PRODUCT MANUAL

Internet of Things

CampbellCloud

Your Cloud-Based Solution for Managing Environmental Monitoring Networks

Revision: 12/2024

RELIABLE MONITORING SINCE 1974

Campbell SCIENTIFIC®

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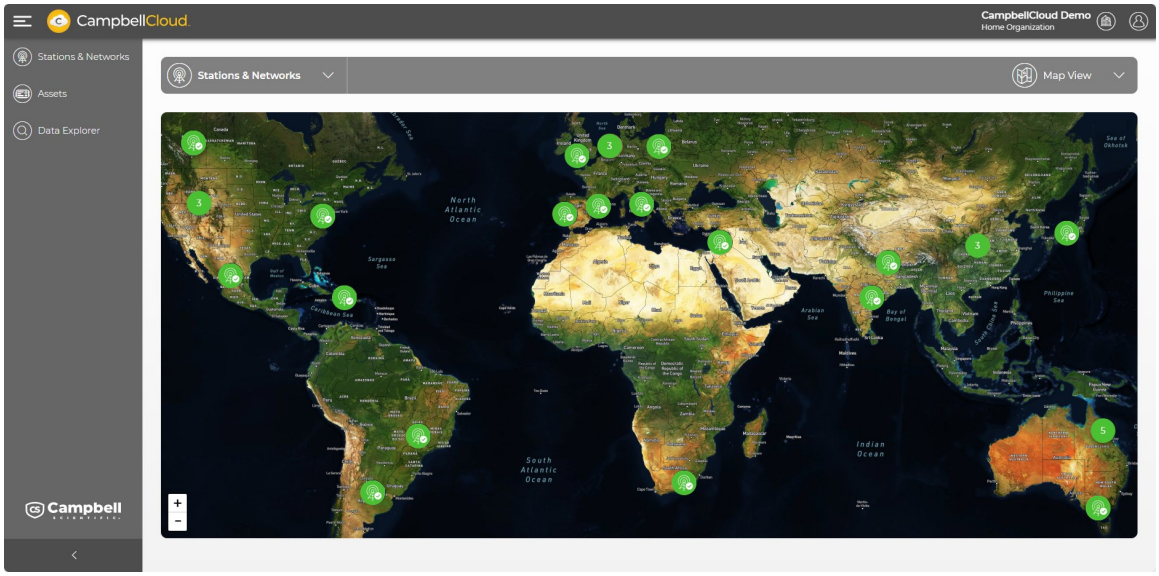
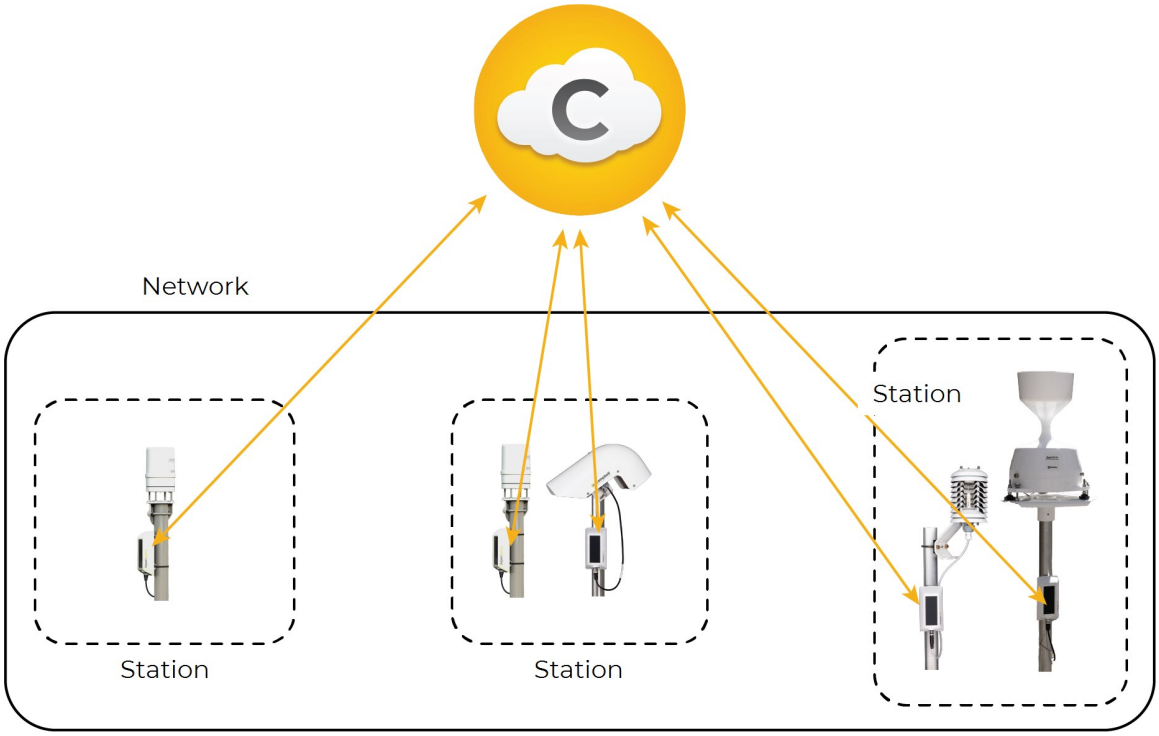
1. Introduction

CampbellCloud (Cloud) provides a secure and resilient cloud-based service for remotely managing networks of environmental monitoring stations. With cross-browser compatibility and no software to install, CampbellCloud is accessible to everyone and provides a modern, user-friendly user interface (UI) with self-manage subscription capabilities that allow organizations to be up and running in minutes. This service is designed around the latest technologies to ensure data security and accessibility. It is structured to be cost-effective, offering a simple, low monthly subscription that scales according to the user's needs, whether it's for a single data logger or a large network of stations. See Subscriptions (p. 41) for more information.



The following figure shows a network consisting of three stations. Each station has one or more assets associated with it.



2. Cloud administrator

In order to use CampbellCloud you must be associated with an organization account, either as the account administrator or as an account user. The account is free to set up.

The organization account administrator will be responsible for providing the subscription-management billing information. The account administrator may also be the owner, or a user with privileges.

> **NOTE:**
> In this context, an organization is an individual, business, or organization that uses CampbellCloud services to manage a network of stations.

Some administrator tasks are described in the following sections.

2.1 Creating a CampbellCloud organization account

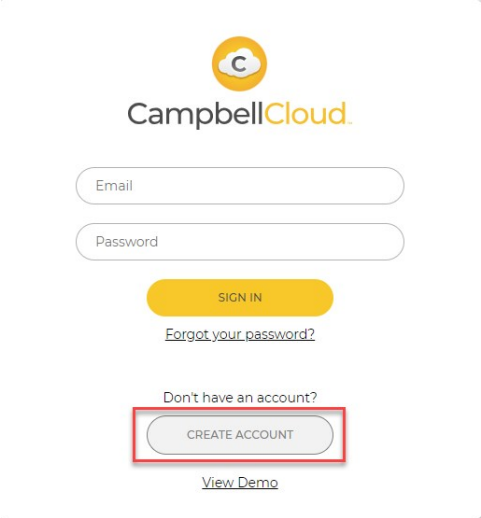
If you are not the account administrator but need to join an account as a user, an account administrator should invite you to join the account. The email invitation will be from *hello@campbell-cloud.com* and will include instructions to join the account as a user.

NOTE:
If you are not the account administrator, proceed to the Become a CampbellCloud user (p. 22) section.

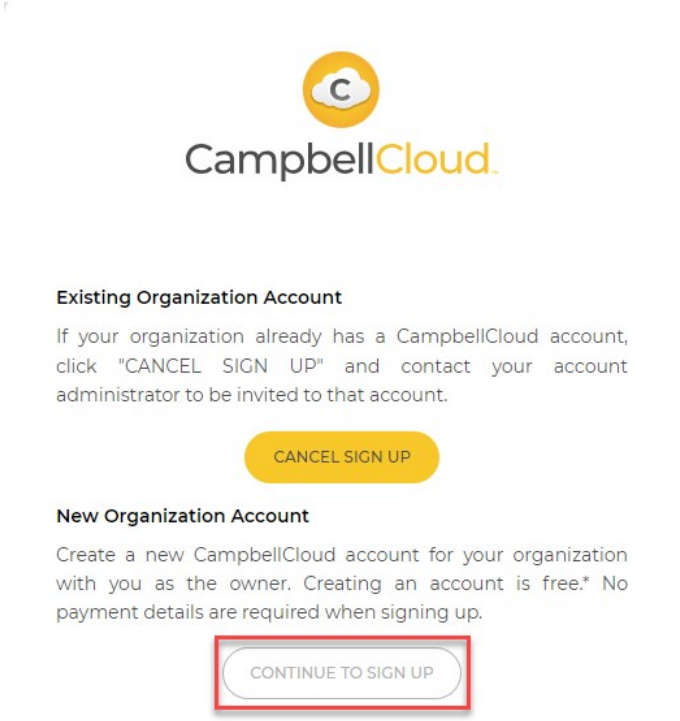
CAUTION:
If you or your organization already has a ***CampbellCloud*** organization account, do not create another one.

If you are the administrator, follow these steps to create an account:

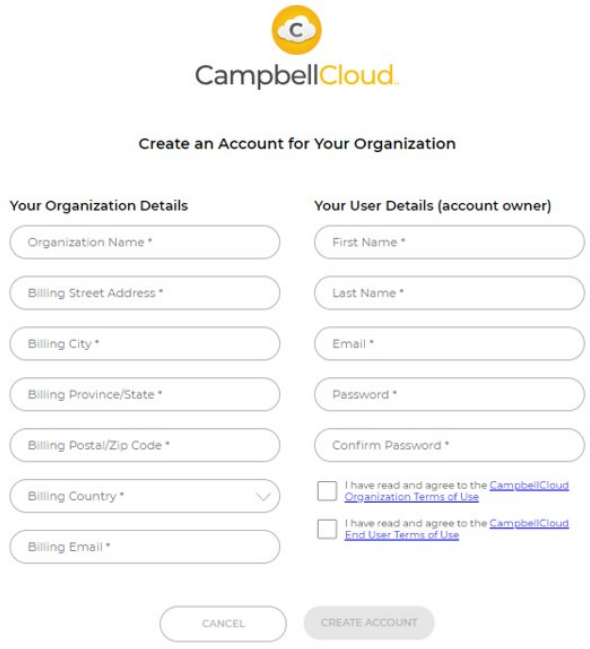
1. Using a web browser go to https://iot.campbell-cloud.com.
2. Click **REGISTER**.
3. Click **CREATE ACCOUNT**.



4. If you are the person who will be responsible for the organization account, click **CONTINUE TO SIGN UP**.



5. Fill out the form.



6. Read and select the check box for each agreement.

7. Click **CREATE ACCOUNT**.
8. You should receive an email confirmation from *hello@campbell-cloud.com*.
9. Click **Verify your email**. A new browser tab will open.
10. Click **SIGN IN** and proceed to CampbellCloud.

> **NOTE:**
> Your user name is the email you signed up with.

For more information on creating a CampbellCloud organization account, watch an instructional video at: https://www.campbellsci.com/videos/cloud02.

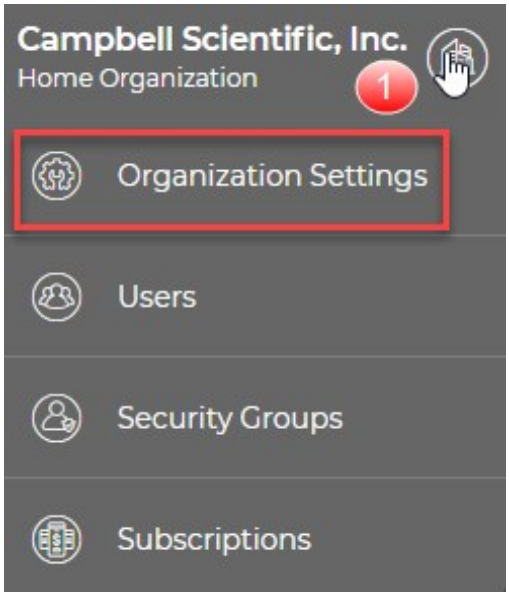
2.2 Changing default organization settings

Organization settings can be adjusted to tailor data views to specific organizational needs. These settings will affect all users in the organization.

> **NOTE:**
> To control a specific user's settings see: Configuring user settings (p. 19).

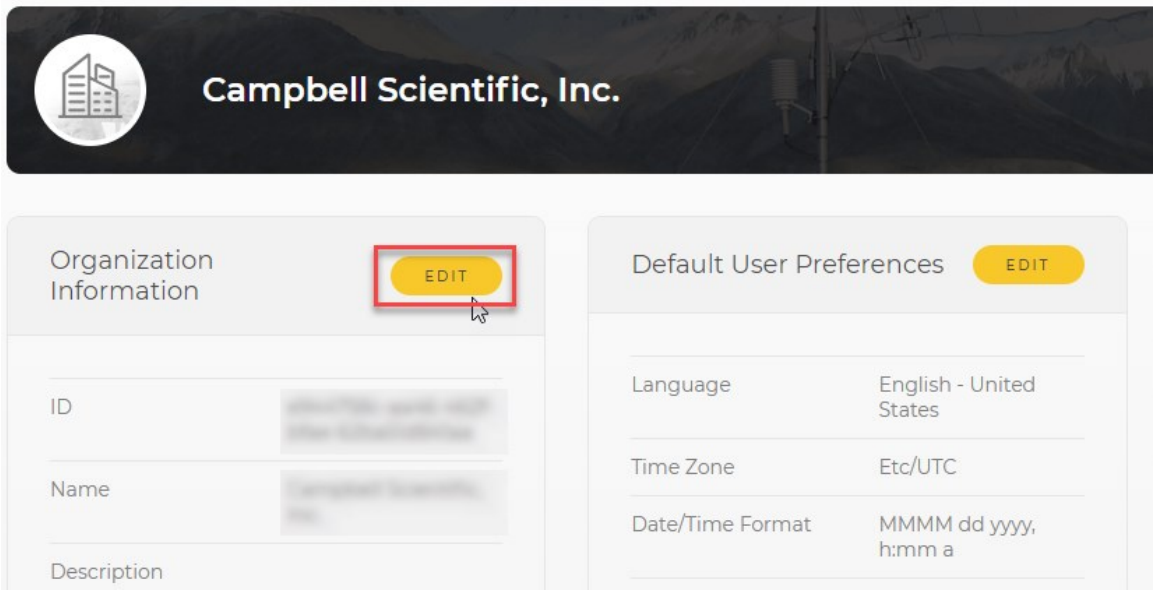
1. On the CampbellCloud home page, click on the organization name in the upper right corner.

2. Select **Organization Settings**.

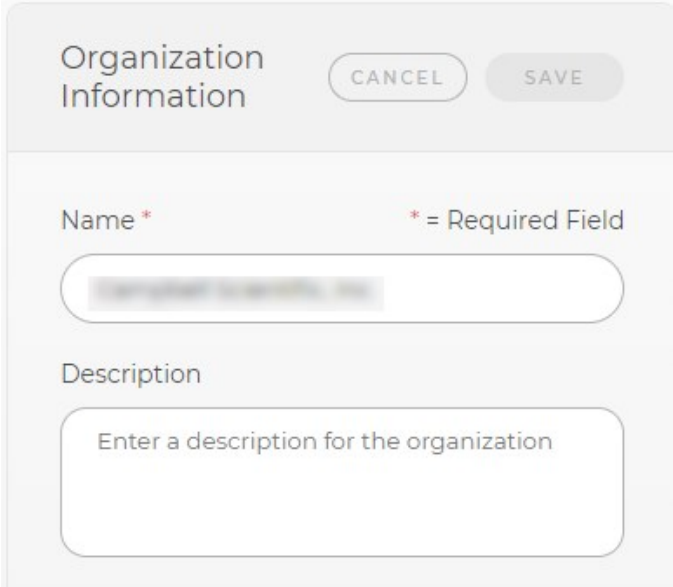


3. A new page appears with **Organization Information** and **Default User Preferences** sections.

   The organization name was assigned when setting up the organization account. To change the organization name or add a description of the organization, click **EDIT** next to **Organization Information**.

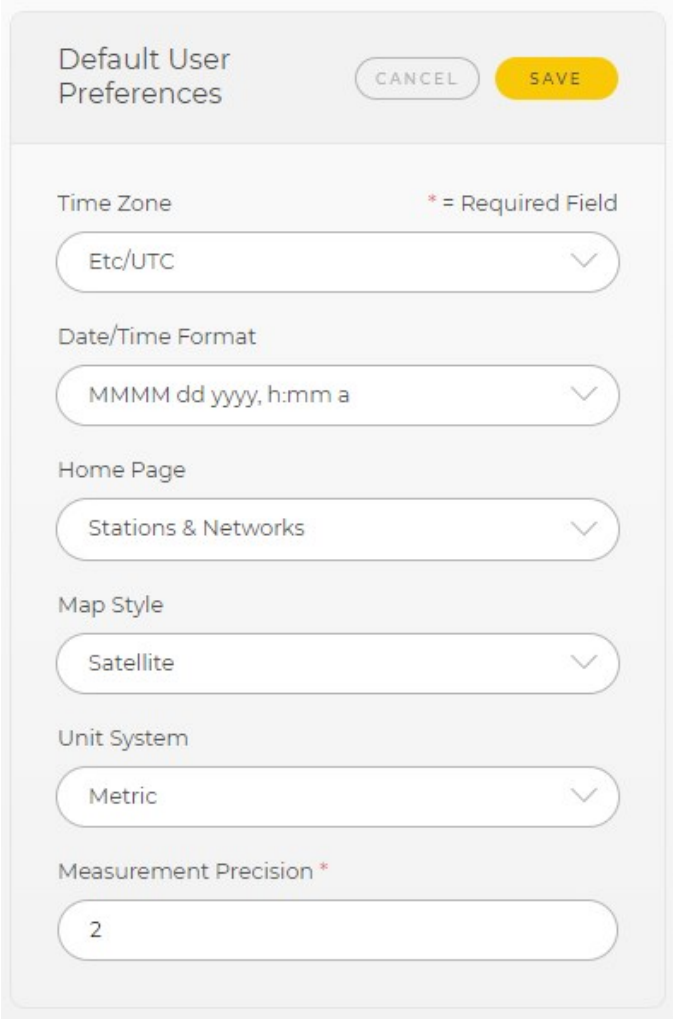


4. An organization name is required, but a description is optional. Click **SAVE** to save changes and return to the **Organization Settings** screen.



5. An account administrator can set default user preferences for all individuals in their organization. That way, every user will have a similar experience. Individual users may be given permission to edit their own settings. See Changing user settings (p. 43).

   To change the default user preferences, click **EDIT** next to **Default User Preferences**. This screen allows modifications to time zones, date/time format, home page displayed, map style, unit system, and measurement precision. Click **SAVE** to save changes and return to the **Organization Settings**.



For more information on changing default organization settings, watch an instructional video at: https://www.campbellsci.com/videos/cloud01.

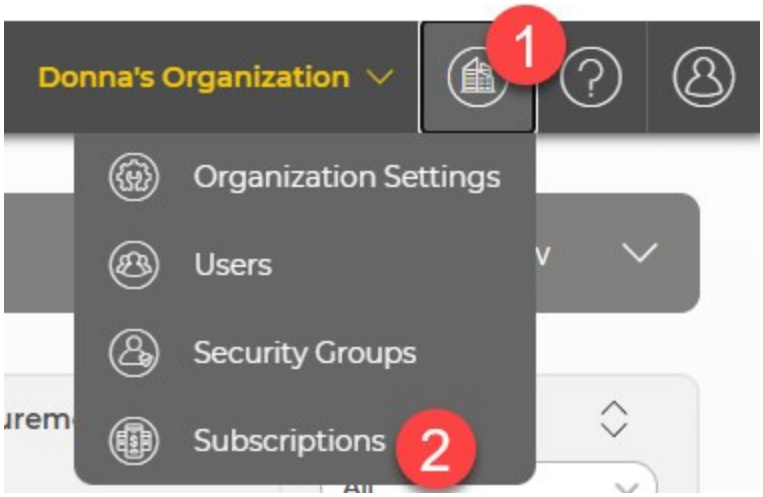
2.3 Ordering and activating subscriptions

Data source subscriptions can be ordered directly from CampbellCloud.

NOTE:
To purchase data source subscriptions, a user must have the appropriate permissions for the **Subscriptions** application. If a user lacks these permissions, they should contact the organization's account owner for assistance.

Follow these steps to order a data source subscription:

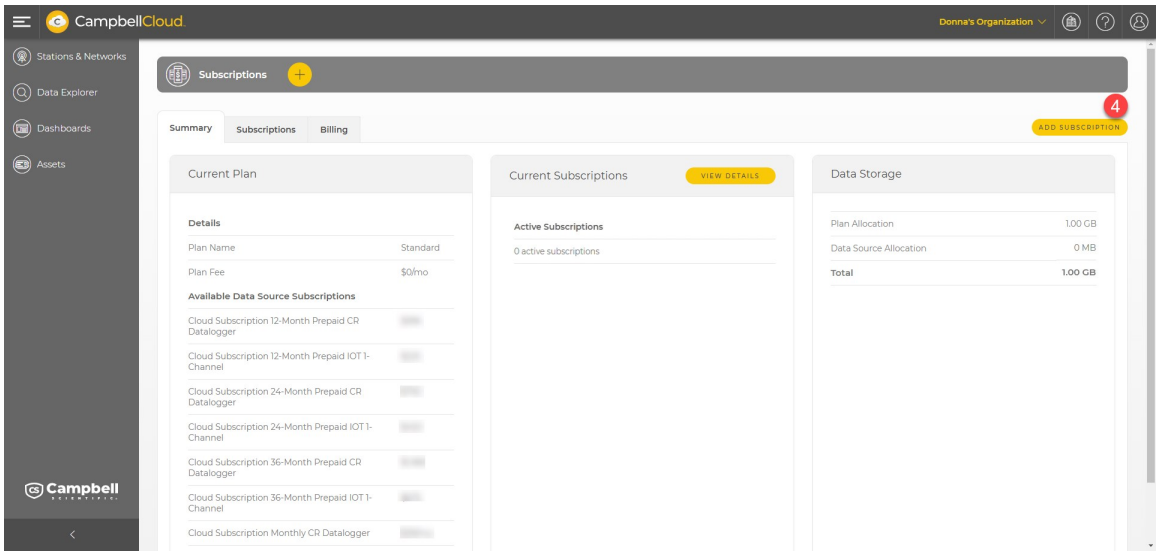
1. Go to the CampbellCloud home page and click on the organization menu in the upper, right corner.



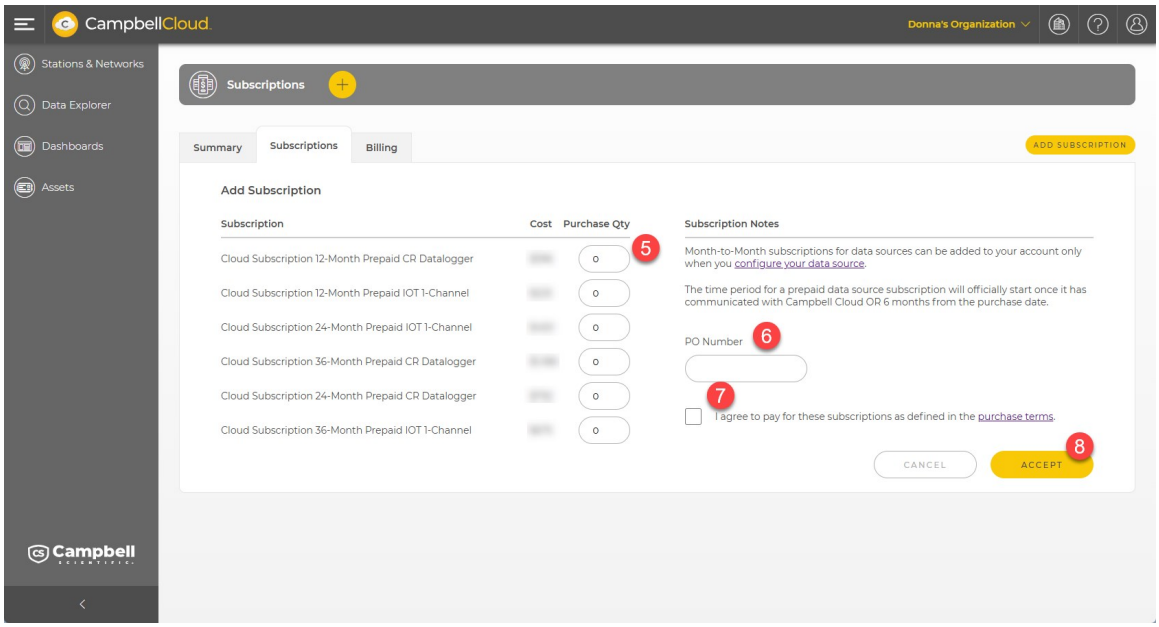
2. Click **Subscriptions**.
3. Once in the **Subscriptions** application, a summary page is displayed. This shows the available data source subscriptions and the associated cost with each subscription. The currency shown is region dependent.

   In CampbellCloud, users have the flexibility to pre-purchase 12-, 24-, and 36-month data source subscriptions. Alternatively, if a data logger is on-boarded to CampbellCloud without a pre-purchased subscription, when the data source is activated, CampbellCloud will automatically assign a 12-month prepaid one-tier data logger subscription. You have until the start date shown on the subscription to change this, if desired.

   The summary page also shows the number of active data source subscriptions within the organization's account.



4. To order a subscription, click **Add Subscription** in the top right.
5. Select the quantity of each type of subscription that you would like to purchase.

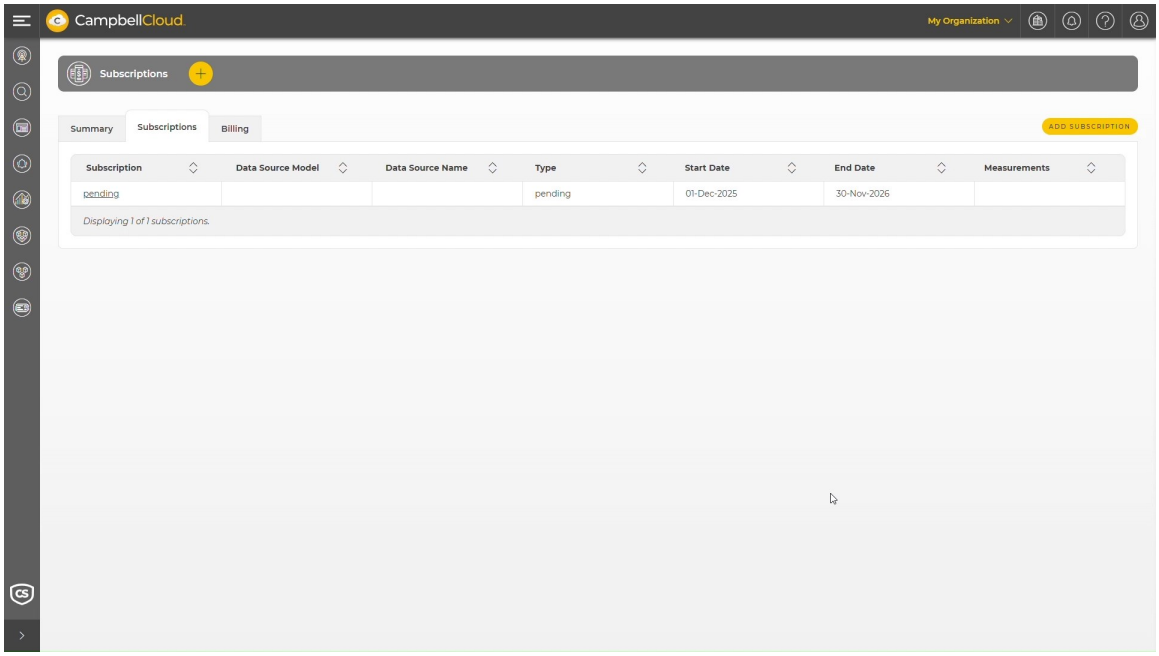


6. Provide a purchase order number, which will be referenced on subscription invoices received by the organization. The PO Number is also found in the summary billing information under the **Billing** tab in the **Subscriptions** application.
7. Select the box to agree to the purchase terms.

8. When ready, click **Accept** and CampbellCloud will process the subscription order request and immediately add the subscriptions into the organization account.

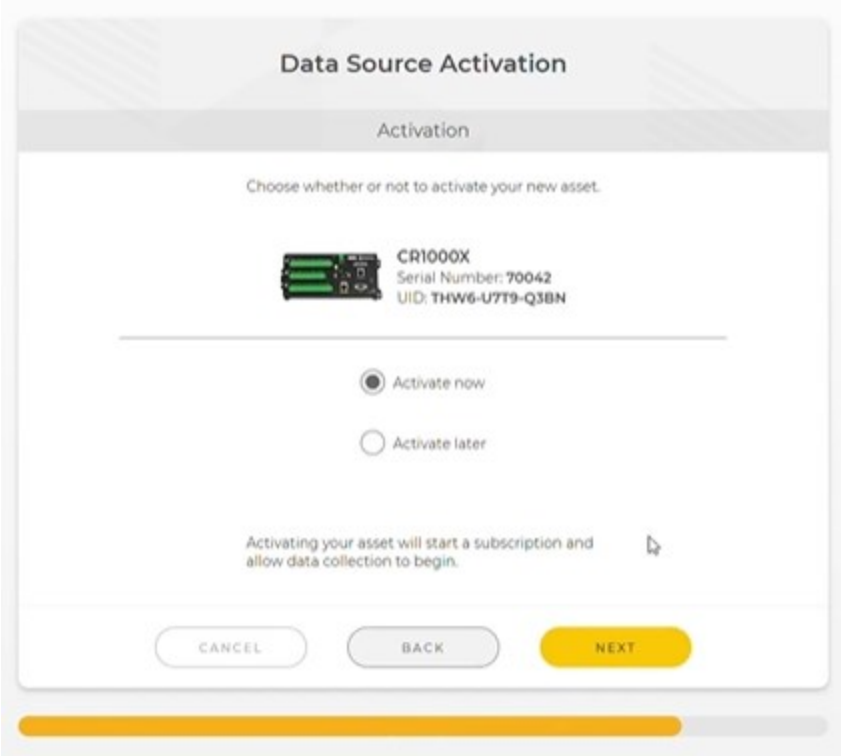
> **NOTE:**
> Payment is not required when adding a subscription. The organization's billing contact, designated during the creation of the organization's CampbellCloud account, will receive subscription invoices from the Campbell Scientific billing office on, or just after, the first of the following month. Payment should be made according to the organization's established payment terms.

9. The newly ordered subscription appears as "pending" in the **Subscriptions** application. By default, the start date of a pre-purchased subscription is set to one year from the order date, rounded to the first day of the following month. This means you have up to one year before the subscription will auto-start. At any point during this period, you can activate the subscription. Once activated, CampbellCloud will automatically adjust the subscription start date to reflect when the subscription was activated, again, rounding to the first of the next month.



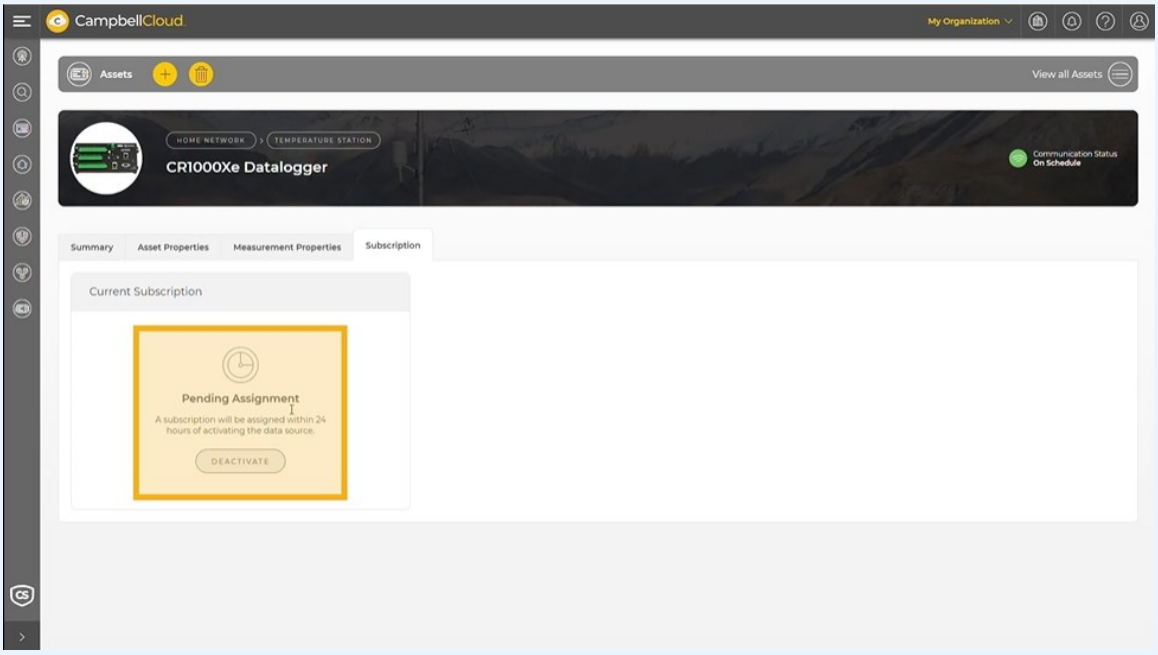
10. To activate the subscription, you need to make sure the data source to be used with the subscription is linked to a station. See Adding a station to a network (p. 48) and Adding an asset to a station (p. 53).

11. After adding the asset to the station, you will be prompted to choose whether to activate the data source now or later. Select **Activate now** to start a subscription and enable data collection to begin. If your account has a pre-purchased subscription compatible with this data source (as documented in the preceding steps), CampbellCloud will automatically use this.



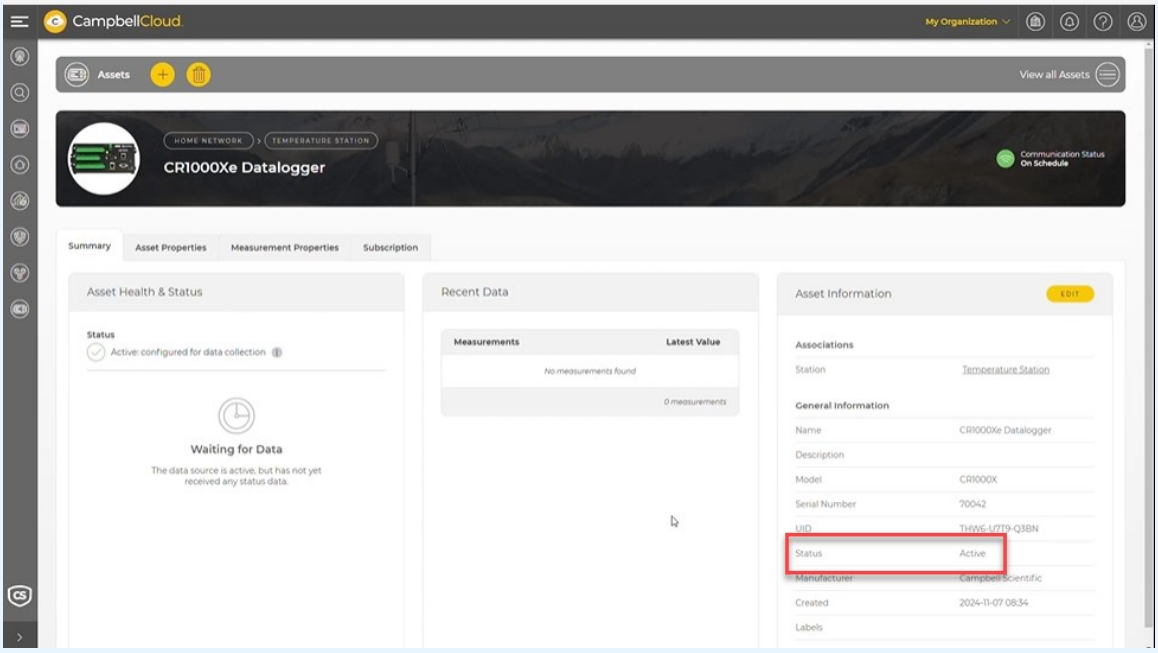
NOTE:
It may take some time for the subscription information to update within the **Subscriptions** application, including reflecting the assignment of a pre-purchased subscription to the data source with the adjusted start date.

During this process, the data source subscription will display as "pending assignment." Once the process is complete, the pre-purchased subscription will be assigned to the data source, and the status will update accordingly.



This process can take up to 24 hours, but typically will update within a couple of hours. This doesn't stop you from using the data source, though.

When the data source is showing as active, it's ready to go.



For more information on ordering and activating a subscription directly in CampbellCloud, watch an instructional video at: CampbellCloud The Subscriptions Application.

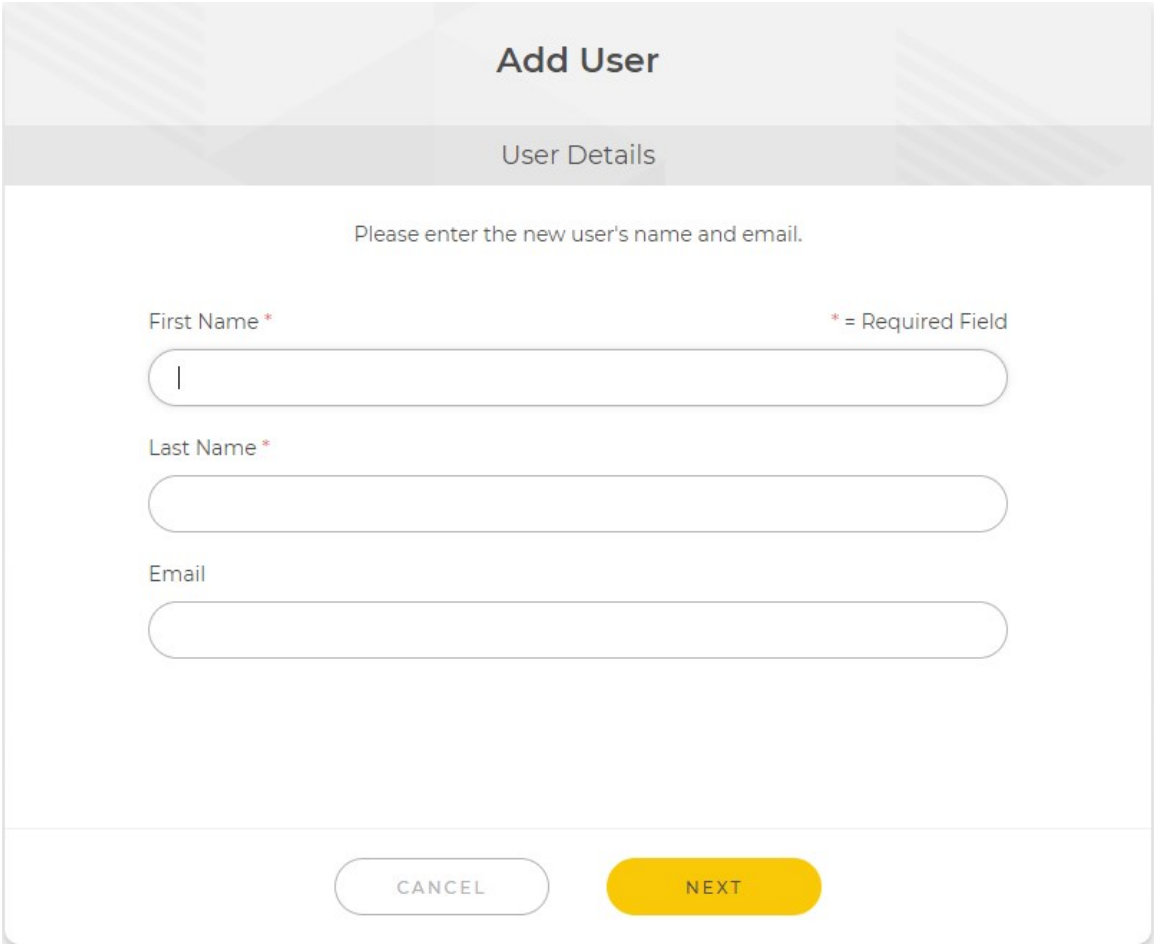
2.4 Adding users

Most organizations will have several, or many, users associated with their organization. Account administrators can invite users to join their organization.

1. On the CampbellCloud home page, click on the organization name in the upper right corner.

2. Select **Users**.
3. Click  .

4. Enter the new user's details. Click **NEXT**.



5. If Security Groups have already been set up you can add the user to specific groups. If not, click **FINISH**.

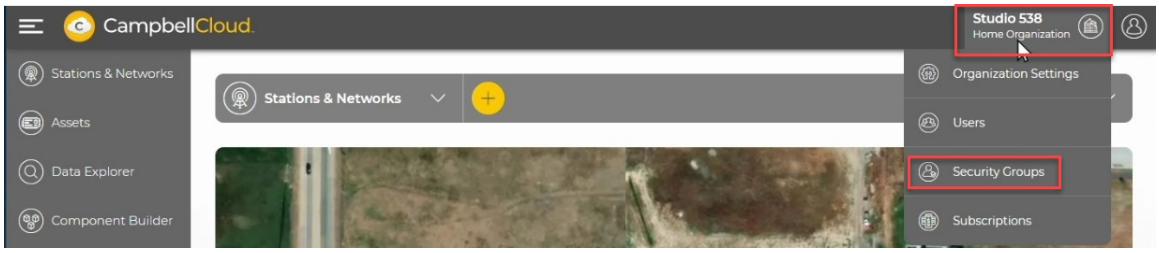
For more information on adding a new user, watch an instructional video at: https://www.campbellsci.com/videos/cloud03.

2.5 Adding a security group to an organization account

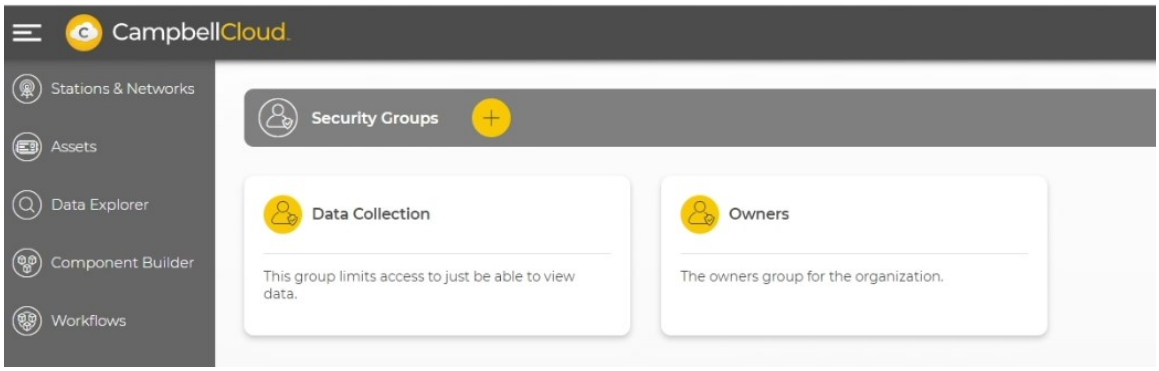
Security groups can be set up in CampbellCloud to restrict specific users' access to certain applications, data, or locations. This ensures that unauthorized users cannot modify network or station settings. For more information about specific applications, see Applications (p. 26).

Follow these steps to add a new security group:

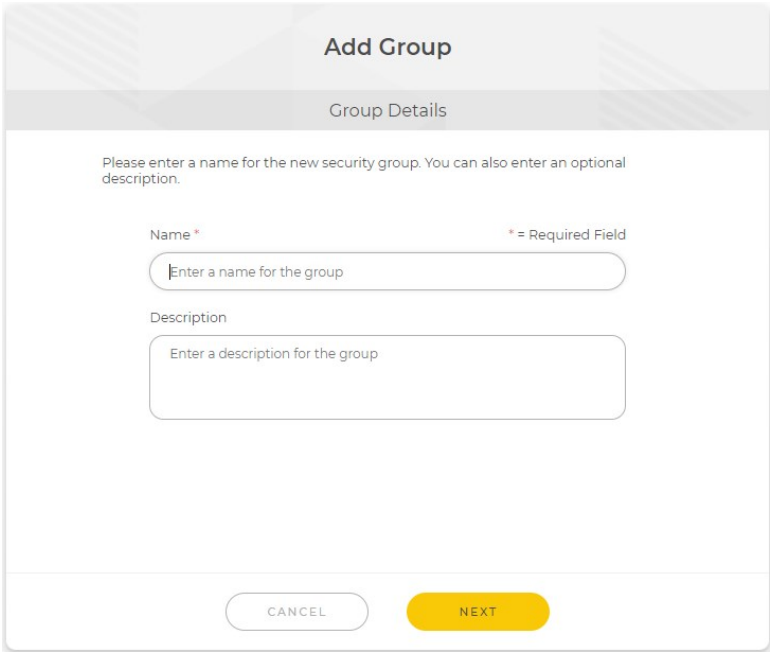
1. Go to the CampbellCloud home page and click on the organization name in the upper, right corner.
2. Click **Security Groups**.



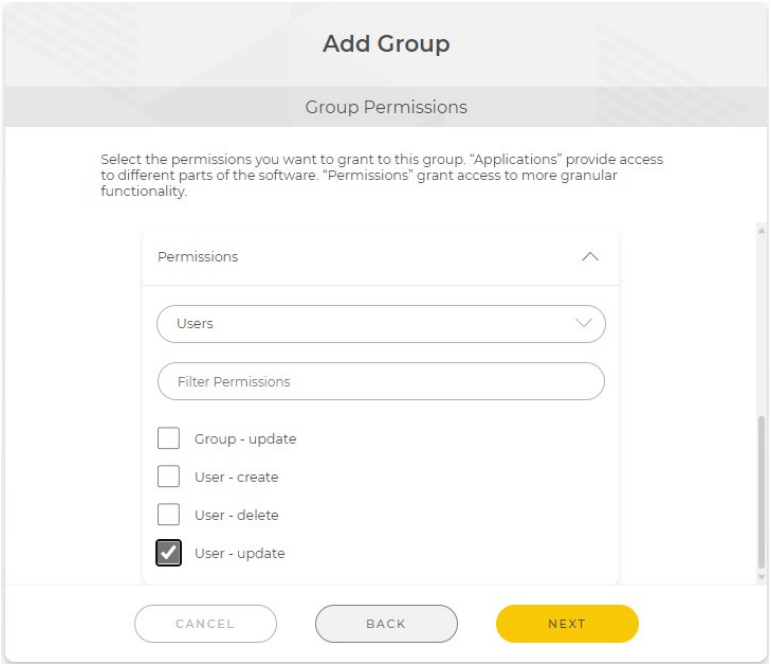
3. A list of existing security groups appears. Click on + at the top of the page to add a new security group.



4. Enter a name and optional description for the new security group, then click **NEXT**.

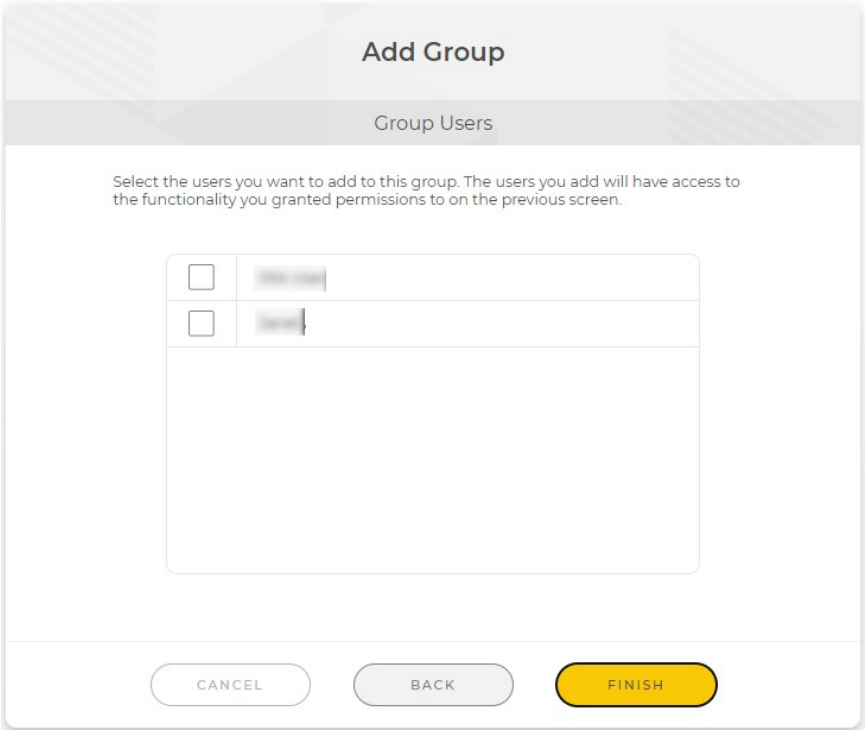


5. A new page appears with a list of applications that users could have access to. Select the applications you want to grant access to for this group. Scroll down in this same window to see a list of permissions. These permissions allow administrators more granular control of which application settings users have access to. For example, selecting **Users** as the application, and then selecting **User-update** allows users to update their own settings, such as preferred time zone, when logged into CampbellCloud.

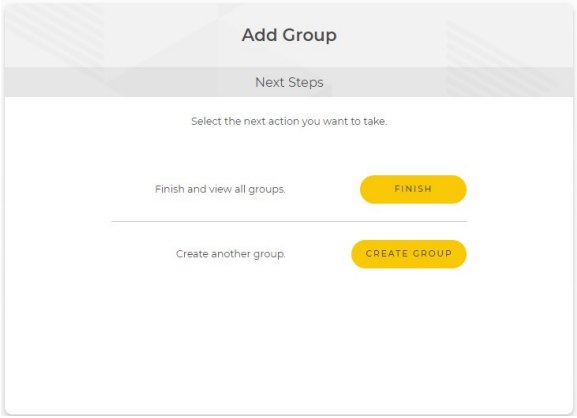


6. Click **NEXT**.

7. Select which users in your organization you want to add to this new security group.



8. Click **FINISH**. A new page appears. Click **FINISH** to proceed, or **CREATE GROUP** to create another security group.



For more information on adding a new security group, watch an instructional video at: https://www.campbellsci.com/videos/cloud04.

2.6 Configuring user settings

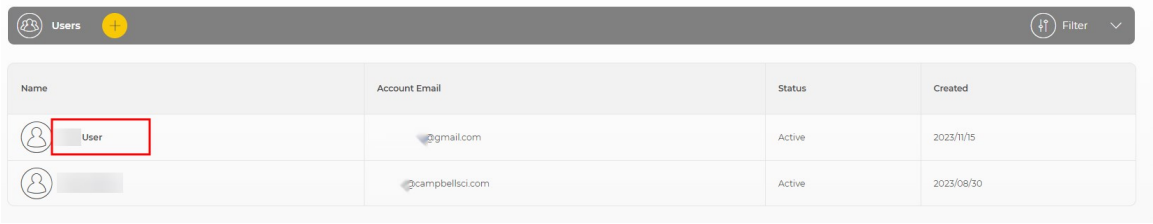
A CampbellCloud account administrator has the option to configure individual user settings.

NOTE:
This is different than configuring the organization settings. See Changing default organization settings (p. 5).

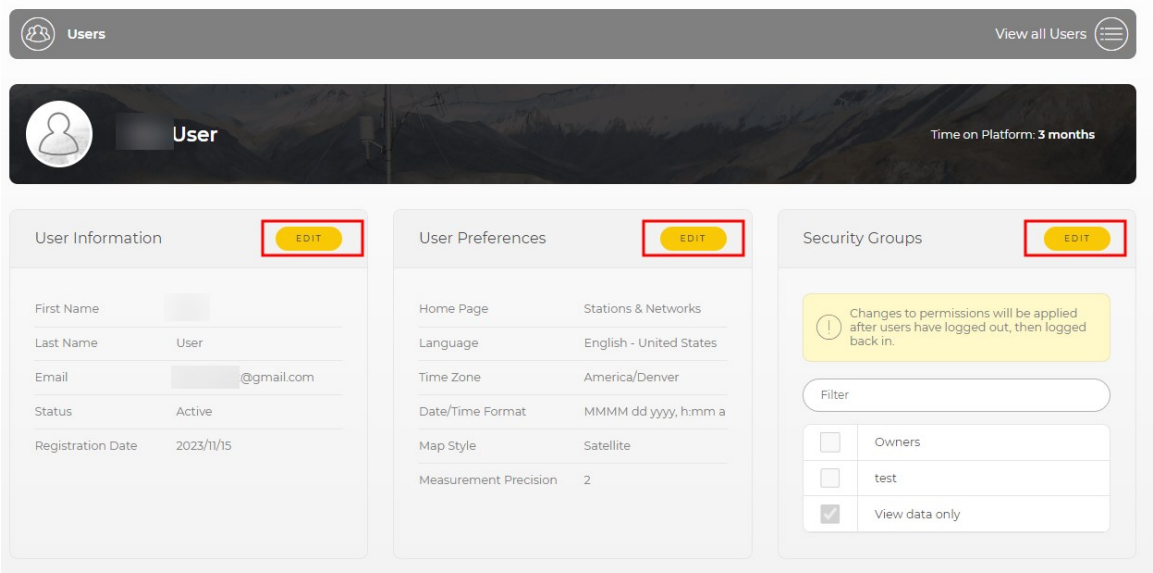
Follow these steps to configure one user's settings.

1. On the CampbellCloud home page, click on the organization name in the upper right corner.

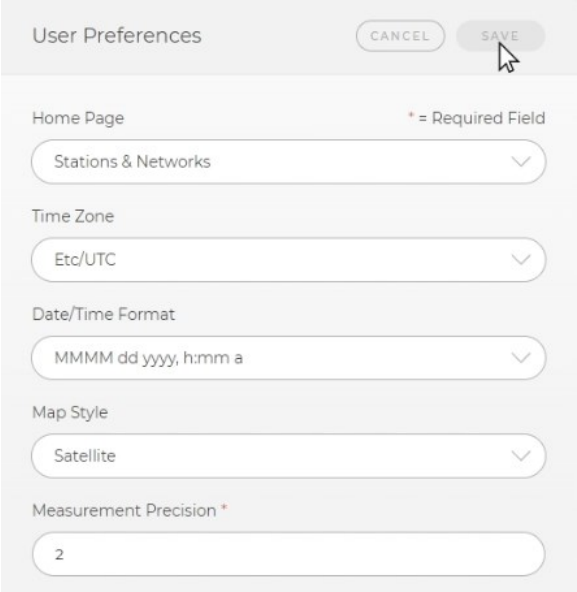
2. Select **Users**. A list of users in the organization appears.
3. Click on the user name.



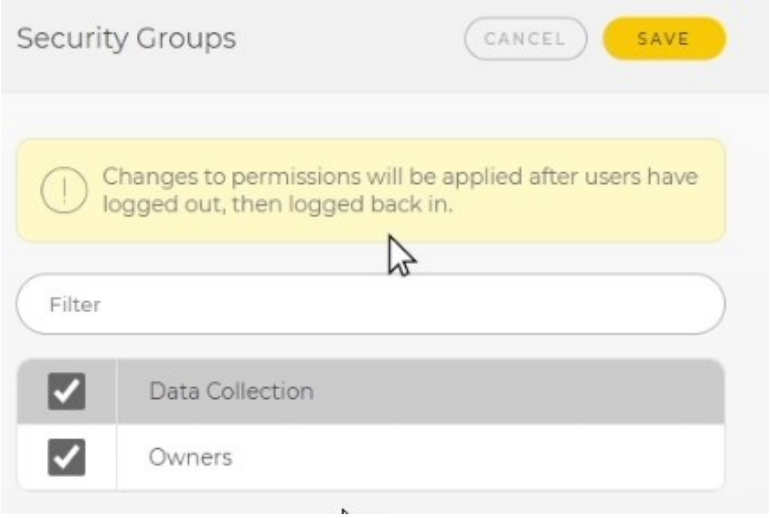
4. A new page opens. Click **EDIT** next to **User Information**, **User Preferences**, or **Security Groups**.



5. **User Preferences** include default home page, language, time zone, date/time format, map style, and measurement precision.



6. **Security Groups** determine which groups a user has access to when using CampbellCloud.



7. **SAVE** any changes before leaving.

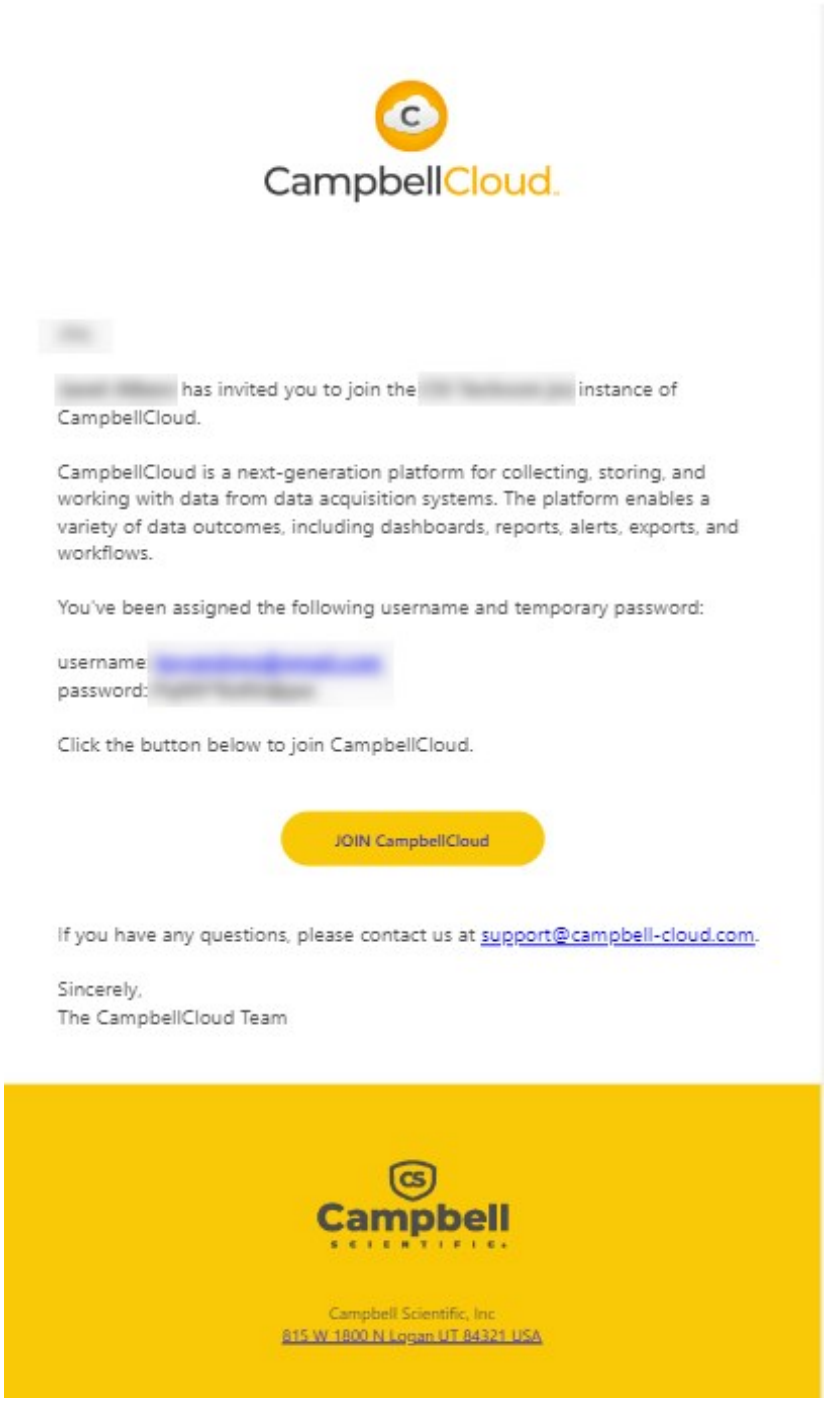
For more information on an account administrator changing an individual user's preferences, watch an instructional video at: https://www.campbellsci.com/videos/cloud06.

3. Become a CampbellCloud user

Every CampbellCloud user must be associated with an organization. Your organization administrator should invite you to be a member. Shortly thereafter you will receive an email from *hello@campbell-cloud.com*.

> **NOTE:**
> Organization owners are automatically set up as users. If you are the owner and need to set up the organization, see Creating a CampbellCloud organization account (p. 3).

The email you receive should look similar to the following:



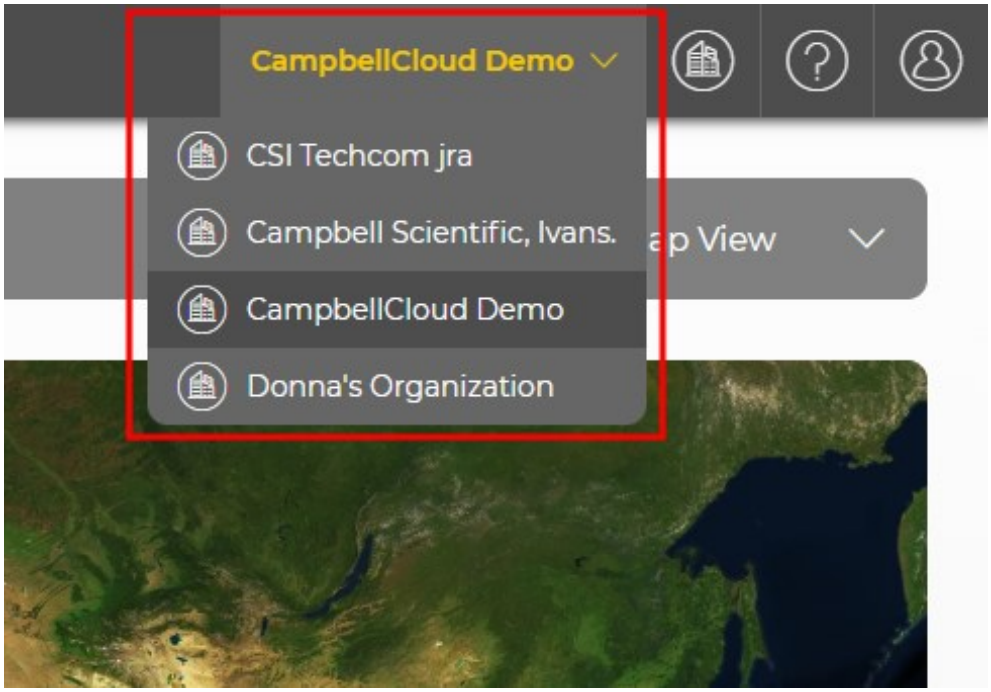
Click **JOIN CampbellCloud**.

Your organization administrator assigned you to one or more security groups. Each security group has a defined set of permissions. Contact your organization administrator for more information.

For more information on becoming a CampbellCloud user, watch an instructional video at: https://www.campbellsci.com/videos/cloud03.

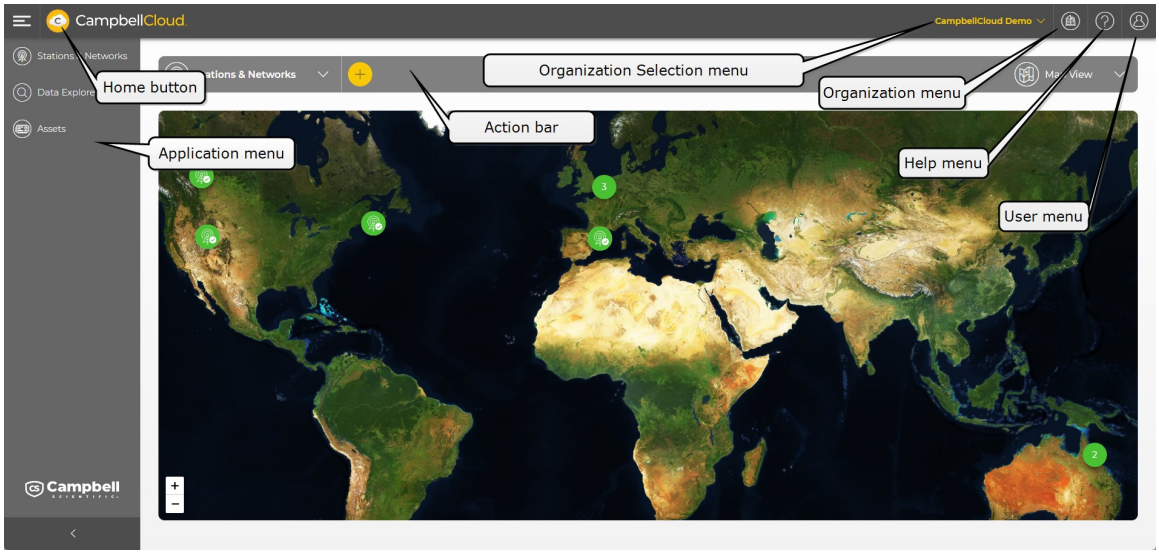
3.1 Switching between organizations

If you have been added to more than one organization, you can switch between organizations here:



4. CampbellCloud UI

Once signed in to CampbellCloud, a screen similar to this appears:



Application menu – displays specific applications. Expand and collapse the menu using the **>** at the bottom.

Action bar – used to perform actions within an application, such as adding and deleting stations in the **Stations & Networks** application, for example.

Organization Selection menu – used to switch between organizations, when a user belongs to more than one CampbellCloud organization.

Organization menu – a dropdown menu which contains the **Organization Settings**, **Users**, **Security Groups**, and **Subscriptions** applications.

Help menu – a dropdown menu to bring up the **CampbellCloud Help**, **API Documentation**, or **Measurement Classifications**.

User menu – a dropdown menu which contains the **My Settings** application, the **Sign out** button, and options to **Submit Feedback**, **Report a Bug**, and **Request Support**.

> NOTE:
> Users are automatically signed out after being inactive for 40 minutes.

Home button – the CampbellCloud icon  acts as your home button. Select this to navigate back to your home screen. Users with correct permissions can change their default home screen via the **My Settings** application.

5. Applications

Applications (Apps) in CampbellCloud provide grouped functionality to enable users to perform specific tasks. Apps are accessed via the left-hand **Application** menu or the **Organization** dropdown menu on the top menu bar, depending on the specific application required.

Security groups can be set up by account administrators to restrict specific users' access to certain applications, data, or locations. For more information, see Adding a security group to an organization account (p. 15).

The following sections describe some Cloud apps.

5.1 Stations & Networks

The **Stations & Networks** application is used for managing stations and networks. Its key functions include the following:

- Creating and viewing networks and stations
- Monitoring network status and station alerts through summary maps
- Viewing the latest data through station summaries
- Reviewing detailed station health and status information

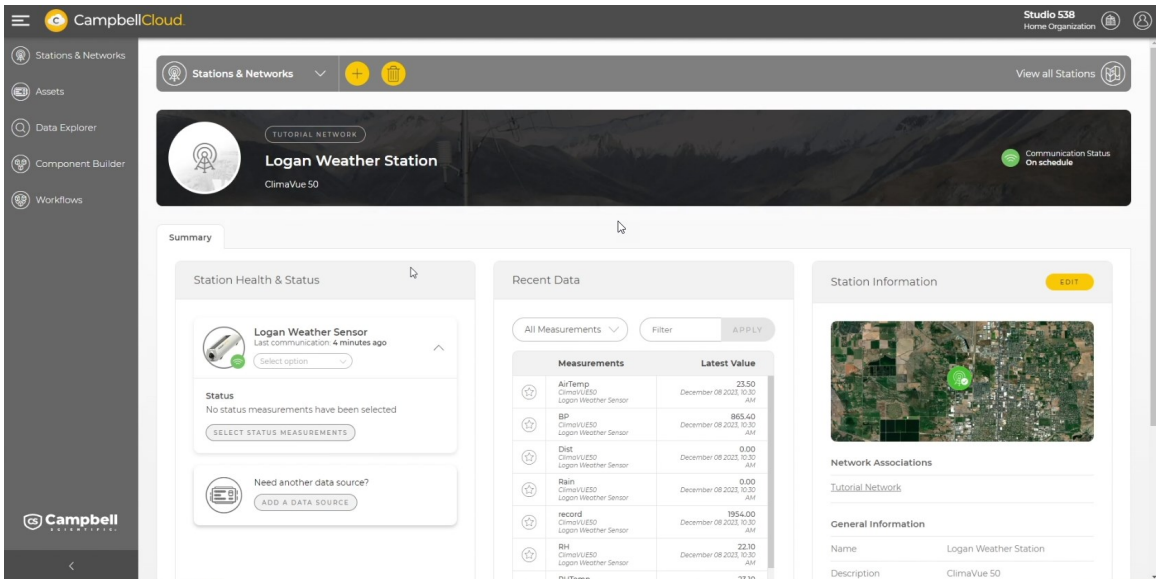
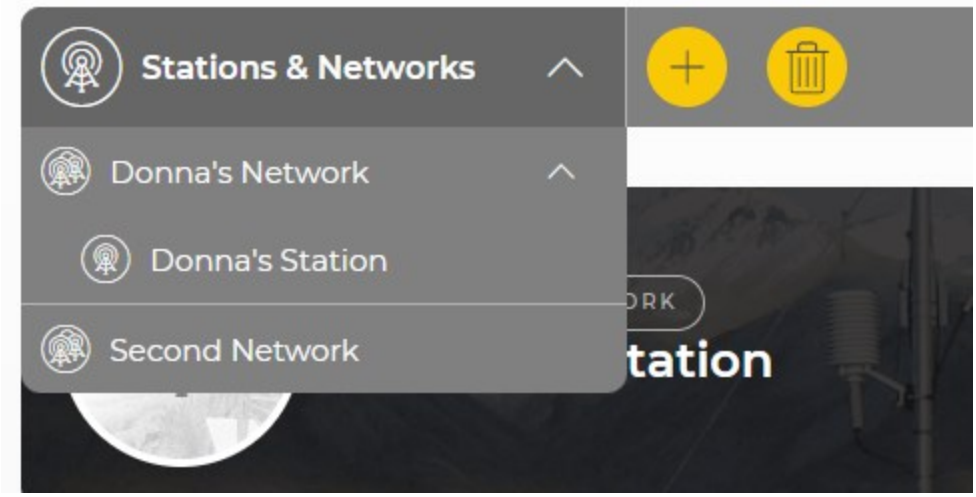


Figure 5-1. CampbellCloud Station Summary

5.1.1 Navigating Stations & Networks

Select which network or specific station to view from the **Stations & Networks** dropdown menu.

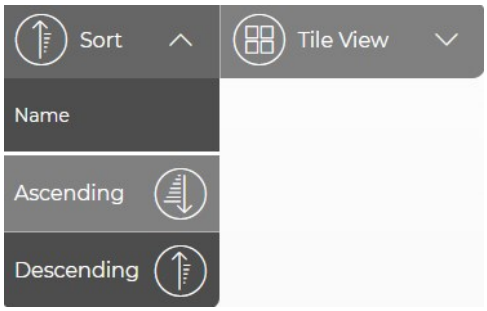


Use the dropdown menu in the upper right to select the format to view your stations:

- **Map** – displays the stations on a map. Click on the station icon to display the favorite measurements.
- **Tile** – displays a tile providing overview information for each station.

- **Small Tile** – displays a small tile for each station showing only the station name and network.
- **Table** – displays the stations as lines in a table which provides the station name, communication status, last communication, number of active alerts (Alerts application coming soon), a quick link to set or view favorites, and the network the station is a part of.

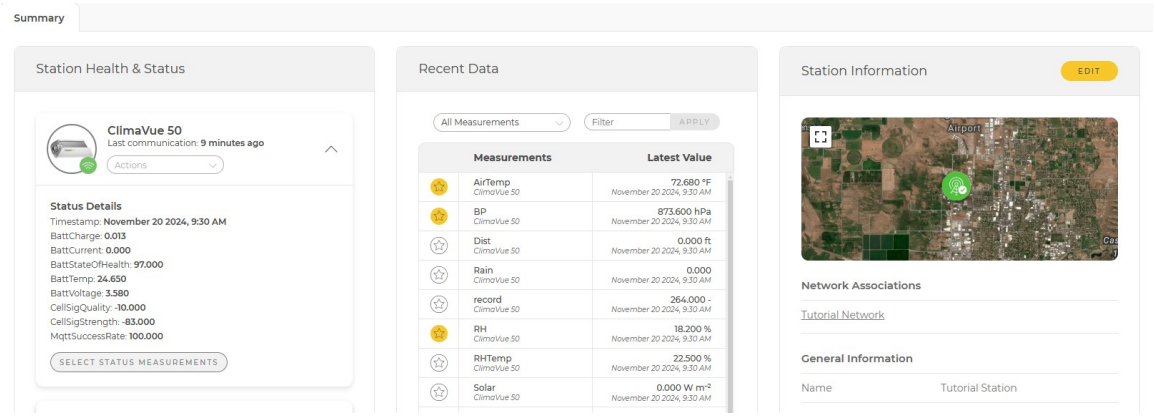
For **Tile** options, use the **Sort** dropdown menu to specify whether to sort in **Ascending** or **Descending** order.



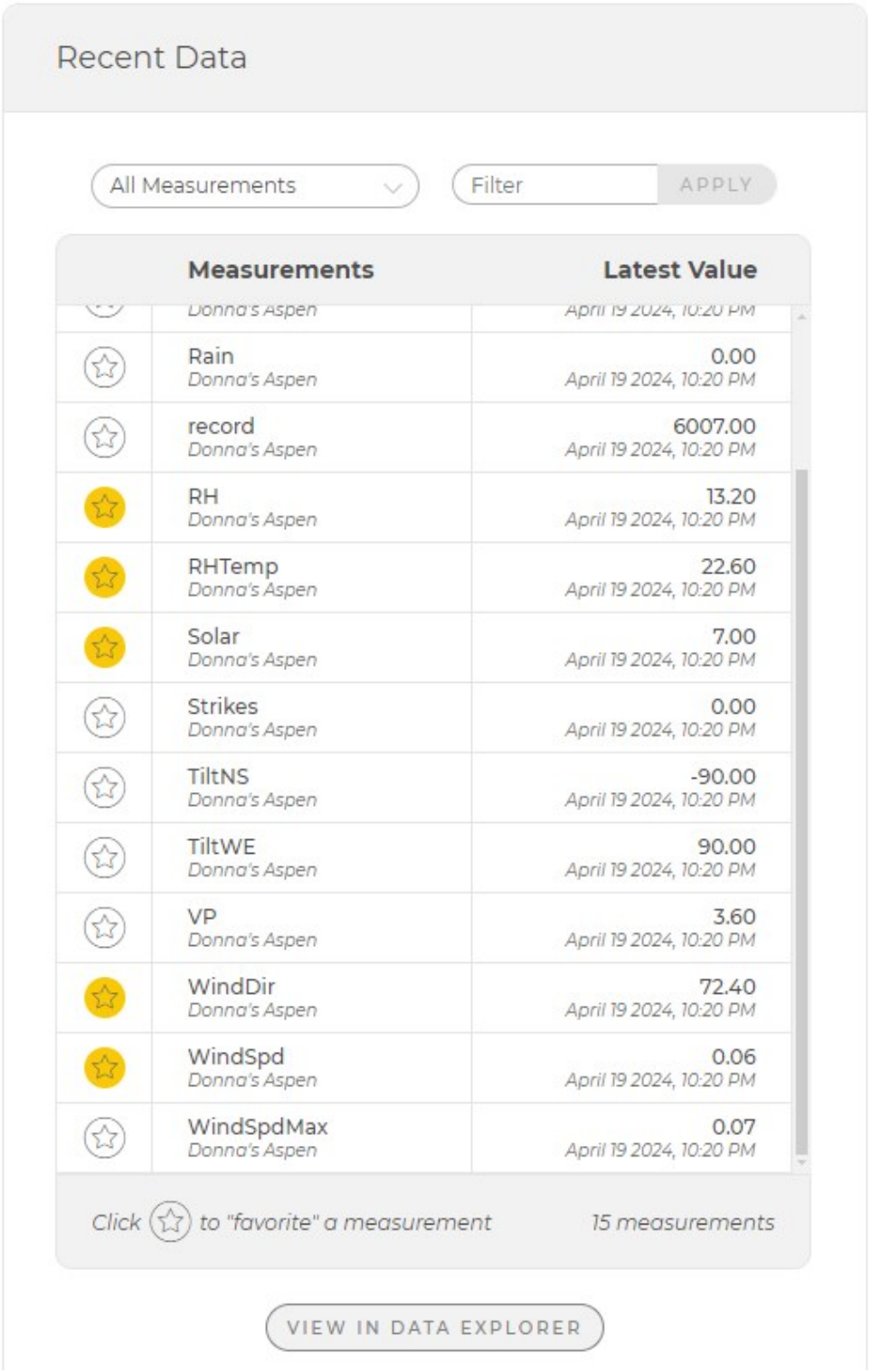
In **Table View**, use the ascending and descending sort icons next to a column name to sort by that column. Use the search box under **Name** to search for a station name. Use the filter dropdown under **Communication Status**, **Active Alerts**, or **Network** to filter the list of stations.

5.1.2 Station summary

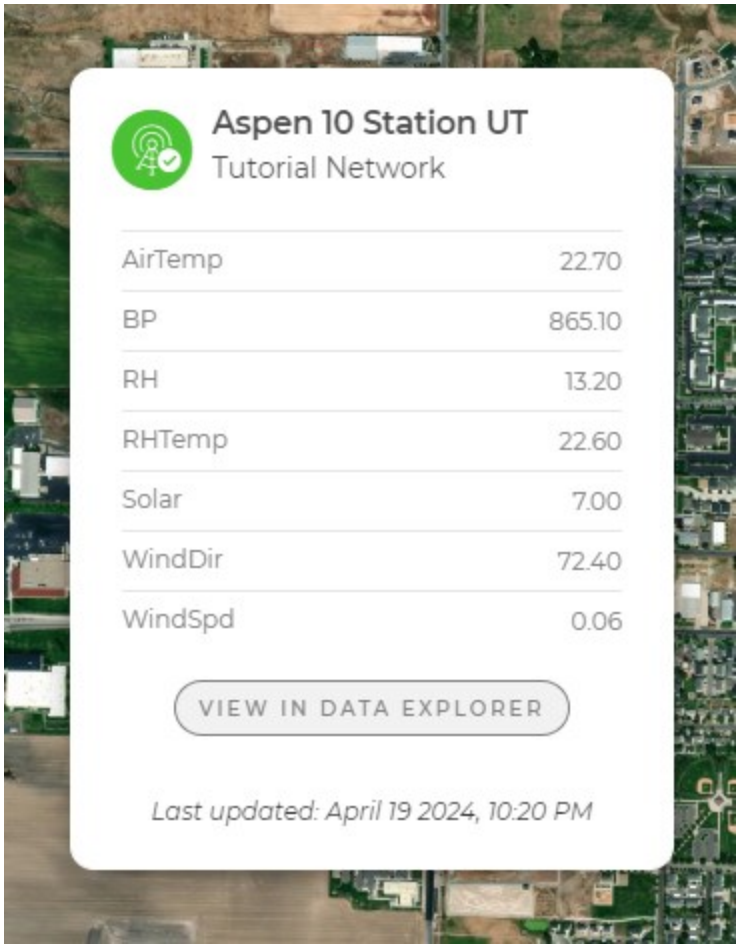
Selecting a station in any view will switch your view to that station summary:



Favorite measurements are set in the **Recent Data** section.



This affects which measurements are shown for the station when in **Map**.



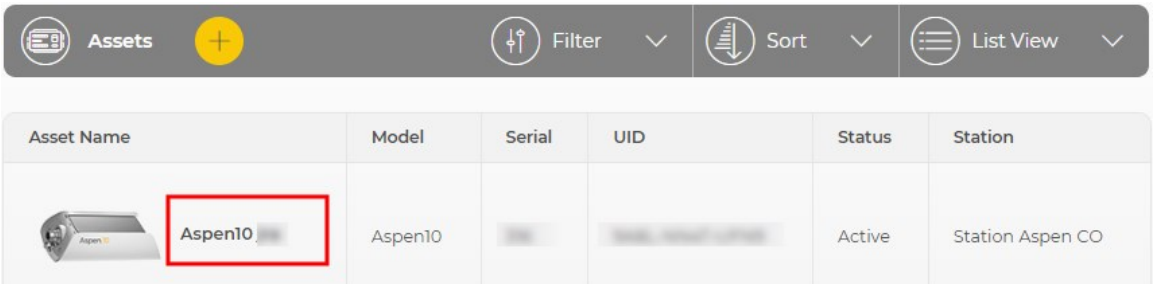
While showing station favorites from the **Map** view or **Tile** view, click a measurement to see the last six hours of that measurement in a **Data Explorer** line chart.

Click **View in Data Explorer** to see the last six hours of all favorite measurements in a **Data Explorer** table.

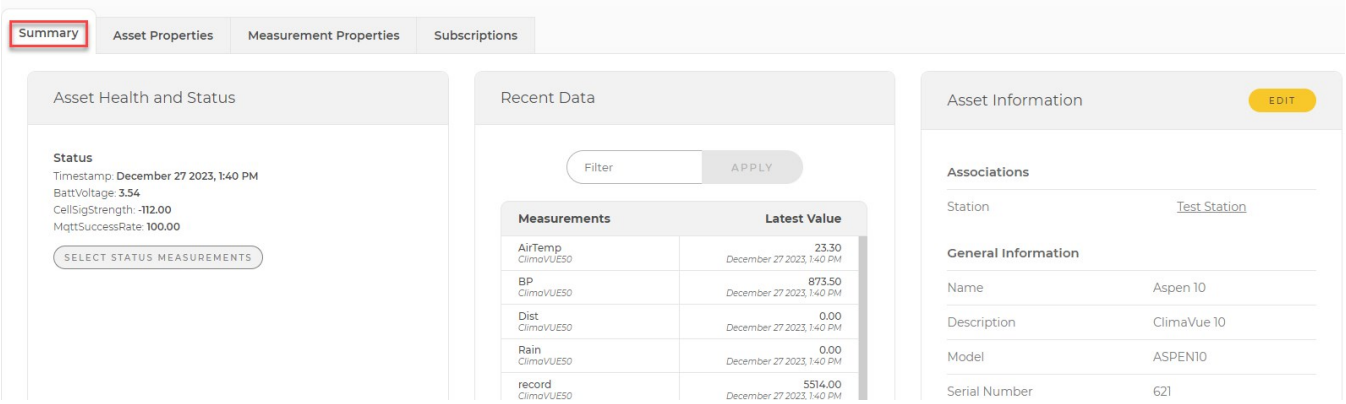
5.2 Assets

The **Assets** application is used to manage assets (data sources such as the Aspen 10, or other hardware). Assets, once onboarded, will appear in a tabular view.

Click on the asset name to see its details.



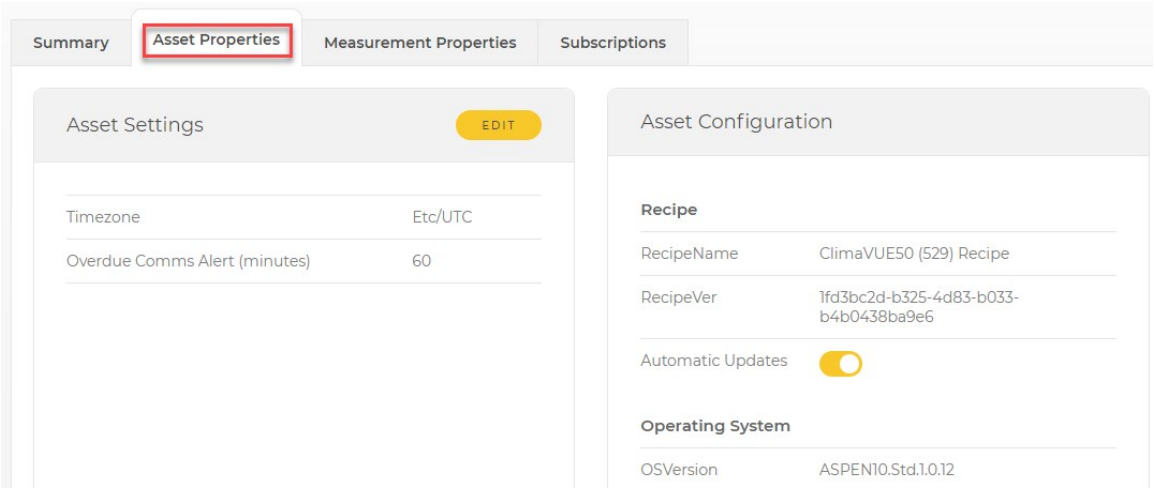
On the main **Assets** page, click the name of the asset to view its health and status **Summary**, **Asset Properties**, **Measurement Properties**, and **Subscription** information.



The **Asset Properties** tab provides access to the overdue communications alert time setting. Additionally, **Asset Configuration** information, such as recipe name and version, operating system version, and cellular version are shown.

> **NOTE:**
> Changes made to an asset affect all users who have access to that asset.

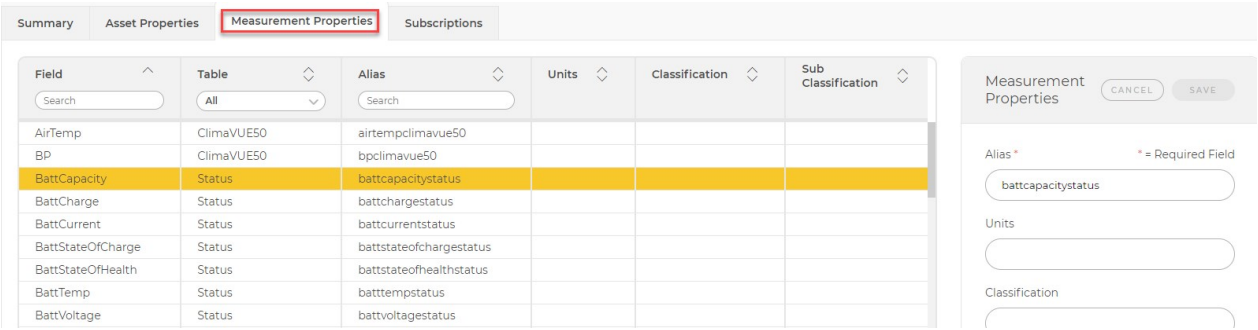
Click the toggle switch to turn on or off the recipe and operating system automatic updates. A yellow switch indicates that automatic updates are on.



The **Measurement Properties** tab provides a list of measurements. Clicking on an individual measurement opens a measurement properties window that can be used to configure measurement **Classification**, **Subclassification**, **Units**, **Aggregate Type**, and **Precision**.

Use measurement **Classifications**, **Subclassifications**, and **Units** in conjunction with **My Settings** > **Unit Preferences** to affect how your measurements are displayed throughout Cloud. The **Measurement Properties** must be set to match the data being sent to CampbellCloud. For an Aspen 10, this comes from the recipe. See Recipes in the Aspen 10 manual for more information.

See Changing user settings (p. 43).



NOTE:
Adding measurement units may reduce the number of measurements that can be displayed at one time on a **Data Explorer** graph. See Data Explorer (p. 34).

For detailed instructions on adding an asset to CampbellCloud, see Adding an asset (p. 62).

5.3 Data Explorer

The **Data Explorer** application allows rapid exploration of your stored Cloud data through table, chart, and map views. It features a menu with a structured hierarchy of Network > Station > Measurements and includes a quick search filter. Users can apply time-based filters for efficient navigation and visualization of data over selected time frames. Additionally, there is an option to export the displayed data to comma-separated values (CSV) files. See Viewing historical data using Data Explorer (p. 77) for details.

> **NOTE:**
> Up to 15,000 data points per measurement can be displayed.

The precision displayed in CampbellCloud defaults to 2. For some measurements, it may be necessary to increase the precision. You can change the precision for a single measurement from the **Measurement Properties** in Assets (p. 31). You can change the precision for all measurements (except those with the precision set in **Measurement Properties**) by Changing user settings (p. 43).

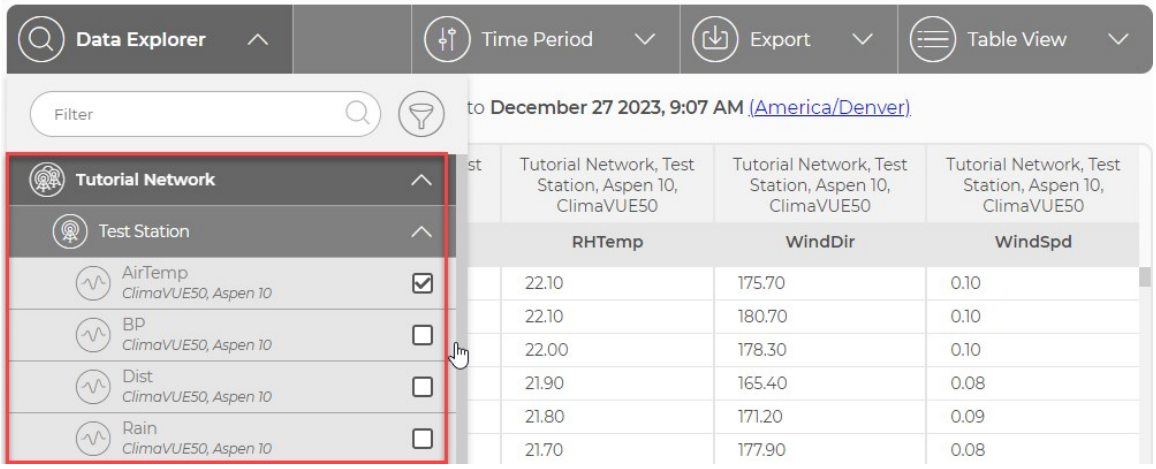


Figure 5-2. Data Explorer application menu

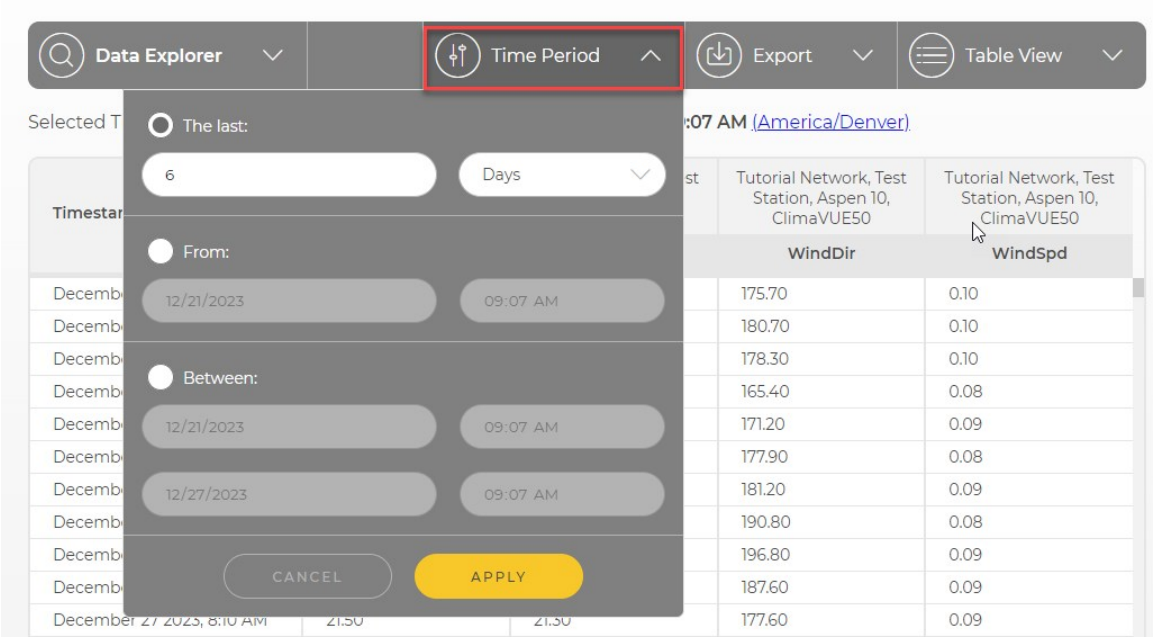


Figure 5-3. Data Explorer application - time-based filters

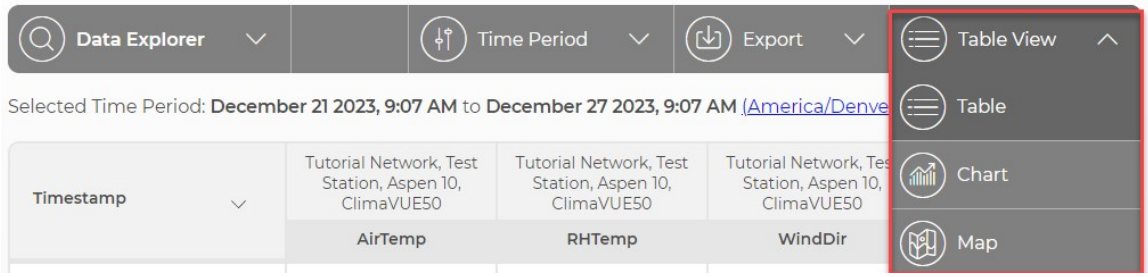


Figure 5-4. Data Explorer view options menu

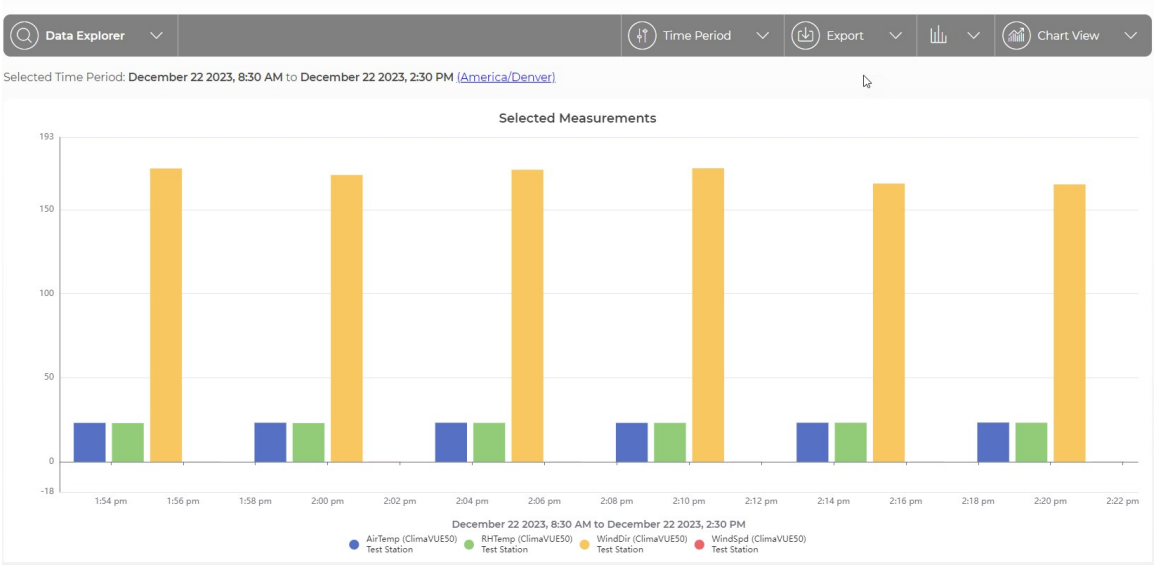


Figure 5-5. Data Explorer application - chart view

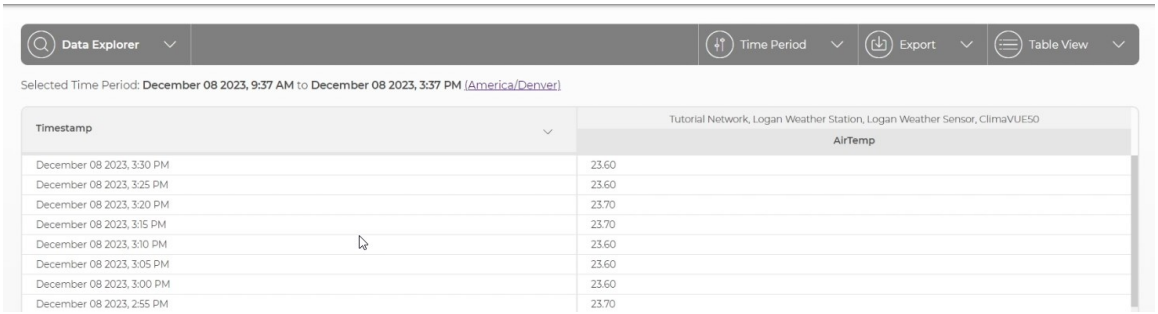


Figure 5-6. Data Explorer application - Table View

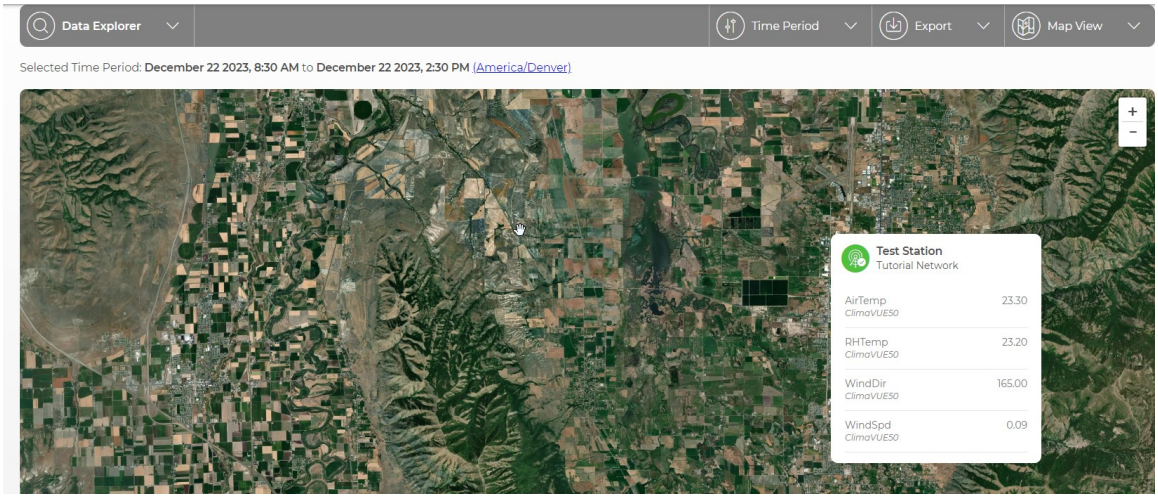


Figure 5-7. Data Explorer application - Map View

See Viewing historical data using Data Explorer (p. 77) for more details.

5.4 Dashboards

Users with appropriate permissions will have access to the **Dashboards** application which appears after **Data Explorer** in the menu.

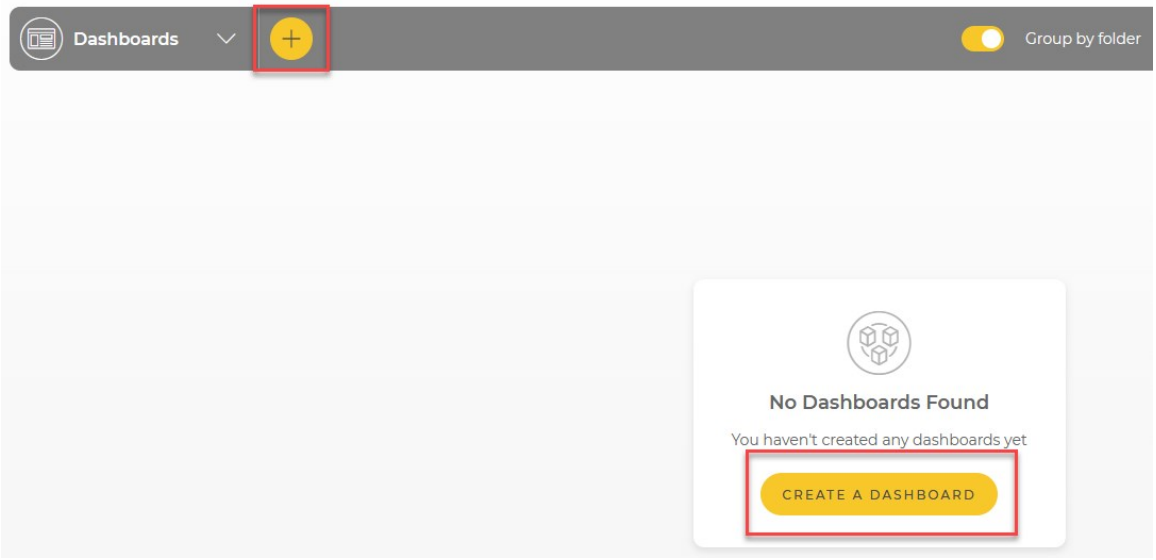


Figure 5-8. Dashboard application in the CampbellCloud menu

The **Dashboards** application allows the creation of custom data displays.

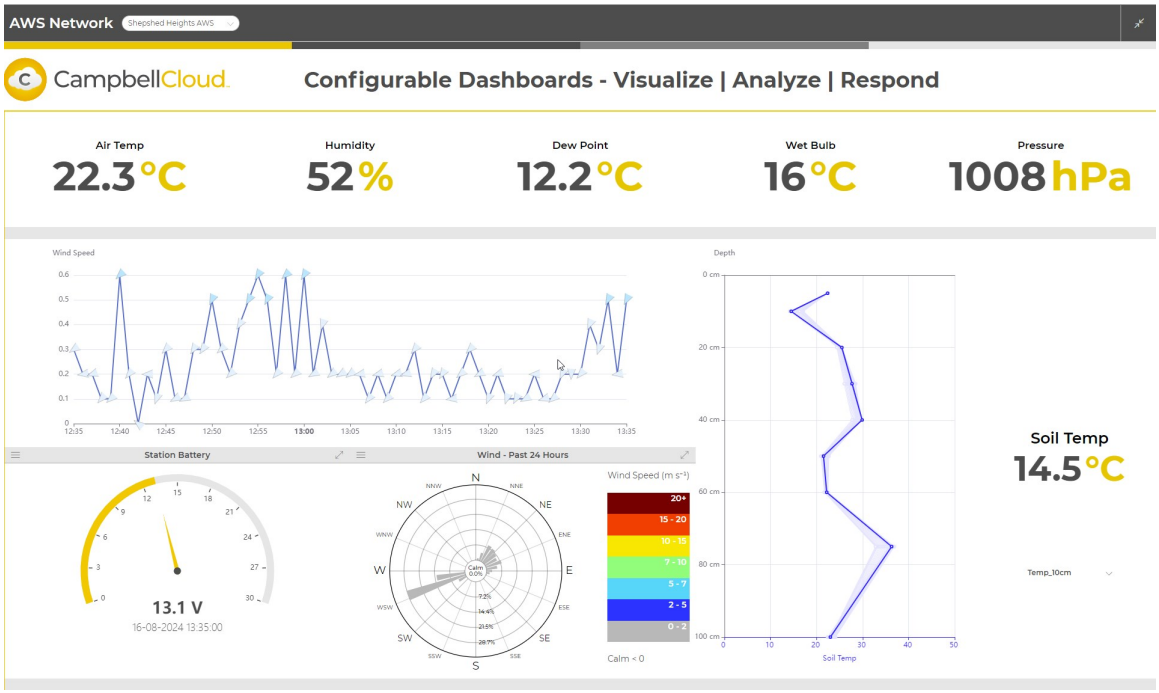


Figure 5-9. Example of a CampbellCloud dashboard

5.4.1 List View

When multiple dashboards are created, a list of available dashboards will be displayed. The following are the list views that are available:

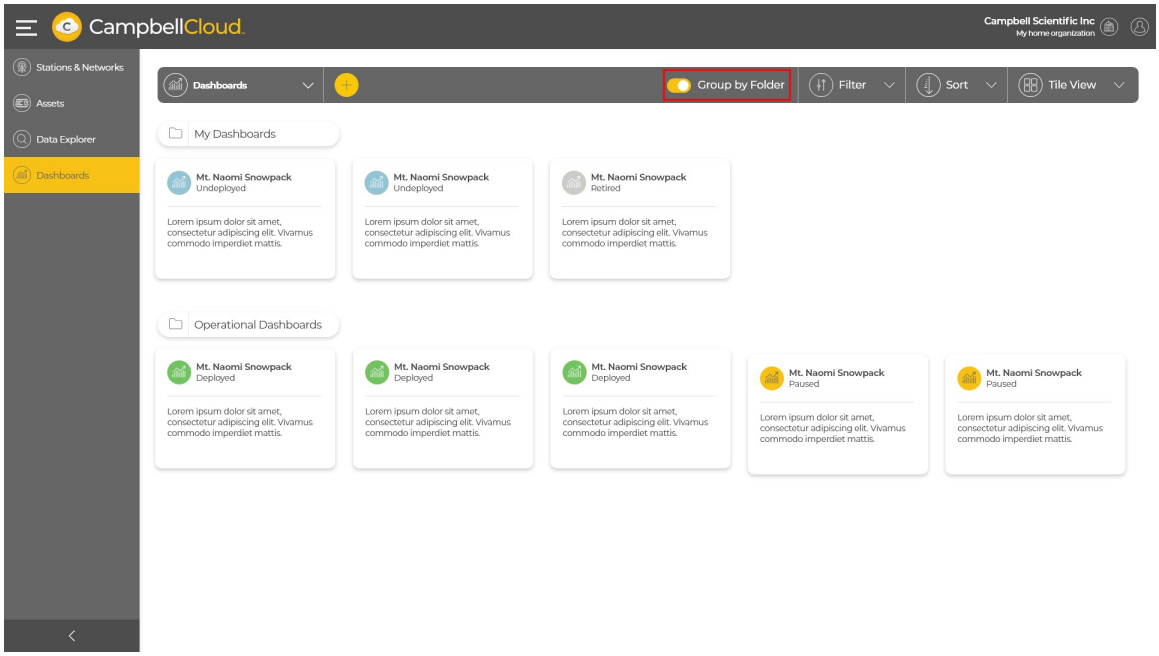


Figure 5-10. Tile View (default)

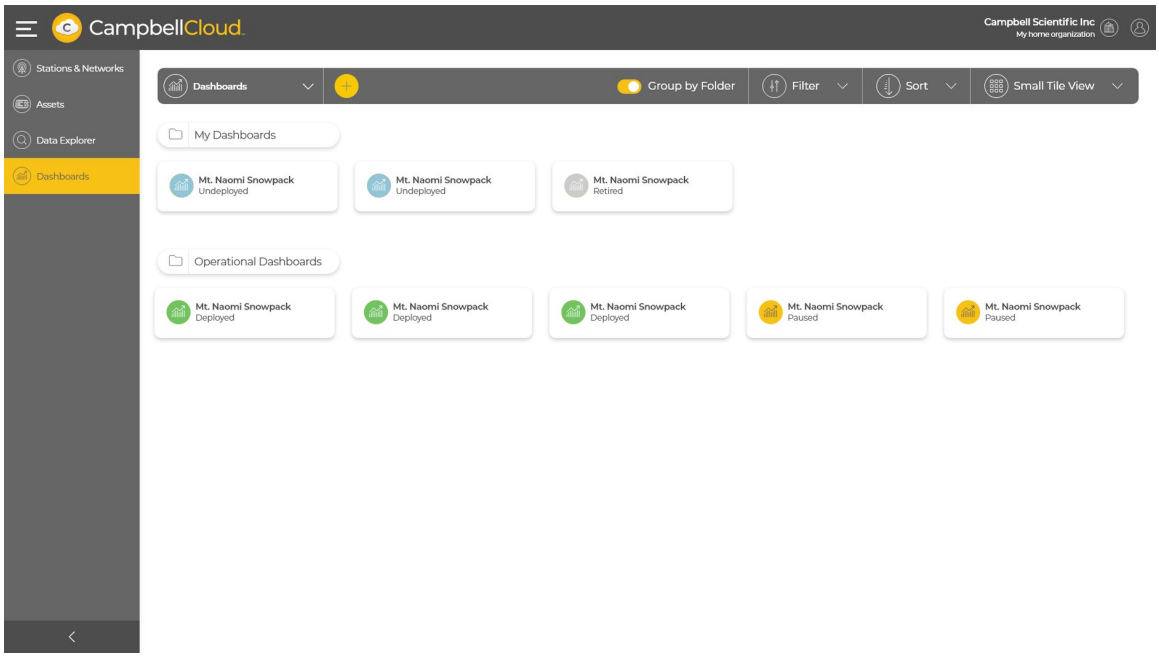


Figure 5-11. Small tile view

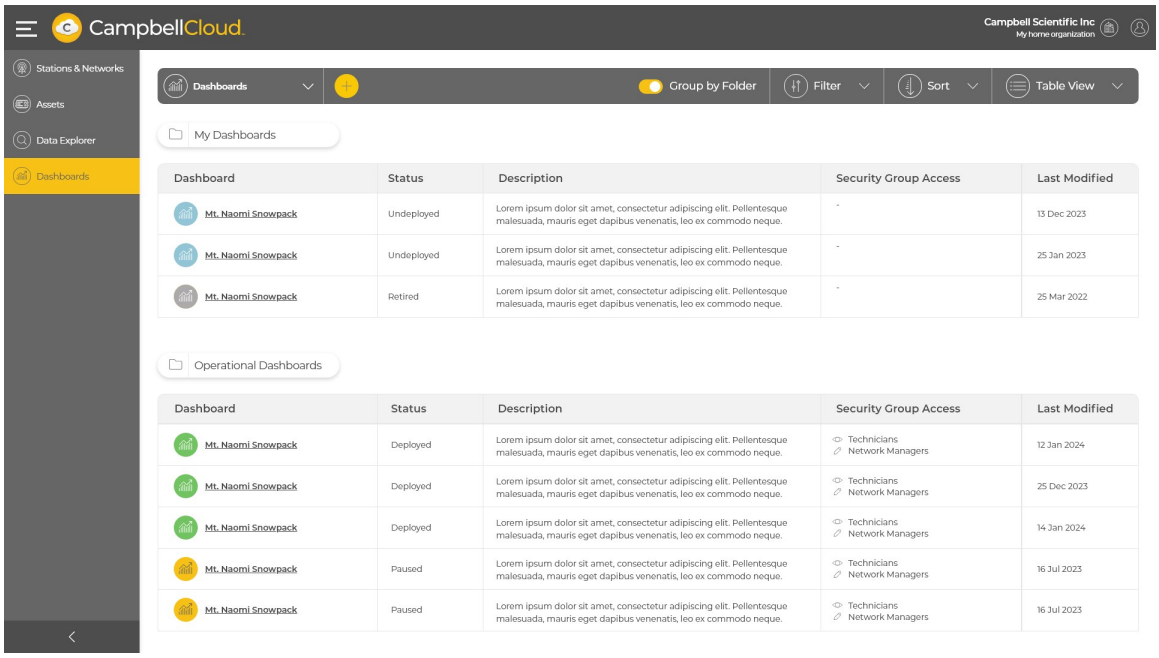


Figure 5-12. Table View

5.4.2 Tile Design

Dashboard tiles consist of the following components:

1. Colored icon that indicates dashboard status:
    -  **Green** = Deployed (viewable by others if shared)
    -  **Yellow** = Paused (viewable only by those with edit and delete rights)
    -  **Blue** = Undeployed (viewable only by those with edit and delete rights)
    -  **Gray** = Retired (viewable only by those with edit and delete rights)
2. Dashboard name
3. Description
    - Up to 3 lines of text, then ellipsis

See Adding a dashboard (p. 87) for details.

5.5 Security groups

Security groups can be created to control user access to CampbellCloud applications. By creating and configuring these groups, administrators can limit the access of certain users, ensuring that sensitive data or critical areas of the network or station remain secure and are not modified by unauthorized personnel. Each group can have specific permissions and access rights. Users are then assigned to these groups based on their role, responsibility, and the level of access they require. For instructions on adding and configuring security groups, refer to Adding a security group to an organization account (p. 15).

5.6 Subscriptions

The **Subscriptions** application is used to order data source subscriptions directly within the CampbellCloud interface. For instructions on ordering subscriptions, refer to Ordering and activating subscriptions (p. 8).

> NOTE:
> To purchase data source subscriptions, a user must have the appropriate permissions for the **Subscriptions** application. If a user lacks these permissions, they should contact the organization's account owner for assistance.

6. CampbellCloud tasks

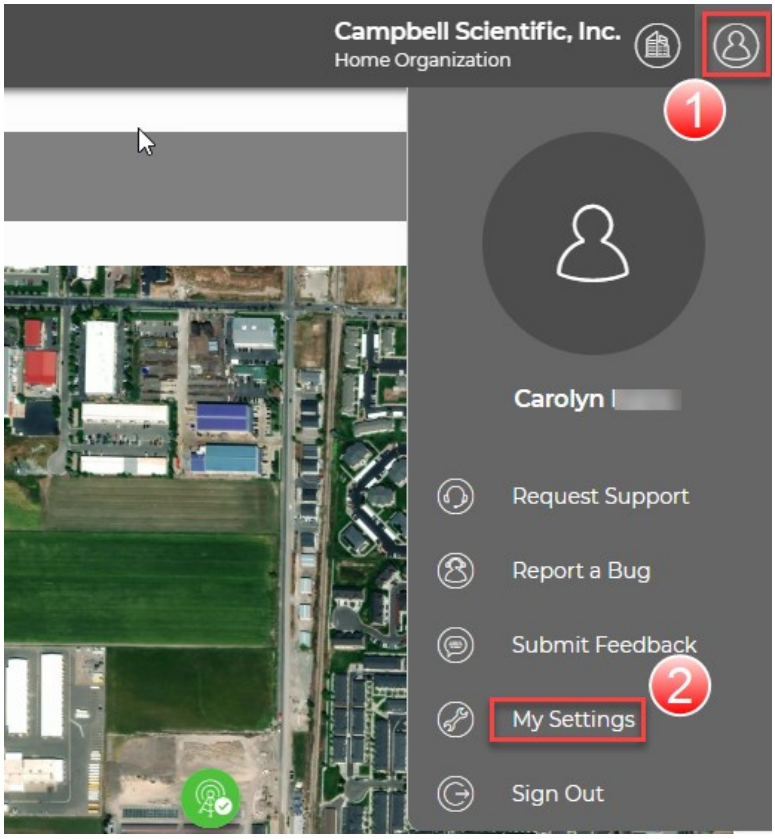
Access to applications, and features of those applications, is controlled by Security Groups. Contact your organization administrator for details about your specific permissions.

Some typical tasks are described in the following sections.

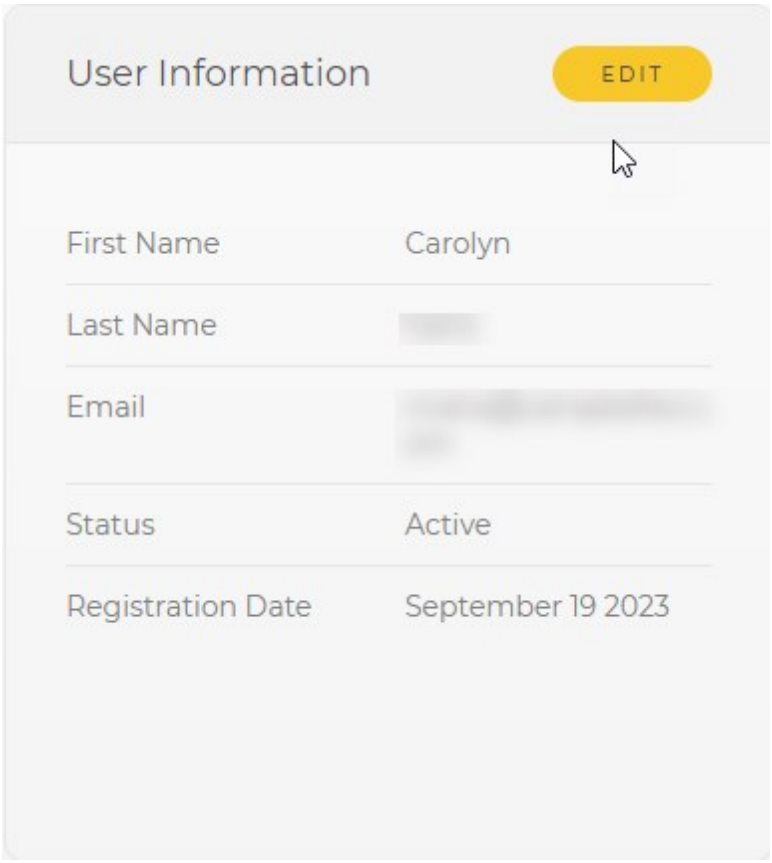
6.1 Changing user settings

Provided a Cloud administrator has granted the required permissions, individuals within an organization can modify their own user settings based on individual preferences. Note that the user settings are initially determined by the **Default User Preferences** in the **Organization Settings**. See Changing default organization settings (p. 5).

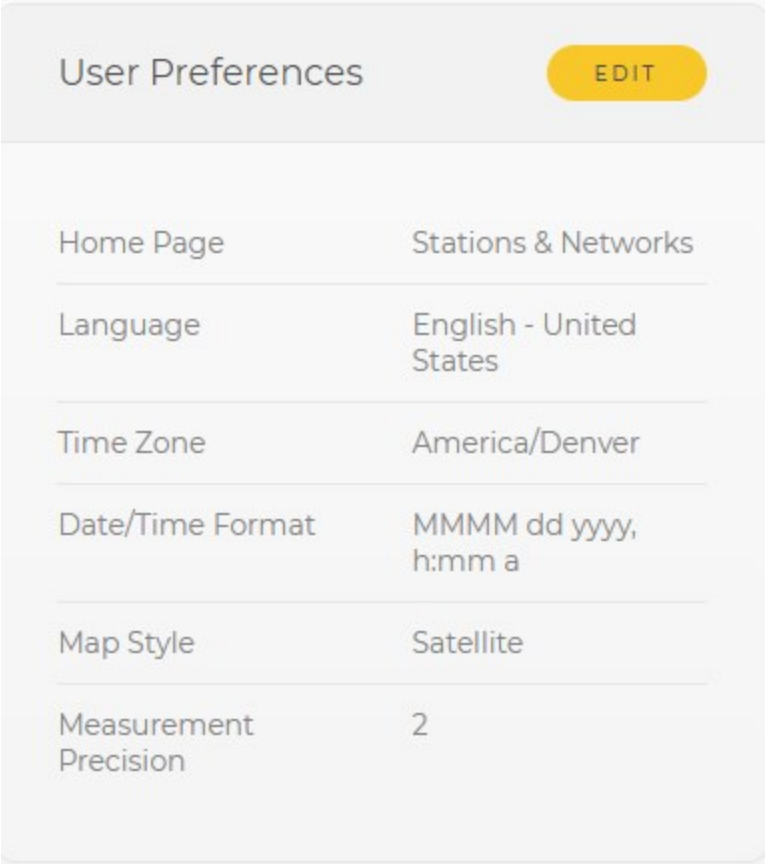
1. After logging into CampbellCloud, click the user icon in the upper-right corner of the screen (User menu) and select **My Settings**.



2. Click **EDIT** next to **User Information** to change the user name. Click **CANCEL**, or **SAVE** if a change was made.

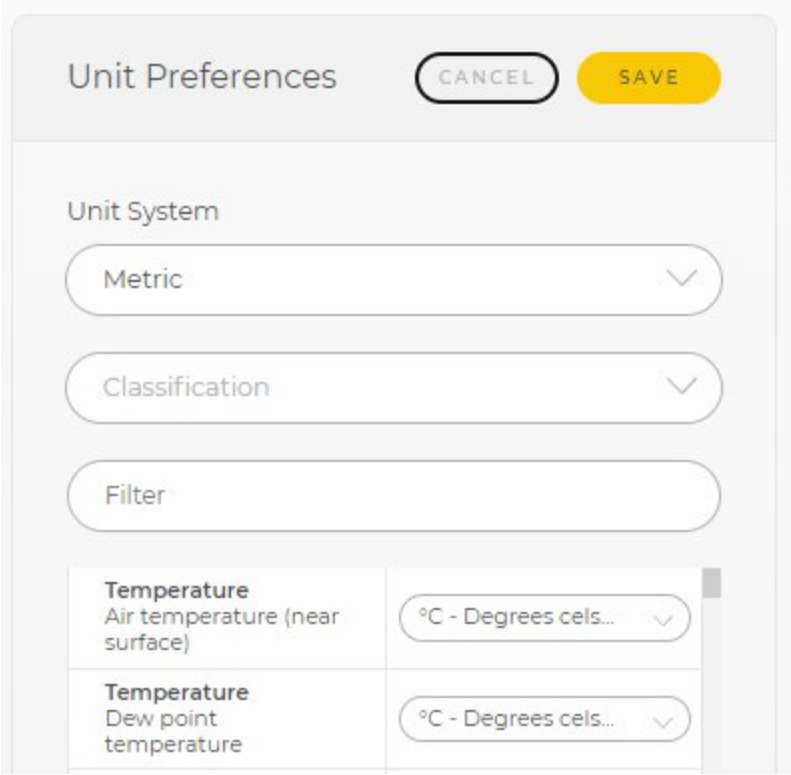


3. Click **EDIT** next to **User Preferences**. Set which page will become your home page, language, time zone, date/time format, map style, and measurement precision.



4. Click **CANCEL**, or **SAVE** if a change was made. CampbellCloud will now use those preferred settings while you are logged into CampbellCloud.

5. Click **EDIT** next to **Unit Preferences**. Select **Metric**, **Metric (British)**, or **US Customary** for the **Unit System**. This setting works in conjunction with measurement classifications. See Assets (p. 31). In addition to changing the **Unit System** for all measurements, you can change the displayed units for individual measurements using the selection boxes next to each measurement after **EDIT** is clicked.



6. Click **CANCEL**, or **SAVE** if a change was made.
7. Click the home button CampbellCloud or any app in the left column (Application menu) to exit.

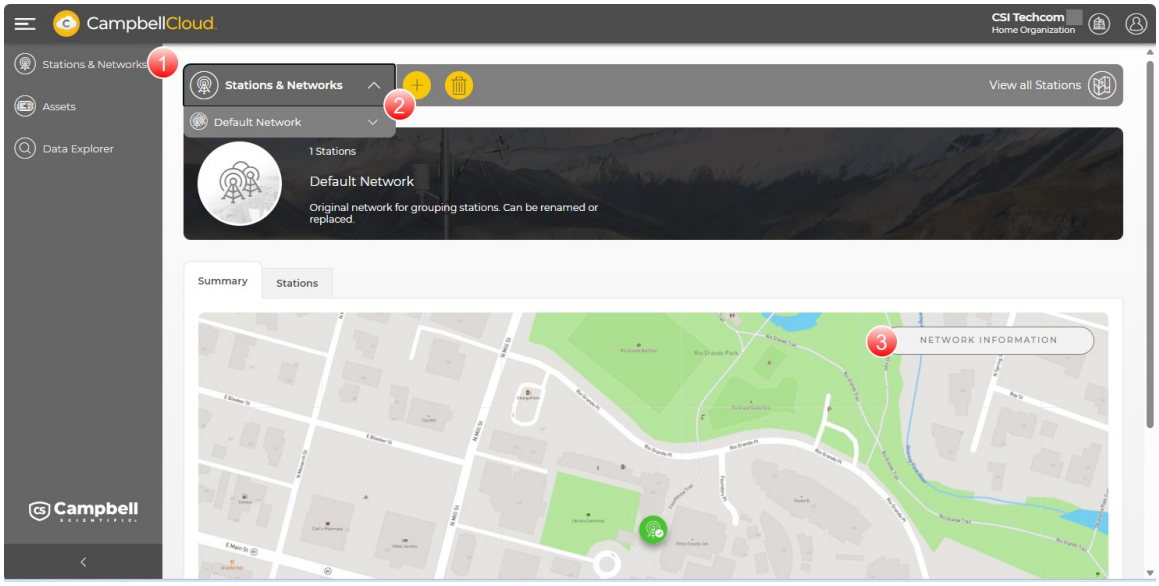
For more information on an individual changing their preferences, watch an instructional video at: https://www.campbellsci.com/videos/cloud07.

6.2 Renaming the default network

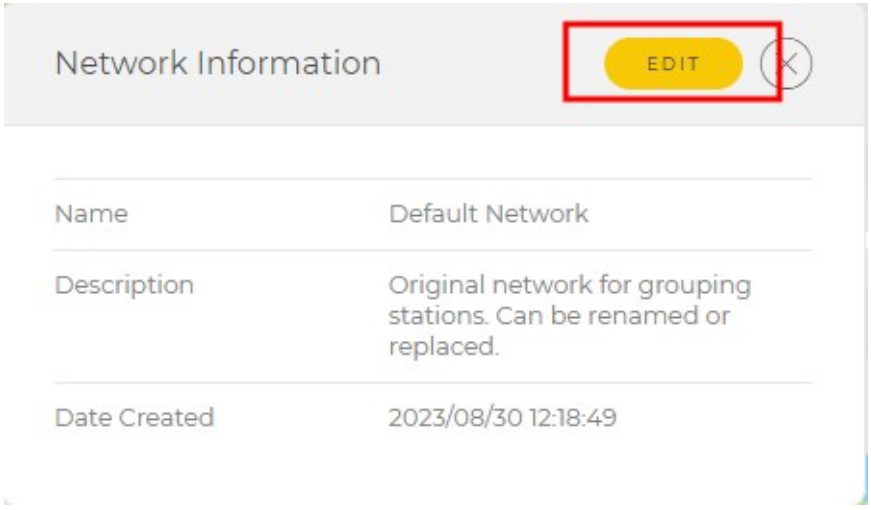
When an account is created, a default network is automatically associated with the account. Best practice is to rename the default network with a name that is meaningful to the organization. The following procedure demonstrates renaming the default network.

1. Select **Stations & Networks** from the application menu on the left.
2. In the **Stations & Networks** dropdown menu, select **Default Network**.

3. Click **Network Information**.

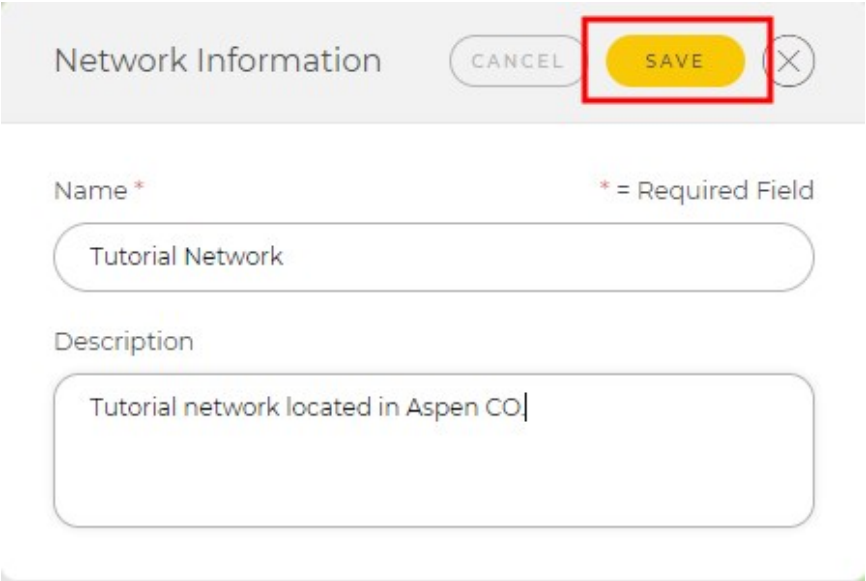


4. Click **EDIT**.



5. Enter a meaningful network **Name**.
6. (Optional) Enter a **Description** of the network.

7. Click **SAVE**.



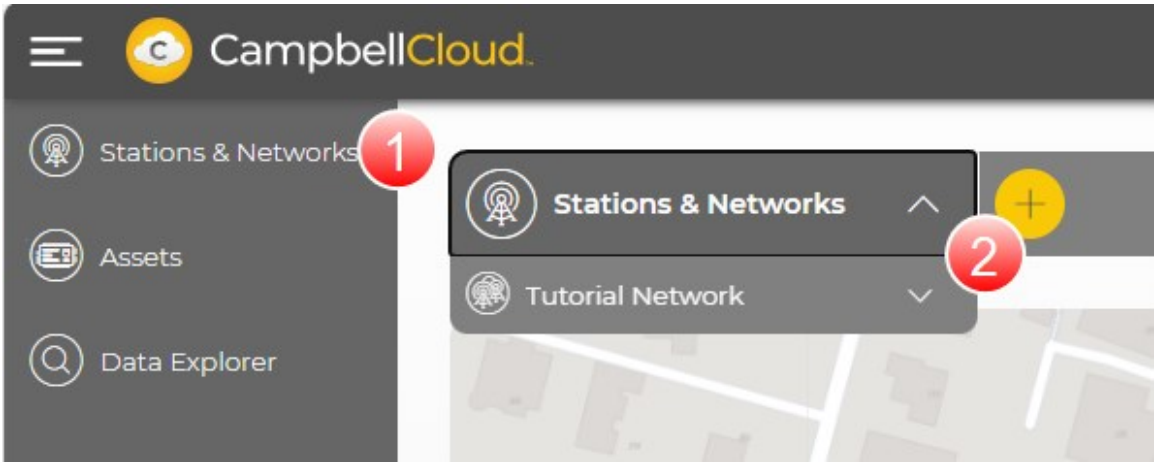
8. A message **Network saved successfully** appears to confirm the name change. Click the home button CampbellCloud or any app in the left column (Application menu) to exit.

For more information on renaming the default network in CampbellCloud, watch an instructional video at: https://www.campbellsci.com/videos/cloud08.

6.3 Adding a station to a network

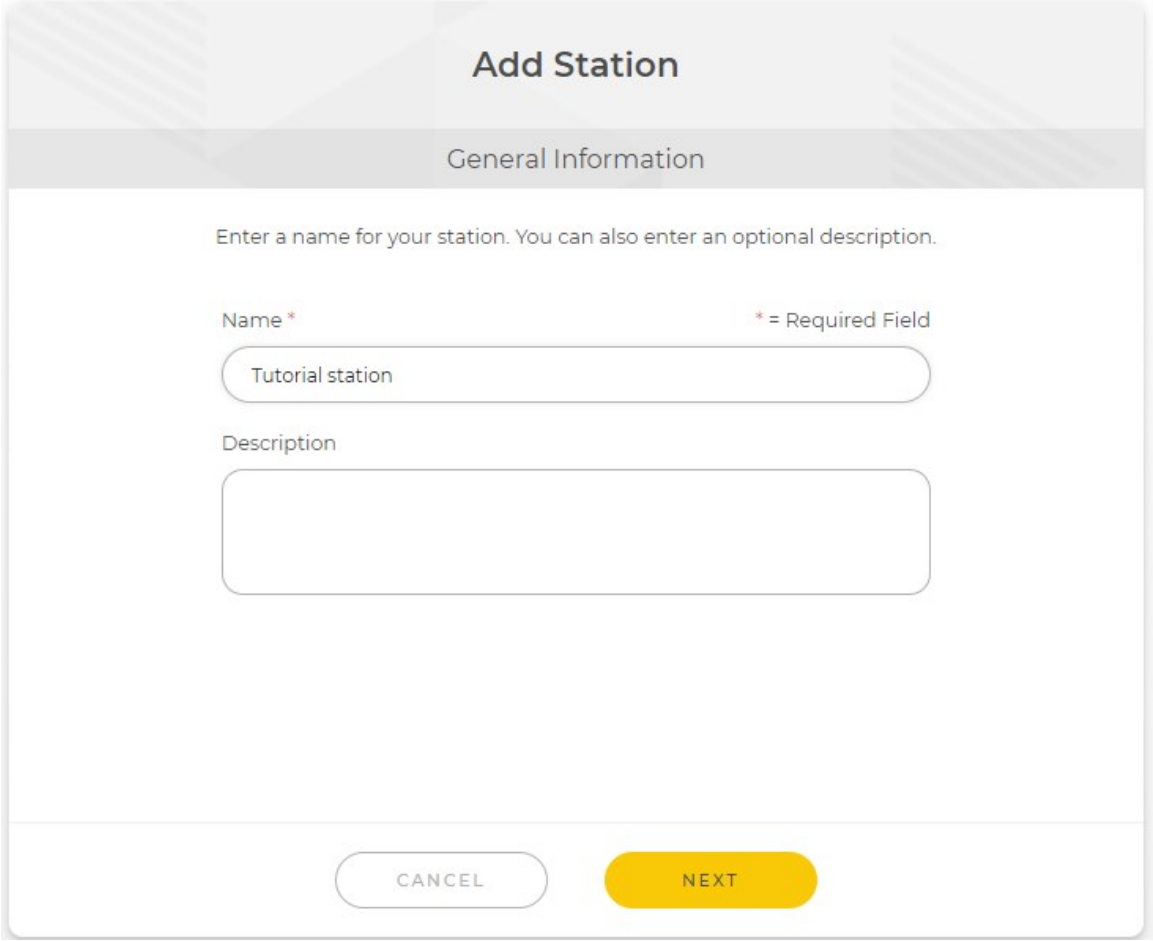
A network collects data from stations contained in the network. In this example, a station named *Tutorial Station* is added to a network named *Tutorial Network*.

1. Select **Stations & Networks** from the application menu on the left.
2. In the **Stations & Networks** dropdown menu, select the renamed default network (see Renaming the default network [p. 46]). In this example the default network was renamed *Tutorial Network*.



3. **No Stations Found** appears. Click **ADD A STATION**.
4. Enter a **Name** for the station.
5. (Optional) Enter a **Description** of this station. This could include a description of the sensor (s) at the station, the station location, or other meaningful information.

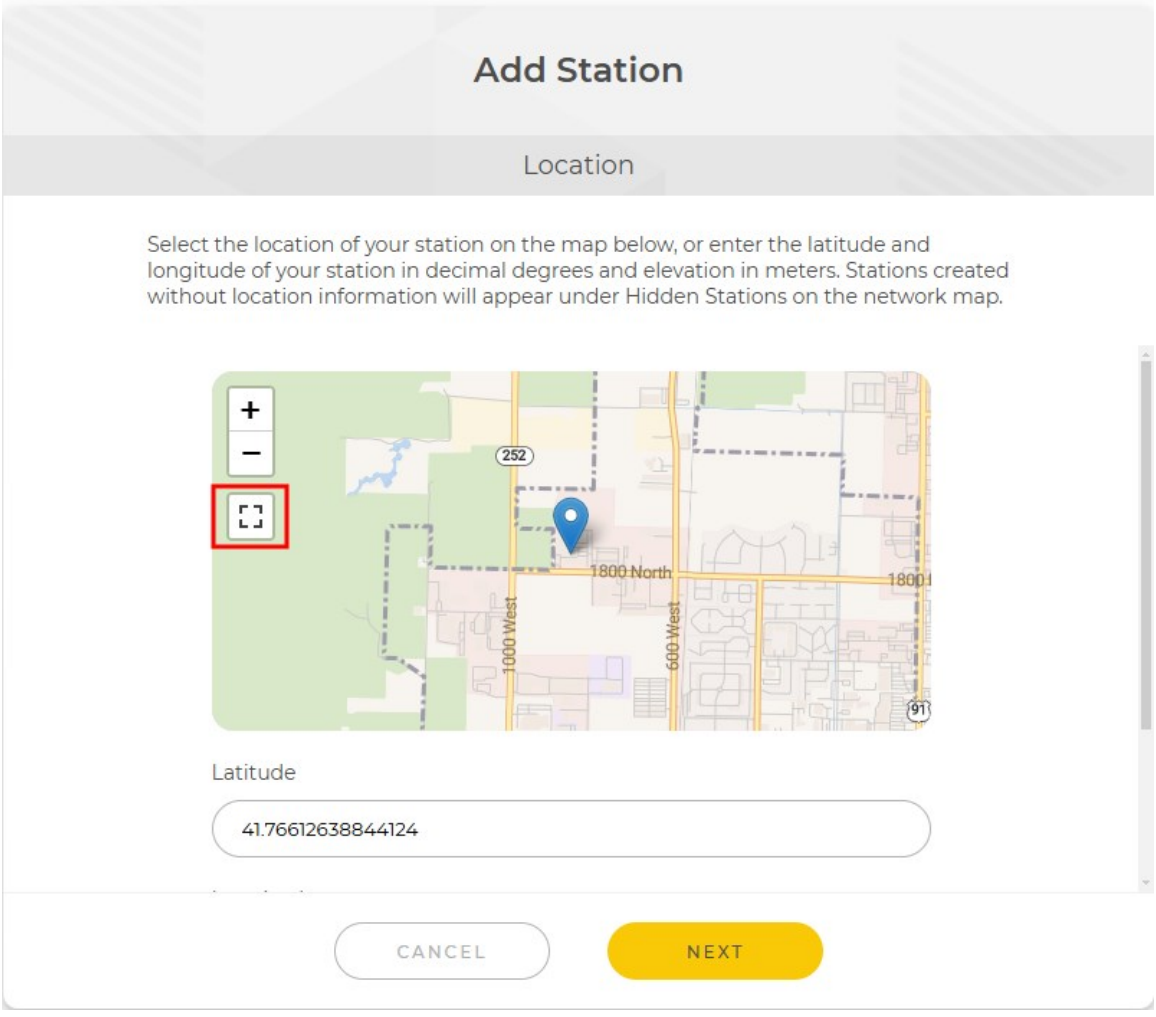
6. Click **NEXT**.


Add Station
General Information
Enter a name for your station. You can also enter an optional description.
Name *
* = Required Field
Tutorial station
Description
CANCEL
NEXT

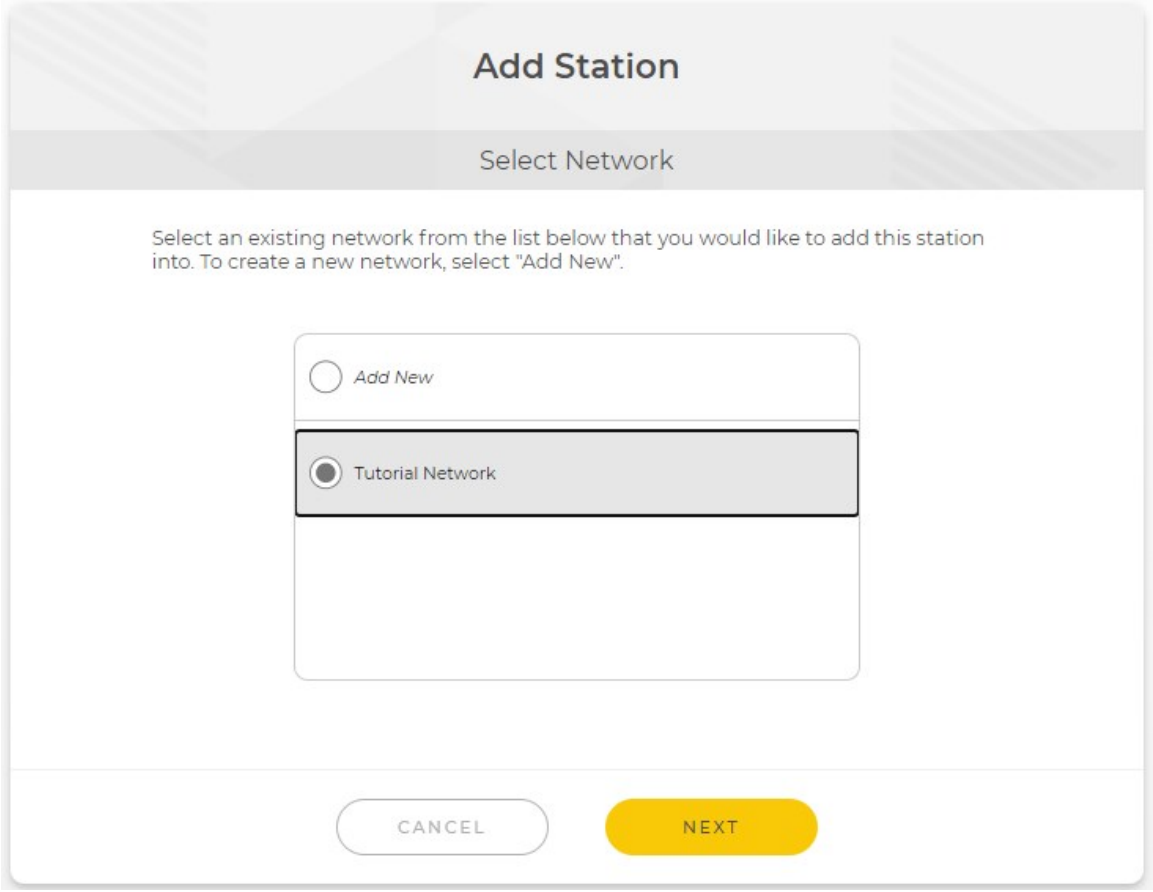
7. Enter the location of the station, including elevation (meters); or click on the map at the desired location. After specifying the location of the station, click **FINISH**.

> **NOTE:**
> To simplify placing the pin at the correct location, click the View Fullscreen icon (highlighted in the following image) to expand the map. In fullscreen mode, use your mouse to pan the map and your mouse scroll wheel to zoom in or out. Fullscreen mode also has a dropdown that can be used to select the map layer style. When finished, click press Esc to exit fullscreen mode.

> **NOTE:**
> For the pin to be visible on the map, browser permissions must be set to allow access to location. Stations without location information will appear under **Hidden Stations** on the network map.

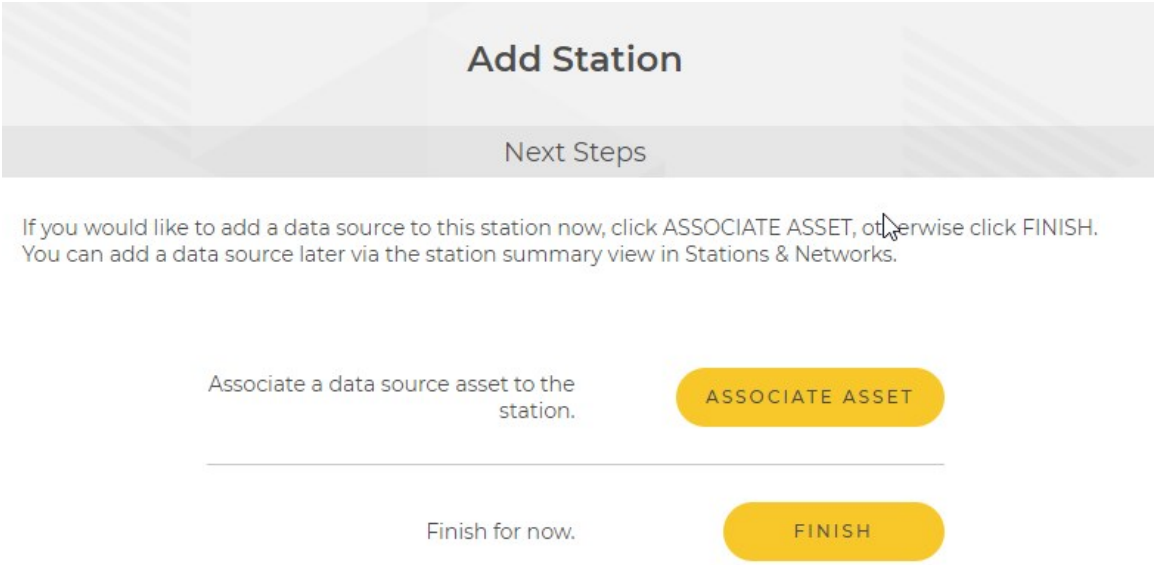


8. Select the network the station is being added to.



9. Click **NEXT**.

10. The station has been added to the network. You now have the option to associate an asset with the station or to finish later.

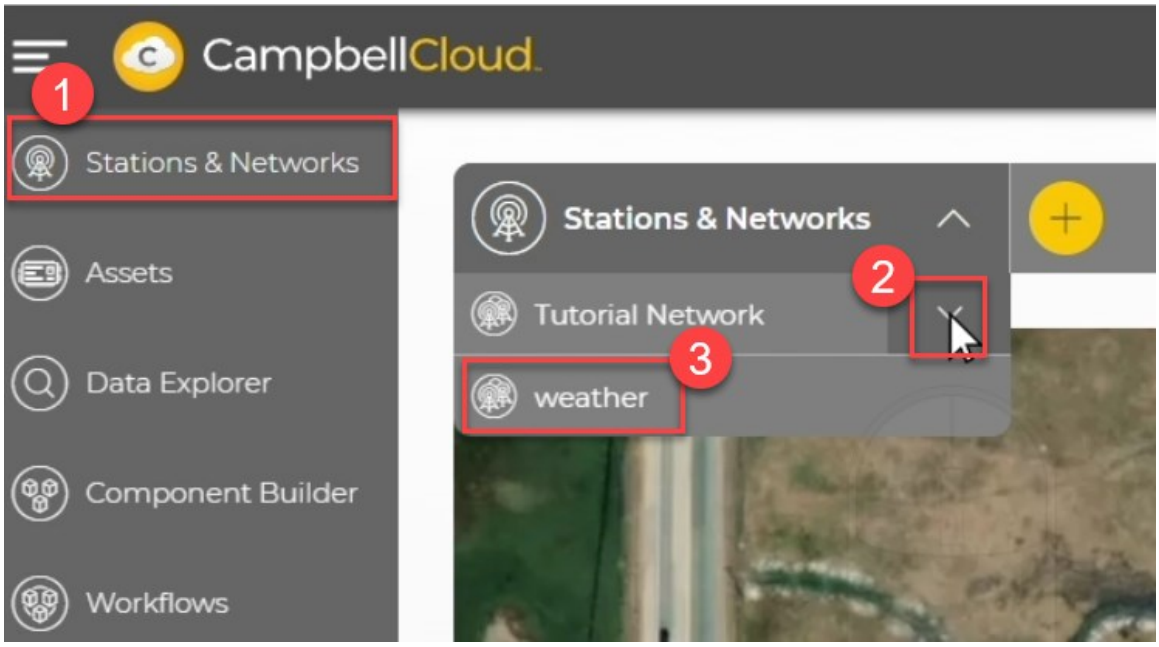


For more information on adding a station to a network, watch an instructional video at: https://www.campbellsci.com/videos/cloud09.

6.3.1 Adding an asset to a station

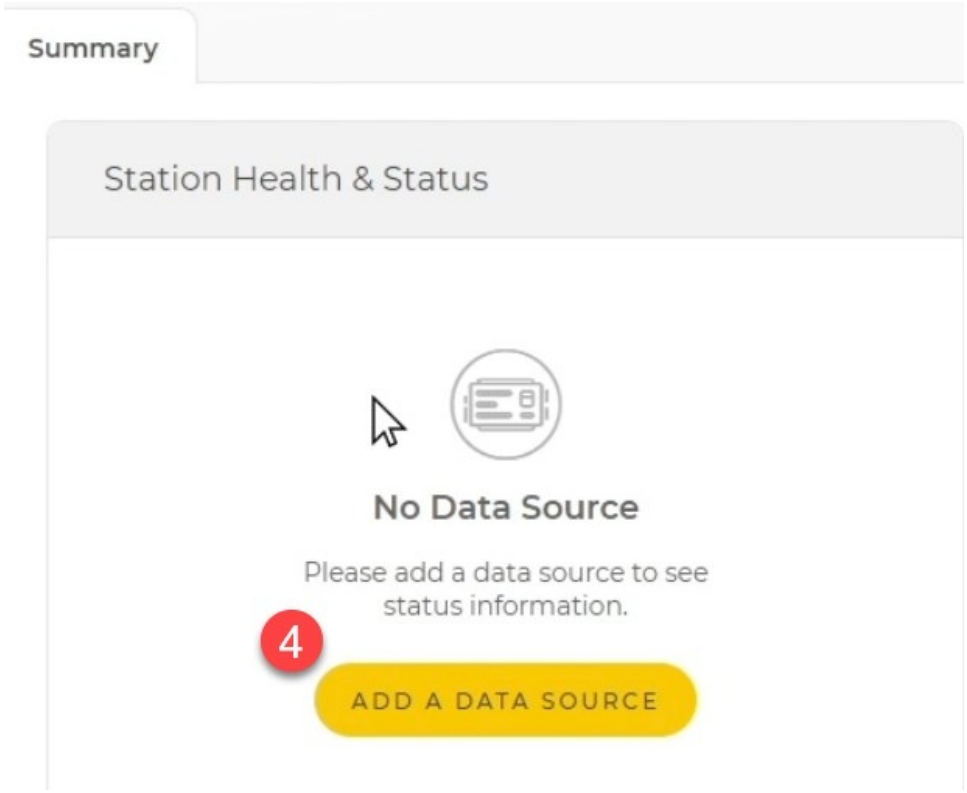
Data sources are provided through assets, such as the Aspen 10. Assets can be added to stations directly in CampbellCloud or through the CampbellGO app. The steps below demonstrate adding an asset to a station directly in CampbellCloud. In this example, an Aspen 10 asset is added to a station named *weather*.

1. On the CampbellCloud home screen, select **Stations & Networks** from the application menu.

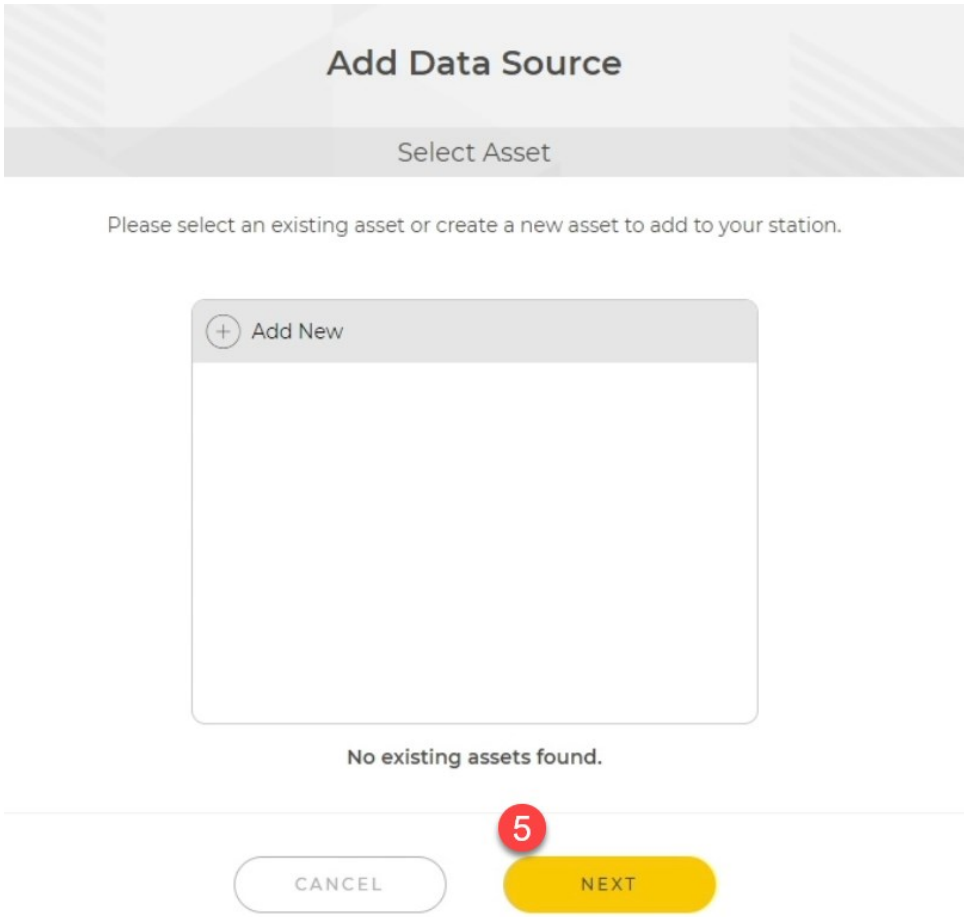


2. In the **Stations & Networks** dropdown menu, select the network you wish to add a data source to.
3. In the list of stations under the network, click on the name of the station.

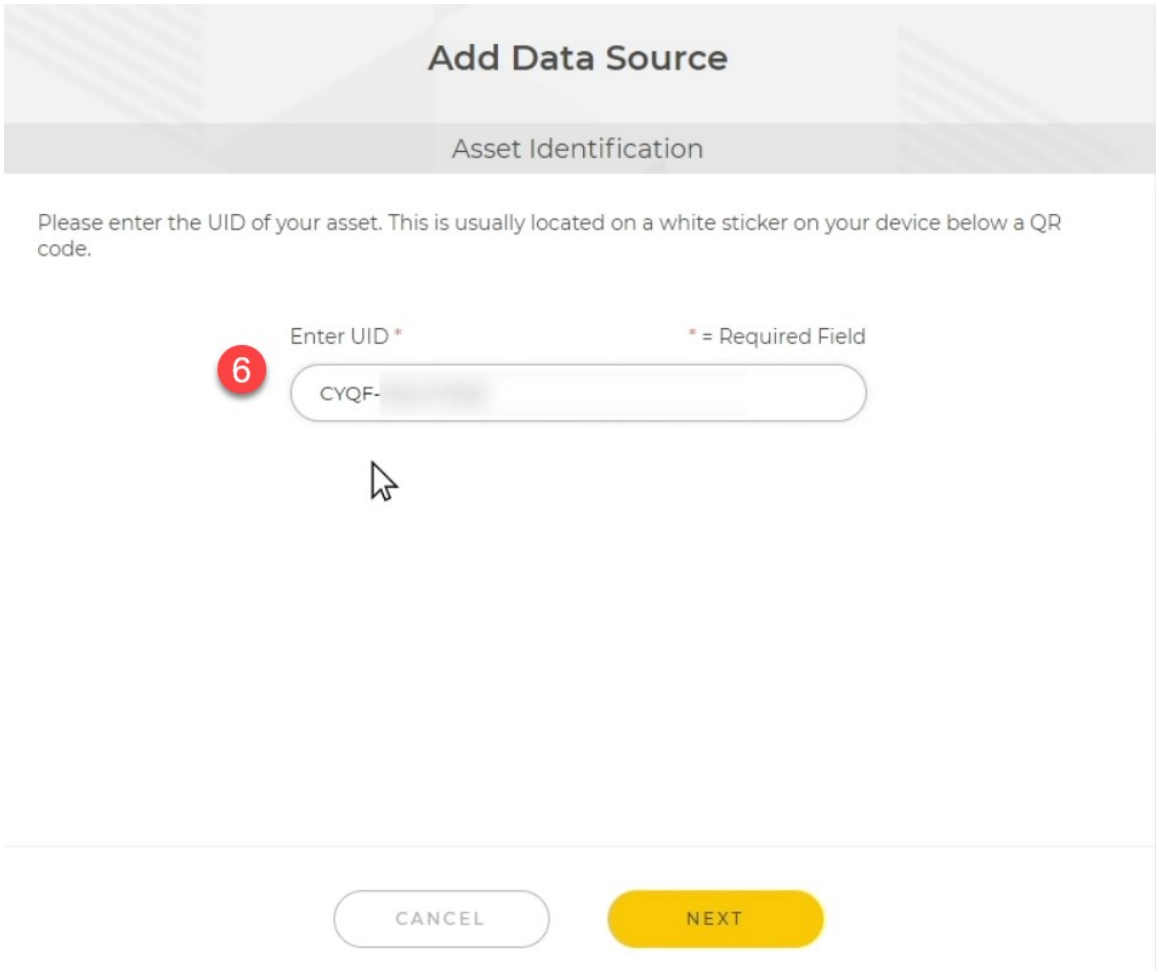
4. If no data source exists for that station, you will be prompted to add a data source. Click **Add Data Source**.



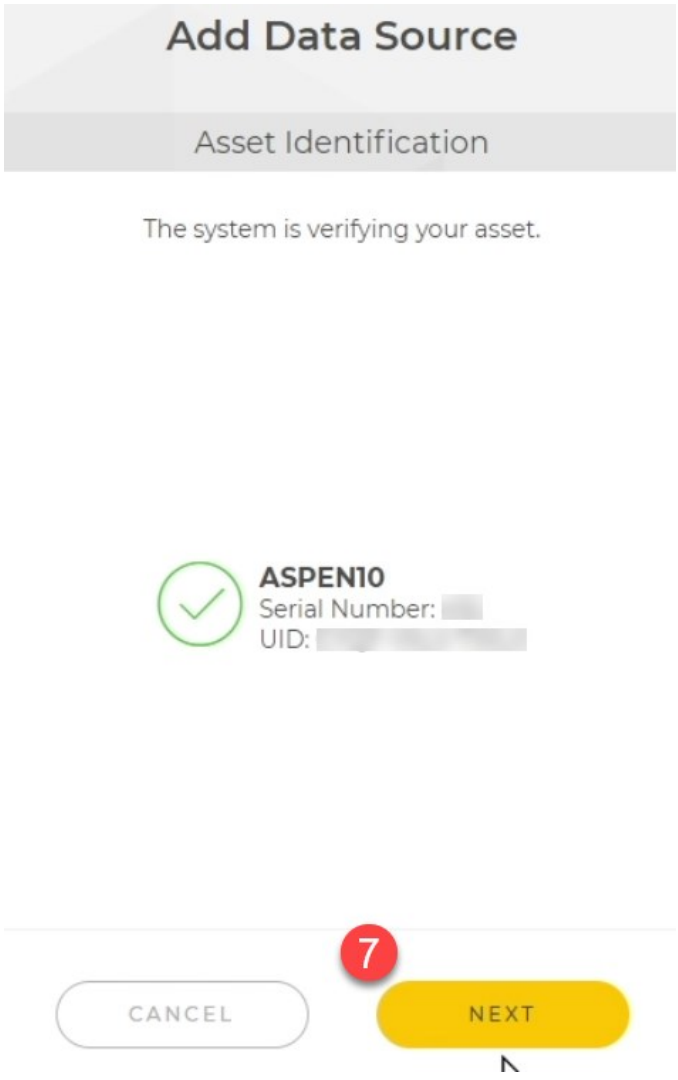
5. The **Add Data Source** window opens. To add a new asset, select **Add New**, then click **NEXT**.



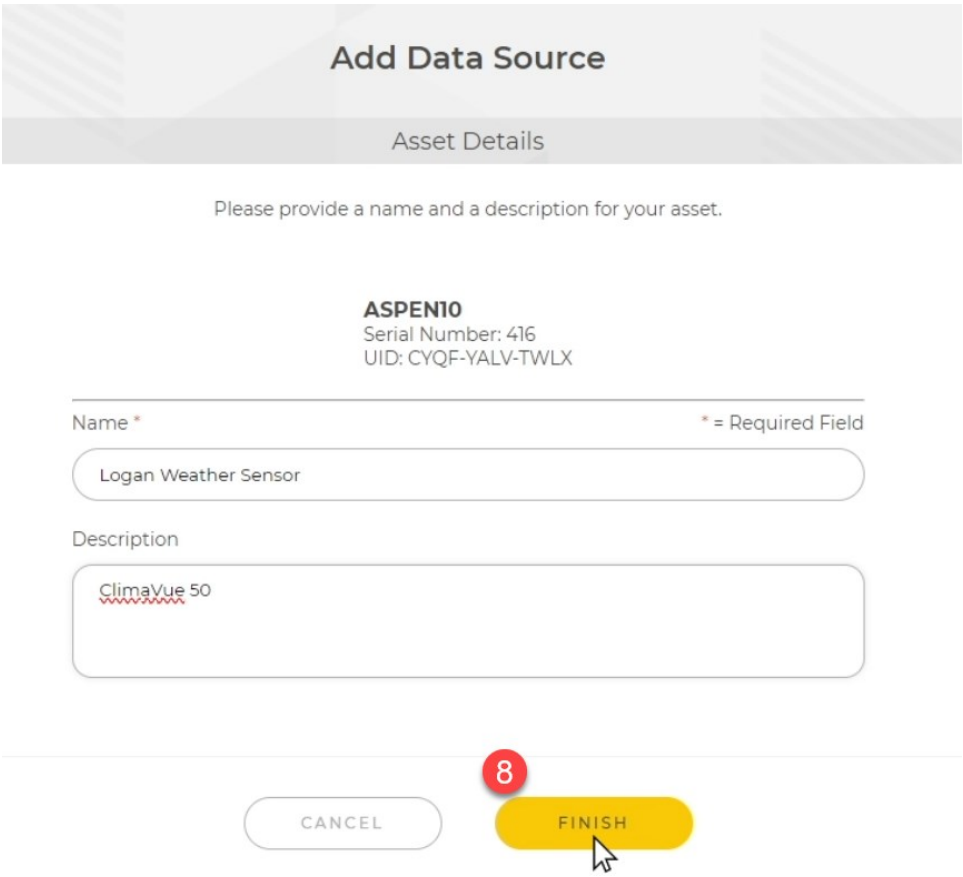
6. Enter the UID number of the Aspen 10. Click **NEXT**.



7. CampbellCloud verifies that the asset has not already been added to another station. Click **NEXT**.



8. Enter a **Name** and optional **Description** for the asset. Click **FINISH**.



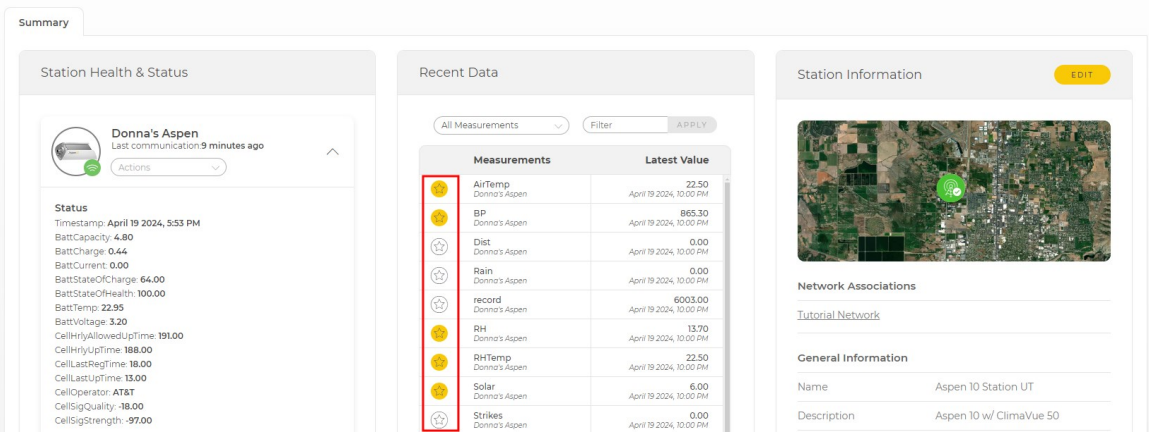
For more information on adding a data source to a station, watch an instructional video at: https://www.campbellsci.com/videos/cloud12.

6.3.2 Setting favorite measurements on a station

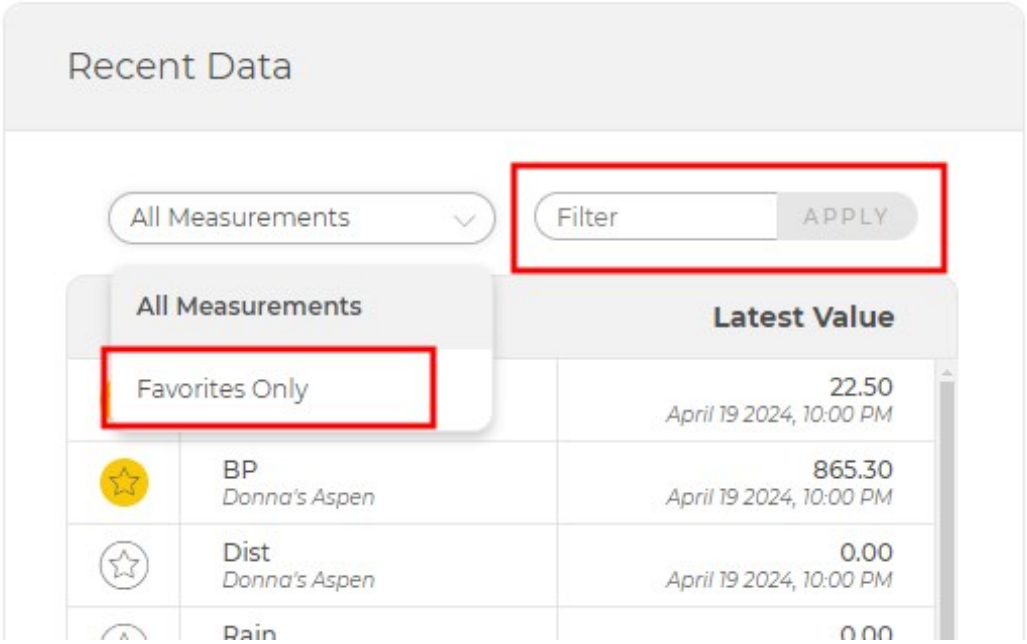
Stations may have multiple data sources, and some sensors take multiple measurements rather than a single measurement. In these instances, certain measurements may be more important than others. CampbellCloud allows adding the measurements of most interest to a favorites list.

1. In the **Stations & Networks** app, choose your network and station on which to set favorite measurements.

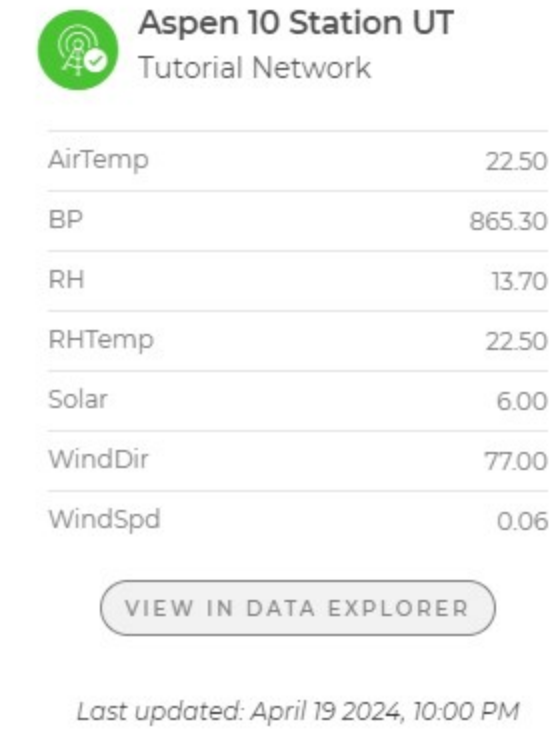
2. View the latest measurements in **Recent Data**, where each measurement is marked with a starred circle. Clicking the star toggles that measurement as a favorite or not.



3. Once favorites are selected, the Recent Data view can be filtered to show **All Measurements** or **Favorites Only**. Use **Filter** to search measurement names.



Measurements in the favorites list also appear in the **Stations & Networks** view when you view a station.

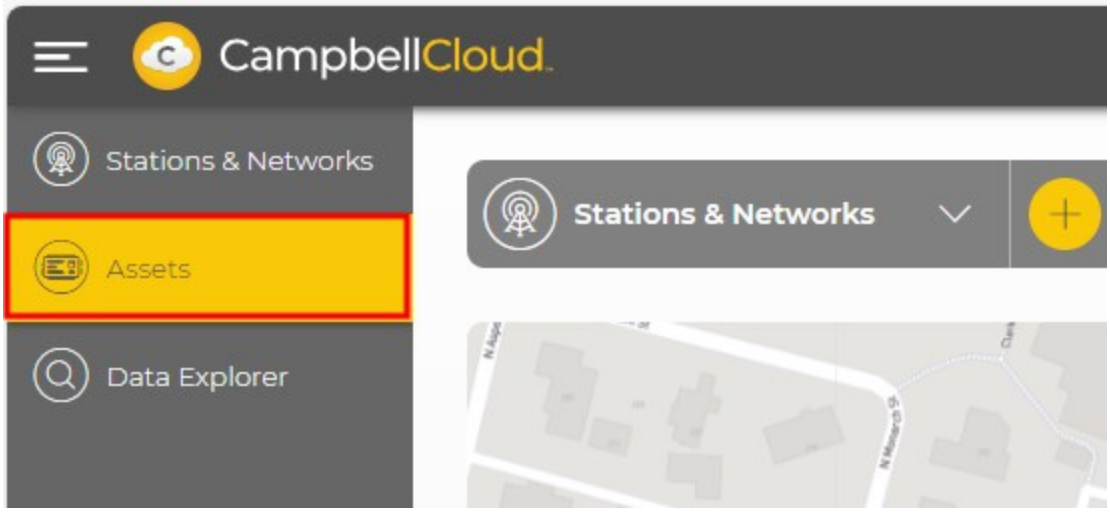


For more information on setting favorite measurements, watch an instructional video at: https://www.campbellsci.com/videos/cloud13.

6.4 Adding an asset

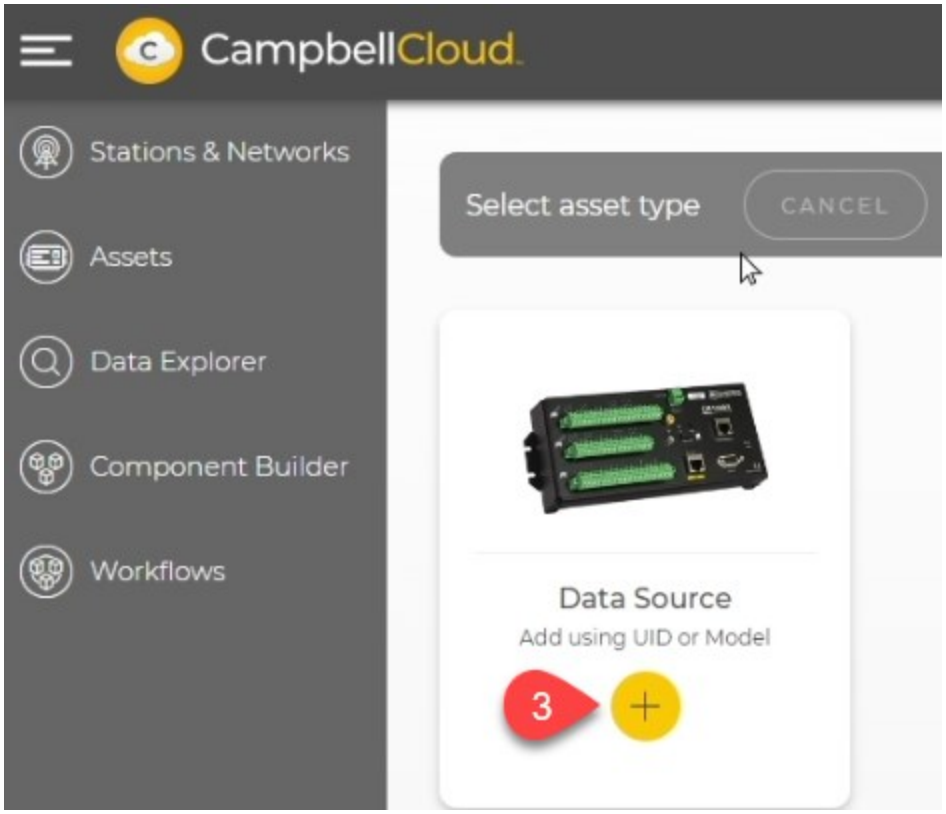
Data sources are provided through assets, such as the Aspen 10. Assets can be added to stations directly in CampbellCloud or through the CampbellGO app. The steps below demonstrate adding an asset directly in CampbellCloud.

1. On the CampbellCloud home screen, select **Assets** from the application menu.

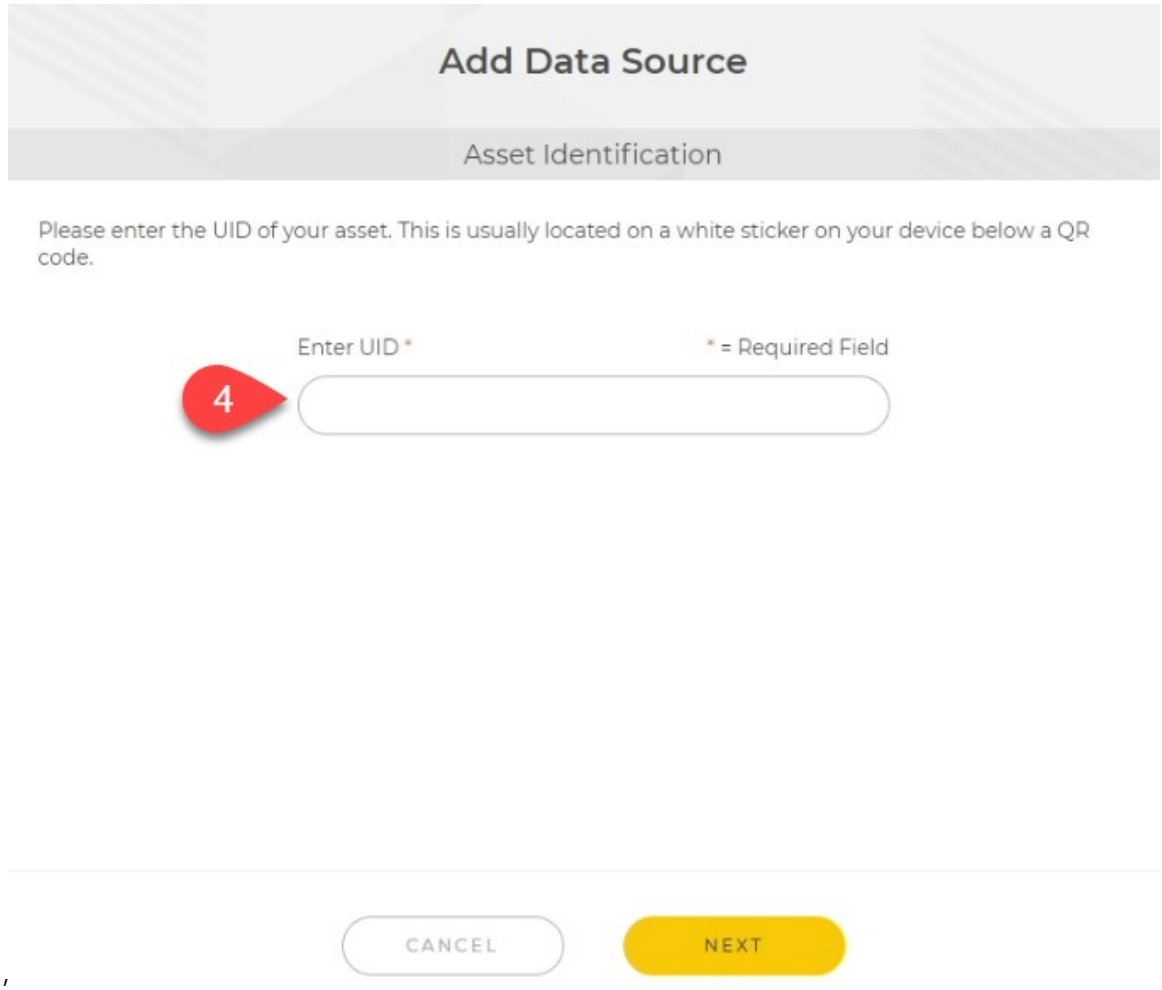


2. Click .

3. Click  below **Data Source**.

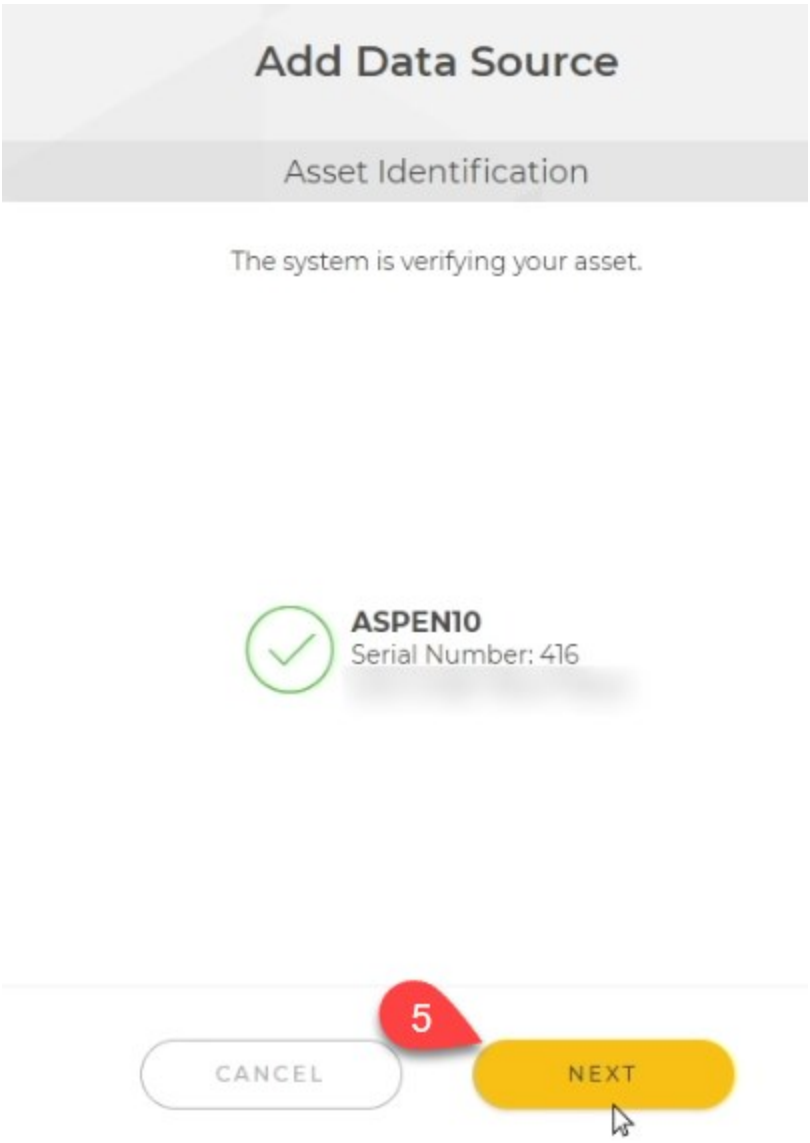


4. Enter the UID number off the Aspen 10. Click **NEXT**.

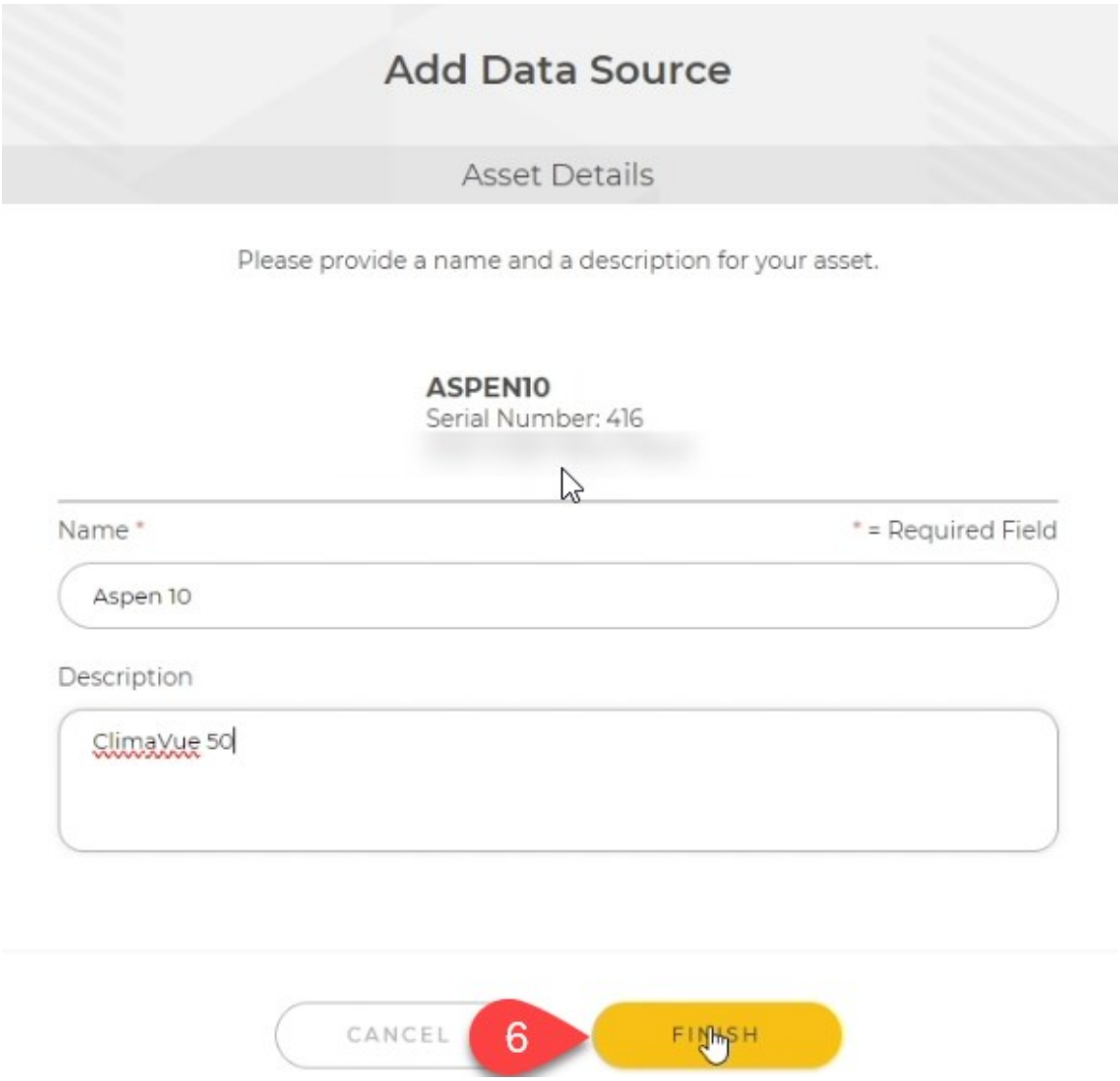


,

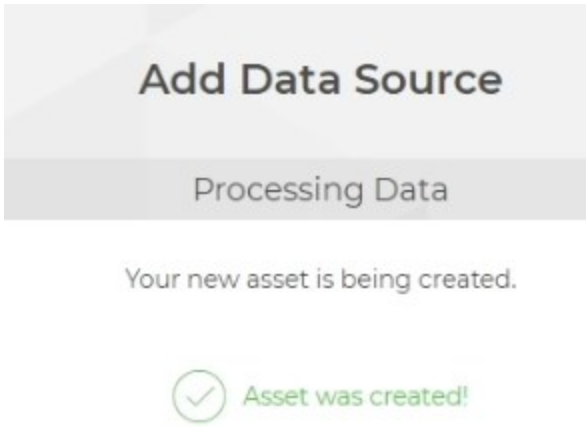
5. CampbellCloud verifies that the asset has not already been added to another network. Click **NEXT**.



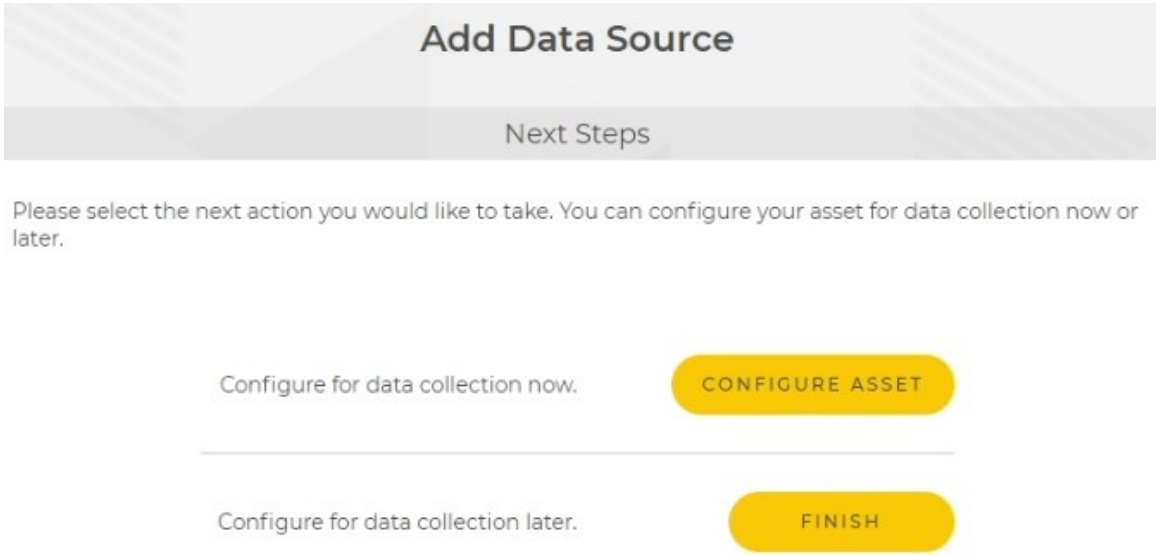
6. Enter a **Name** and optional **Description** for the asset. Click **FINISH**.



7. A message will appear indicating the asset was created.



8. Some assets require additional configuration. The Aspen 10 does not. Click **FINISH**.



9. This data source is now available to add to a station.

For more information on adding an asset directly in CampbellCloud, watch an instructional video at: https://www.campbellsci.com/videos/cloud10.

6.5 Onboarding a CR data logger

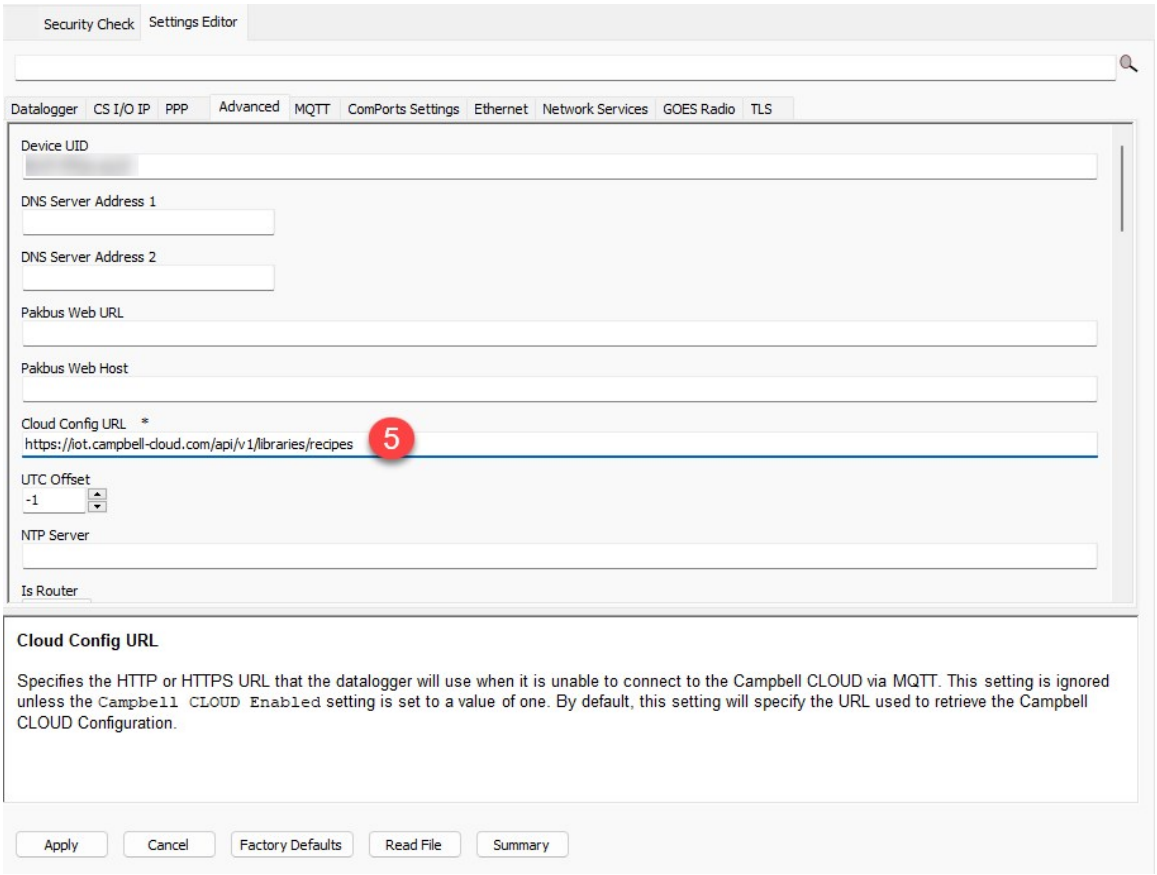
A Campbell Scientific data logger with a UID can be configured to publish to CampbellCloud.

> **NOTE:**
> Currently, only CR1000Xe data loggers and CR1000X data loggers with serial numbers 59843 or higher are configured with a UID.

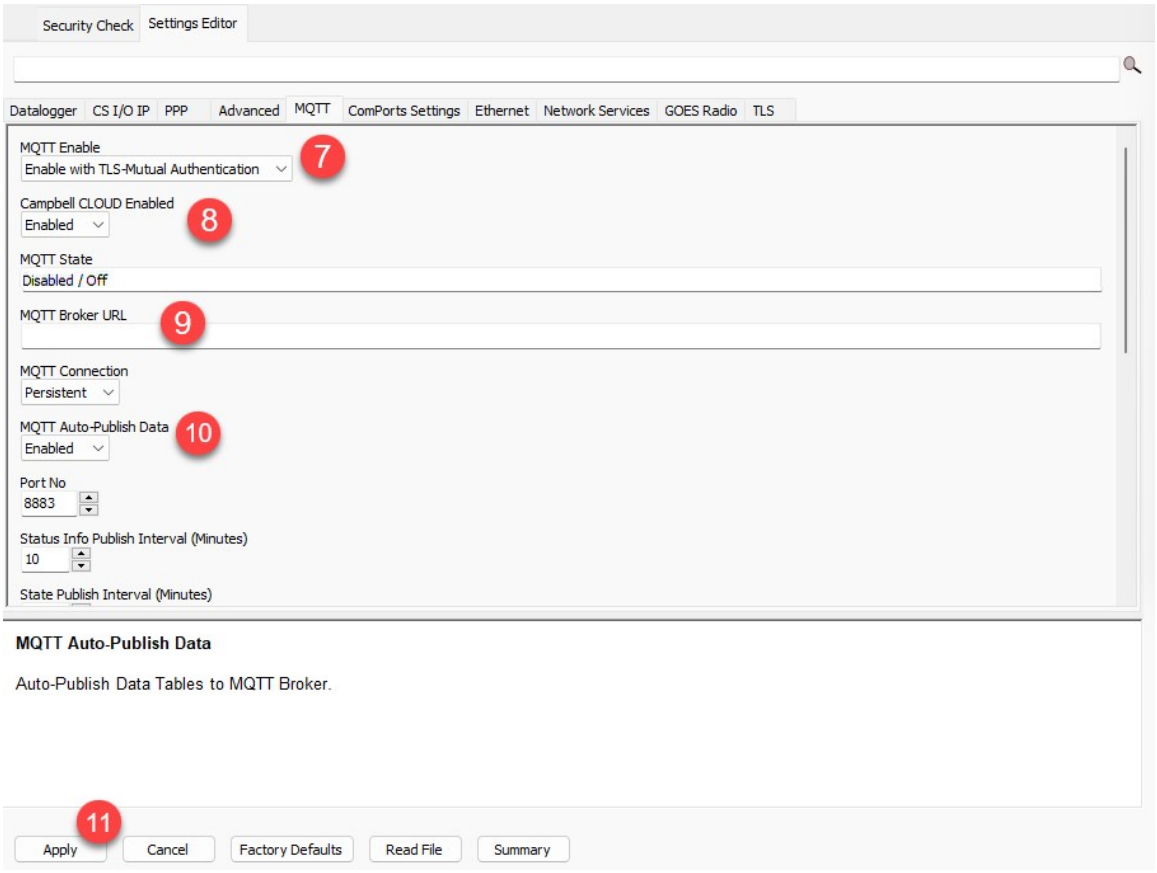
Follow these steps to get your data logger CampbellCloud ready:

1. Ensure the data logger has the latest operating system installed. Operating systems are available from the Campbell Scientific website: https://www.campbellsci.com/downloads/operating-systems-datalogger.
2. Ensure that your data logger has internet access.
3. Connect to your data logger with ***Device Confguration Utility*** via a direct USB connection.
4. Navigate to the **Settings Editor** > **Advanced** tab.
5. On the **Advanced** tab, enter the following URL into the **Cloud Config URL** box:

   https://iot.campbell-cloud.com/api/v1/libraries/recipes



6. Navigate to the **MQTT** tab.

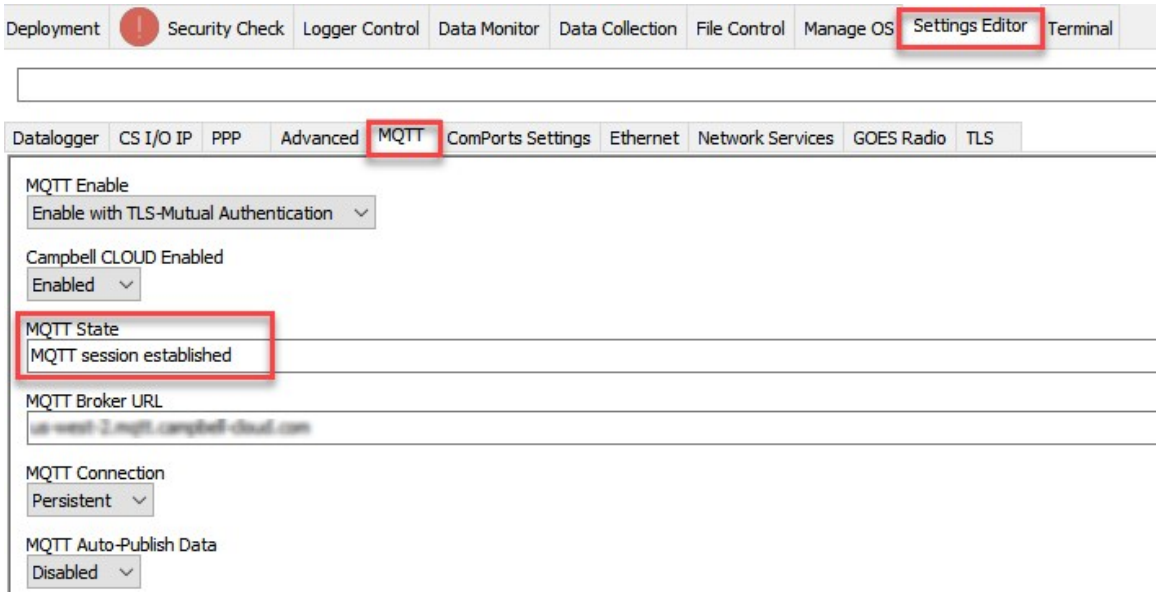


7. Set **MQTT Enable** to **Enable with TLS-Mutual Authentication**.
8. Set **CampbellCloud Enabled** to **Enabled**.
9. Leave the **MQTT Broker URL** box blank. It will auto-populate once connected to CampbellCloud.
10. On the **MQTT** tab, set **MQTT Auto-Publish Data** to **Enabled**. By default, the fastest auto-publish interval is 10 minutes. This means:
    - If the `DataInterval()` in a data table is set to 10 minutes or less, data stored in the data table will be published every 10 minutes.
    - For a `DataInterval()` greater than 10 minutes, data will be published based on the interval specified in the data table.

- To publish data more frequently than the 10-minute auto-publish interval, use the `MQTTPublishTable()` instruction in the data table and set the desired publish rate. The `OutputFormat` parameter in the `MQTTPublishTable()` instruction must be set to 2, **GeoJSON**.

> **NOTE:**
> Once `MQTTPublishTable()` is included in the data table in a CRBasic program, **Auto-Publish** is no longer applicable.

11. **Apply** the settings. The data logger will then restart and begin the process of connecting to CampbellCloud, including authentication with the platform. This process may take a few minutes.
12. Reconnect to your data logger with ***Device Confguration Utility***. Navigate to the **Settings Editor** > **MQTT** tab. The **MQTT State** box on this tab displays the status of MQTT communications. Once the device is successfully connected, you should see **MQTT session established** in this box.



The above steps will configure the device for communications with CampbellCloud. To start publishing data to CampbellCloud, you will need to:

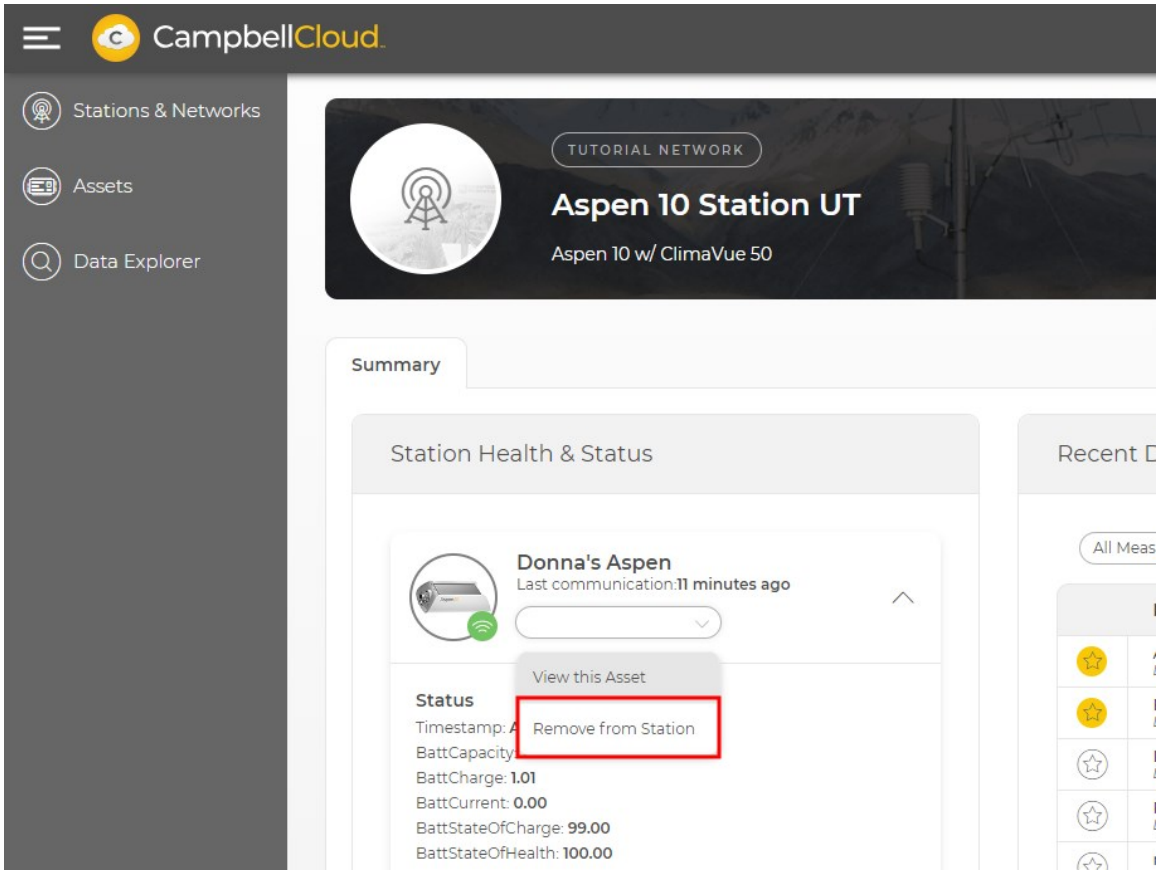
- **Onboard the data logger to CampbellCloud:** Refer to Adding an asset for detailed instructions on onboarding your data logger.
- **Link the data logger to a station:** Use the process described in Adding a station to a network to connect the data logger to a station.

- **Activate a subscription:** Ensure the data logger has an active subscription by following the steps in Ordering and activating subscriptions (p. 8).

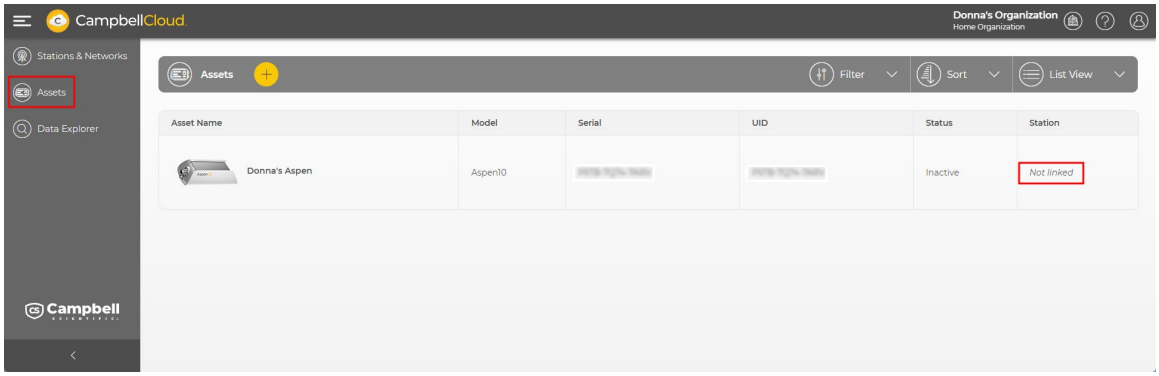
6.6 Linking an asset to a different station

To change the station an asset is linked to in CampbellCloud, follow the steps below.

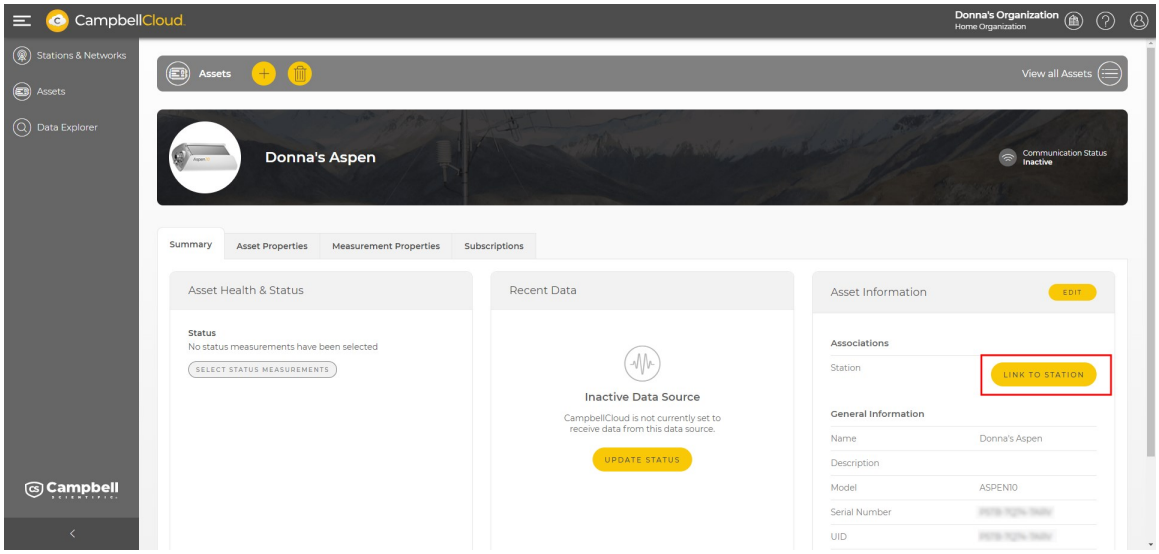
1. From Stations & Networks (p. 26), navigate to the station summary.
2. Under **Station Heath & Status**, select **Remove from Station** from the **Actions** menu.



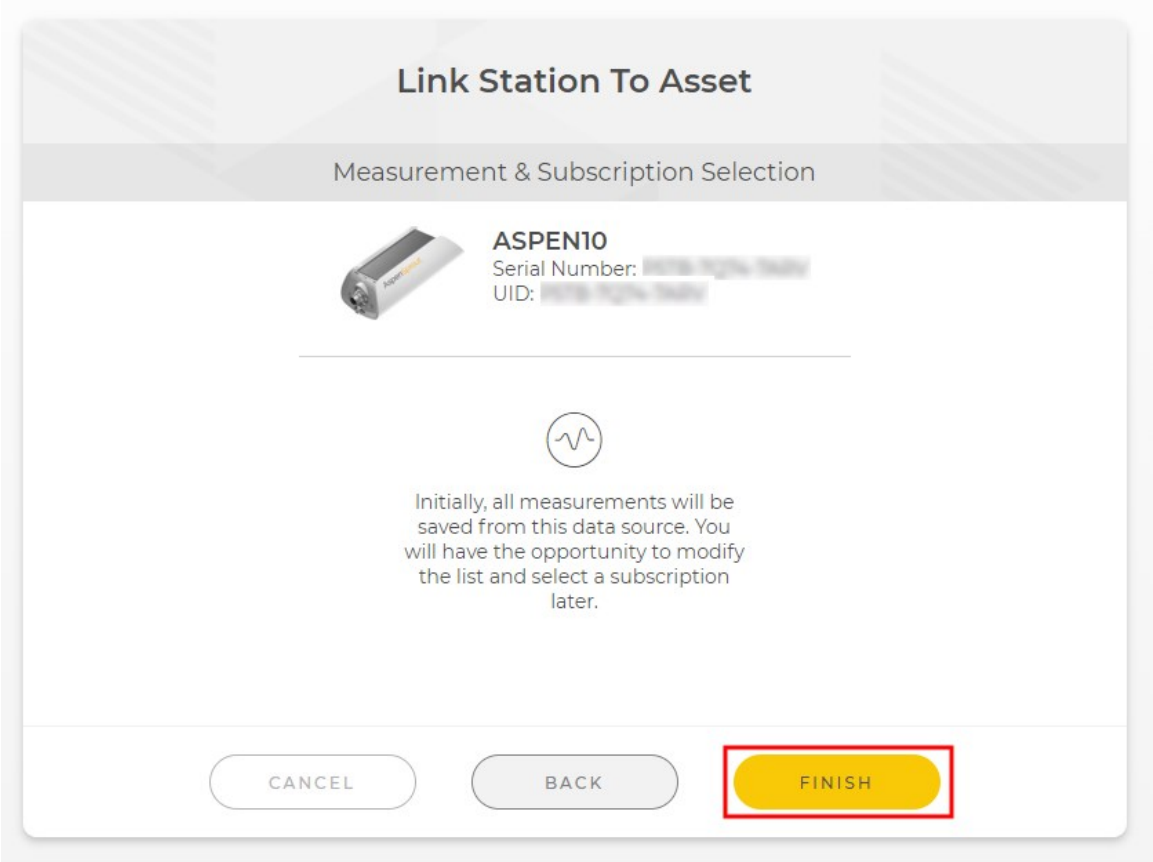
3. Navigate to **Assets** and select the asset you just unlinked.



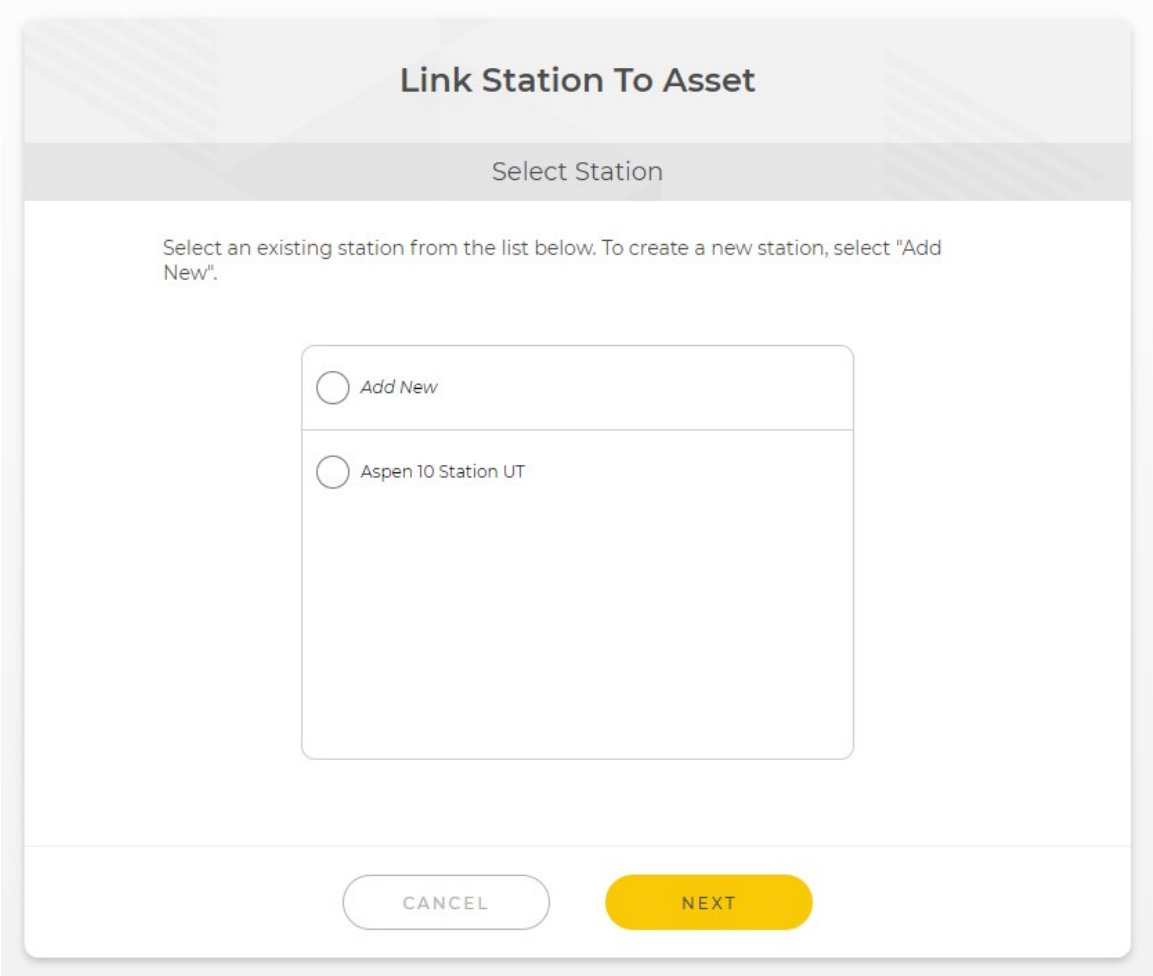
4. Under **Asset Information**, click **Link to Station**.



5. Click **Finish**.



6. Select a station from the list of existing stations to link the asset to an existing station or click **Add New** to create a new station. (See Adding a station to a network [p. 48].) Once you've selected an option from the list, click **Next**.

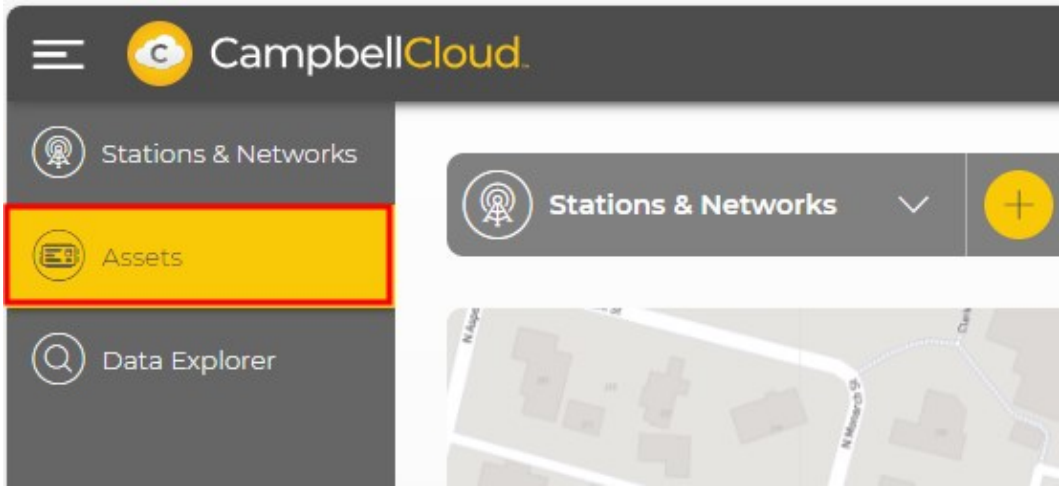


6.7 Changing the Overdue Comms Alert setting

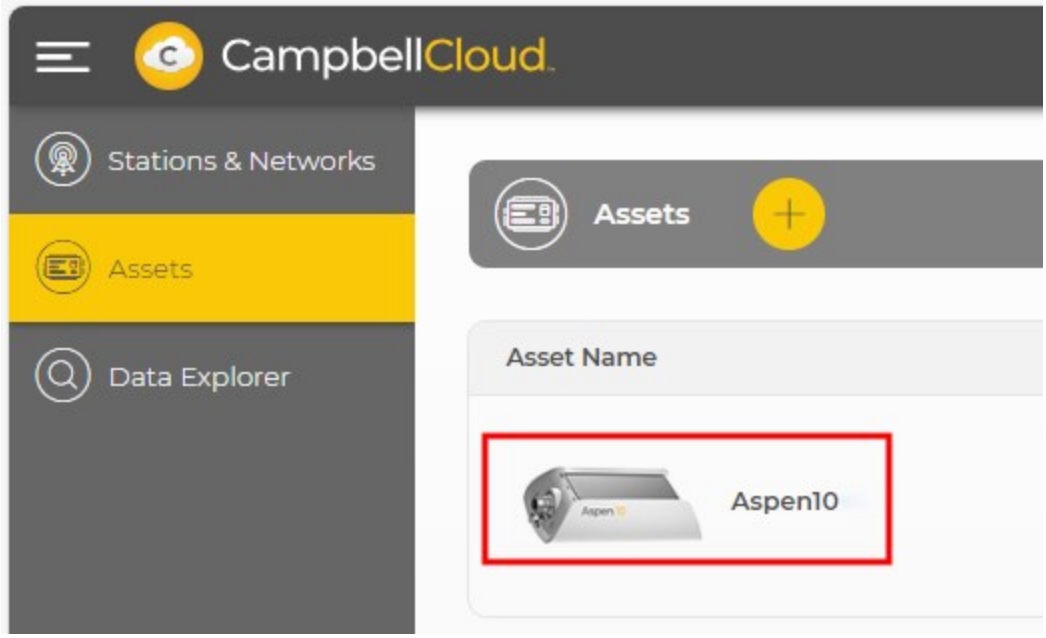
Knowing when there is a communications or sensor problem that is preventing data from reaching Cloud is important to prevent data loss. In CampbellCloud, the amount of time that passes before notifying the user that communications are overdue can be customized.

> **NOTE:**
> Changes made to an asset affect all users who have access to that asset.

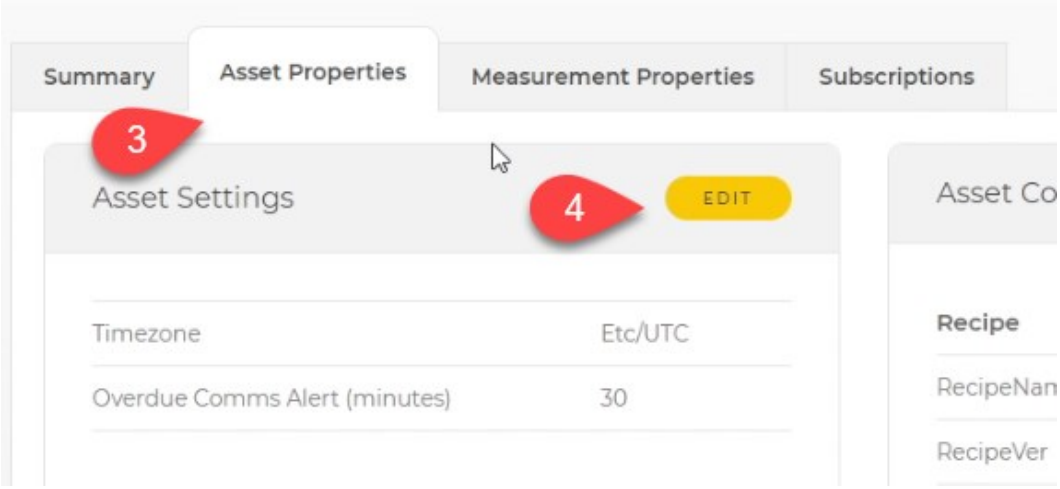
1. On the CampbellCloud home screen, select **Assets** from the application menu.



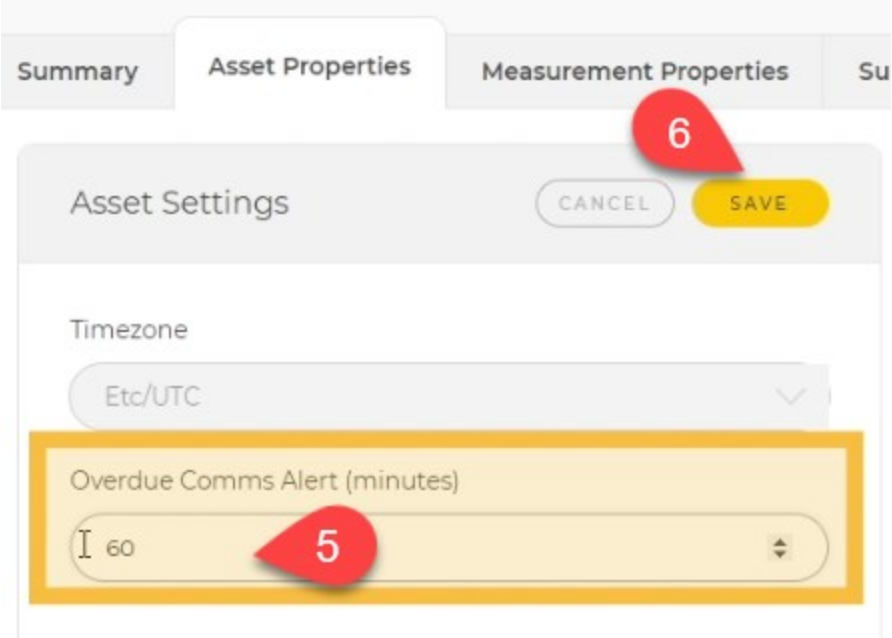
2. Select the asset for which you need to modify the overdue communications alert time.



3. Select **Asset Properties**.



4. Click **EDIT** next to **Asset Settings**.
5. Change the **Overdue Comms Alert** to an appropriate amount of time to pass before reporting the station comms as overdue.



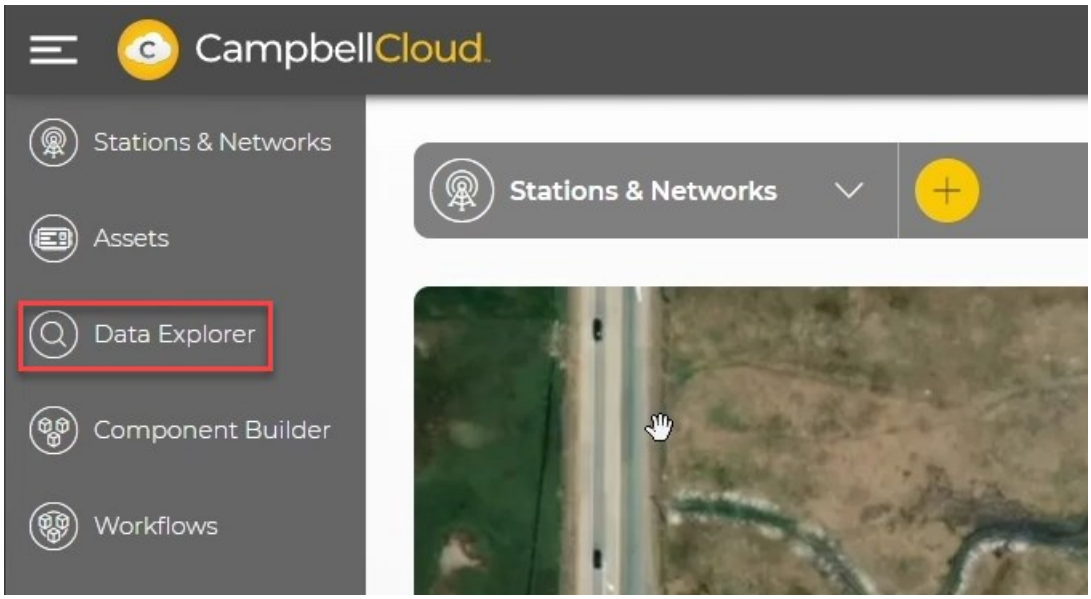
6. Click **SAVE** to save the new setting.
7. All data sources associated with a station have individual **Overdue Comms Alert** times. CampbellCloud will issue an overdue comms alert for the worst-case status. For example, if a station has two data-source assets, and one of these assets has a communications status of **On schedule**, and the other has a communications status of **Overdue**, **Overdue** will be shown at the station level.

For more information on changing the overdue comms alert time, watch an instructional video at: https://www.campbellsci.com/videos/cloud05.

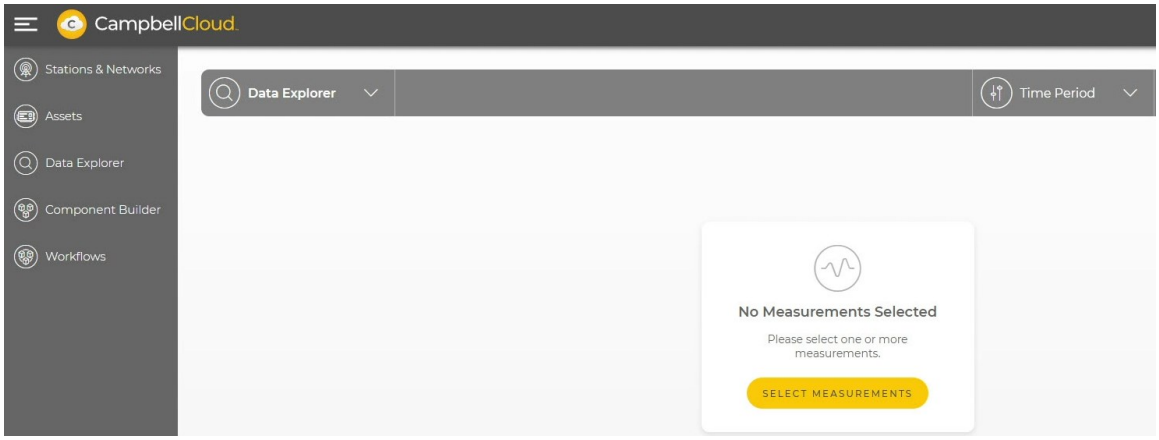
6.8 Viewing historical data using Data Explorer

Use the **Data Explorer** app in CampbellCloud to view historical data.

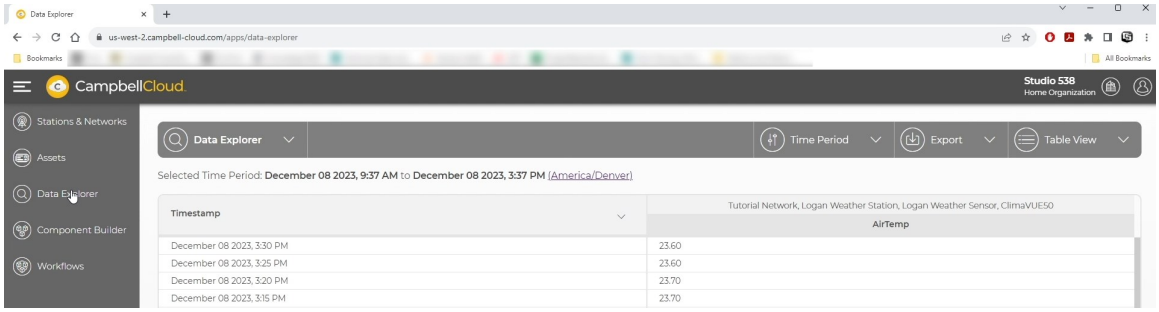
1. Click **Data Explorer** from the application menu.



2. The display switches to **Data Explorer**. If a station has not previously been viewed, you will be prompted to **SELECT MEASUREMENTS**.

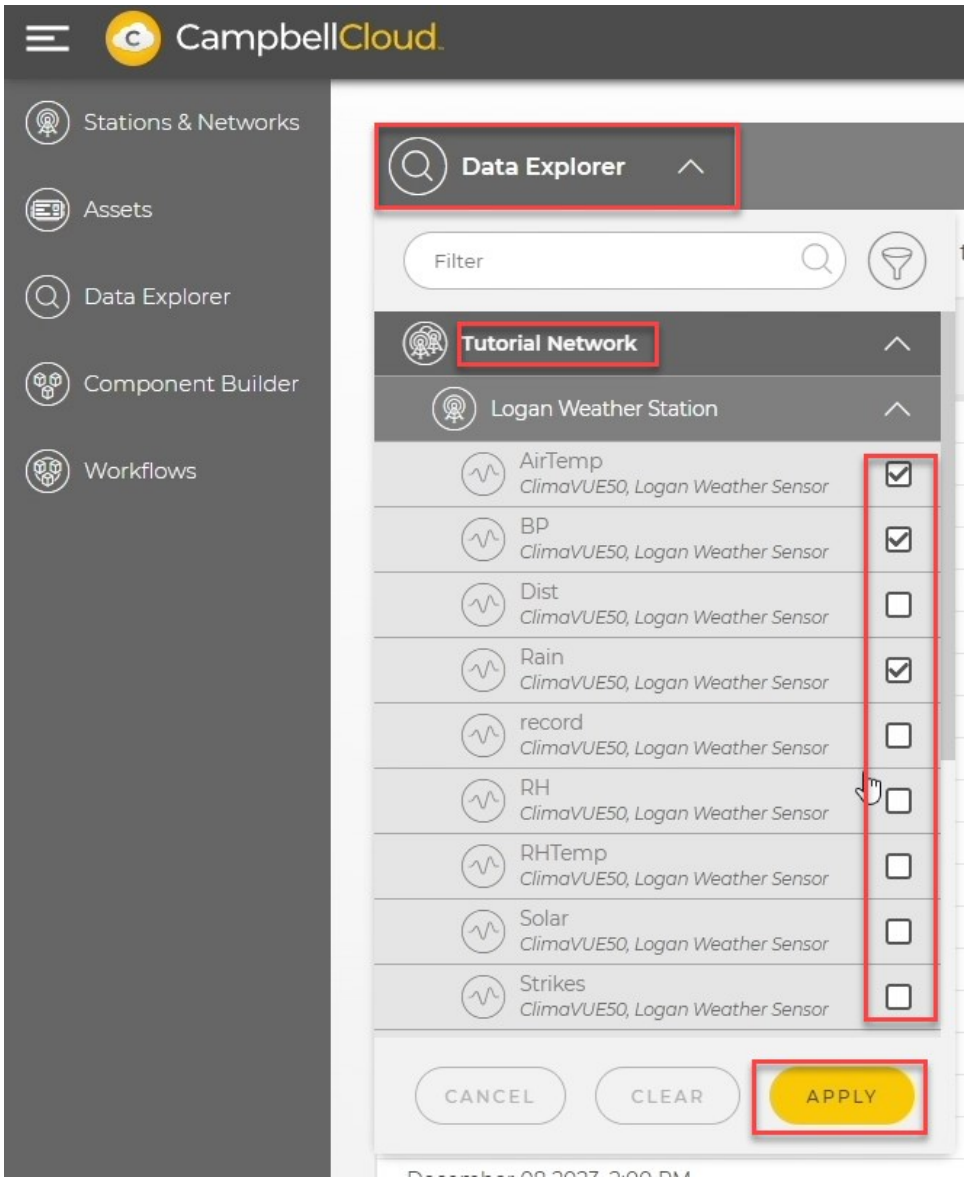


If you are viewing a station that has been previously viewed, the last measurements viewed from that station will be shown. In this example, the air temperature measurement from the ClimaVue™50 is displayed.

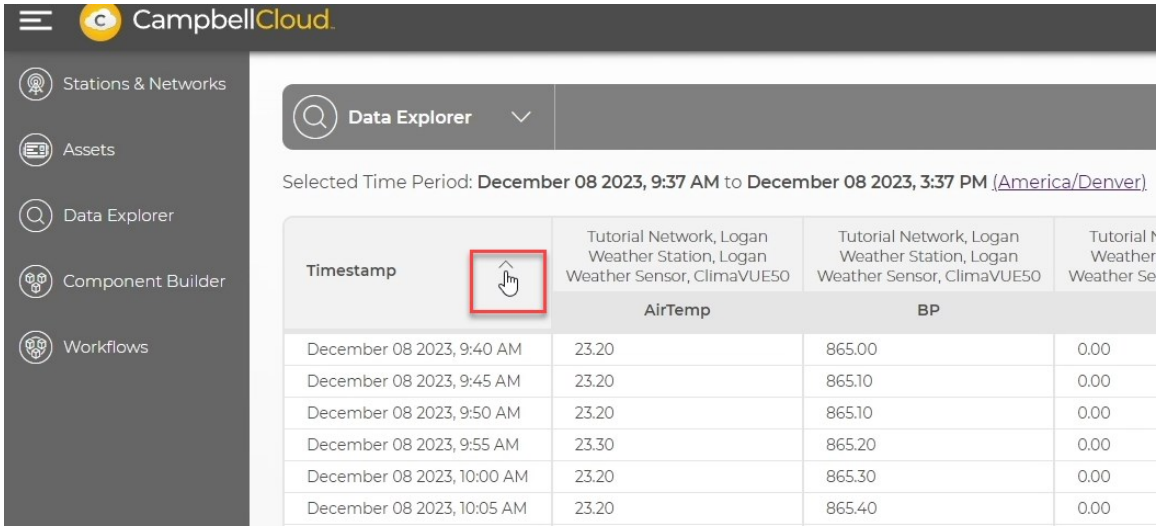


3. To view additional measurements, click the dropdown menu for **Data Explorer**, then select the network and then the station. All the available measurements for the station are shown. Click the check box next to each measurement you wish to view and click **APPLY**.

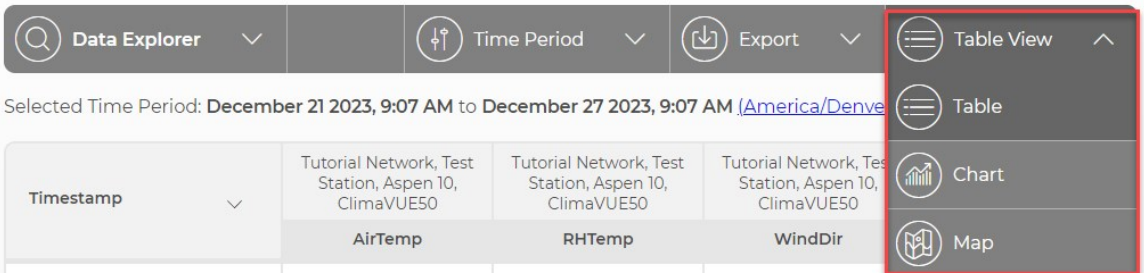
> **NOTE:**
> Up to 15,000 data points per measurement can be displayed.



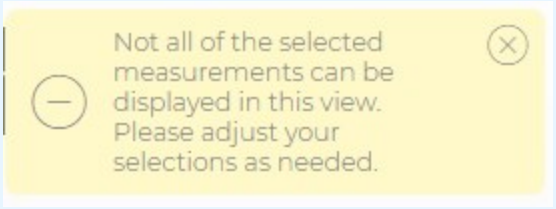
4. By default, the most recent measurement is shown at the top. To show the oldest data first, click on the arrow next to **Timestamp**.

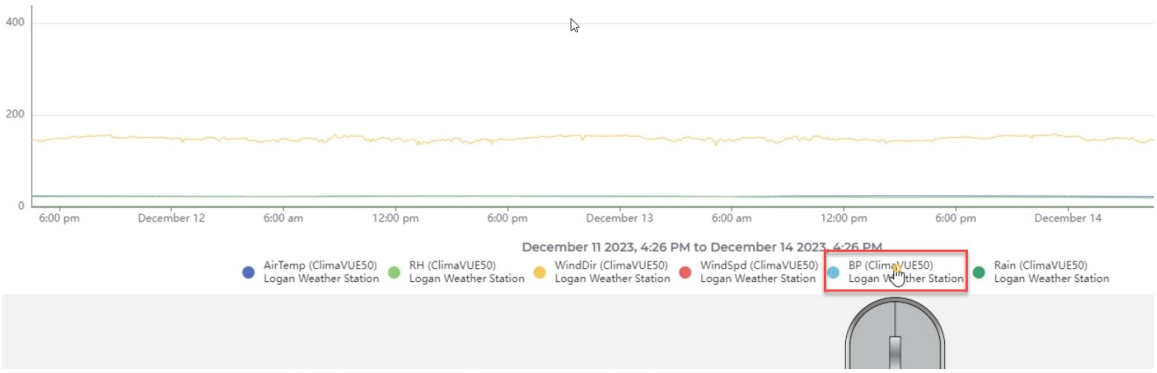


5. To switch from **Table** to **Chart** or **Map** view, click the down arrow next to your current view and select a different option.

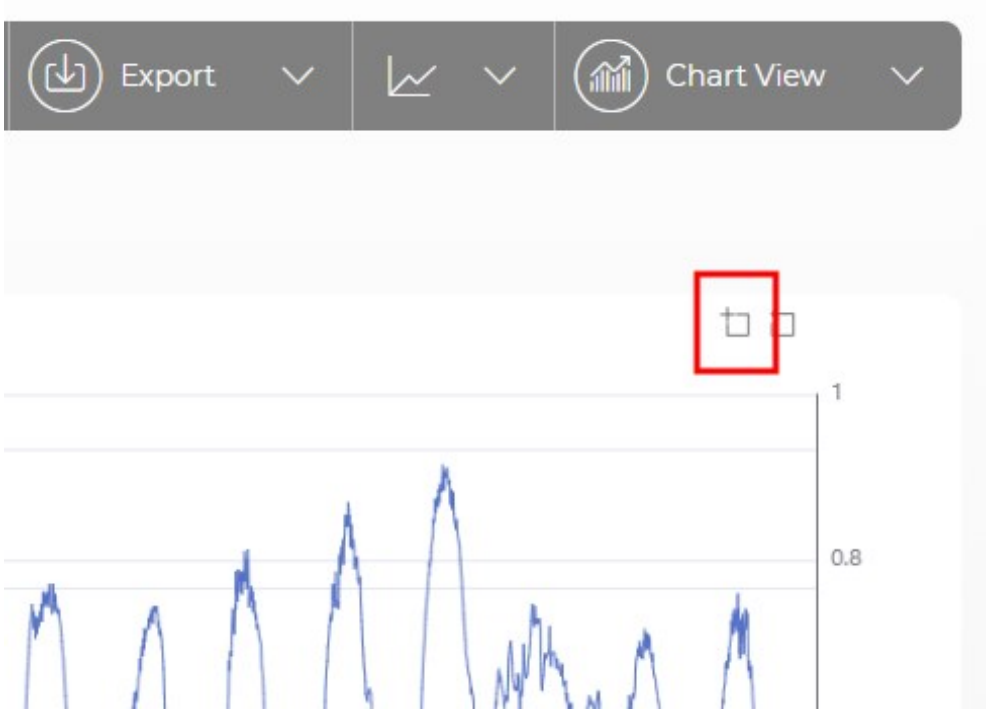


6. In **Chart** view, clicking a measurement along the bottom will toggle that measurement on and off.

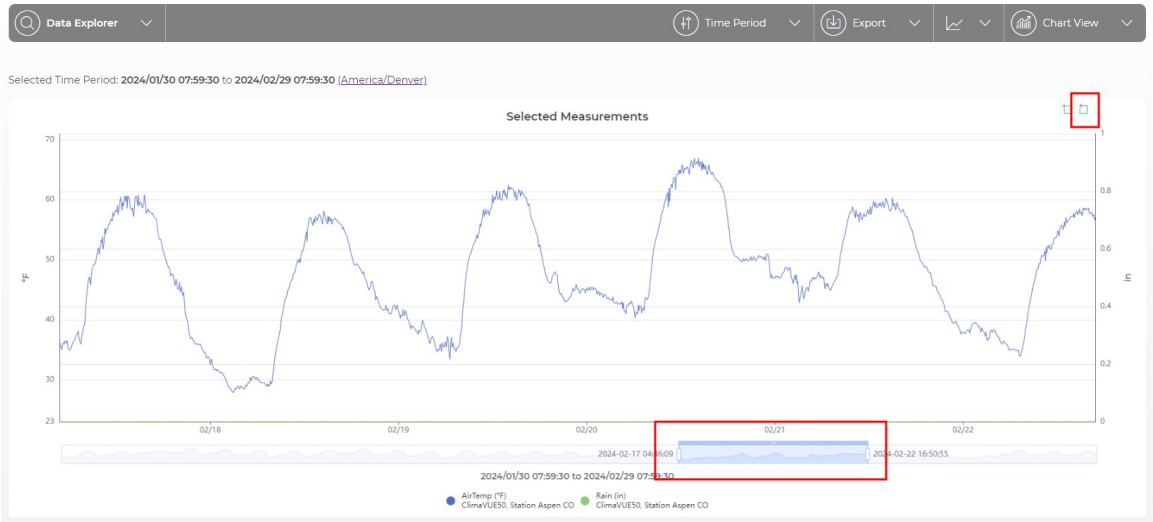
> **NOTE:**
> When units are assigned to measurements, they are displayed on the left and right axes. Only measurements with those specific units are charted at one time. For example, temperatures in °C and relative humidity in % can be displayed simultaneously. However, if rain in mm was selected, it would not be charted.
>
> You may see the following error:
>
> 
>



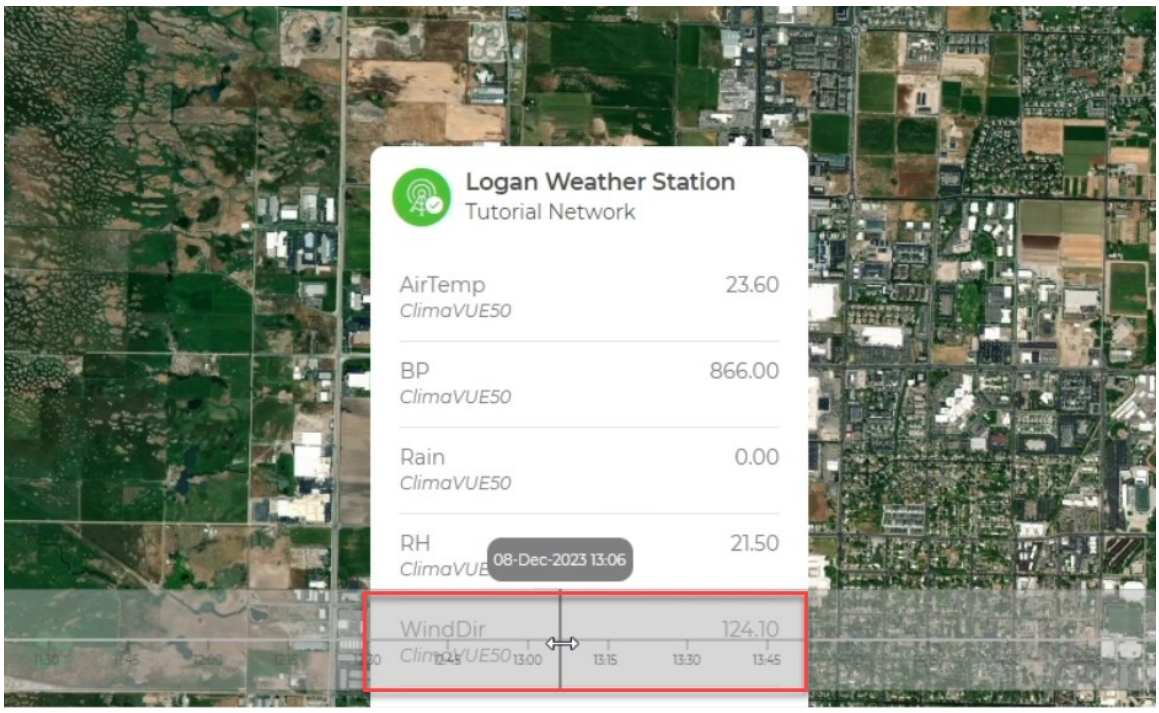
7. Zoom in on specific data in **Chart** view by toggling the **Zoom** feature then using your mouse to select the specific time period.



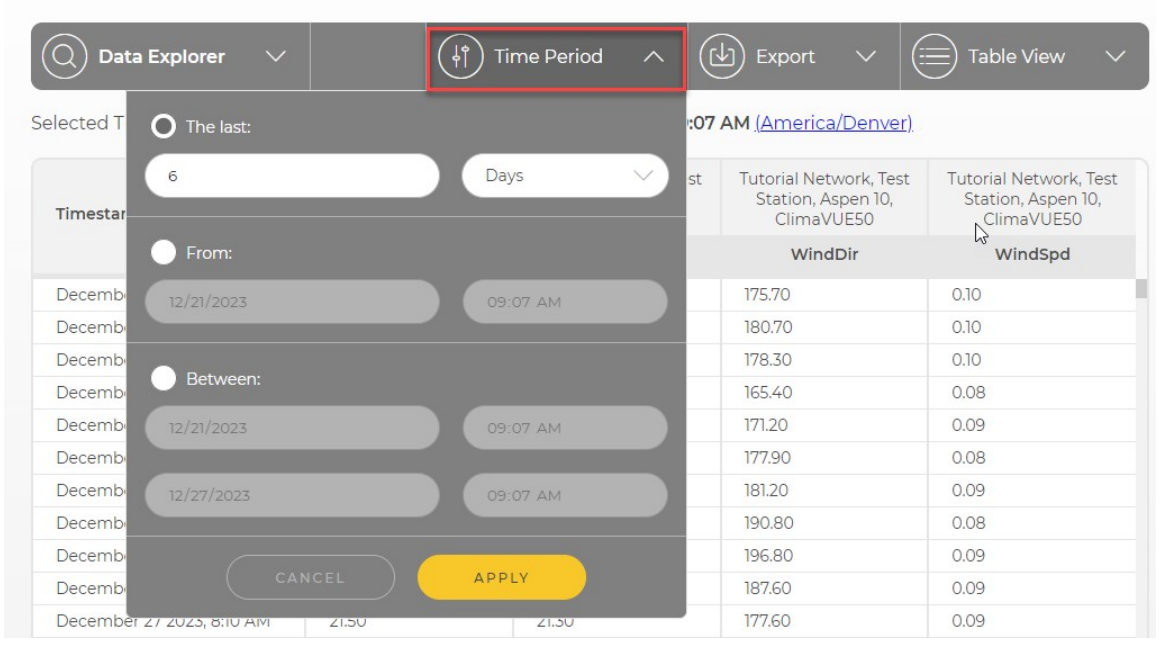
8. Once zoomed in, drag the scroll bar at the bottom to view other locations of the graph at the current zoom level. Use **Zoom Reset** to return to previous zoom levels.



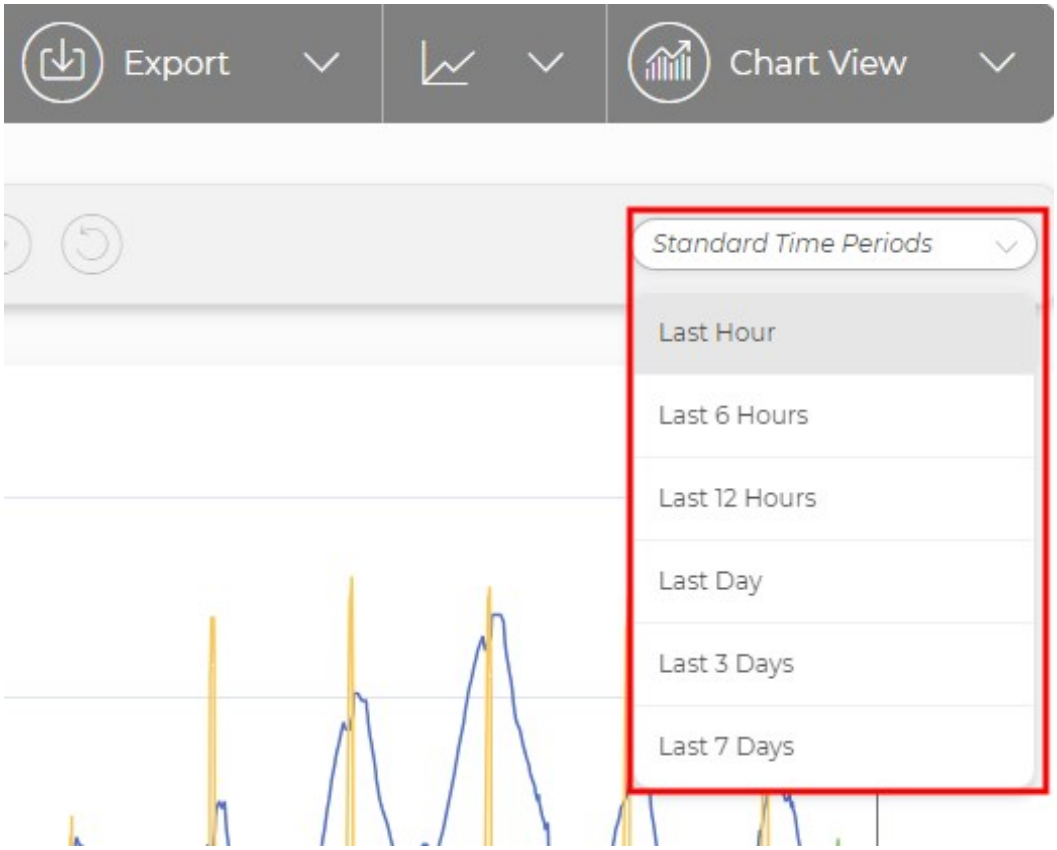
9. A slider bar along the bottom of the **Map** view allows scrolling through the data to show the measurements at different times.



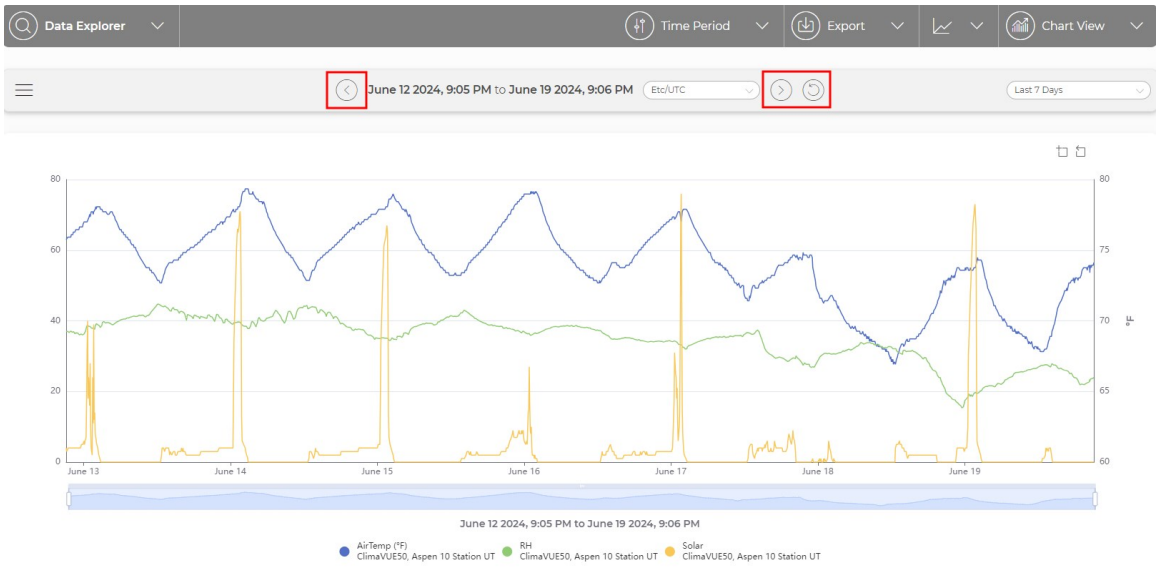
10. Menus along the top of the screen also allow selection of the **Time Period** being displayed.



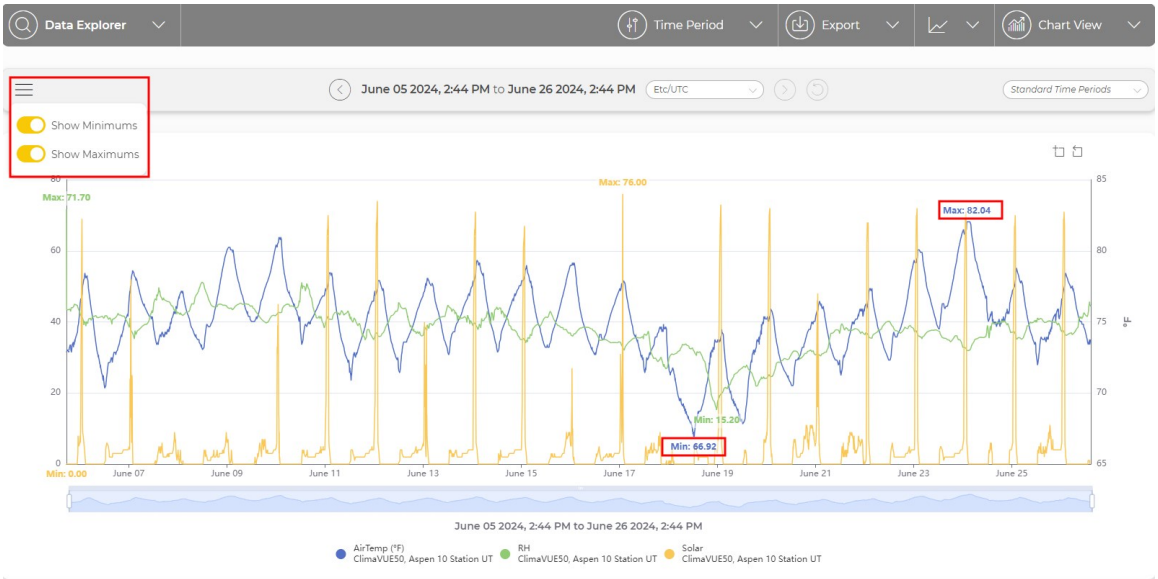
11. Use the down arrow near the top right to select a standard time period to display.



12. Use the left and right arrows at the top of a **Chart** to move backward or forward through time at the current display time period. Use reset to return to the original time period.



13. Use the hamburger menu near the top left to display maximum and/or minimum values.



14. When viewing data from multiple timezones on a chart, you can use the hamburger menu to select **Time Zone Alignment**. When using the time zone alignment feature, all plotted measurements are placed onto a Local Station Time axis, meaning a 2:00 pm measurement on the chart was sampled at 2:00 pm local station time no matter where in the world the station is located. This allows you to more easily visualize the maximums and minimums since all measurements are displayed based on local station time.

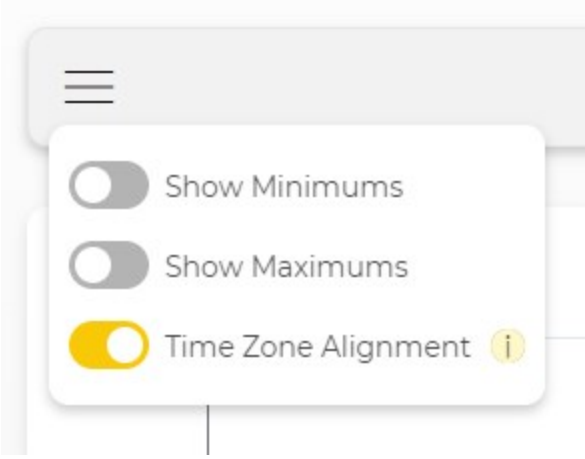


Chart before time zone alignment:

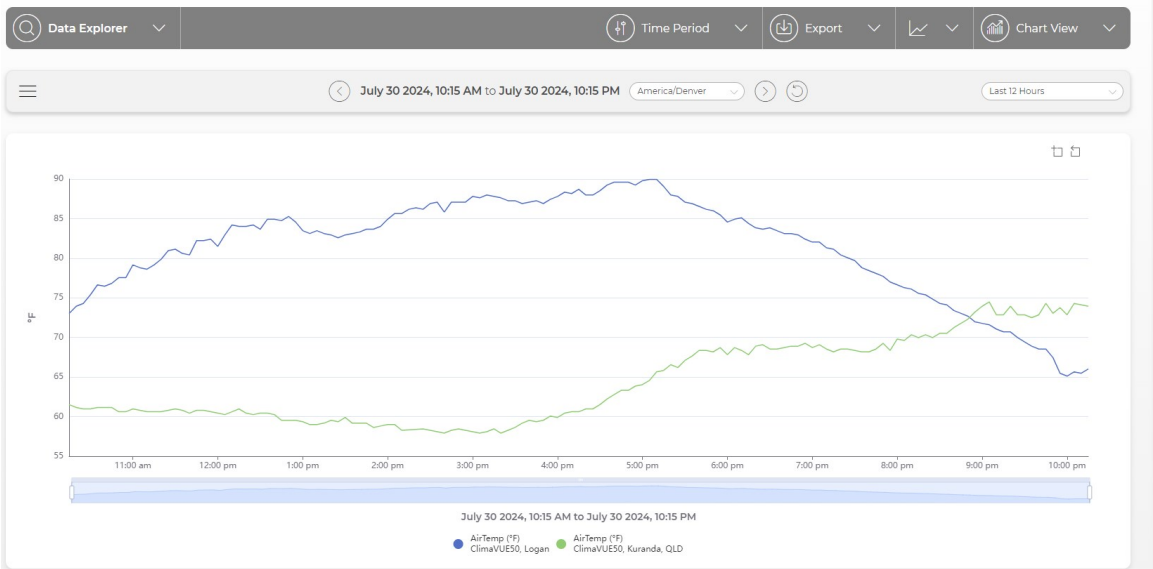
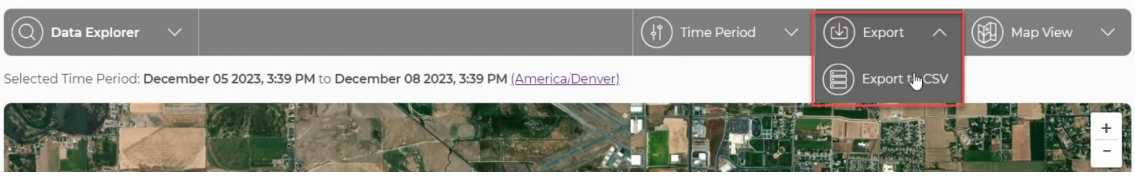


Chart with time zone alignment:

15. There is also an option to **Export** the data as a comma-separated values (CSV) file for further data processing.



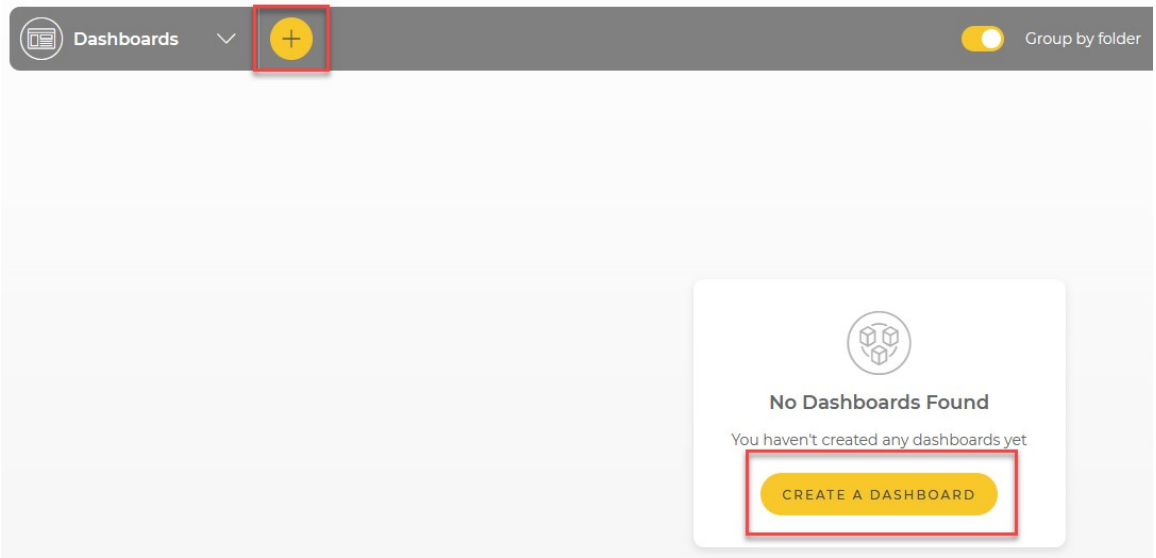
For more information on viewing historical data using Data Explorer, watch an instructional video at: https://www.campbellsci.com/videos/cloud15.

6.9 Adding a dashboard

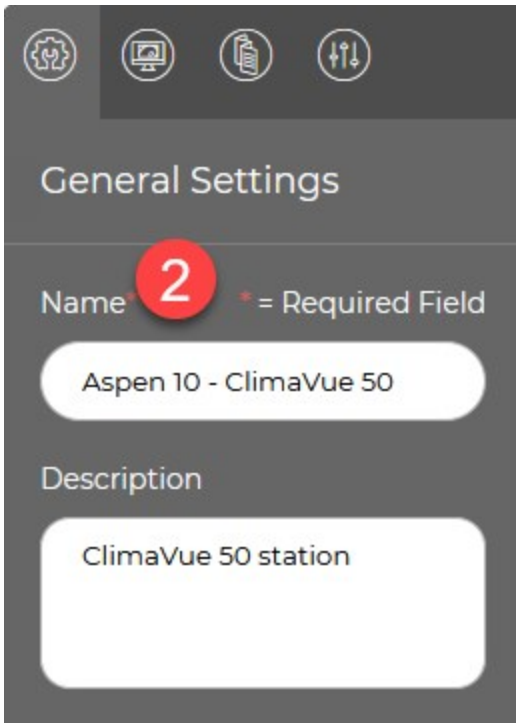
Users with **Dashboards** permissions can access dashboards from the left-hand **Application** menu.

Follow these steps to create a dashboard:

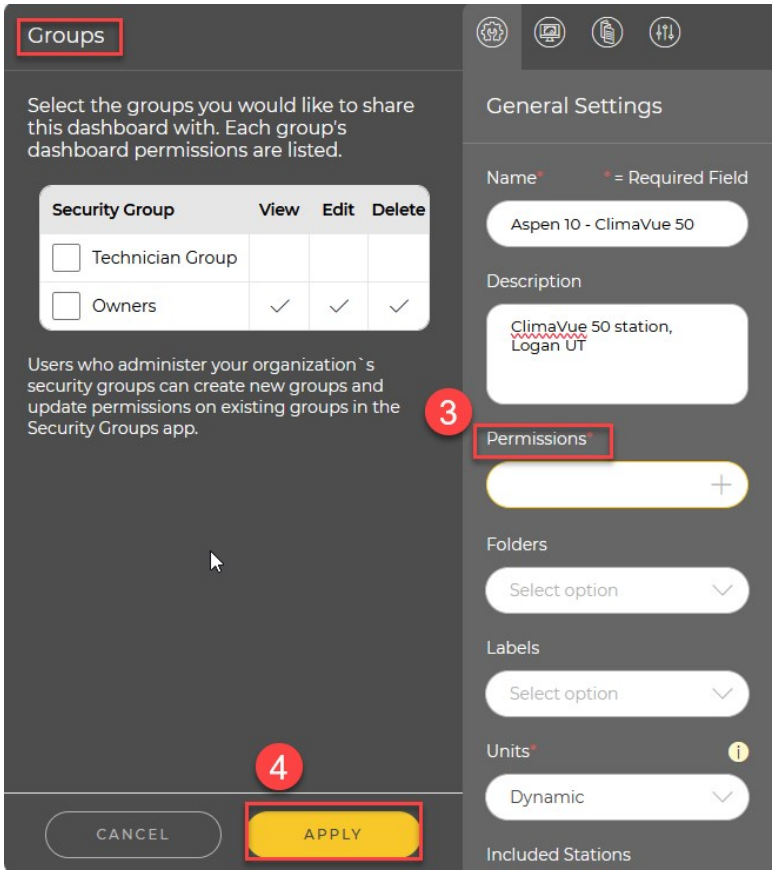
1. Either click the plus icon or **Create a Dashboard** to open the **Dashboard Studio**.



2. Go to the **General Settings** panel on the right side of the **Dashboard Studio** and name the dashboard; choose a name that reflects the data or station you are working with. For example, *Aspen 10 - ClimaVue 50*. Optionally, add a dashboard description.

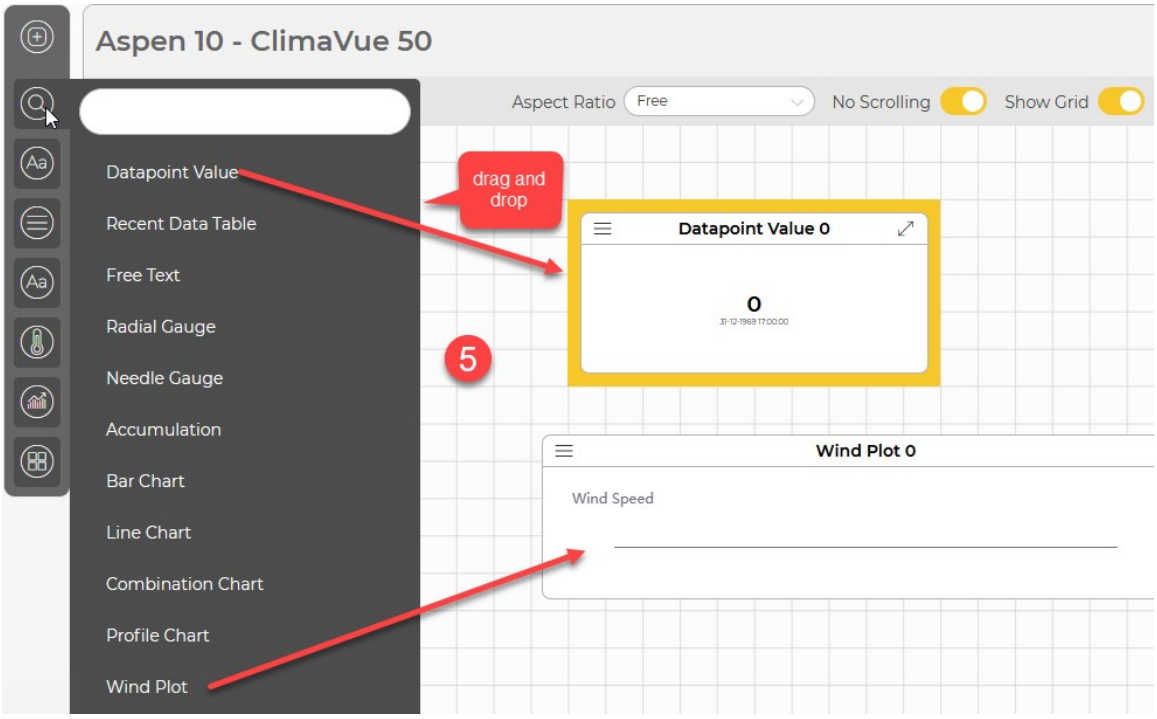


3. Click the permissions box to open the **Groups** tab, where you can assign access permissions to specific users or groups for the dashboard.

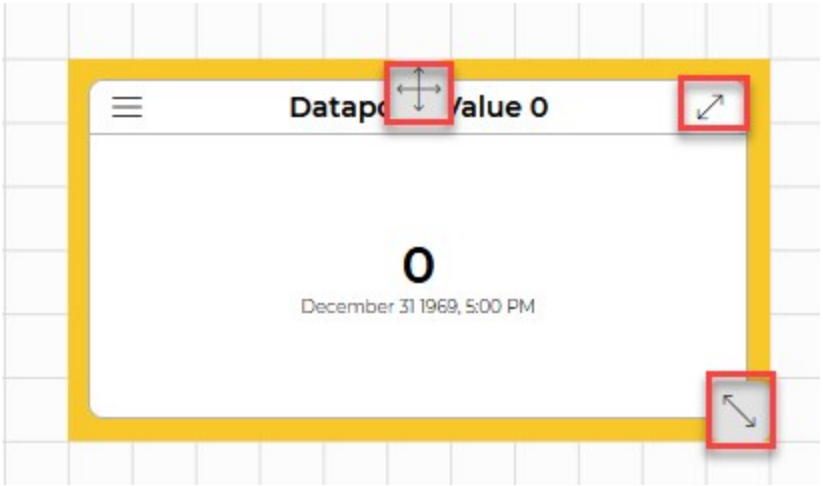


4. Click **Apply**.

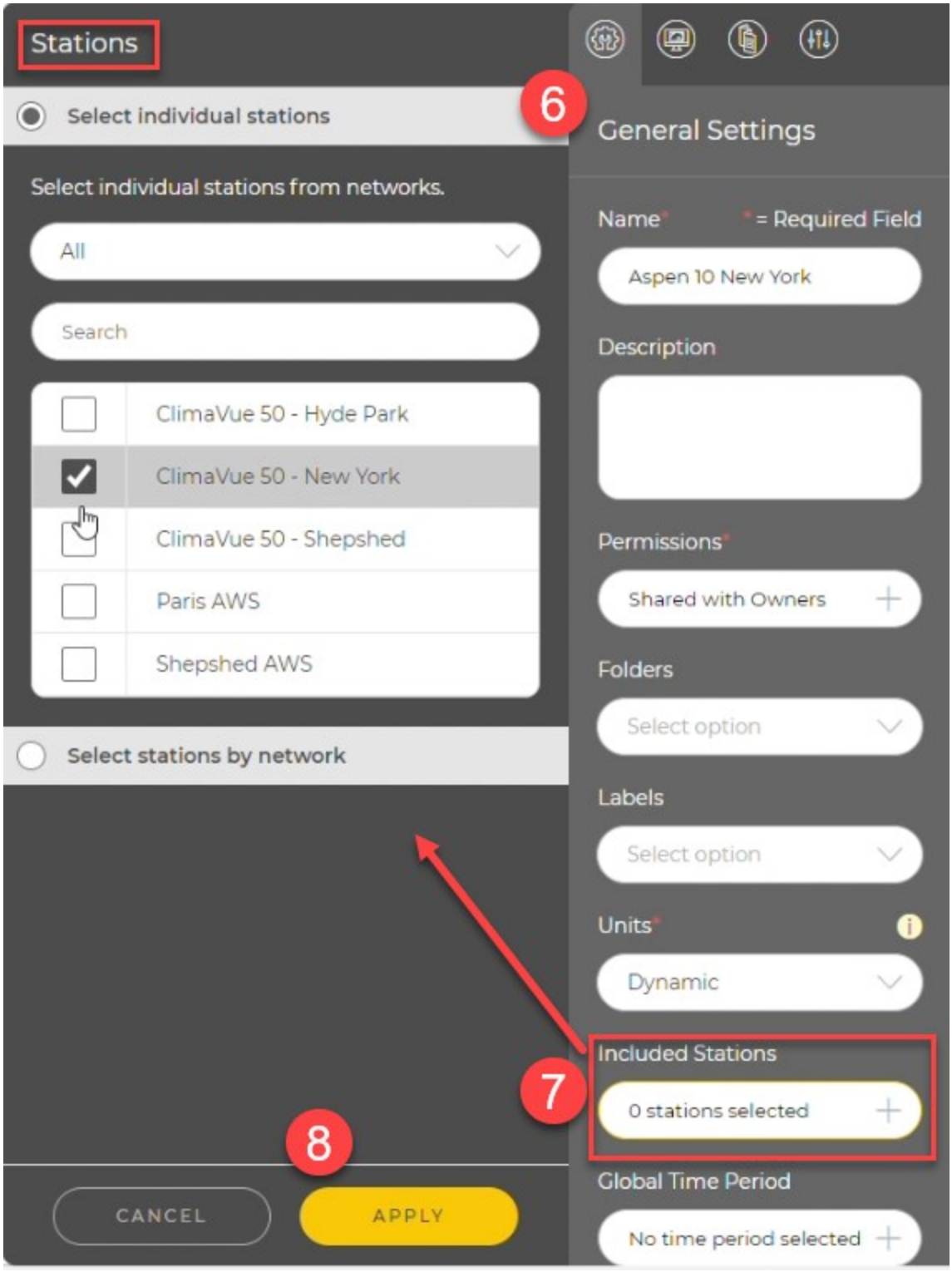
5. Add components to the dashboard by dragging and dropping components from the **Components** panel onto the dashboard canvas.



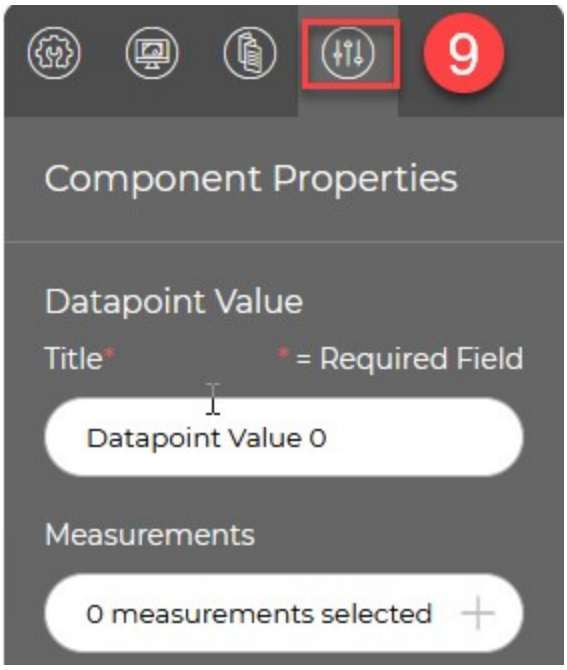
In order to move components after they have been dropped onto the canvas, hover your mouse over the top of the element and click the arrows at the top. You can re-size the component by clicking and dragging the arrows in the corners.



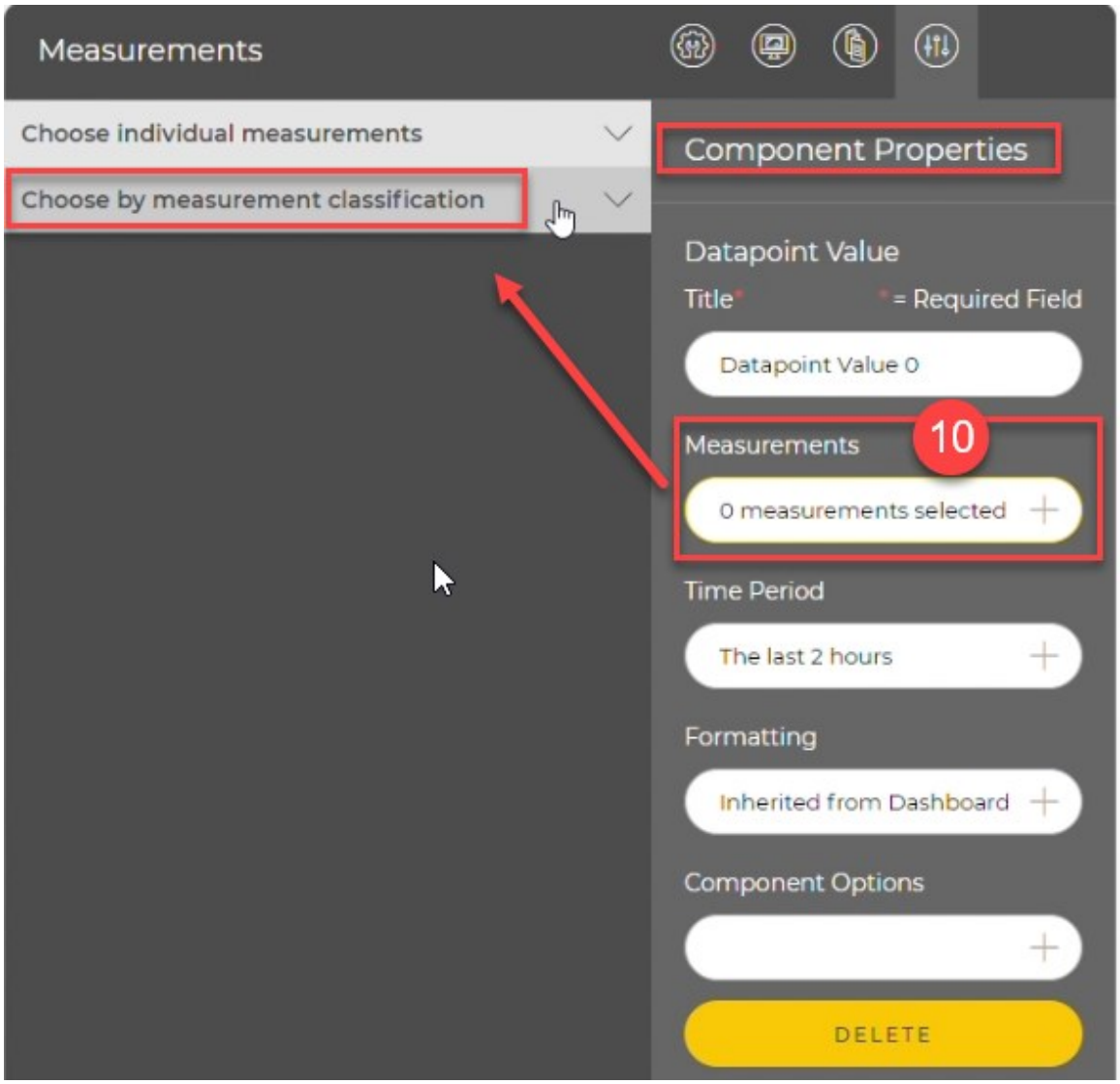
6. To set a data source for each component, click the **General Settings** icon and scroll down to **Included Stations**.



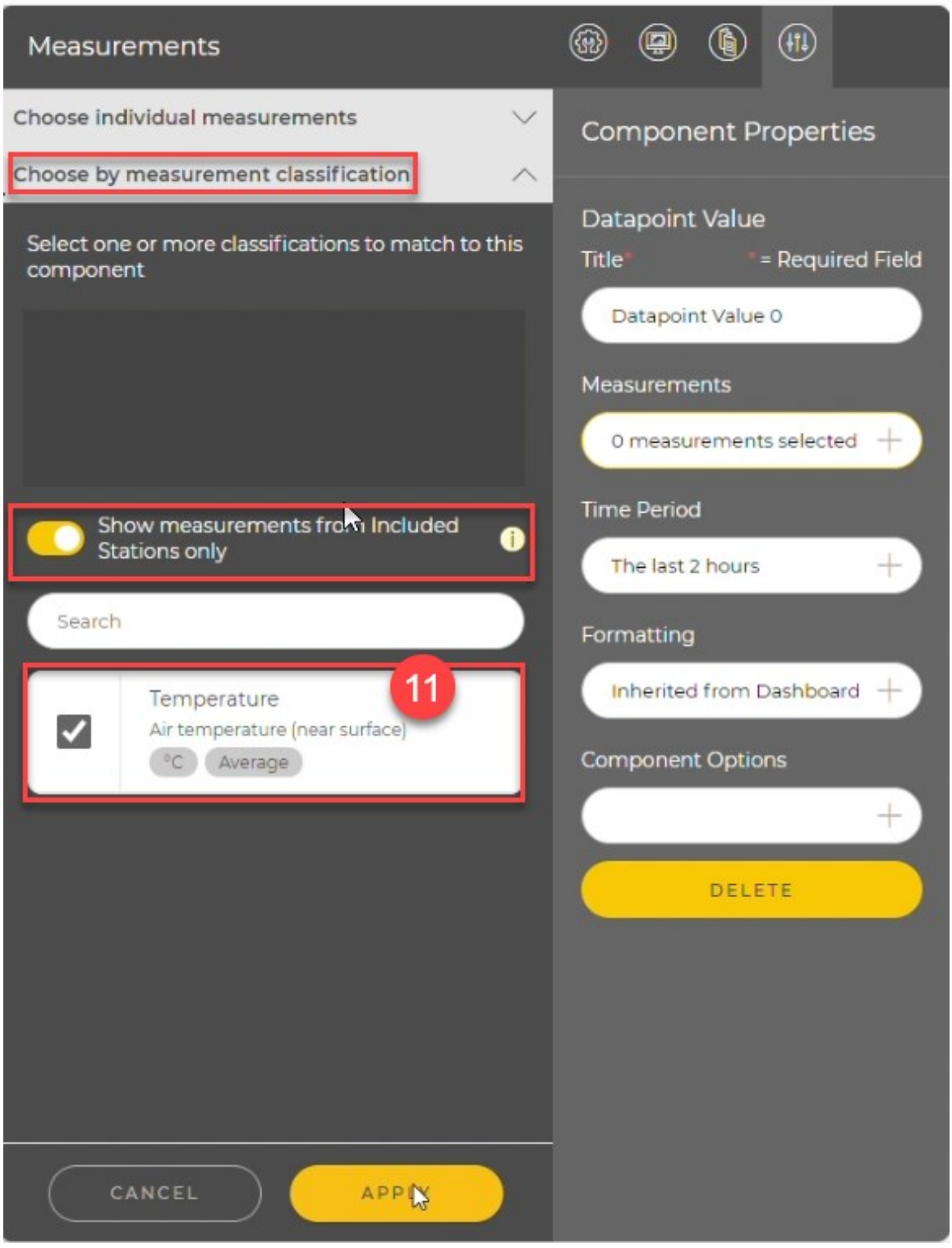
7. Click **Included Stations** to open the **Stations** window and select the station that will provide data for the component.
8. Click **Apply**.
9. Click the **Component Properties** icon to configure properties such as the title and the measurement linked to the component.



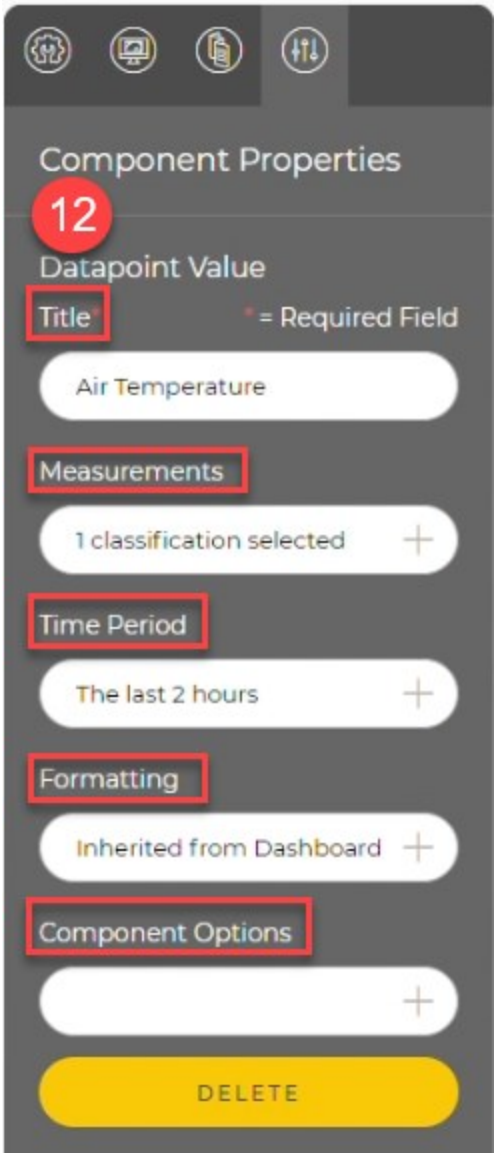
10. To link a measurement to a component, in the **Components Properties** window, click **Measurements**. If you have already assigned measurement classifications, select **Choose by measurement classification**. Alternatively, select **Choose individual measurements**.



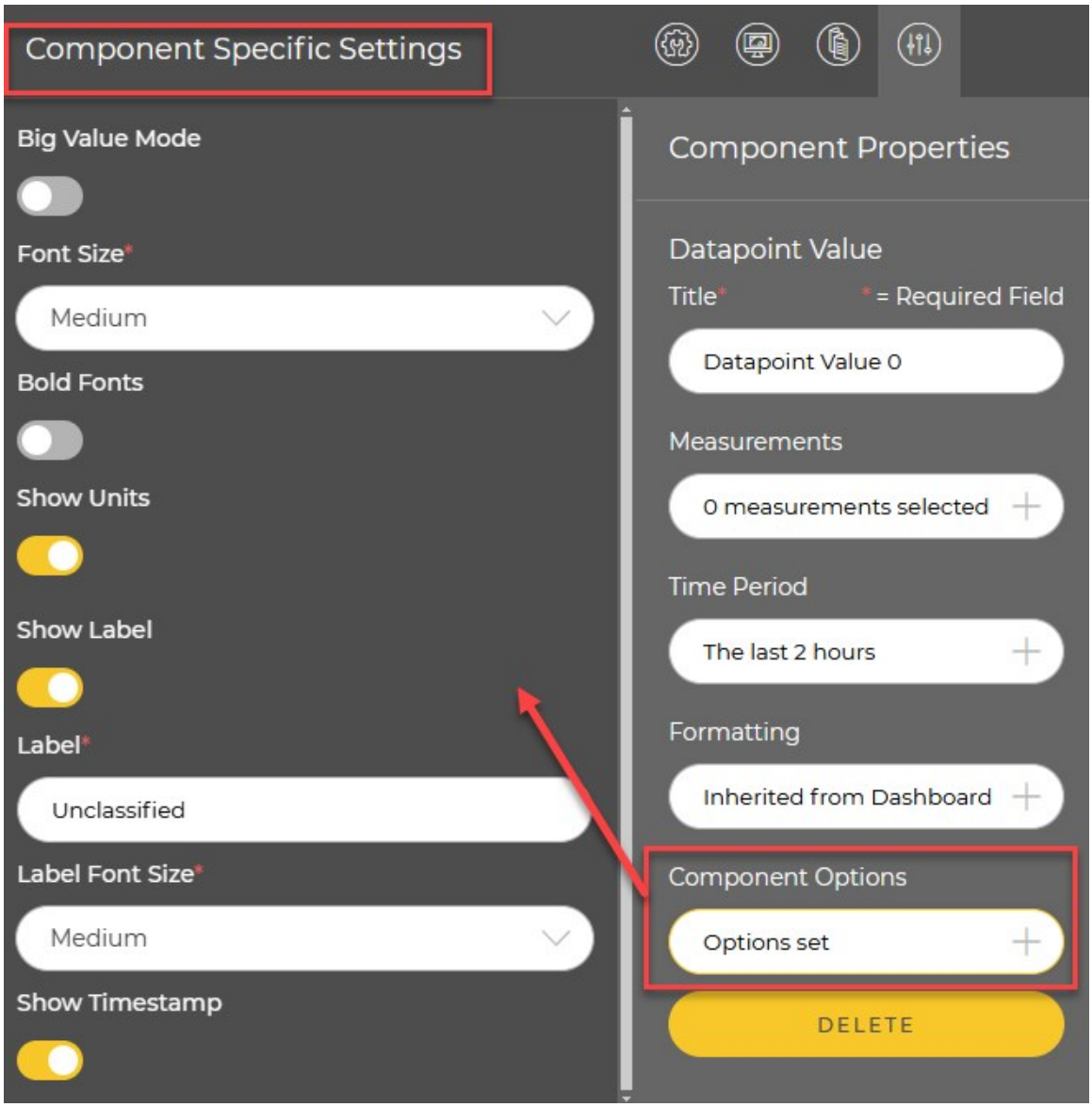
11. Select the classification that matches the component. Click **Apply** when done.



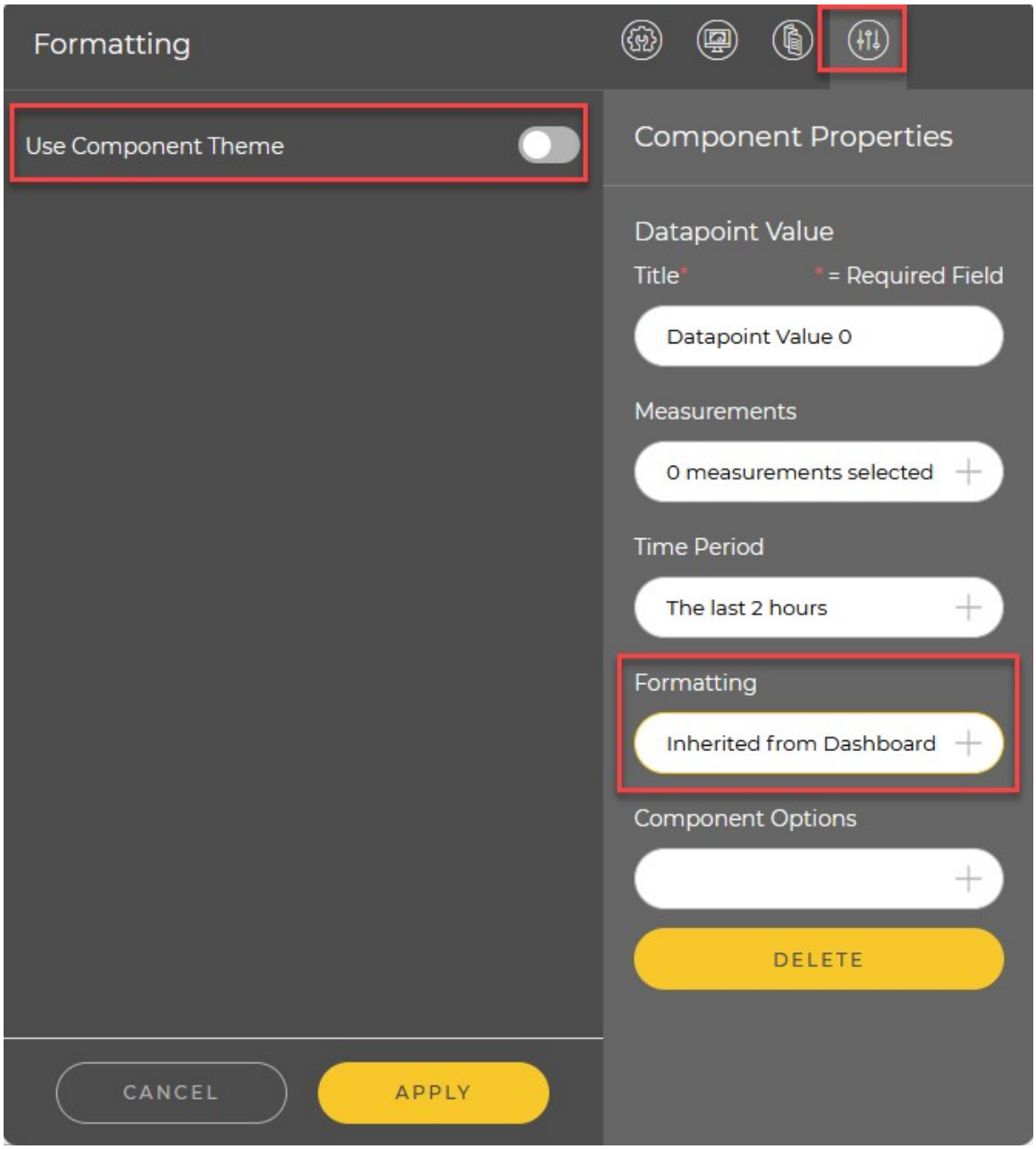
12. Use the **Component Properties** panel to configure the **Title**, **Time Period**, **Formatting**, and **Component Options**. Click **Apply** when done.



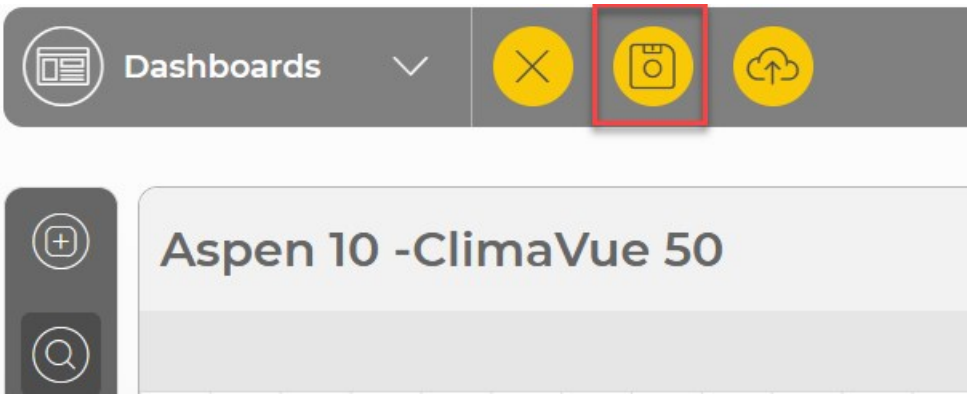
Component options include **Big Value Mode**, **Font Size**, **Bold Fonts**, **Show Units**, **Show Label**, and **Show Timestamp**. (Big value mode makes the value fill as much of the widget as possible.) Click **Apply** when done.



13. To format a component, click the **Formatting** box. By default the component format will be inherited from the dashboard **General Theme** (see Creating a dashboard theme [p. 99]). To create a custom theme for a component, click **Use Component Theme**. Click **Apply** when done.



14. When you are done adding and formatting components on the dashboard, click the **Save** icon at the top of the **Dashboards** studio.



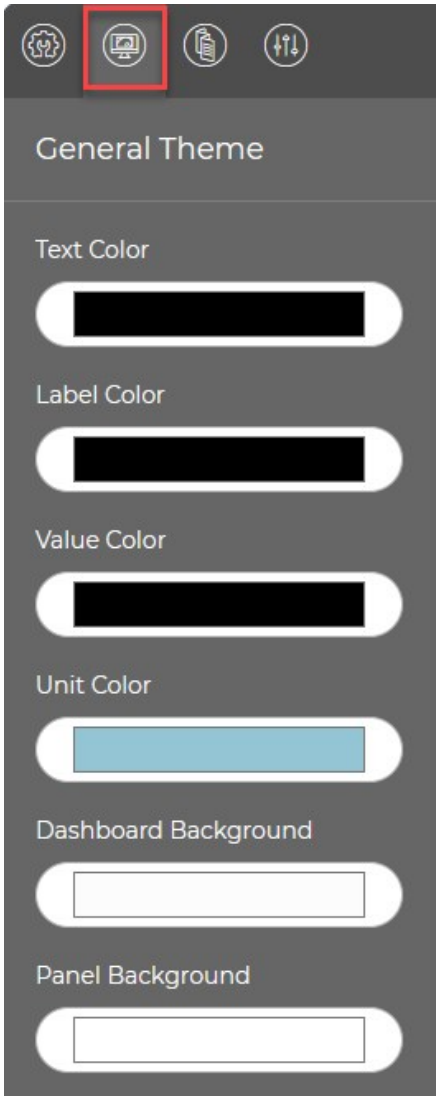
For a video demonstration of creating a dashboard in CampbellCloud, watch: https://www.campbellsci.com/videos/cloud19.

Watch: https://www.campbellsci.com/videos/cloud20 to see a demonstration of creating a dashboard for a ClimaVue 50 meteorological sensor.

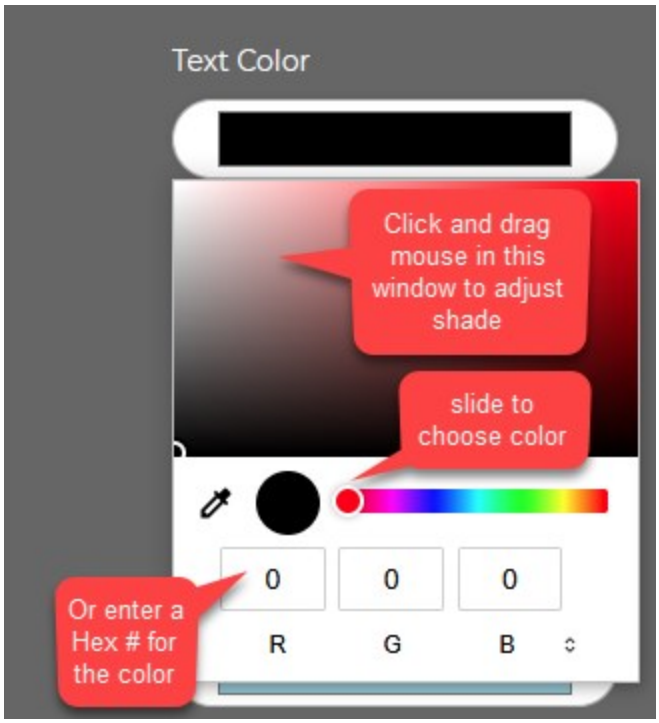
Watch: https://www.campbellsci.com/videos/cloud21 for a demonstration on visualizing wind data using two methods—the wind rose and the wind plot.

6.9.1 Creating a dashboard theme

To create a dashboard theme, click the **General Theme** icon.

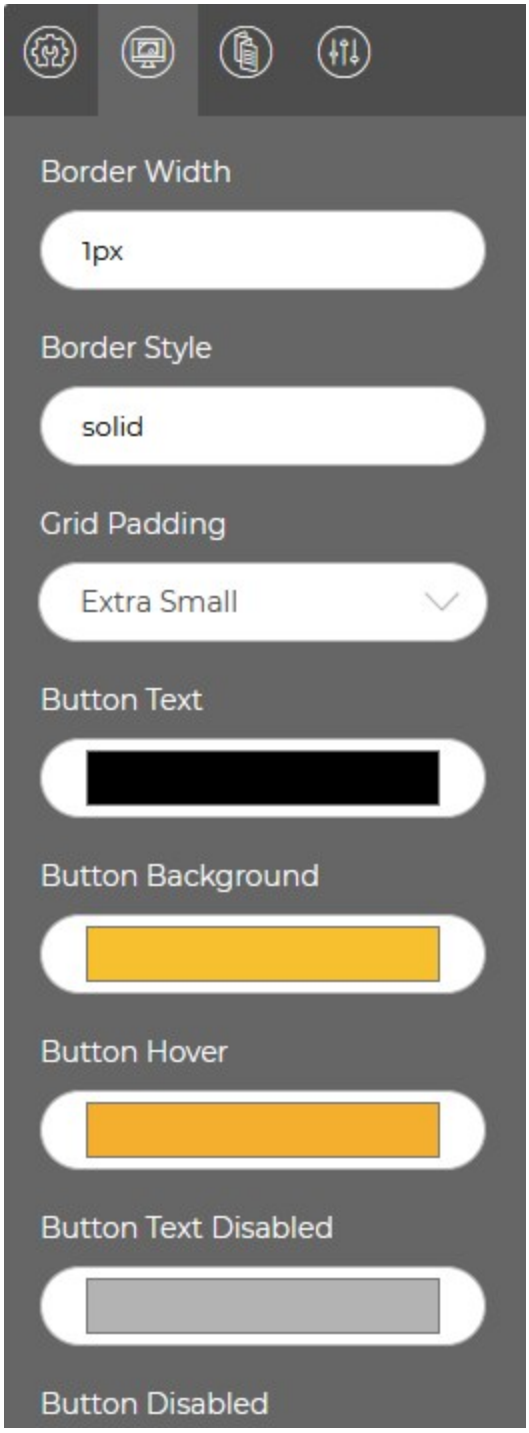


From this window, you can select default colors for dashboard text, labels, values, units, background, and more. To edit a color, click in the color box to open a color formatting window. Use the slide button on the color line to choose a general color and then drag your mouse in the color shade window to select the desired shade:



Alternatively, you can type a Hex number for the color in the R G B boxes in the format #RRGGBB.

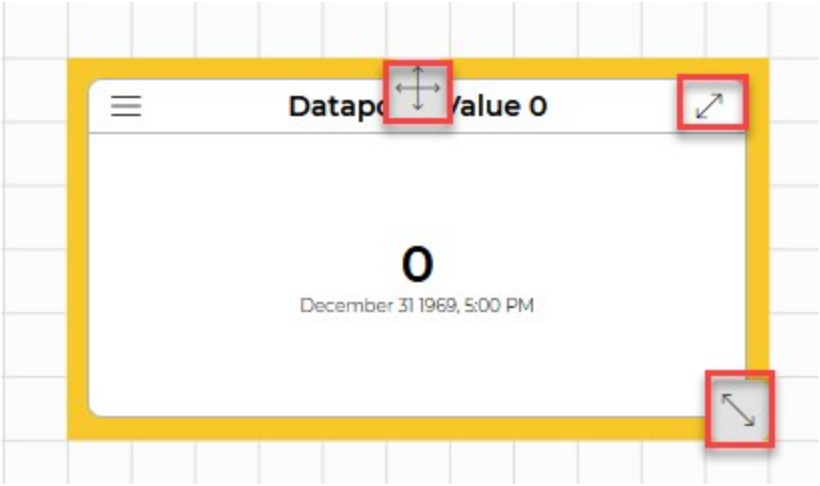
Scroll to the bottom of the formatting panel to format the border width, style, padding, and button characteristics:



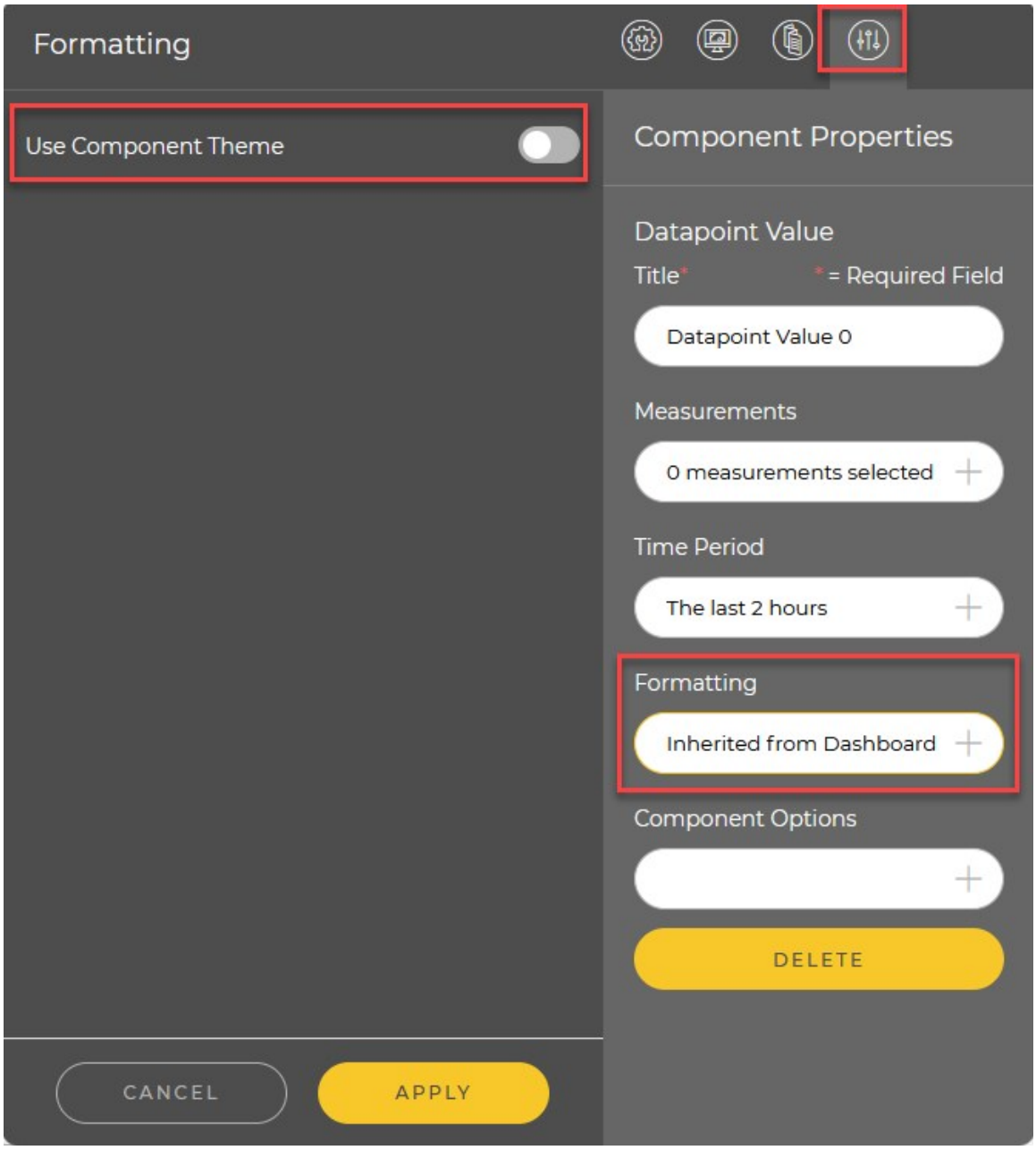
6.9.2 Editing a dashboard

To edit an existing dashboard, click the pencil icon on the **Dashboards** bar:

In order to move components after they have been dropped onto the canvas, hover your mouse over the top of the element and click the arrows at the top. You can re-size the component by clicking and dragging the arrows in the corners.



To format a component, click the **Formatting** box in the **Component Properties** panel. By default the component format will be inherited from the dashboard theme. To create a custom theme for a component, click the **Use Component Theme** button.

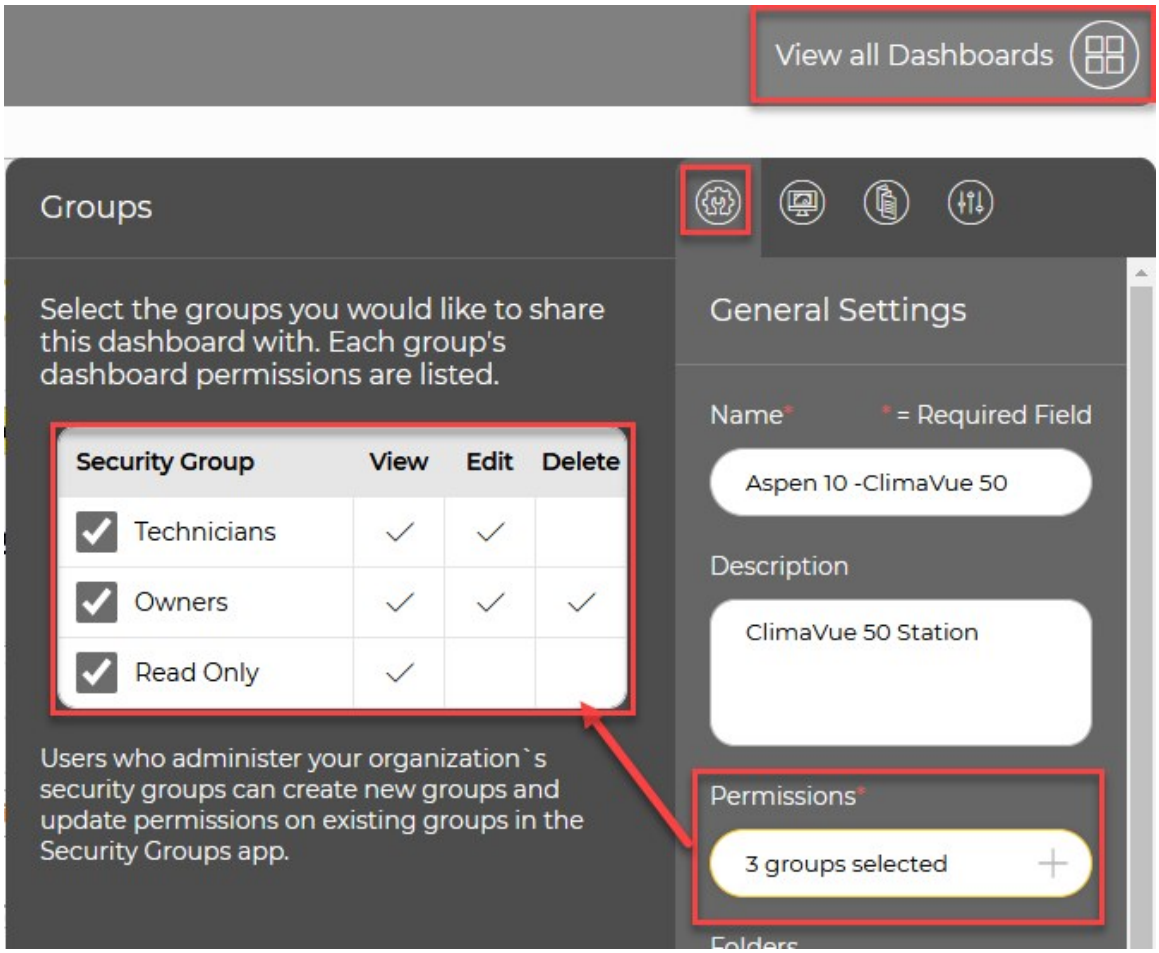


6.9.3 Deploying a dashboard

CampbellCloud gives dashboard creators complete control over access and editing rights within an organization by using security groups with assigned permissions. For details on setting up security groups, see Adding a security group to an organization account (p. 15).

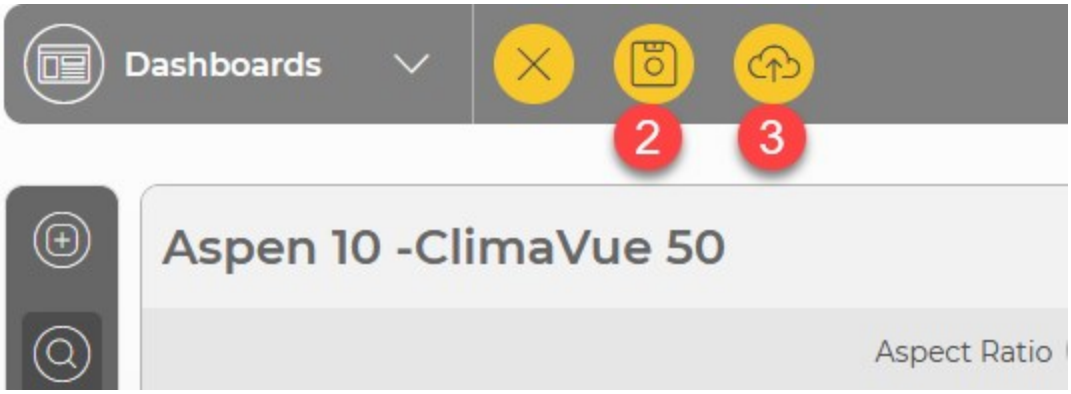
Once security groups are defined, follow these steps to deploy a dashboard:

1. Open the **Dashboards** application and navigate to **General Settings** and then select **Permissions** to choose the groups with which you would like to share the dashboard. Configure the desired permissions for each group by checking or unchecking boxes in the **Security Group** table.



2. **Save** any changes to the dashboard.

3. Click the **Deploy** icon to deploy the dashboard.



Now, anyone with view permissions will see the dashboard in their list of dashboards.

See https://www.campbellsci.com/videos/cloud22 for a video tutorial on deploying a dashboard.

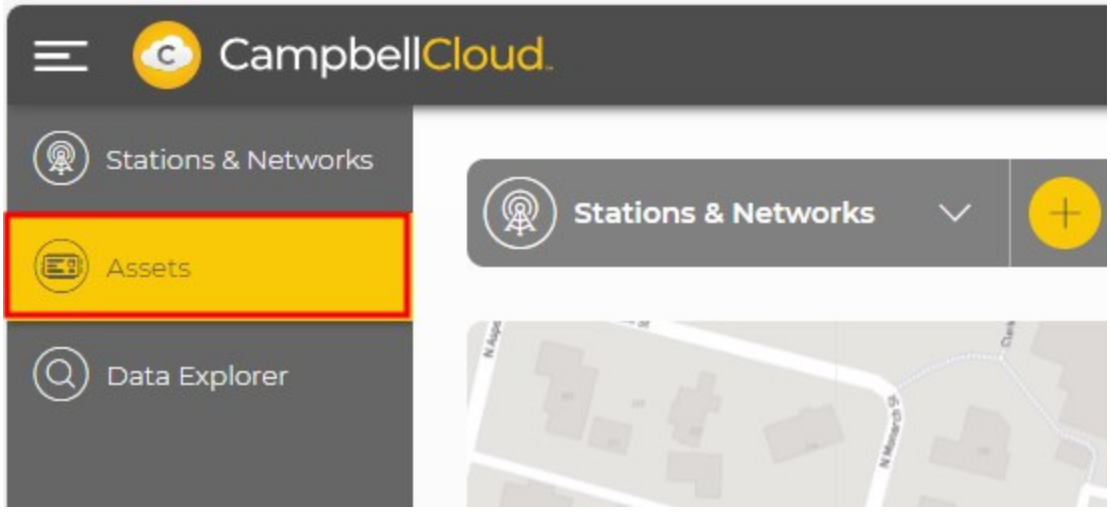
6.10 Viewing status information

The Status table contains data about the health of an asset including battery and cellular information. This information can be viewed in several Cloud apps.

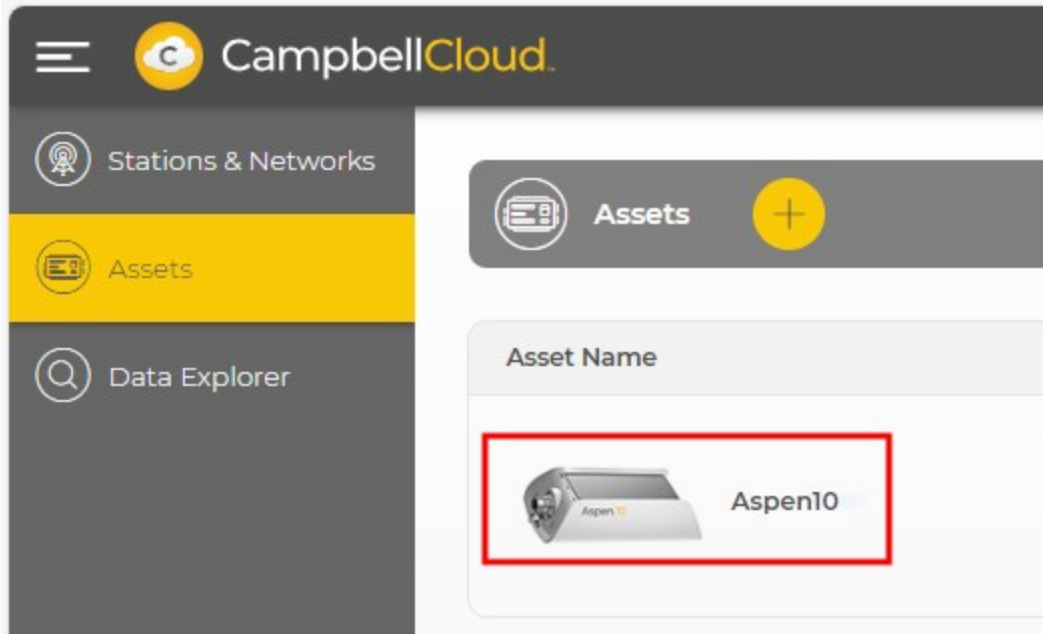
6.10.1 Viewing status information in Assets summary

Status table information can be displayed in the **Assets** app.

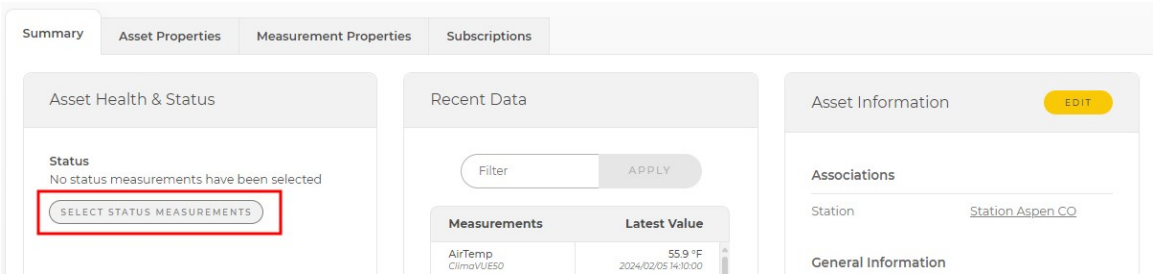
1. Select **Assets** from the applications menu.



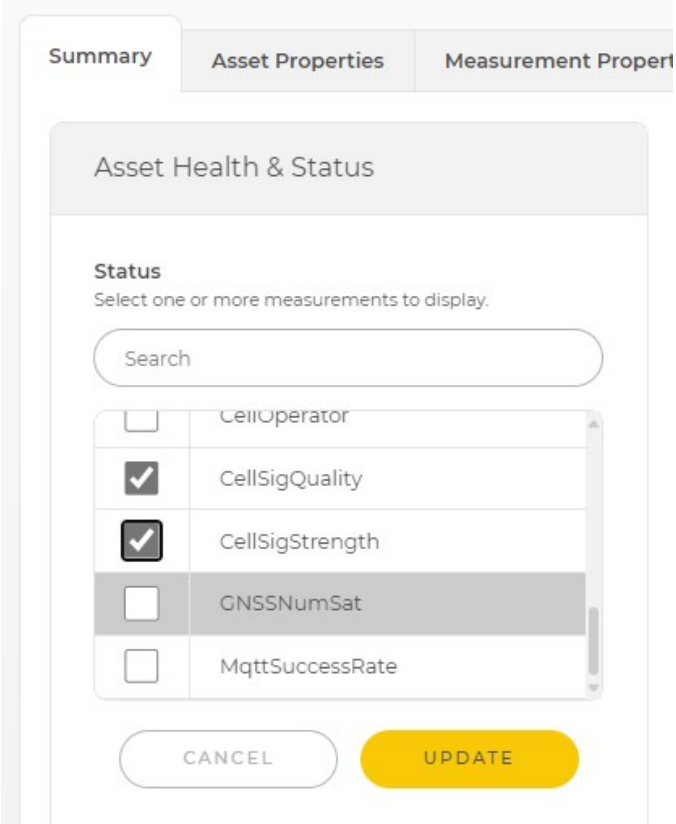
2. Select the asset.

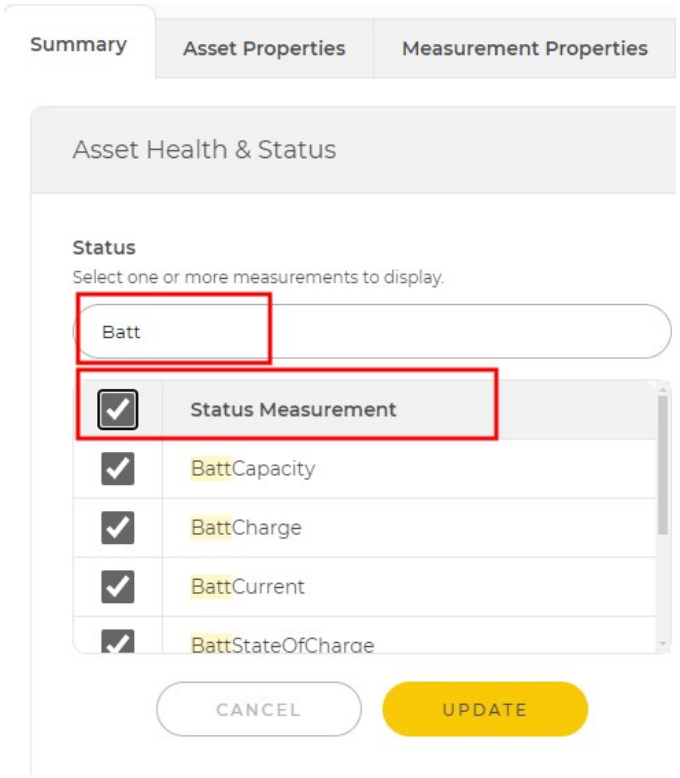


3. On the **Summary** tab, the first column is labeled **Asset Health and Status**. Currently, no status measurements are being displayed. Click **SELECT STATUS MEASUREMENTS**.

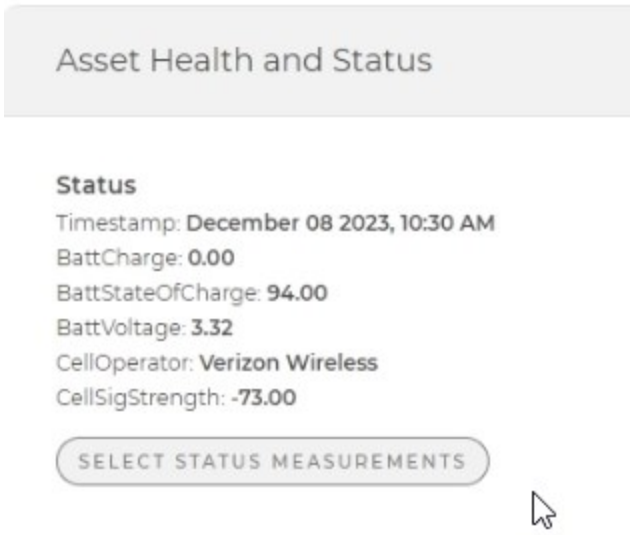


4. Every field in the status table is shown. Select the fields you want to have displayed on the summary tab by clicking the box to the left of each measurement. Click **Status Measurement** at the top of the list to select all status measurements. Use the **Filter** box at the top to filter the list of status measurements. With an active filter, clicking **Status Measurement** will select only those measurements in the current filtered list. After selecting the desired status measurements, click **UPDATE** to save changes.





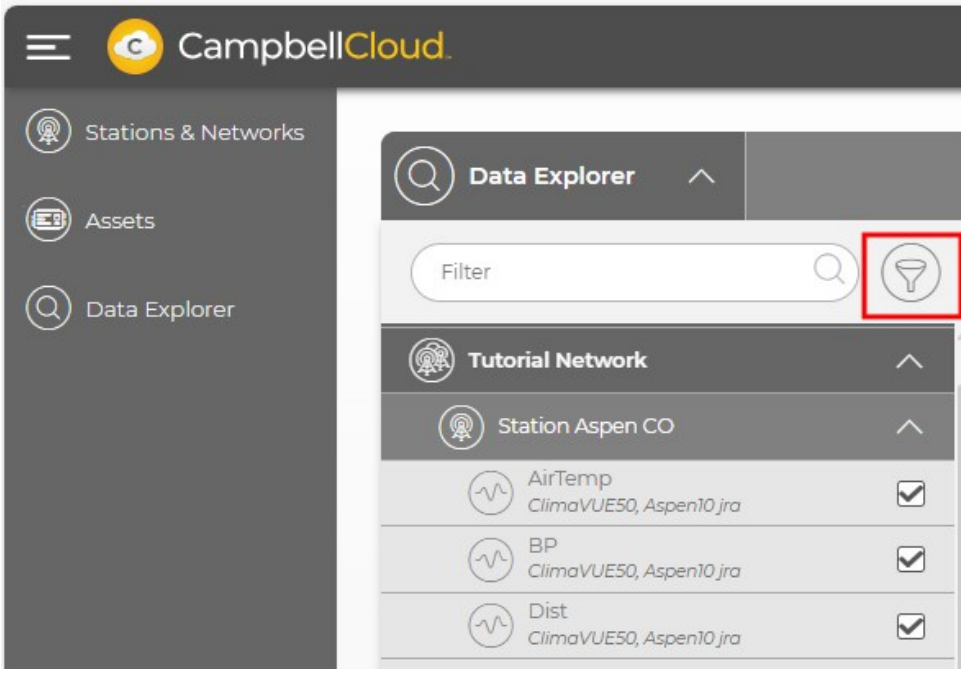
5. The selected status measurements are shown. Add or remove status measurements at any time by clicking **SELECT STATUS MEASUREMENTS** again.



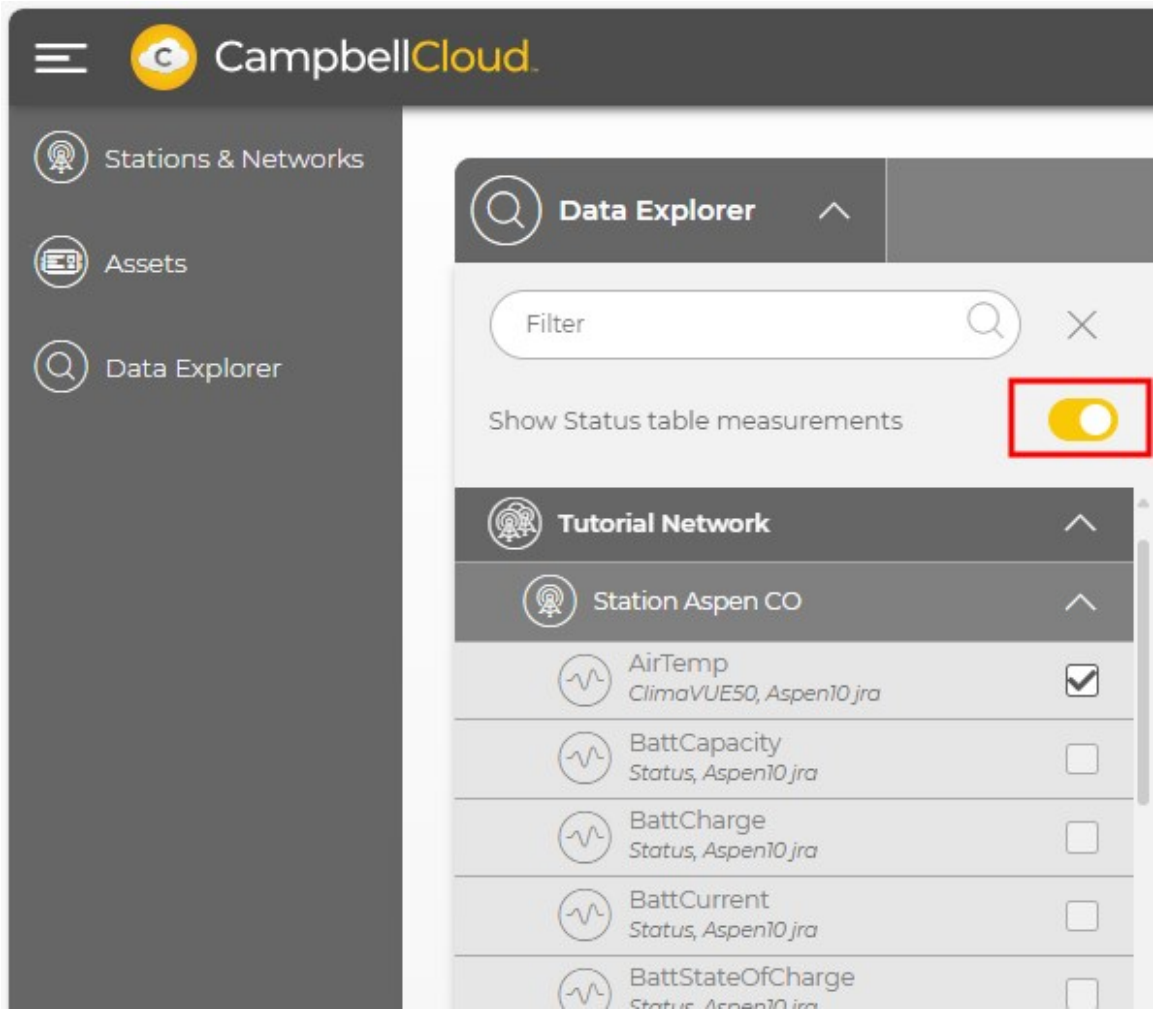
6.10.2 Viewing status information in Data Explorer

Status table information can also be displayed in Data Explorer.

1. Select **Data Explorer** from the applications menu and then select the network and station to display. In this case, *Tutorial Network*, followed by *Station Aspen CO*. To view Status data, click the funnel next to the network name.



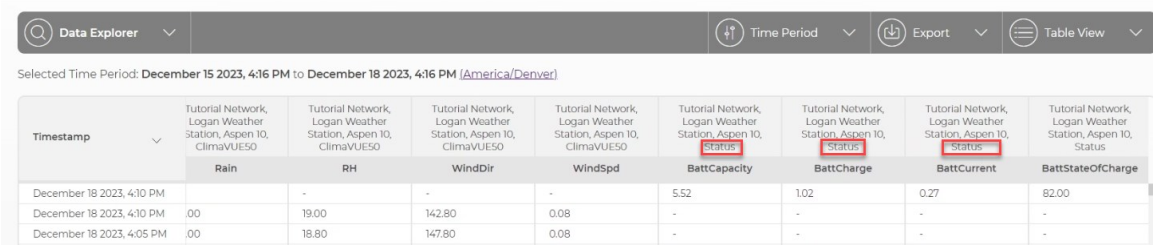
2. Click the toggle switch next to **Show Status table measurements** to enable viewing Status measurements. A yellow switch indicates that Status table measurements are included in the list. Select which Status table measurements to display by clicking the check box next to the fields you want to view.



> **NOTE:**
> Up to ten sensor and status measurements at a time may be displayed in Data Explorer.

3. Click **APPLY**.

4. In a **Data Explorer** table, columns for the Status table information are added to the right of sensor measurements.



> **NOTE:**
> Status measurements are often taken at different times than sensor measurements. In Table view you will notice what appear to be duplicate timestamps and missing measurements. These are neither; it is the nature of showing two time intervals in the same table.

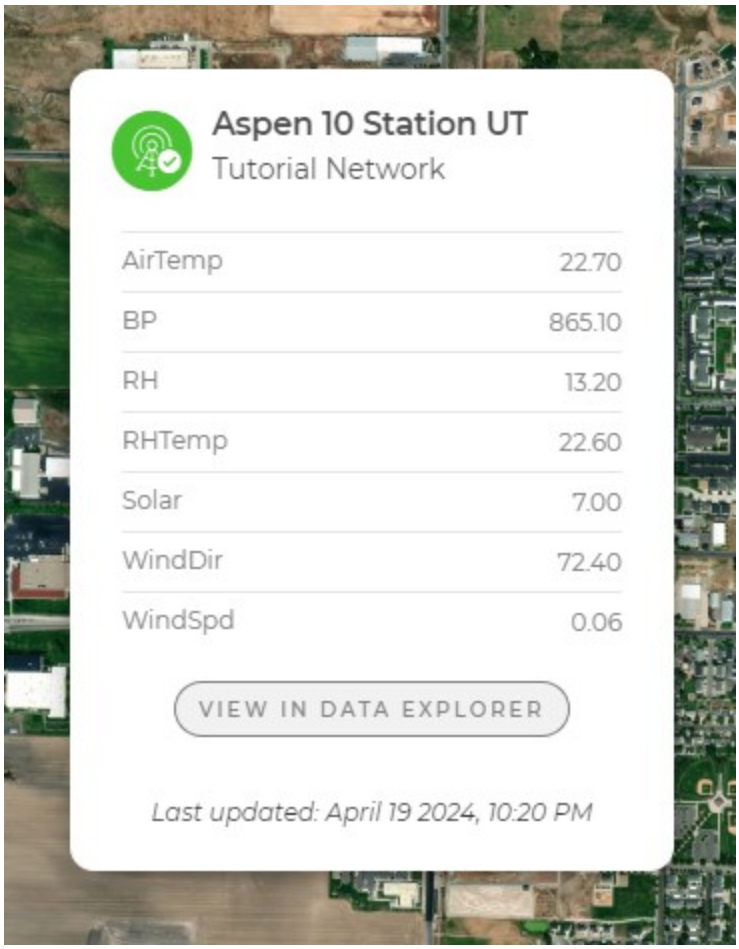
5. Toggle **Show status table measurements** again to remove Status table measurements from table view.

6.11 Displaying and customizing units of measurement

By default, ***CampbellCloud*** stores and displays data as it is received from an asset. Aspen 10 assets send data based on their specific sensor recipe. Refer to Aspen recipes in the Aspen 10 manual for specific sensor information. Generally, data sent from a sensor connected to an Aspen is in metric units. However, the RainVue 10-IN and RainVue 20-IN sensors are exceptions, as they send data in US Customary units. ***Cloud*** always stores data as it is received.

This section explains the steps needed to change the units that are displayed in and exported from ***Cloud***.

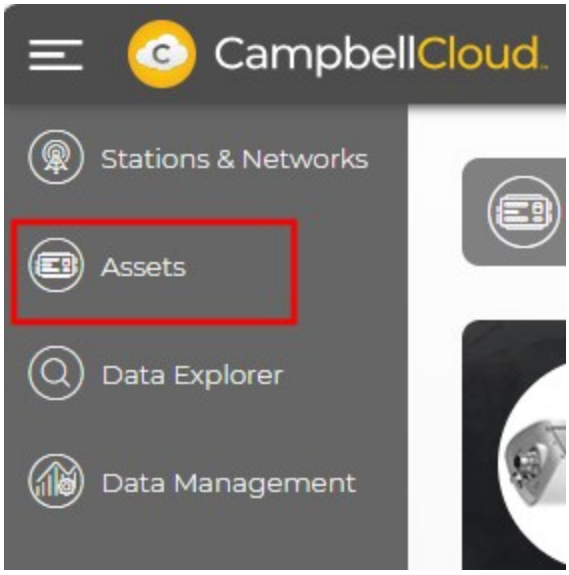
The following image shows data from a ClimaVue 50 without any changes. Because the ClimaVue 50 recipe sends data in metric units, that is how it's displayed in ***Cloud***. To change how the data is displayed you must configure the **Measurement Properties**, as described in the next section.



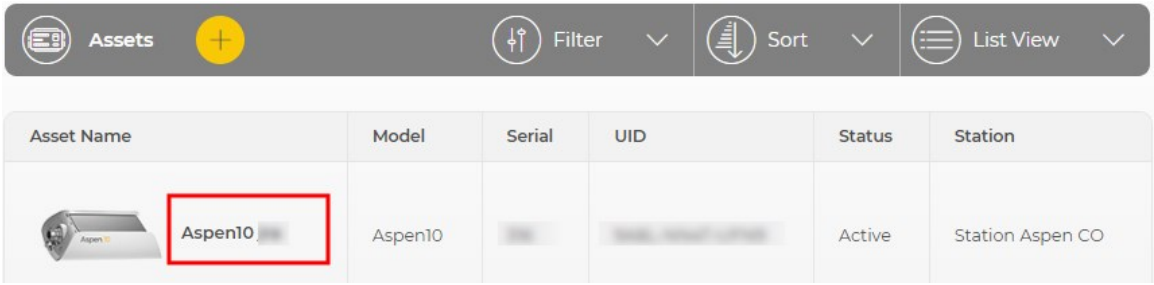
6.11.1 Configure Measurement Properties

Measurement Properties inform *CampbellCloud* about the measurements it is receiving from an asset.

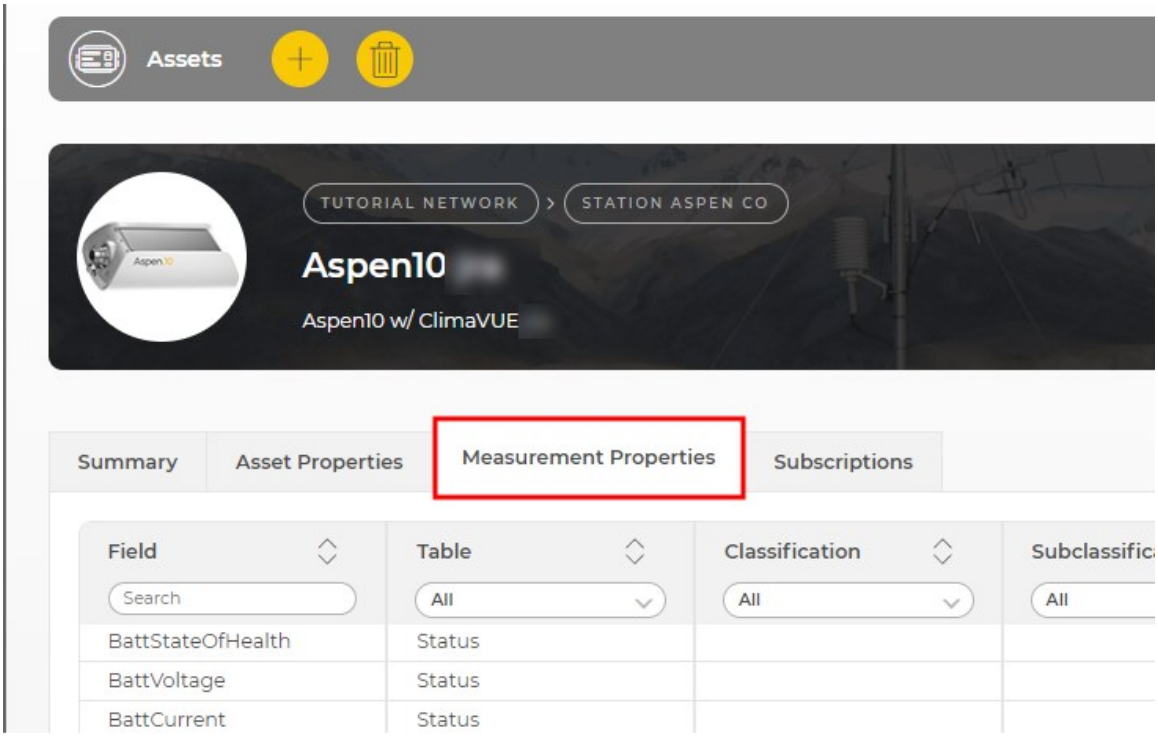
1. Select the **Assets** application.



2. Click on the asset name to see its details.

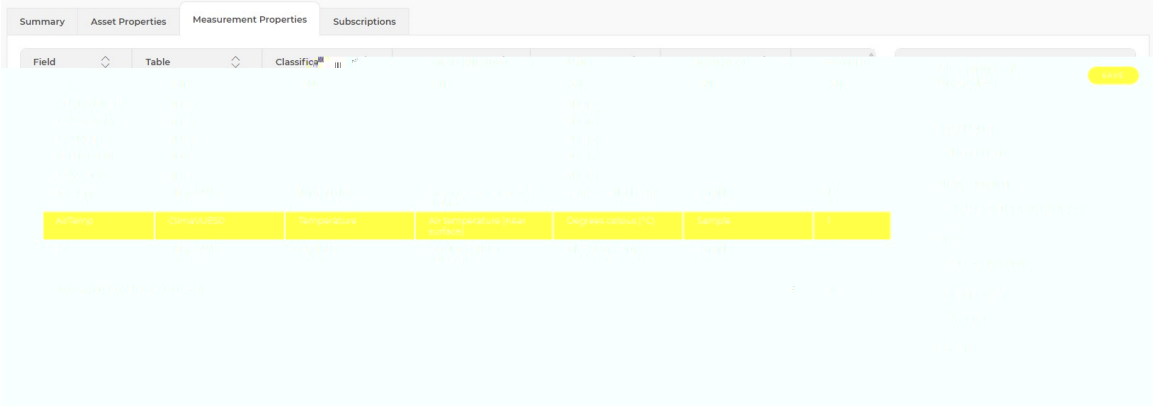


3. Select the **Measurement Properties** tab.



4. The **Measurement Properties** tab provides a list of measurements. Clicking on an individual measurement opens a measurement properties window that can be used to configure measurement **Classification**, **Subclassification**, **Units**, **Aggregate Type**, and **Precision**.

   Configure the **Measurement Properties** for each measurement based on the sensor recipe. See Aspen recipes in the Aspen 10 manual for the specific sensor Measurement Properties to use.



WARNING:
Since the units in **Assets** > **Measurement Properties** need to align with the units of the asset recipe, it is crucial to inspect the asset recipe summary and input the appropriate units for the sensor, even if the unit in the recipe differs from the desired display unit. See Aspen recipes in the Aspen 10 manual for specific sensor measurement properties.

For instance, the ClimaVue 50 recipe yields temperature measurements in degrees Celsius. Consequently, to prevent any disparity between the display unit and the measured value, the units specified in **Measurement Properties** must be degrees Celsius for temperature measurements made with the ClimaVue 50.

5. Once **Measurement Properties** are configured and saved you will see units associated with measurements throughout ***Cloud***. If the units are displayed as desired, no further action is required. To change the display units to a different unit system, see Changing default display units for an individual user (p. 115).

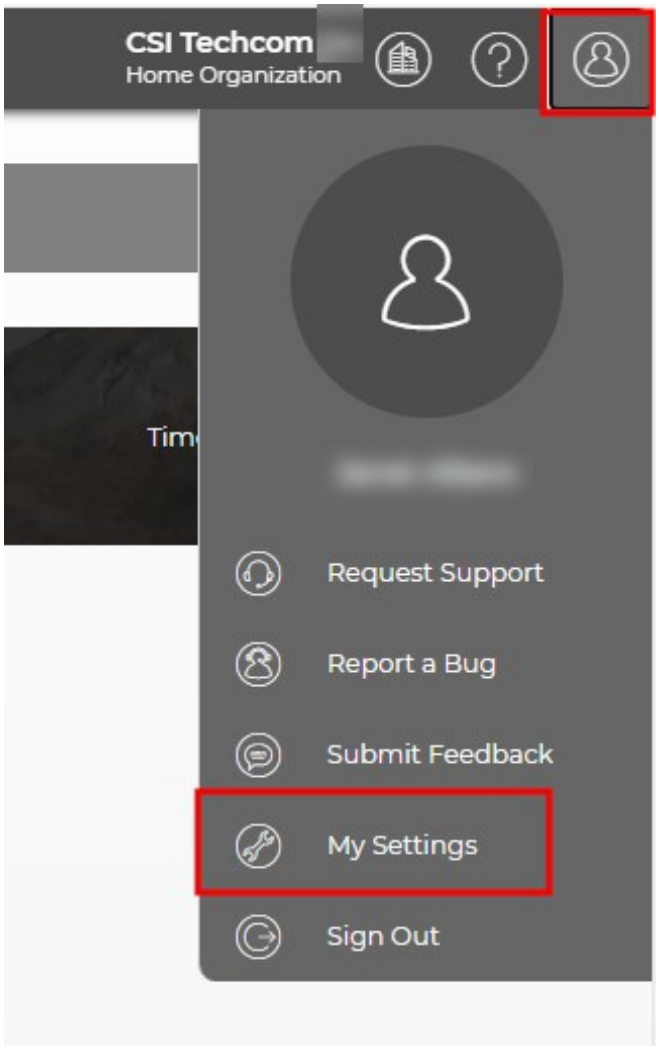
6.11.2 Changing default display units for an individual user

NOTE:
Most users will not need to change the display units. These steps are only necessary if there are no Organization Default Units or if the Organization Default Units are not preferred. Individual **User Preferences** within the **My Settings** application override any Organization Default preferences.

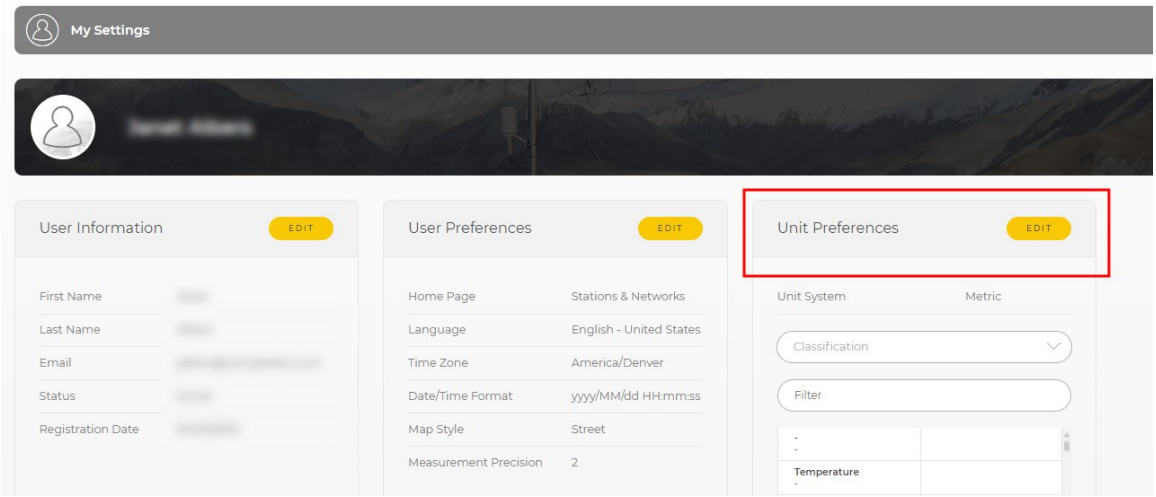
See Changing default organization settings (p. 5) for more information.

If a ***Cloud*** Administrator has granted the necessary permissions, individuals within an Organization can customize their user settings according to their own preferences, as demonstrated in the following steps.

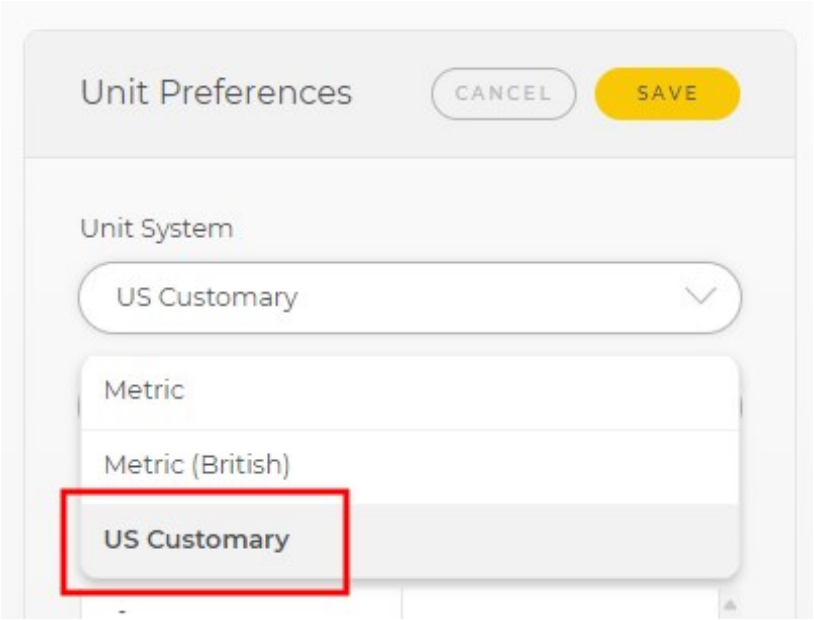
1. Click on the **User** icon in the top right corner of the **Home Page** then **My Settings**.



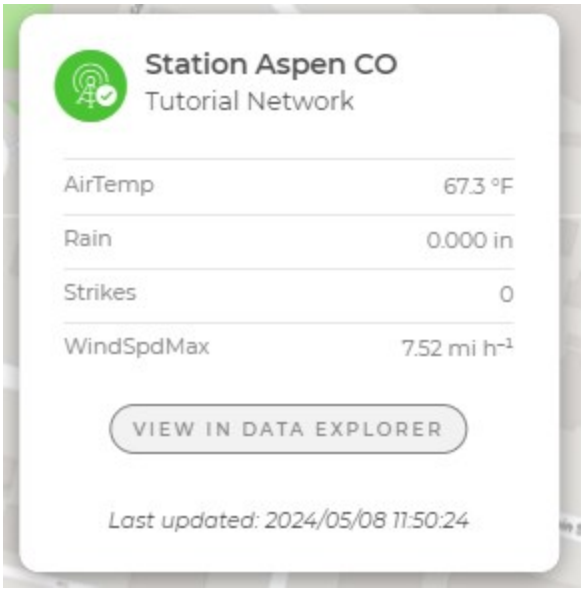
2. Click **EDIT** in the top right corner of **User Preferences**.



3. From the drop-down menu for **Unit System**, select the desired system, in this example, **US Customary**. Then **SAVE**.



4. Now measurements are displayed in US Customary units throughout ***Cloud***.



For more information on displaying and customizing units of measurement in CampbellCloud, watch an instructional video at: https://www.campbellsci.com/videos/cloud18.

7. FAQs

Frequently asked questions

Is there an API?

CampbellCloud can be accessed through API calls. For more information see: https://campbell-cloud.com/api/v1/docs/.

Is there a complete list of measurement classifications and subclassifications?

See: https://campbell-cloud.com/classifications.

What is a hidden station?

Stations without location information will appear under **Hidden Stations** on the network map. See Adding a station to a network for more information.

Can you change the station that an asset is linked to?

Yes. See Linking an asset to a different station.

Why are my units not being displayed correctly?

In order for units to be displayed correctly, the **Measurement Properties** for the asset must be configured. See Displaying and customizing units of measurement.

Can I belong to more than one organization?

Yes. If you have been invited to more than one organization, see Become a CampbellCloud user for information on switching between organizations.

Can dashboard scrolling be turned off?

Yes, scrolling can be toggled on and off. When scrolling is off, dragging a component to the bottom of the dashboard canvas will automatically extend the dashboard length.

Can the aspect ratio of a dashboard be changed?

On the dashboard canvas, there is an option to view a specific aspect ratio. This helps when designing a dashboard to view on a specific device. However, when a dashboard is saved, it is saved without an aspect ratio and will render to the aspect ratio of whatever screen it is displayed on.

Why do I not see the Subscriptions application?

To purchase data source subscriptions, a user must have the appropriate permissions for the **Subscriptions** application. If a user lacks these permissions, they should contact the organization's account owner for assistance.

Do I have to purchase a subscription before onboarding a data logger to CampbellCloud?

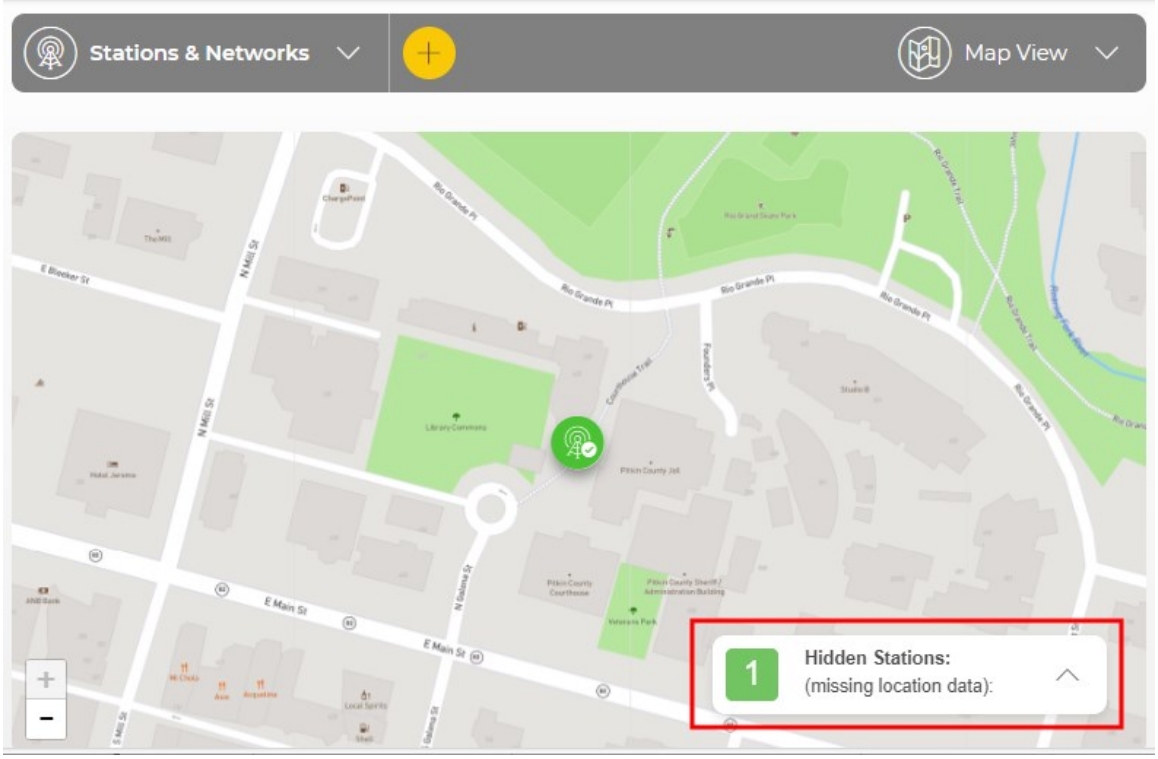
If a data logger is on-boarded to without a pre-purchased subscription, when the data source is activated, CampbellCloud will automatically assign a 12-month prepaid one-tier data logger subscription.

Is payment required upfront to start a subscription?

Payment is not required when adding a subscription. The organization's billing contact, designated during the creation of the organization's account, will receive subscription invoices from the Campbell Scientific billing office on, or just after, the first of the following month.

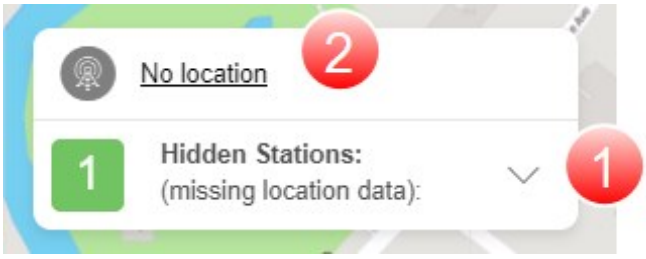
Why isn't my station showing up on the map?

Stations without location information will appear under **Hidden Stations** on the network map.

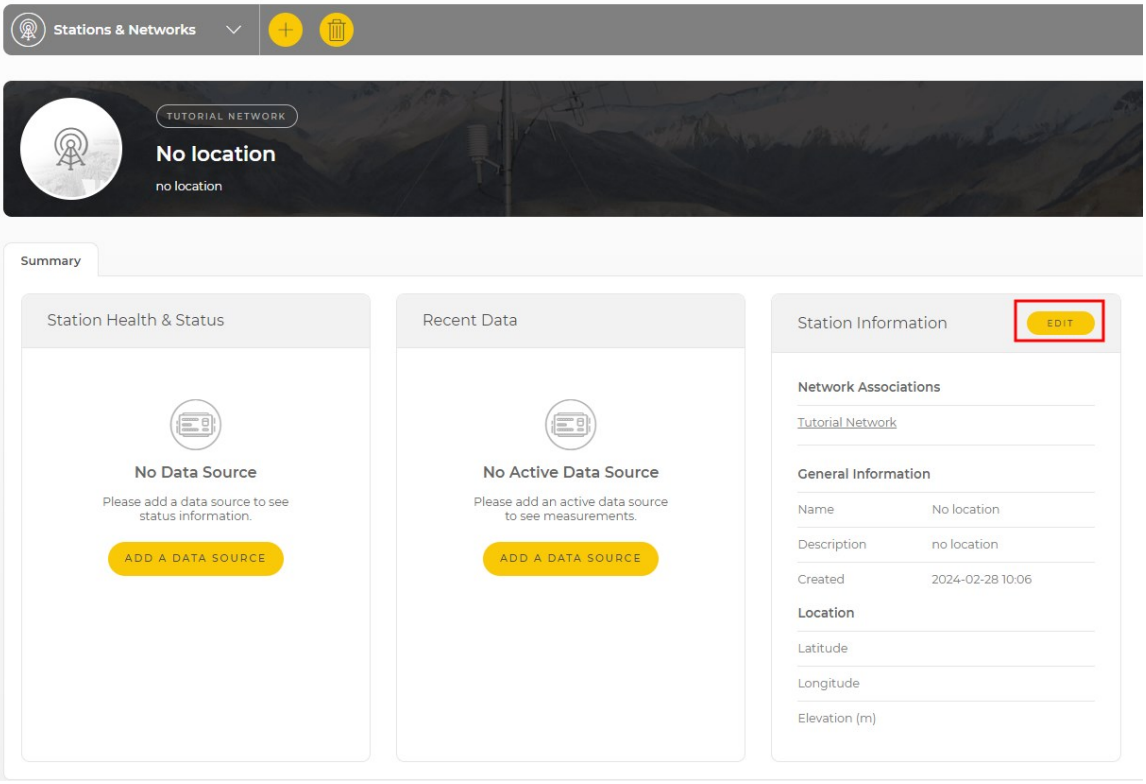


To add location information follow these steps:

1. Click the arrow to display stations without locations.
2. Select a station to edit. It is called *No location* in this example.



3. Click **EDIT**.

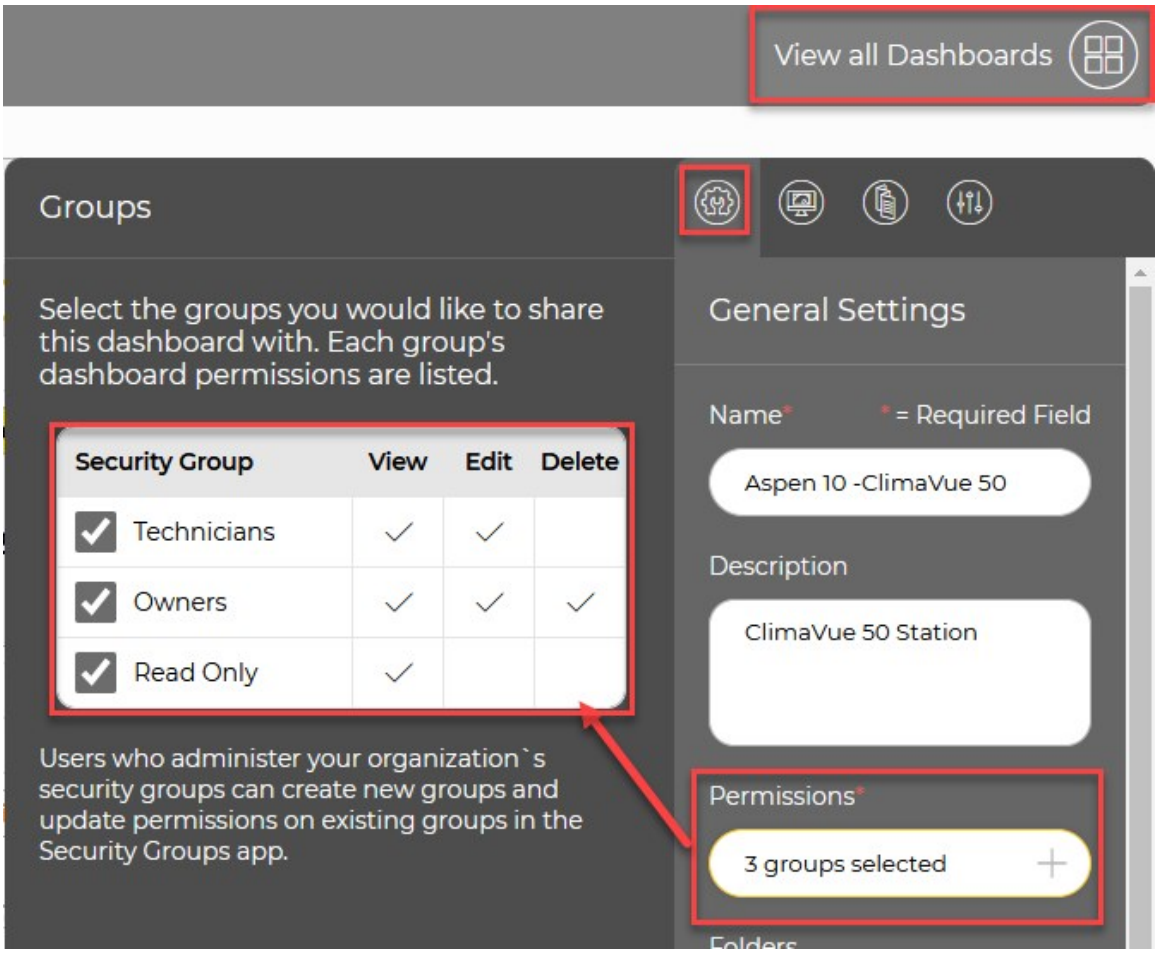


4. Enter the Station **Latitude**, **Longitude**, and **Elevation (m)**.
5. **SAVE** your changes.

See Adding a station to a network for more information.

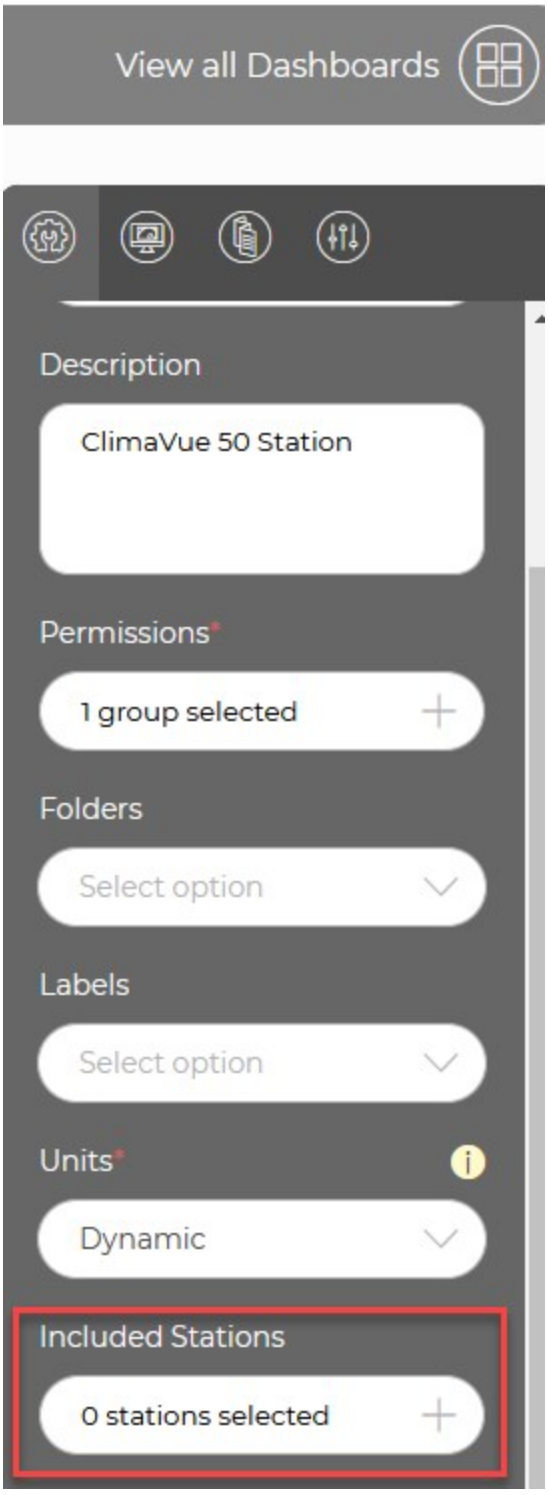
How is access to dashboards controlled?

To grant permission to view a dashboard, select one or more security groups within the organization. See Adding a security group to an organization account. Once security groups are defined, dashboard permissions are set by navigating to the Dashboards **General Settings** panel and clicking under **Permissions**. This opens a menu where view, edit, and delete permissions are set for the desired security group.

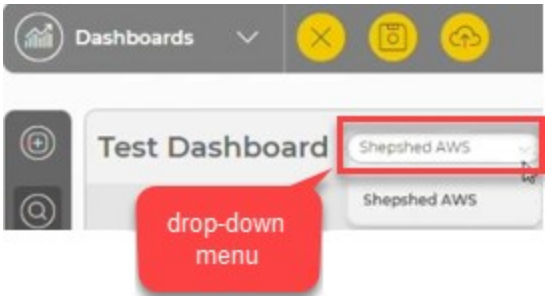


Can multiple stations share one dashboard?

Yes, in the **General Settings** panel on the right side of the **Dashboard Studio**, there is an **Included Stations** field that allows users to select which stations will share a dashboard.


View all Dashboards
Description
ClimaVue 50 Station
Permissions*
1 group selected
Folders
Select option
Labels
Select option
Units*
Dynamic
Included Stations
0 stations selected

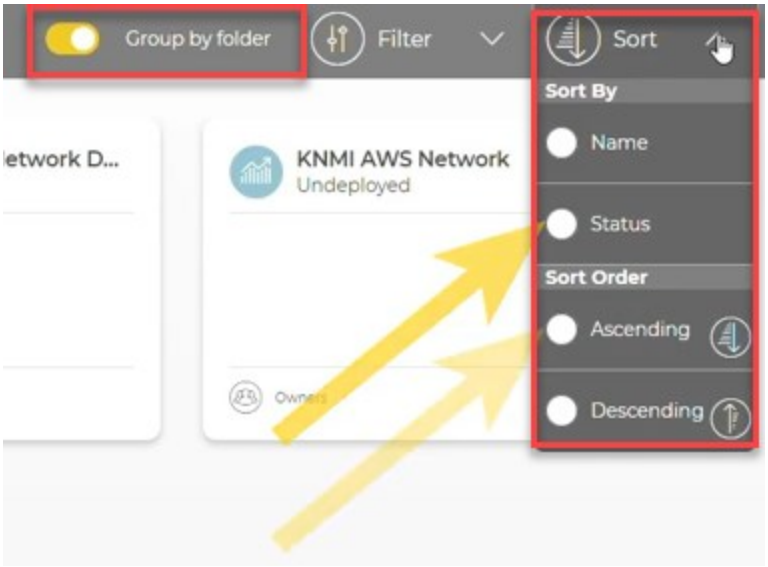
When multiple stations are selected, a drop-down menu appears in the main dashboard header, allowing users to choose a specific station to use with the dashboard.



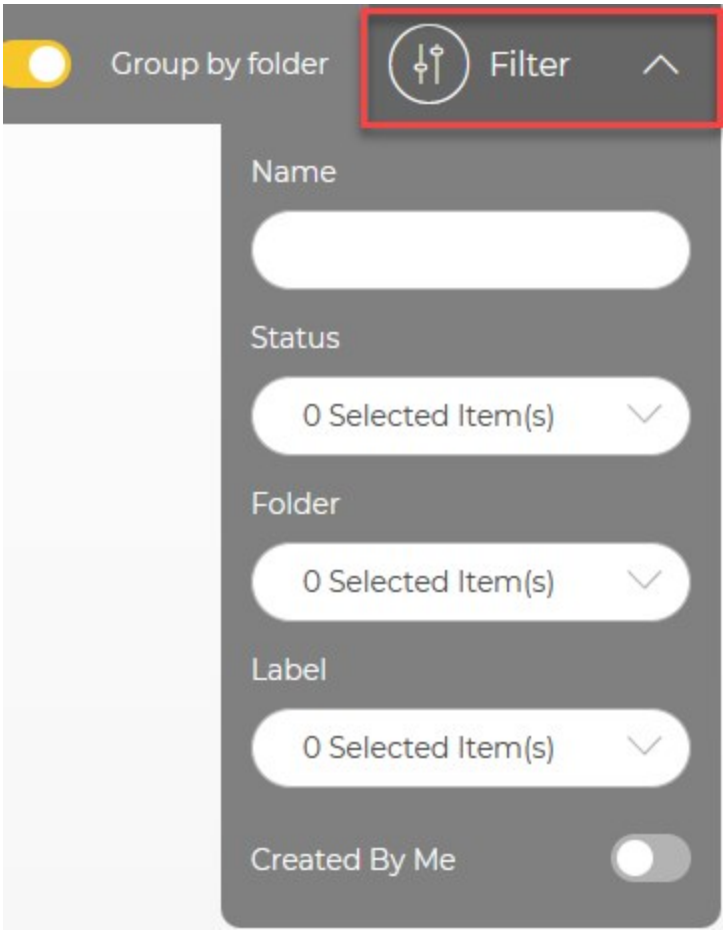
For stations to share a dashboard, measurements must share measurement classifications across the selected stations. For details on setting measurement classifications, see Displaying and customizing units of measurement.

Can the display order of dashboards be changed?

Dashboards can be sorted by name or status in either ascending or descending order and can be grouped by folder.

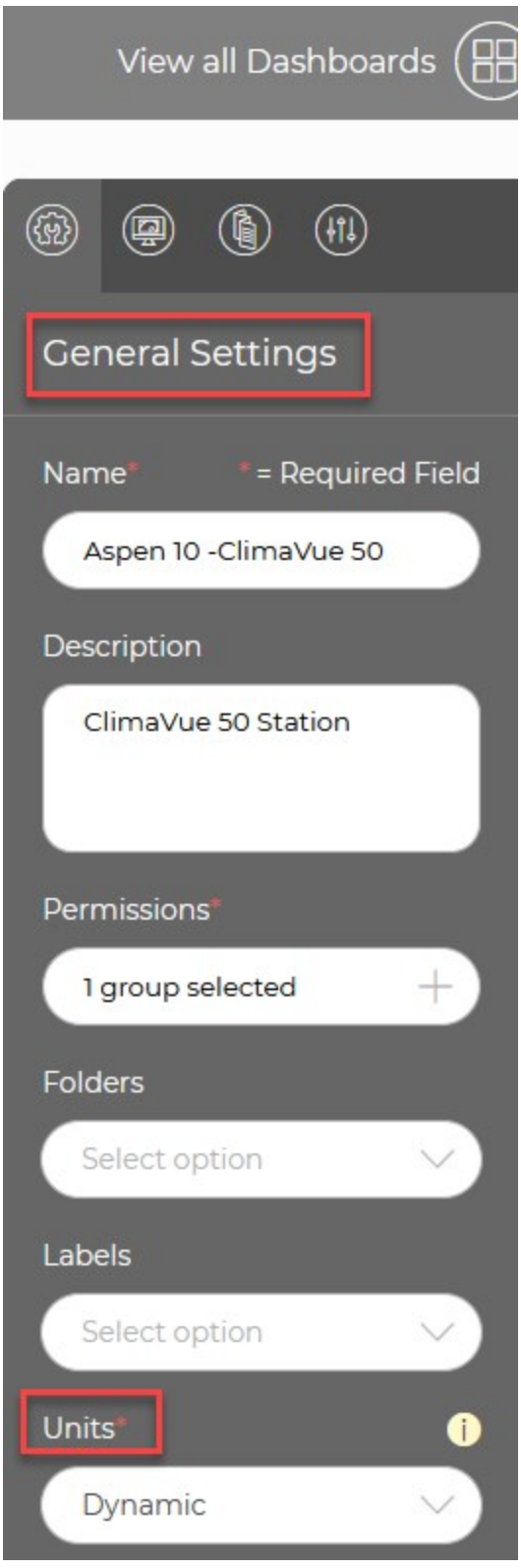


Filters are available to display only dashboards that match specific criteria, such as a name, status, folder, label, or creator.



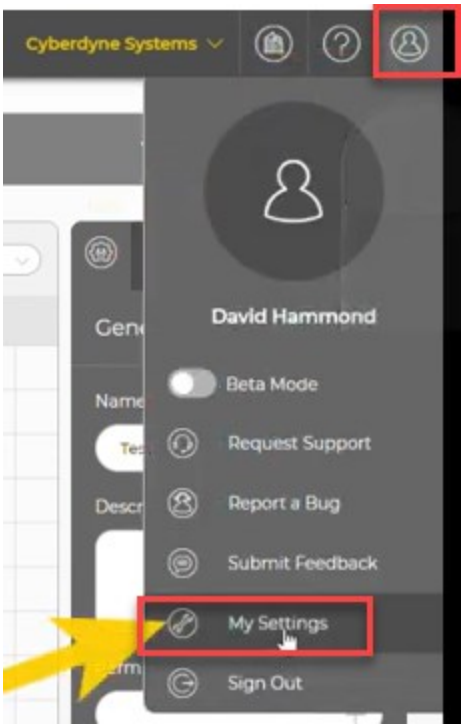
Can you change the units in a dashboard?

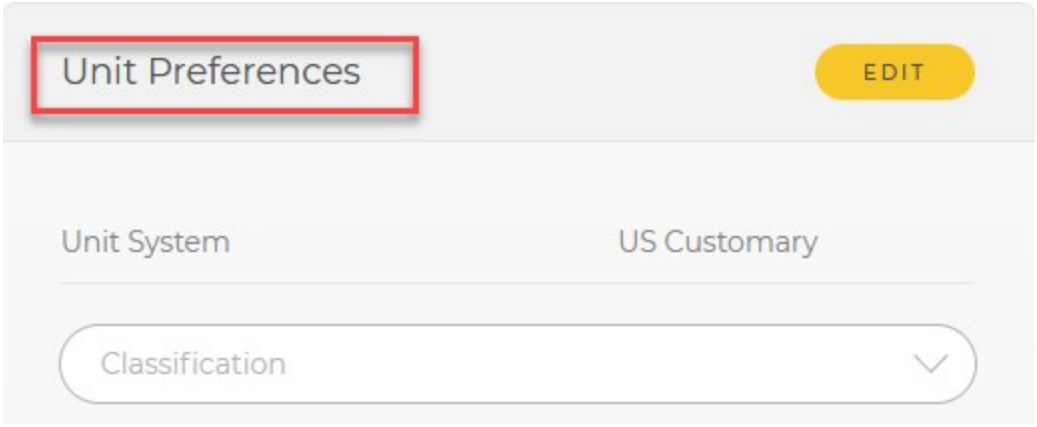
Yes, on the **Dashboard Canvas**, on the **General Settings** panel, units of measurement can be specified as dynamic or static.


View all Dashboards
General Settings
Name*
* = Required Field
Aspen 10 -ClimaVue 50
Description
ClimaVue 50 Station
Permissions*
1 group selected
Folders
Select option
Labels
Select option
Units*
Dynamic

Dynamic units require the measurement classifications of incoming data to be predefined, which allows CampbellCloud to dynamically determine the correct units for each measurement.

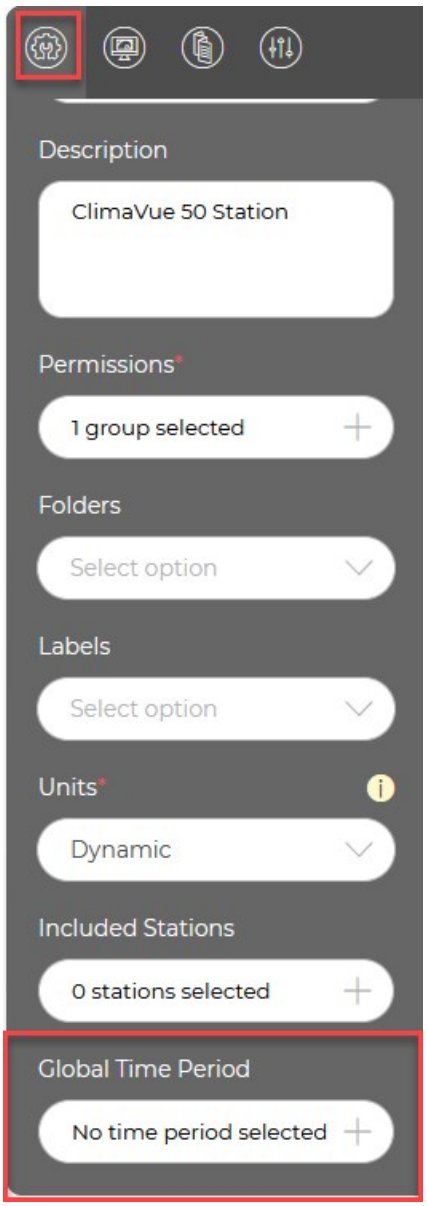
Static units display the user's preferred units which are specified in **My Settings** under **Unit Preferences.**



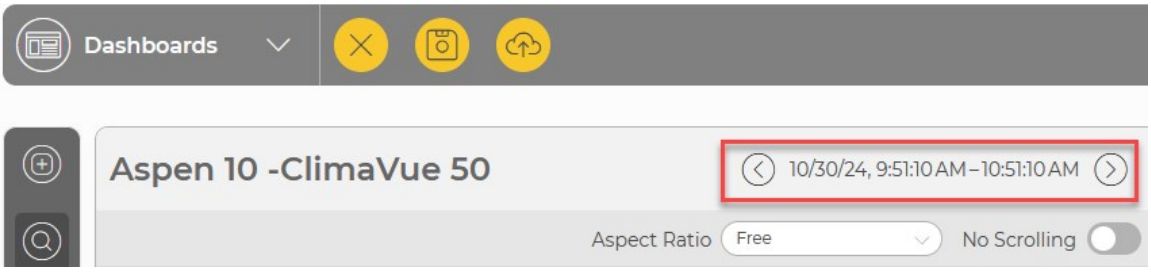


What is the Global Time Period setting?

The **Global Time Period** is a setting is found under **General Settings**:



When a **Global Time Period** is specified, a time selector is added to the main dashboard header. This allows users to step backward and forward by the specified time period.



8. Glossary

A

administrator

Administrators have access to all functionality across the range of applications in CampbellCloud. By default, an Owners security group is created with a new CampbellCloud Organization account. Users within the Owners group have all permissions enabled.

Aggregate Type

Denotes the aggregate type for the incoming measurement into CampbellCloud. For example, if the incoming measurement is a minimum value (for example, minimum battery voltage), set aggregate type to minimum.

API

Application Programming Interface

application

Also called app for short. A group of functions for related tasks.

asset

Primarily this is a data source such as a data logger or Aspen 10. It can also be another piece of hardware.

C

CampbellGo

A companion mobile field app for CampbellCloud, available for iOS and Android

Classification

Refers to the primary classification of a measurement, such as tempreature, relative humidity, or precipitation.

D

data source

An asset that sends data to CampbellCloud. This includes data loggers and the Aspen 10 edge device.

H

Hidden station

Stations that are missing location data. They cannot be geo-located on a map.

N

network

A group of one or more stations.

NFC

Near field communications

O

onboard

A collective term for the tasks that have to complete successfully in order for a data source asset to be correctly configured and send data to CampbellCloud. These tasks may be automated or require manual user input depending on the data source type. For data logger data sources, these tasks include asset claiming, automated sensor identification, cellular communications registration, secure CampbellCloud communications, program retrieval, successful sensor measurement, and confirmation that CampbellCloud received data.

organization

An entity (individual, business, or group) that uses CampbellCloud services to manage a network of stations owned by the entity. Every user must be associated with an organization.

P

Precision

Specifies the number of decimal places shown for a measurement.

Q

QR code

Quick response barcode

R

recipe

A set of files that include the Aspen 10 program, settings and configuration for a specific sensor and application.

S

security group

An application used to control user access to applications and their associated permissions. Users can be in more than one security group.

station

A group of one or more assets

Subclassification

Refers to the secondary classification of a measurement. For example, a temperature classification can have multiple subclassifications, such as air temperature, dew point temperature, or soil temperature

U

UID

Unique identifier

Units

Specifies the unit type of the incoming measurement into CampbellCloud. For example, if the asset is sending a temperature measurement to CampbellCloud in degrees Celsius, Units must be set to degrees Celsius.

user

Individuals who have been added to an organization account. Users are assigned permissions via the Security Groups application.

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Campbell Scientific Regional Offices

Australia

Location:	Garbutt, QLD Australia
Phone:	61.7.4401.7700
Email:	info@campbellsci.com.au
Website:	www.campbellsci.com.au

Brazil

Location:	São Paulo, SP Brazil
Phone:	11.3732.3399
Email:	vendas@campbellsci.com.br
Website:	www.campbellsci.com.br

Canada

Location:	Edmonton, AB Canada
Phone:	780.454.2505
Email:	dataloggers@campbellsci.ca
Website:	www.campbellsci.ca

China

Location:	Beijing, P. R. China
Phone:	86.10.6561.0080
Email:	info@campbellsci.com.cn
Website:	www.campbellsci.com.cn

Costa Rica

Location:	San Pedro, Costa Rica
Phone:	506.2280.1564
Email:	info@campbellsci.cc
Website:	www.campbellsci.cc

France

Location:	Montrouge, France
Phone:	0033.0.1.56.45.15.20
Email:	info@campbellsci.fr
Website:	www.campbellsci.fr

Germany

Location:	Bremen, Germany
Phone:	49.0.421.460974.0
Email:	info@campbellsci.de
Website:	www.campbellsci.de

India

Location:	New Delhi, DL India
Phone:	91.11.46500481.482
Email:	info@campbellsci.in
Website:	www.campbellsci.in

Japan

Location:	Kawagishi, Toda City, Japan
Phone:	048.400.5001
Email:	jp-info@campbellsci.com
Website:	www.campbellsci.co.jp

South Africa

Location:	Stellenbosch, South Africa
Phone:	27.21.8809960
Email:	sales@campbellsci.co.za
Website:	www.campbellsci.co.za

Spain

Location:	Barcelona, Spain
Phone:	34.93.2323938
Email:	info@campbellsci.es
Website:	www.campbellsci.es

Thailand

Location:	Bangkok, Thailand
Phone:	66.2.719.3399
Email:	info@campbellsci.asia
Website:	www.campbellsci.asia

UK

Location:	Shepshed, Loughborough, UK
Phone:	44.0.1509.601141
Email:	sales@campbellsci.co.uk
Website:	www.campbellsci.co.uk

USA

Location:	Logan, UT USA
Phone:	435.227.9120
Email:	info@campbellsci.com
Website:	www.campbellsci.com