret` values into their respective locations on the Splunk setup page.

Complete the following additional fields as well:

| Field                 | Value   |
|-----------------------|---|
| Index                 | Select the index that was created previously in the guide: <code>bitwarden_events</code> .  |
| Server URL            | For self-hosted Bitwarden users, input your self-hosted URL.<br>For cloud-hosted organizations, use the URL <code>https://vault.bitwarden.com</code> or <code>https://vault.bitwarden.eu</code> . |
| Start date (optional) | Set a start date for data monitoring. When not set, the default date will be set to 1 year. This is a one time configuration, once set, this setting <b>cannot</b> be changed.                    |

**Note**

Your organization API key information is sensitive data. Do not share these values in nonsecure locations.

Once done, select **Submit**.

## Understanding Search Macro

The `bitwarden_event_logs_index` search macro will be created following the initial Bitwarden Event Logs install. To access the macro and adjust settings:

1. Open the **Settings** on to top navigation bar. Then, select **Advanced Search**.
2. Select **Search Macros** to open the list of search macros.

## Search macro permissions

Next, setup which user roles will have permission to use the macro:

1. View macros by selecting **Settings** → **Advanced Search** → **Search macros**.
2. Select **Permissions** on `bitwarden_events_logs_index`. Edit the following permissions and select Save once complete:

**Object should appear in**

This app only (bitwarden\_event\_logs)  
 All apps (system)

**Permissions**

| Roles            | Read                                | Write                               |
|------------------|-------------------------------------|-------------------------------------|
| <b>Everyone</b>  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| apps             | <input type="checkbox"/>            | <input type="checkbox"/>            |
| can_delete       | <input type="checkbox"/>            | <input type="checkbox"/>            |
| list_users_roles | <input type="checkbox"/>            | <input type="checkbox"/>            |
| power            | <input type="checkbox"/>            | <input type="checkbox"/>            |
| sc_admin         | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| tokens_auth      | <input type="checkbox"/>            | <input type="checkbox"/>            |
| user             | <input type="checkbox"/>            | <input type="checkbox"/>            |

Search Macro Permissions

| Field                   | Description  |
|-------------------------|--|
| Object should appear in | In order to use the macro in event searching, select <b>This app only</b> . The macro will not apply if <b>Keep private</b> is selected. |
| Permissions             | Select the desired permissions for user roles with <b>Read</b> and <b>Write</b> access.  |

**Note**

Only one search macro will be functional on the app at a given time.

## Understanding the dashboards

The Dashboard will provide several options for monitoring and visualizing Bitwarden organizational data. The three primary categories of data monitoring include:

- Bitwarden authentication events
- Bitwarden vault item events
- Bitwarden organization events

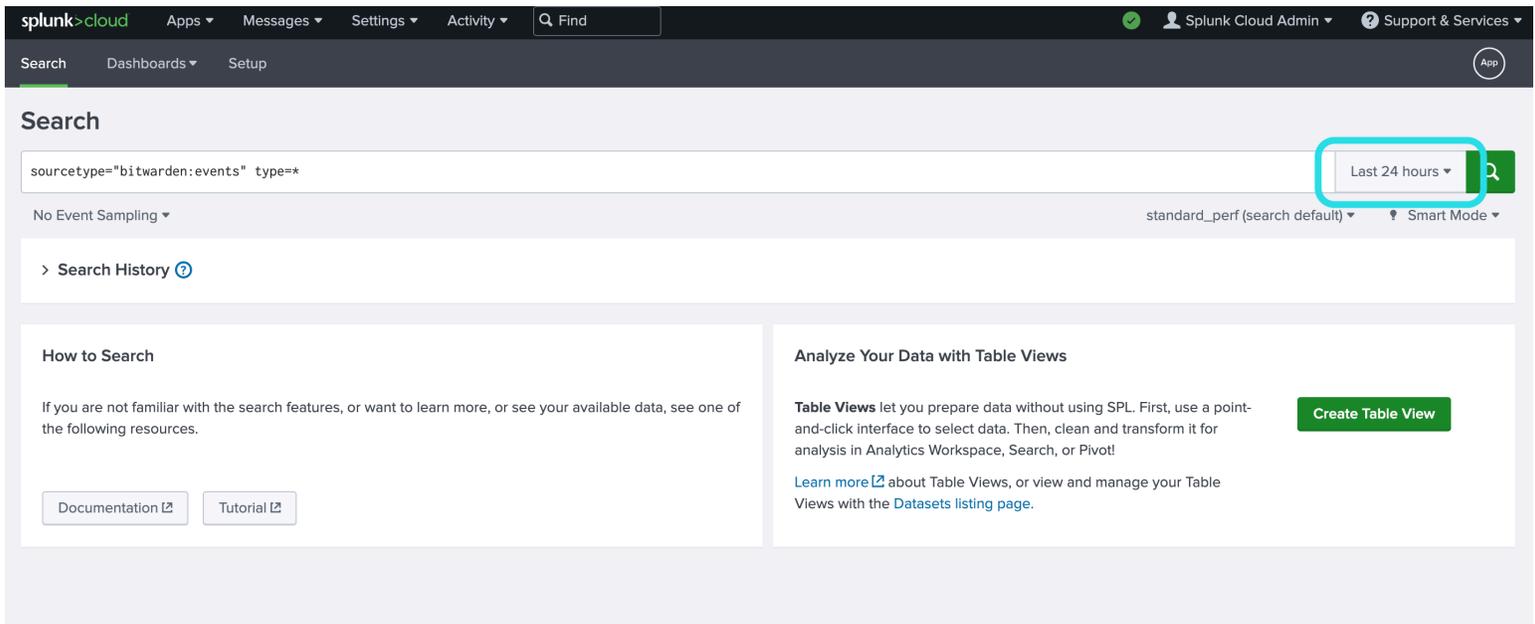
The data displayed on the dashboards will provide information and visualization for a broad variety of searches. More complex queries can be completed by selecting the **Search** tab at the top of the dashboard.

**Note**

Search results will only populate data relevant to a specific event type that occurred. Attributes that are not in-scope for a specific event type will be displayed as **null** in the search results. For example, **collectionId=null** will be present when the event type is a user logging in.

## Timeframe

While searching from the **Search** page or **Dashboards**, searches can be designated to a specific timeframe.



Splunk timeframe search

### Note

For on-premises users, the following timeframes are supported for Bitwarden event logs searches:

- Month to date
- Year to date
- Previous week
- Previous business week
- Previous month
- Previous year
- Last 30 days
- All time

## Query parameters

Set up specific searches by including search queries. Splunk utilizes its search processing language (SPL) method for searching. See [Splunk's documentation](#) for additional details on searches.

### Search structure:

*Bash*

```
search | commands1 arguments1 | commands2 arguments2 | ...
```

An example of a standard search result object:

```

i Time Event
> 4/19/23 { [-]
  2:03:29.265 PM actingUserEmail:
  actingUserId:
  actingUserName:
  date:
  device:
  hash:
  ipAddress:
  type:
}
    
```

Splunk search result object

The fields shown in the standard search object can be included in any specific search. This includes all of the following values:

**Bitwarden Fields**

| Value                        | Description   |
|------------------------------|---|
| <code>actingUserEmail</code> | The email of the user performing the action.                                |
| <code>actingUserId</code>    | Unique id of user performing action.  |
| <code>actingUserName</code>  | Name of the user performing an action.                                      |
| <code>collectionId</code>    | Organization collection id.   |
| <code>device</code>          | Numerical number to identify the device that the action was performed on.   |
| <code>deviceId</code>        | Numerical id of device. Exact mapping can be located <a href="#">here</a> . |

| Value       | Description   |
|-------------|---|
| groupId     | Organization group id.  |
| groupName   | Organization group name.  |
| hash        | Splunk computed data hash. Learn more about Splunk's data integrity <a href="#">here</a> .  |
| ipAddress   | The ip address that performed the event.  |
| itemId      | Vault item (cipher, secure note, etc..) of the organization vault.  |
| memberEmail | Email of the organization member that the action was directed towards.  |
| memberId    | Unique id of the organization member that the action was directed towards.  |
| memberName  | Name of organization member that action was directed towards.   |
| policyId    | Organization policy update. See organization events <a href="#">here</a> .  |
| type        | The event type code that represents the organization event that occurred. See a complete list of event codes with descriptions <a href="#">here</a> . |
| typeName    | Type numerical id. See mappings <a href="#">here</a> .  |

### Splunk default fields

The following Splunk default fields will appear in queries. More information on the Splunk's default fields can be located in the [Splunk documentation](#).

Fields:

- `source`
- `sourcetype`
- `date`
  - `date_hour`
  - `date_mday`
  - `date_minute`
  - `date_month`
  - `date_second`
  - `date_wday`
  - `date_year`
  - `date_zone`
- `index`
- `linecount`
- `punct`
- `splunk_server`
- `timestamp`

#### Note

Attributes that are not relevant to the event type will be reported as `null`.

#### Search all:

*Bash*

```
sourcetype="bitwarden:events" type=*
```

#### Filter results by a specific field

In the following example, the search is looking for `actingUserName` with a `*` wildcard which will display all results with `actingUserName`.

*Bash*

```
sourcetype="bitwarden:events" actingUserName=*
```

The **AND operator** is implied in Splunk searches. The following query will search for results containing a specific `type` AND `actingUserName`.

*Bash*

```
sourcetype="bitwarden:events" type=1000 actingUserName="John Doe"
```

Include multiple commands by separating with `|`. The following will show results with the top value being `ipAddress`.

*Bash*

```
sourcetype="bitwarden:events" type=1115 actingUserName="John Doe" | top ipAddress
```

## Additional resources

### Set user roles

Manage users roles to allow individuals to perform specific tasks. To edit user roles:

1. Open the **Settings** menu on the top navigation bar.
2. Select **Users** from the bottom right corner of the menu.
3. From the users screen, locate the user that you wish to edit permissions for and select **Edit**.

Splunk edit user permissions

From this screen, details for the user can be filled out. Permission such as **admin**, **power**, and **can\_delete** can be individually assigned here as well.

### Delete data

Delete Bitwarden search data by clearing the index with SSH access. Data may need to be cleared in instances such as changing the organization being monitored.

1. Access the Splunk directory and **stop** Splunk processes.
2. Clear the **bitwarden\_events** index with **-index** flag. For example:

*Plain Text*

```
splunk clean eventdata -index bitwarden_events
```

3. Restart Splunk processes.

## Troubleshooting

- Splunk Enterprise users, the app will log to: `/opt/splunk/var/log/splunk/bitwarden_event_logs.log`

If you are experiencing any errors, or the Bitwarden app is not functioning correctly, users can check the log file for errors or see [Splunk's documentation](#).