Cambrionix
CHARGE • CONNECT • MANAGE

User Manual

Cambrionix Connect

Cambrionix Connect

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2. Introduction

Cambrionix Connect is an interface designed to manage your Cambrionix hubs, which can be accessed across platforms so it will run on mobile devices, tablets, and Mac, Windows and Linux computers. Cambrionix Connect will work with all finished Cambrionix hubs. The interface can be accessed via any browser by navigating to the below web address.

https://connect.cambrionix.com

Within this interface you can access the local API running on your host system and see all hubs and devices that are connected. From this interface you can

- Monitor device temperatures, power consumption, port status and error flags.
- Manage firmware updates.
- Manage the ports on the hub and switch between port modes.
- Write and use scripts using JSON, Python or using the CLI.
- Run health checks on the hubs

An important feature with Cambrionix Connect is that you can add an API to your Organisation account, meaning that you can remotely view and manage all products on your network. Each API can be assigned to an Organisation and then each user that is part of the Organisation will be able to access and manage these hubs. By using this function your Organisation will be able to:

- Remote Control your products from across the room, or across the world, 24/7.
- Remotely Manage firmware updates across your whole fleet of products.
- Monitor and control your Cambrionix products en-masse using phone/tablet/computer.
- As well as all the standard functions of Cambrionix Connect without signing in.

2.1. Prerequisites

In order for Cambrionix Connect to connect to an API, the host system running the API has to have a minimum of API version 3.6. This can be downloaded from our website at the below link.

www.cambrionix.com/products/api

Once the host system has the API installed you will need a browser to open the Cambrionix Connect website. Some browsers for example will be:

- Google Chrome
- Safari
- Firefox

Your hub will need to be connected to your host system and visible to the API. As long as the hub is visible in device manager or system info then the API should be able to see hub and interact with it. If you use any other software that controls the port then the API will not be able to connect to the hub and as such the hub will not be visible in Cambrionix Connect.

3. Getting started

Once you have the API installed, a hub has been connected to the host system and have navigated to the URL you can start to use Cambrionix Connect. Upon navigating to the URL will see the home screen.

From the home screen you will see a section called "Host API Connections" this is the section which will show you the available API connections to Cambrionix Connect. On initial launch without logging in this section will be empty and it will give you two options.

Option one is to "Get the API" this option will link you to the Cambrionix website where you can download the API if it has not already been downloaded.

Option two is "Refresh". When you select this Cambrionix Connect will access the local system and obtain the API information that is currently running. Once it has obtained this information Cambrionix Connect will automatically connect and you will be able to view and manage the hubs that are connected.

If you have logged into your Cambrionix Connect account then you will be given an option to add the API onto your account, which will then allow access to this API from your account on a different host machine, for more information please see the section Accounts

4. Accounts

With Cambrionix Connect you can create and sign in to an account which will allow access to remote API connections. You can access an account by going onto the Cambrionix Connect website and clicking the icon in the top right corner of the screen. Once selected you will be given the option to sign in, by selecting this you can either sign in to an existing account or create a new one.

4.1. Creating an Account

If you require a new account click on "sign up now" and you will need to fill in some basic information such as email address and name. You will need to verify your email address, this is done by selecting the "send verification code" button, which will send a code to the email address that has been entered. Once you have added this code you will be given the option to verify the code. Once the code is verified and the rest of the information has been input then an account will be created for you.

4.2. Organisations

Your account will be linked to an Organisation which will hold the API connections. You can have unlimited accounts connected to one Organisation but only one Organisation per API connection.

If you go into the settings tab and select account you can access and view the Organisation information. When you first set up your account your Organisation will be set as "unknown Organisation", from this screen you can change the name of the Organisation, view users accounts which are linked to the Organisation, generate a code to invite other users to join the Organisation or input a code which has been shared with you.

When a user account is in an Organisation any API they add will be visible to all other users within the same Organisation, and can be accessed and managed from all logins at the same time.

5. Digital Certificates

In order to access API's that are connected to your network you will require a secure connection. To have a secure connection digital certificates will be required. A digital certificate is a file or electronic password that proves the authenticity of a device, server, or user, which helps Organisations ensure that only trusted devices and users can connect to their networks.

You will need to supply a certificate and private key to the API to allow SSL connections. An SSL is a protocol for establishing authenticated and encrypted links between networked computers. Once you have an SSL connection you will be able to connect outside of localhost (the machine the API is running on). Without this certificate, the API will only listen for connections on localhost. External connections (not from localhost) will only be allowed if they are SSL connections (HTTPS or Secure WebSockets).

The user that the API is running as, will need access to the files to be able to use them, so the certificates will need to be stored in an accessible folder or library. This is all tested when the "set" command and should provide sufficient error information if it does not work.

It is up to the user to supply a certificate that is suitable for their usage. Some good providers are

- Comodo
- Digicert
- Identrust
- Globalsign

If it is not signed by a certificate authority, then you will need to deal with this in the usual way, such as signing your certificate with your own certificate authority and adding that to your application or browser.

With Google Chrome you can use this guide.
With Firefox you can use this guide.
With Safari you can use this guide.

for other browsers there are guides that can be found online.

Only a single certificate configuration is supported. If a password is supplied, it is obfuscated for security. The API does not make a copy of the certificate or private key as this could violate security if they are in limited access folders.

5.1. Managing Certificates

You can manage the certificates that the API uses by using the following commands. In order to send these commands to the API you will need to open a terminal to open a connection and send commands to the API, a simple way of doing this is to use the inbuilt script section within Cambrionix Connect. More information on using the API can be found in the API user manual at the below link.

www.cambrionix.com/products/api

Setting a Certificate

To supply a certificate and private key to the API, the following method will need to be followed.

```
{
     "jsonrpc": "2.0",
     "id": 0,
     "method": "cbrx_certificate",
     "params": [
          "set",
          {
               "private-key": key-filename,
               "certificate": certificate-filename,
               "password": password
          }
     ]
}
```

Parameter	Description
key-filename	The filename of the private key
certificate-filename	The filename of the certificate
password	optional password if required by private key

If there is any issue with the code you will receive an error object, if this sets correctly then a response of "true" will be returned. One thing to keep in mind is that the location will need to be in a local library and not locked within a users files and if by using double slashes (//) this will remove any issue of escape characters being input into the file name.

Removing a Certificate

If you wish to remove the certificate and private key from the API then the following method will need to be followed.

```
{
     "jsonrpc": "2.0",
     "id": 0,
     "method": "cbrx_certificate",
     "params": ["remove"]
}
```

On successful removal a response of true will be returned.

6. Networking

If your network has a restrictive firewall or proxy server settings, you or your network administrator will need to allow-list certain domains and or IP address ranges to ensure that Cambrionix Connect and its related services work as expected.

6.1. Domain Names

Cambrionix Connect uses domains with differing levels of subdomains. For Cambrionix Connect to operate, allow these first-party Cambrionix domains and their levels of subdomains. These domains are directly operated and managed by Cambrionix.

Domain	Purpose
*.connect.cambrionix.com	Cambrionix Connect web application and required functional services
*.downloads.cambrionix.com	Firmware is retrieved by Cambrionix Connect from this location.

When allowing a domain, make sure the action permits the top-level domain and multiple levels of subdomains, not just immediate subdomains.

For example, a permit entry for **.connect.cambrionix.com* should allow both *server1.connect.cambrionix.com* AND *server2.connect.cambrionix.com*.

Additionally, ensure that top-level domains themselves are also permitted, not just their subdomains. For example, **.connect.cambrionix.com* should permit both *server.connect.cambrionix.com* AND *connect.cambrionix.com*.

6.2. IP address ranges

Cambrionix Connect doesn't have a fixed IP address, instead it uses a defined range of IP addresses. You should allow-list the IP ranges as described below to maintain access to Cambrionix Connect.

We currently use a mix of IP addresses provided by third parties (namely Microsoft Azure). You should review your network restrictions and update them as necessary to ensure Cambrionix Connect works as intended. The IP ranges are used for both receiving and responding to

requests from clients (e.g. browsers), as well as for making connections to the internet on your behalf (e.g. webhooks and application functions).

The list of IP ranges to be allow-listed are the ranges with the tag 'AzureFrontDoor' from the Azure IP Ranges from Official Microsoft Download Center.

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