

LiveViewer

User Manual

LiveViewer

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2. Introduction

LiveViewer is an application downloaded from www.cambrionix.com/products/liveviewer. Once downloaded and installed on the host computer, LiveViewer allows you to manage the hubs and gather information from both the hubs and any devices connected.

Within this application you can see all locally connected hubs and devices. From this application, you can;

- Monitor hub temperatures, power consumption, port status and error flags.
- Manage firmware updates.
- Manage the ports on the hub and switch between modes.
- Write and execute Cambrionix CLI scripts, Python or send JSON packets to control your hub

An added feature with LiveViewer is that you can create a LiveViewer account which will allow you to connect to hubs remotely, meaning you can view and manage all products on your network. Each host system can be added to your organisation, and then each user from the organisation can access and manage these hubs. By using this function, your organisation will be able to:

- Remote Control of 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 using phone/tablet/computer.

2.1. Prerequisites

For LiveViewer to connect to your hubs, the host system the hub is connected to must have the Cambrionix API installed. The Cambrionix API is a service that runs on your host system, which is what enables communication with your Cambrionix hubs.

You can find more information on the Cambrionix API from the user manual. This can be downloaded from our website at the below link. along with the Cambrionix API installation files.

www.cambrionix.com/products/api

Your hub will need to be connected to your host system and visible to the API. As long as the hub is visible in the device manager or system info, then the API will be able to see the hub and interact with it. If you use any other 3rd party 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 LiveViewer.

3. Using LiveViewer

LiveViewer has many great features that will improve our products use. This section is designed to explain the features in more detail.

3.1. Managing ports

You can manage the ports on your hub(s) easily using LiveViewer. You can switch ports between the following modes*.

Charge	Turn specific ports or the whole hub to charge only mode (no data connection, hub emulates an OEM charger)
Sync	Turn specific ports or the whole hub to sync mode
Biased	Detect the presence of a device but it will not sync or charge it
Off	Turn the selected ports on or off (no power and no data channels open, mimics unplugging the device)

*some products do not have all above modes, please see individual product manuals for more information

There is more information on managing your ports in the [Ports overview](#) section.

3.2. Device Information

You can obtain information on connected devices by using LiveViewer. To obtain the information you can either go through the hub to look at the [Ports overview](#) or go direct to the [Devices](#) viewer section.

From these pages you can obtain charging information of the device, the history of the devices location and additional information about the device.

3.3. Managing your hub(s)

You can manage hub settings and change the Internal hub settings through LiveViewer. This can be done by adjusting the settings in the [Internal hub settings](#) or by loading and editing pre-loaded templates from the [Hub Templates](#) page

Managing your hub(s) is useful as certain settings will need to be changed to alter the behaviour of the hub, for example you can turn 'charging downstream ports' (CDP) off which will reduce the amount of charge being delivered to a device whilst syncing data.

3.4. Managing Firmware

Using LiveViewer you can manage and change the firmware version currently running on your hub(s). All you need is for the hub(s) to be connected to a host API which is then in turn connected account or connected locally. Once that is connected you can go to the firmware section and update multiple hubs at a time.

Cambrionix releases new firmware to ensure the hubs are kept up to date with new devices and add functionality. Keeping your hubs firmware up to date will ensure that you have the latest features along with the resolutions to any known bugs.

For more information please see the [Firmware](#) section.

3.5. Using your account

With LiveViewer, there is the function of being able to sign into an account. You can sign into your account from the top right-hand side of the page. Having an account will allow you to access the API's and settings associated with your account from any device.

see the [Accounts](#) section for more information

3.6. Adding an API

When you open LiveViewer you will see a section called "Host API Connections" this is the section which will show you the available API connections to LiveViewer. 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 LiveViewer will access the local system and obtain the API information that is currently running. Once it has obtained this information LiveViewer will automatically connect and you will be able to view and manage the hubs that are connected.

If you have logged into your LiveViewer Account then you will be given an option to add the API onto your LiveViewer Account, which will then save this API to your LiveViewer Account. When you log into your LiveViewer Account on a different host machine this API will then be available to view, for more information please see the section [Accounts](#)

3.7. Remote access

A great feature of using LiveViewer is the ability to remotely access and manage your hubs. In order to remotely access a hub you will need to ensure the host API the hub is connected to has a digital certificate linked (see [Digital Certificates](#) section). You will also require a license if you wish to connect to remotely, you can obtain information on licenses from Cambrionix by contacting sales@cambrionix.com

Note

In order to access a remote API the device used to communicate with the hub must be able to access the remote API. This can be either with the API and device being on the same local network or for the API to be provided with a public IP address.

4. Accounts

With LiveViewer there is the ability to manage settings and hub(s) and save the preferences to an account. Your account is assigned to an email address which will need to be verified. Once set up to access your account settings and information you will need to sign in. To view more information on the settings please see the [Account Settings](#) section.

You can access your LiveViewer account by going onto the LiveViewer website and clicking the 'SIGN IN' icon in the top right corner of the page.



Once selected, you can either sign in to an existing LiveViewer account or create a new one.

4.1. Creating an Account

If you require a new LiveViewer account, click on 'SIGN IN', 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, a LiveViewer account will be created for you.

5. Organisations

Your LiveViewer account will be linked to an Organisation which will hold the API connections. You can have multiple LiveViewer accounts connected to an Organisation, and each API can be connected to multiple Organisations. If you navigate to the account settings page (Home / Settings / Account) you can access and view the Organisation's information.

From this page view your default organisation, and change the name of organisation's, view users' LiveViewer 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 has an organisation selected, any API they add will be visible to all other users within the same Organisation. These can then be accessed and managed from all logins simultaneously.

5.1. Organisation name

When you first set up your LiveViewer account, your Organisation will be set as "unknown Organisation". You can change this to be any name including upper and lower case characters and symbols. We do not recommend a name longer than 64 characters.

5.2. Organisation Id

Each organisation will have a unique id number as the organisation name is not unique. This is the way to identify an organisation which will be required for licensing and support purposes. The Id cannot be changed, the Id can be viewed from the account settings section. This will follow the format
xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx

5.3. Organisation selection

A LiveViewer account can be linked to multiple organisations. You can only access one organisation and the hubs associated with that organisation at a time. From the [Account Settings](#) page you will have a drop-down at the top of the page which will include the organisation name of every organisation your account has access to.

5.4. Organisation users

You can have multiple users associated with an organisation. From the [Account Settings](#) page you can view all user accounts currently in your organisation.

5.5. Organisation invite codes

In order to add more user accounts to your organisation they will need to input an invite code. You can generate a code from the [Account Settings](#) page.

Once you have given a user a code to add to their account they will find an input box at the bottom of the page to enter the code and join the organisation.

6. Pages

LiveViewer has several pages that can be accessed via the menu on the left-hand side of the application. Each section will give you access to different information and functions using the API and your hub. A brief description of each section can be seen below.

Section	Description
Home	An overview of connected hubs
Devices	An overview of connected devices
Computers	A list of host computers associated with your organisation.
Firmware	Firmware management for connected hubs
Script	A terminal to send scripts to connected hubs
Testing	Facility to test connected hubs
Settings	Settings for API, connected hubs and Accounts
About	Information on running versions of the API, LiveViewer
Help	information on Cambrionix and a link to Cambrionix Support centre

These pages can be accessed by selecting the icon on the menu or by opening the menu at the top left and selecting the page name.

6.1. Home

From the home section, you can view all connected hubs and see the status of each hub. You can access this page from the menu in (Home).

From a glance, you can see which hubs have devices connected by the port indicator being coloured or left blank. A coloured indicator will show that a device is connected, and a blank indicator will show that no device is connected to that port. You can see the hub names and serial numbers from the overview.

You can also see Host API Clients connected to your LiveViewer Account from this page. You can select each API to navigate to the API settings for that specific API. The settings are explained more in the [Settings](#) page.

6.2. Hub

You can select a connected hub from the available list on the home page to obtain more information, on the hubs. On the top right side of the application, basic information about the hub, such as temperatures and voltages, as well as some options to look at hub information in more detail. The choices you can select from are:

- [Ports overview](#)
- [Charts](#)
- [Hub details and properties](#)
- [Internal hub settings](#)

6.2.1 Ports overview

If you click on the home page on the menu and select a hub, you will be taken to the Ports overview page. (Home / Hub name / Port / List)

When you first select a hub will default to the ports overview section. From this page you will have more detail on the hub and connected devices such as:

- Number of ports
- The name of the device
- The devices serial number or UDID
- Charging rates in mA

From this page, you can change the port mode on all ports individually or multiple simultaneously.

Port Modes

The different port modes can be seen below. The port modes available vary between products; for more information, please see individual product user manuals at the below link.

www.cambrionix.com/product-user-manuals

Charge	Turn specific ports or the whole hub to charge only mode (no data connection, hub emulates an OEM charger)
Sync	Turn specific ports or the whole hub to sync mode
Biased	Detect the presence of a device but it will not sync or charge it
Off	Turn the selected ports on or off (no power and no data channels open, mimics unplugging the device)

Device information

When looking at a specifically connected hub, you can see the devices connected to that hub. If you select a port, you will be given further information on the device connected to that specific port.

You will be able to obtain more information on a device if the host system has been trusted on initial connection. This can be done When you first connect the device to the host computer, a

prompt will appear on the page, asking you to trust the device. Please see individual device documentation for information on trusting and pairing a device with a host system.

Without pairing, the following information will be supplied if available:



- VID/PID
- USB Serial (UDID)
- USB location
- Host computer

If you pair the device, this additional information will be supplied if available:

- Device internal name
- Device OS version
- Device Serial number
- Devices Wifi Mac address
- Battery health information (this will require iTunes or ADB to obtain this information)

From the port information page, if you have the Cambrionix Recorder service installed, you will also be able to obtain information on the device charging levels over time, along with the device presence history. Please see [API User manual](#) for more information on the Recorder service

Icons may be visible against your device if you have the necessary battery service running and the information can be extracted from your device, you can find more information on battery services in the [API Settings](#) section.

Battery Icon	Description
	Battery service is running and device is paired
	Battery service running but device is not paired
No Image	Battery service is not running

6.2.2 Charts

If you click on the home section on the menu and select a hub, you will be taken to the Ports overview page. Select the chart symbol from this page in the top right corner to enter this section. (Home / Hub name / Chart)

If you installed the Cambrionix Recorder service and the API, you could access charts and information on the hub charging performance and health.

You can adjust the time scale on each chart by using the drop-down on the top right-hand side. This can be changed from 30 minutes up to 1 year. You can use this to view historic charging information.

You can also zoom on the charts; this can be done by clicking on the Zoom button on the bottom left of a chart and then dragging on the graph to select a specific period to zoom in on. Once you have

finished and want to return to a standard view, not zoomed in anymore, you can press the zoom reset button underneath the zoom button.

At the bottom of this page is also the option to reboot the hub, clear the rebooted flag and clear any error flags.

Hub charging performance

This chart will show the hubs charging information. On the chart, the Y axis will show the charging current in mA, and the X axis will show the time.

Using this chart, you can see the different devices that are connected and their charging rates over time. A different coloured line will represent each device.

Hub health history

This chart will display the hub health history. There are two different Y axis on this chart, the left side will show voltage in V, and the right-hand side will show the temperature in Celsius. The X-axis shows the time.

Using this chart, you will be able to see the temperature of the hub, the 12V internal voltage and the 5V internal voltage. If the temperature or voltage goes above or below specific parameters a flag will be raised, and the hub may switch off. More information on the exact values can be found in individual product user manuals, which can be found in the link below. This information can also be viewed live on the dials at the bottom of the page.

www.cambrionix.com/product-user-manuals

6.2.3 Hub details and properties

If you click on the home section on the menu and select a hub, you will be taken to the Ports overview page. To enter this section, you can select the square laptop and device symbol from this page in the top right corner. (Home / Hub Name / Details)



From this page, you can view information on the hub. You can view the serial port connection and the actual hardware information.

Serial port information

Variable	Description
Computer	The name of the computer as set by LiveViewer
Port	The port the hub is connected to e.g. COM17
Status	Whether the hub is active
Uptime	Time since the hub was rebooted

Hardware information

Variable	Description
Firmware type	The type of firmware used by the hub
Manufacturer name	The Manufacturer of the hub
Firmware version	The Version of firmware installed on the hub
Bootloader version	The Bootloader version installed on the hub
Group	The Group associated with the firmware

You can also control the LEDs by turning them on, flashing, or resetting them to the default behaviour.

6.2.4 Internal hub settings

If you click on the home section on the menu and select a hub, you will be taken to the Ports overview page. You can select the cog symbol in the top right corner from this page to enter this section.

(Home / Hub Name / Settings)



The hub's internal settings can be accessed and changed from this page. Not every hub has access to each of the different settings as it may not be relevant for that hub; for a list of settings applicable to each product, please see individual product user manuals.

www.cambrionix.com/product-user-manuals

You can save settings templates locally and load them from the internal settings. You can also export the configuration string to the clipboard and import a configuration string from the clipboard as well if you wish to copy settings between different hubs and host machines. The Settings that can be adjusted can be seen in the table below.

Setting name	Description	Default value
Friendly Name	Define the friendly name for this device. Limit of 31 characters. This name will appear in the device's system information if set.	Empty
Attach Threshold (mA)	The attach threshold is the device current (mA) level at which the hub can determine that a device (iPhone etc.) has been attached to a port. The attach threshold may need to be increased if the device (iPhone etc.) is connected to a Cambrionix port with a cable which includes an LED or other electronics. It may also need to be increased if you are using a device (iPhone etc.) with a 3rd party sled/holder/case (such as a barcode scanner or battery pack) which contains electronics or charging pass-through	10

Setting name	Description	Default value
Charged Threshold (mA)	The charged threshold is used to determine if the device is probably charged. If the drawn power goes below this mark for 2 minutes, then we set a charged flag	100
Temperature Max (°C)	Sets Maximum temperature before the shut-down of ports	70
Remap Ports	Change the ordering of the ports from the default	Sequential order
Default Profiles	Change the default profile for specific ports. Use 0 for default operation	0
Ports On	Configure which ports to be always powered regardless of attach status. This must only be used in conjunction with a default profile	Off
Sync Charge	Enable CDP* on a per port basis	On
Alt Sync Charge	Enable alternative method CDP* to support some hardware. This has no effect if Sync Charge for that port is disabled.	On
Display Mode	Change display mode for hubs that have extended LEDs	Current (mA)
Flags	Change various flags, these are hardware specific so please see individual product user manuals for more information.	None selected
Stagger (ms)	Introduce a delay between ports turning on when either host is detected or mode is switched to Sync. 0-9999ms	3000
Stagger_offset (ms)	An additional delay to add before starting the staggered process. 0-9999ms	0

*Charging Downstream Port (CDP) Being enabled means that a port is capable of transferring data and charging the device at the same time with a higher current than just data syncing alone. With CDP enabled the hub can supply up to 1.5A

If you disable CDP you will receive the notification “This Hub has the Charge Downstream Port UCS mode disabled. This could limit the maximum current seen on some ports.” This notification is there to ensure you havent turned this off by accident and can still have the highest charge available.

6.3. Devices

From this page, you can view and search for specific devices connected to a hub that LiveViewer has access to. You can access this page by selecting 'Devices' on the menu.

There are two different ways of viewing the devices.

List

This page can be accessed by selecting the 'device' section on the menu and then selecting the 'list' page (Home / Device / List)

You can see every device connected to LiveViewer from the device list. You can select specific devices and change the port mode, so if you want to turn all the ports off that are currently connected to a particular device, you can do so. You can also use filters to look at specific devices, so if you want only to view iPhones connected to LiveViewer, you can enter the name into the filter on the top right-hand side of the page.

You can save any filter and then load it and apply to this page.

Map

This page can be accessed by selecting 'device' on the menu and then selecting the 'Map' page (Home / Device / Map)

The device map will show all connected devices through a structured map. You can see connected computers when opening this page. You can then expand the computer names to see all connected hubs to that computer. You can then expand that to see all connected devices to that hub. You can select a specific device, which will navigate you to the device information page.

6.4. Computers

This section lets you view and manage the computers connected to your organisation. You can access this section by selecting the computers section on the menu. (Home / Computer / List)

You will see a list of computers that can be managed; if you select a computer, you can connect a Host API Connection and a Recorder API Connection. You can also manage the APIs linked with your organisation from this page by selecting the computer and either adding the local API to your organisation, or if already added then you can select to remove instead.

Cambrionix Recorder service

If you wish to use charts and log information on the Host API connection, you will require the Recorder API connection to be connected. To install the Recorder API onto your host computer, you must select this optional service when installing the Cambrionix API.

6.5. Firmware

From this page, you can view and manage firmware versions and updates. You can access this page from the menu in LiveViewer. (Home / Firmware)

On the left half of the page, you can see all available Cambrionix Hardware. The available Cambrionix hardware is all the hubs connected to LiveViewer via the API. You can filter the hardware in the following ways.

Filter	Description
Type	Firmware type*
Endpoint	Computer name
Description	Hub Name

*products and their firmware type below

Firmware	Part Number	Product Name
Universal	PP15S	PowerPad15S
Universal	PP15C	PowerPad15C
Universal	PP8S	PowerPad8S
Universal	SS15	SuperSync15
Universal	TS3-16	ThunderSync3-16
TS3-C10	TS3-C10	ThunderSync3-C10
Universal	U16S	U16S
Universal	U8S	U8S
PowerDelivery	PDS-C4	PDSync-C4
Universal	ModIT-Max	ModIT-Max
MotorControl	Motor control board	ModIT-Max

Selecting hubs

From the left side of the page, you can select the hubs you wish to update. Any hubs that do not have the latest version of the firmware will have the firmware version number in red. The firmware version will be blue if the hub is up to date.

You can select multiple hubs at once; you will know it is selected as the box will be highlighted, and the right-hand side of the page will show a device to be updated along with the available firmware versions.

Updating the Firmware

Once you have chosen the hubs you wish to update, the right side of the page will show that the hubs are to be updated from one version of firmware to another. LiveViewer will automatically choose the

latest version of the firmware to update to; this can be changed by using the drop-down and selecting the firmware you wish to install on the hub. We recommend always using the latest firmware version unless there is a specific reason not to update.

Once you have selected the hubs you wish to update and the firmware version to update, press the update firmware button, which will then run the process. Once updated, a tick will appear next to the update preview on the right-hand side to show the update has been successful.

Errors

It is important that once you have started a firmware update that you do not disconnect the hub from the host system. If you disconnect then the hub will be in an unusable state. This state is called bootloader mode, which is a different piece of firmware which is used to launch the hub firmware. If you get the hub stuck in bootloader mode then you will need to recover the hub using the Cambrionix Command line updater which can be downloaded from the below link along with the user manual.

<https://www.cambrionix.com/firmware>

6.6. Script

You can use the script page to send commands through the API to the selected hub(s). You can access this page from the menu. (Home / Script)

The two languages supported from the script page are JSON and the Cambrionix CLI.

If you wish to have detailed information on scripting and the commands/ methods that can be sent with the API and the Cambrionix CLI, please see the specific software user manuals, which can be found through the below links.

www.cambrionix.com/cli

<https://www.cambrionix.com/products/api>

On the top right-hand side of the page, there are two drop-downs. One is to select which hub you wish to send commands to, and the other is to choose between JSON and the Cambrionix CLI.

Once you have chosen a hub and a language, you can write your script or use one of the pre-made examples in the drop-down. Once you have written or selected a pre-made script, press the 'RUN' button or use 'CTRL+E'. You will then receive the response to the script below your initial script.

If you wish to send commands to a computer then you will need to select a hub that is connected to that computer. Any commands then sent will be sent to that computer, for example if you wish to find details on the USB tree for a specific computer.

6.7. Testing

LiveViewer has a built-in testing facility to test your hubs. You can access this page from the menu. (Home / Testing)

This is designed to ensure your hubs perform correctly and have no issues. The tests that are run using this facility are listed below:

Test	Description
Test Hub's id response	Validate that the hub returns sensible information in response to its 'id' command. This includes checking that the firmware version is at least 1.79 and that it is in the correct mode.
ModIT Gate Configuration	If the connected hub is a ModIT Pro with lockable gates, this test will validate that the configuration is correct.
ModIT Gate Exerciser	If the connected hub is a ModIT Pro with lockable gates, this test will validate that they open and close within the expected time and that their current draw is within reasonable limits.
Validate Hub Health	Validate that there are no hub error flags set
Hub Settings	Validate the hub returns sensible information in response to its 'settings_display' command.
Validate Port Health	Validate that there are no port error flags set on individual ports
Validate USB	Validate the hub's USB functionality
API Validation	Validate that the API is functioning and is of a suitable version for other tests

There are three different pages to the Testing section:

- Selective
- Automatic
- Configuration

Selective

Using the selective page, you will be given a list of all connected hubs and can choose which hubs you wish to test; once you have selected all the hubs you want to test, press the go button, and the tests will begin.

If you click on the down arrow on the menu, you will be shown each test that has been performed and the status of the test. A progress bar will run from left to right and turn green if all the tests are completed and passed. If any test fails, the bar will turn red.

Automatic

Using the Automatic page will run all tests on all connected hubs as soon as you navigate to it. The view will be the same as selected but without the option to choose specific hubs to test with.

Configuration

In the Configuration section, you can select which tests are to be run in Automatic and Selected mode and also configure the values in which a test will have deemed to pass. You can amend the values on three of the tests.

- Test Hub's id response
 - Minimum Firmware version
 - Minimum Bootloader version
- ModIT Gate Configuration
 - Stall setting
 - Minimum Motor Control Firmware Version
- ModIT Gate Exerciser
 - Fail Limit
 - Iterations
 - Maximum Current
 - Maximum Transition Time

6.8. Settings

Several different settings can be managed using LiveViewer. You can access this page from the menu in LiveViewer. They are separated into other pages:

- [General Settings](#)
- [Account Settings](#)
- [API Settings](#)
- [Dynamic Hub Settings](#)
- [RFID Settings](#)
- [Hub Templates](#)

6.8.1 General Settings

You can manage and view the general settings from this page, these settings will be saved to your account if signed in, if not signed in these settings will be saved locally. You can navigate to this page by selecting the settings in the menu and then selecting 'General' (Home / Settings / General)

Notifications

The notifications managed are:

- API Disconnection
- RFID events
- Available Firmware Updates

Theme selection

From this page, you can also select the theme of LiveViewer, which will visually change how the application looks.

Theme	Description
Default	This will match the OS theme
Light	This is a white background for typical use
Dark	This is a black background for less eye strain in lower light

6.8.2 Account Settings

From the LiveViewer Account settings page, view and manage your Organisation's information. For more information on organisations please see [Organisations](#) section. You can navigate to this page by selecting settings in the menu and then account. (Home / Settings / Account)

Your organisation

From this section you can;

- View the current organisation selected
- Change to a different organisation
- Create a new organisation
- View your organisation Id
- Change the name of your current organisation
- View your license status

Organisation users

From this section you can view organisation users information such as;

- Given name (first name)
- Surname (last name)
- email address

You can also remove Users from your organisation or leave the organisation.

Invite users to your organisation

To be able to invite users to join your organisation you will need to generate a code for them to use. You can do that from this section, when you click 'GENERATE CODE' a window will pop up with the code (this will be hidden by default). You can then view the code and copy it to be able to send it across to another user.

A Code will be valid for 24 hours or until it has been used. Once a code is generated you can also revoke it if you no longer wish the code to be used.

Join another organisation

If you are joining another organisation you will need a user from that organisation to generate a code for you, once generated and received you will need to input that code and click 'JOIN'. Once done you will be added into the organisation.

6.8.3 API Settings

When you navigate to this page, you will see a list of all available APIs. You will need to select an API from the list to manage an API. You can navigate to this page by selecting settings in the menu and then clicking API. (Home / Settings / API)

Once an API is selected, the settings page for that API will be displayed. You can alter the following information.

Name	Description
Computer Name	This is the name you will see as a description for the host computer on your LiveViewer Account. Defaults to the hostname.

Name	Description
Address	This is the URL of the API; the URL will be read from the local computer when the API is added to your account. A custom URL can be entered if required.
Port	This is the port the API will connect through. As default this is 43427 it should not normally be changed. This is for advanced use and complex networks with restrictions on which ports can be used. The port number used must match that of the connected API.

Once you have changed the above values, you must press the save button for these changes to take effect. You can press the revert button to return to the previous settings. You can press the remove API button to remove an API from your organisation. You can also deactivate the host computer associated with an API, meaning an API can only be connected to a local host machine.

The API can generate logging information for all USB events and store information on what has happened and specific hardware information. This is useful for seeing what is happening with the API and capturing any faults or issues. You should use full logging when obtaining logs for support unless otherwise instructed, once you have enabled logging and the event has taken place zip the logs to send through to Cambrionix for investigation. The zip logs button is currently only available in the desktop version.

Once you have obtained some logs you will need to send them to Cambrionix, ensure they are zipped so that if the files are large, they can still be sent over. If the files are still too large, then please use an online drive that Cambrionix support can have access to or send via a file transfer service.

Battery Services

If you have iTunes installed or an adb server running on your host, you will be able to obtain battery information on connected devices. You can adjust the settings of the battery update information by changing how often then battery information is obtained in intervals message in seconds. You can also alter the number of battery updates that can be run simultaneously.

6.8.4 Dynamic Hub Settings

From this page, you can create and manage your Dynamic hubs. A Dynamic hub is a collection of hubs that LiveViewer will treat as a collection of ports. You can navigate to this page by selecting settings in the menu and then account. (Home / Settings / Dynamic Hubs)

Creating a Dynamic hub

To create a Dynamic hub, you must select the hubs you wish to combine on the right-hand side of the page and drag them into a Dynamic hub on the left-hand side. Once you have grouped up the hubs in a Dynamic hub, you can rename it and then must press save to store this as a Dynamic hub to the API.

6.8.5 RFID Settings

RFID (radio frequency identification) is a form of wireless communication. The Cambrionix API is capable of managing RFID detection events and can be used to store information about RFID cards. You can access the RFID settings by selecting settings and then selecting RFID (Home / Settings / RFID)

Currently, the API only deals with the RFID reader in the ModIT Boss module. This is an RFIDEas model: RDR-80581AK0. This page in LiveViewer manages information obtained from the RFID reader and the API.

The first time you use an RFID card, you must check the 'Enable RFID detection in the API' box so that LiveViewer and the API can see the initial RFID event. When you scan an RFID card, it will appear in a list, and you can select a name for the card and the behaviour you wish to occur when the card is scanned going forward.

Once you have scanned the cards and set them up, you can export the settings so other versions of LiveViewer can maintain the same settings.

6.8.6 Hub Templates

From this page, you can manage the templates for the [Internal hub settings](#). The templates are saved locally on LiveViewer. You can access this page by selecting settings in the menu and then selecting templates. (Home / Settings / Hub Templates)

Editing Templates

The first template you create will need to be done through the [Internal hub settings](#). Once the template is created navigate to this page and you can edit the information. You can change the name of each template by selecting the name and typing in a new name. You can and edit the settings by selecting the pencil icon next to the delete icon.



Once you have the editing window open you can view all the Internal hub settings and amend each settings, once you have finished making any changes you will need to press 'OK' which will close the editing window. You must press save after closing the editing window or the changes will be lost.

Copying Templates

From this page you can select a template and copy it. By selecting the tick box next to the name the 'COPY' button below will become active, by clicking it a copy of the template will appear underneath. You must press save once you have created copies or navigating away will delete the copy.

Deleting Templates

You can delete any stored templates by pressing the delete icon, once you have pressed the delete icon you must save or the template will not be deleted.

6.9. About

From this page, you can see various pieces of information about the API and LiveViewer. You can navigate to this page by selecting 'about' on the menu (Home / About)

You can see the version of the local API that is running alongside the version of LiveViewer.

There is a link to be able to download and view the Cambrionix API User manual.

<https://downloads.cambrionix.com/documentation/en/API-User-Manual.pdf>

There is a link to be able to download and view the LiveViewer User manual.

<https://downloads.cambrionix.com/documentation/en/Cambrionix-Connect-User-Manual.pdf>

There is a link to go to the supports desk, and also a link to send an email to support.

From this page you can also view company information for Cambrionix;

- Contact address
- Contact phone number
- Social media links
- Company number
- VAT number

6.10. Help

By selecting the help page on the menu you will be taken to Cambrionix Support centre. From the support centre you can;

- Get technical support for Cambrionix hardware and software
- Suggest a new product
- Suggest a new feature for Cambrionix hardware and software
- Suggest an improvement to existing Cambrionix hardware and software

When contacting support, please supply the product information for the hub in question. This can be found on the Device Information Plate which is either on the underside or back of the unit. Providing serial and Purchase order numbers, can help identify your specific product and speed up the process.

With any hardware support we recommend checking the troubleshooting section in the products user manual.

www.cambrionix.com/product-user-manuals

7. Digital Certificates

You will require a secure connection to access APIs connected to your network. 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. This helps Organisations ensure that only trusted devices and users can connect to their networks.

You must supply a certificate and private key to the API to create a secure connection which is called an SSL (Secure Sockets Layer) connection. An SSL protocol establishes authenticated and encrypted links between networked computers. Once you have an SSL connection, you can connect outside of localhost (the machine the API runs on). Without this certificate, the API will only listen for connections from the local host. External connections will only be allowed if they are secure (HTTPS or Secure WebSockets).

The identity the API is running as will need access to the files to use them, so the certificates must be stored in an accessible folder or library.

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

- [Comodo](#)
- [Digicert](#)
- [Identrust](#)
- [Globalsign](#)

If a certificate authority used is not recognized by the browser, then this will have to be handled dependant on the browser that is being used. You will need to sign 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](#).

If you wish to use different browsers you will need to find their guides to be able to setup.

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.

7.1. Managing Certificates

You can manage the API's certificates using the following commands. 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 LiveViewer. More information on using the API can be found in the API user manual at the below link.

www.cambrionix.com/products/api

7.1.1 Setting a Certificate

Supply a certificate and private key to the API.

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

Parameter	Description
<i>key-filename</i>	The filename including the path of the private key
<i>certificate-filename</i>	The filename including the path of the certificate
<i>password</i>	optional password if required by private key

If there is any issue with the code, you will receive an error ; if this sets correctly, 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 user's files, and using double slashes (//) will remove any issue of escape characters being input into the file name.

Example

```
{
  "jsonrpc": "2.0",
  "id": 0,
  "method": "cbrx_certificate",
  "params": [
    "set",
    {
      "private-key": "C:\\git\\capi\\cbrxjson\\certificate\\key.pem",
      "certificate": "C:\\git\\capi\\cbrxjson\\certificate\\cert.pem"
    }
  ]
}
```

7.1.2 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.

8. Networking

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

8.1. Domain Names

LiveViewer uses domains with differing levels of subdomains. For LiveViewer 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	LiveViewer web application and required functional services
*.downloads.cambrionix.com	LiveViewer retrieves firmware 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*.

8.2. IP address ranges

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

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

9. Licensing

The use of LiveViewer is subject to the Cambrionix Licence agreement, the document can be downloaded and viewed using the following link.

<https://downloads.cambrionix.com/documentation/en/Cambrionix-Licence-Agreement.pdf>

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