CLEVER LOGGER USER GUIDE

March 2021

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00

WELCOME TO CLEVER LOGGER

How Clever Logger works - an overview

Traditional temperature loggers store data in their internal memory.
This means that, in order to read that data, the user needs to regularly download the logger's contents to their computer.

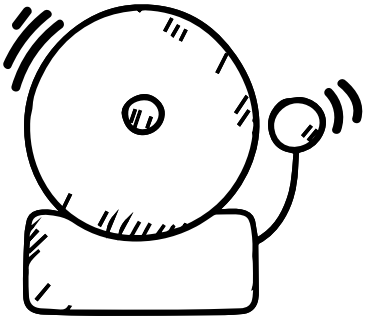
Clever Logger is different.

Clever Loggers are connected directly to the internet via a Gateway.
The temperature in your fridge or freezer is recorded and saved to the internet every few minutes.

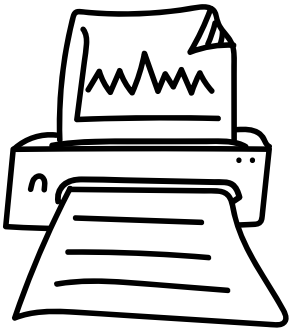
Soooo ...

This means that Clever Logger can give you

Access to live temperatures from anywhere in the world



Instant alerts about temperature and connection issues



Automatic reports delivered straight to your inbox

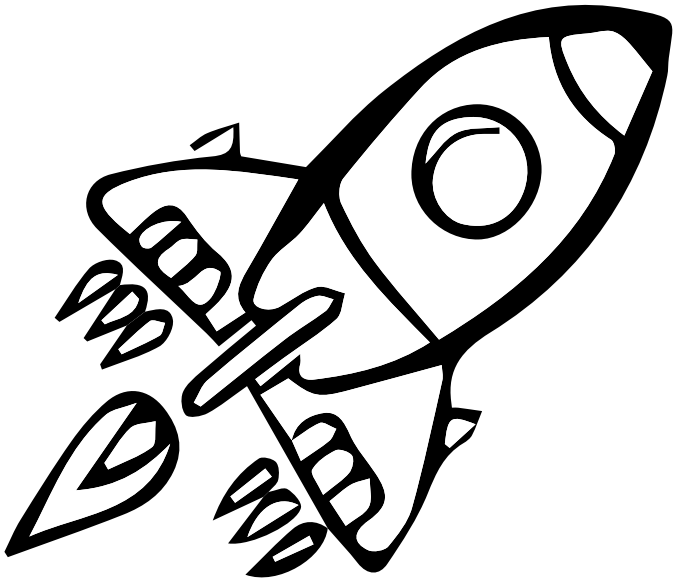
Learning the jargon

Let's start with the basics – learning your way around the different parts of Clever Logger.

LOGGERS

GATEWAY

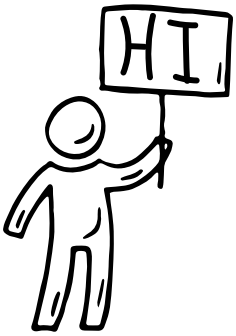
LOGGER	The loggers measure the temperature (and humidity in some models) and broadcast the readings using Bluetooth, like an iPod broadcasting songs to a speaker.
GATEWAY	The gateway is the link between your loggers and the internet. The gateway hears the data being broadcast by the loggers and saves it to your online account every few minutes, giving you a "live" log of temperatures. Gateways need power and an internet connection – either with a network cable or using your office wi-fi.
DASHBOARD	Every aspect of your Clever Logger system is managed through a special website we call the Dashboard. Here you can add gateways and loggers, configure alarms, create reports and manage users. Because this dashboard is just a website, there's no special software to install or update. You can log in on any type of computer using any browser from anywhere. You can even use a tablet or iPad. The address is cloud.cleverlogger.com.
ALARM	You can set upper and lower temperature limits for each of your loggers. For instance, with a vaccine fridge, you would set the lower alarm limit to 2°C and the upper alarm to 8°C. If the temperatures went outside these bounds you would be notified. You can also set alarms to notify you if the power goes out.
ORGANISATION	The Organisation is the main entity that controls the account. Clever Logger is really scalable. It works brilliantly for small organisations with just a single logger, but it is also capable of handling large organisations with multiple sites and multiple loggers at each site. Organisation-level users have access to all the sites.
SITE	A site is a division within an organisation. It might be in the same building or on the other side of the country. Each site can have different users with different permissions. So users at Site A cannot see data from Site B, and so on.
USER	Users are defined by their email address – each user must have a unique email address. This address is used for login and for notification. Users can have different levels of access to the various functions of Clever Logger, ranging from Admin (who can do everything) to Viewer (who can only view results).
LOCATION	A Location is what we call a logger that has been started and configured. Before it is configured, it is just a device.



01
GETTING STARTED

This section will take you through four basic steps
to get your Clever Logger up and running

Allow 10-15 minutes for this process.



STEP 1

CREATING YOUR
CLEVER LOGGER ACCOUNT

What you will need...

Your computer or tablet

An email address

STEP 2

ADDING YOUR GATEWAY TO
YOUR ACCOUNT

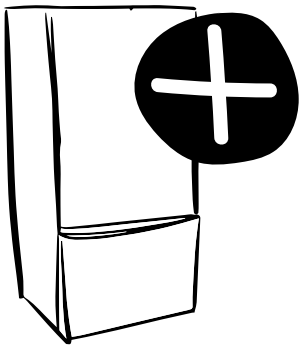
What you will need...

Your computer or tablet

Your Gateway and Power Supply

An ethernet cable (if you are connecting to ethernet)

A smartphone and your wi-fi password (if you are connecting to wi-fi)



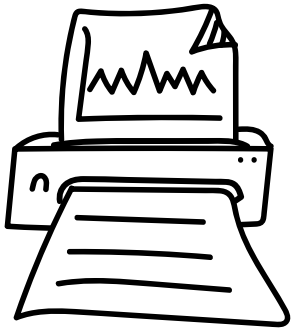
STEP 3

CREATING YOUR
FIRST LOCATION

What you will need...

Your computer or tablet

A Logger



STEP 4

CREATING YOUR
FIRST REPORT

What you will need...

Your computer or tablet

1. Creating your Clever Logger account

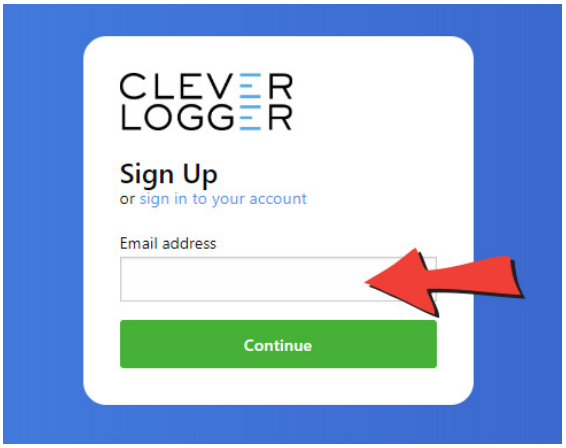
Your Clever Logger is managed through a special website we call the “dashboard”.
The first step is to set up an account on the dashboard.

Because the dashboard is just a website, you can access it through your favourite browser on any internet-connected device - computer, laptop or tablet.

Open a browser and go to https://cloud.cleverlogger.com

You don’t have an account yet so you can’t sign in.

Instead, click on the “**create an account**” link



Enter your email address.

Check your email

Almost there…

Check your inbox for an email from Clever Logger.

The email is sent straight away, but can sometimes take a minute or two to reach you. Be patient. If you can’t find it, check your spam or junk folder.

The email looks like this.

You can either click the **Log me into Clever Logger** button, or copy the 6-digit code to your browser.

Enter your details to finish creating your account.

The link and verification code will expire after an hour.

If you need another code repeat previous steps.

No passwords to remember

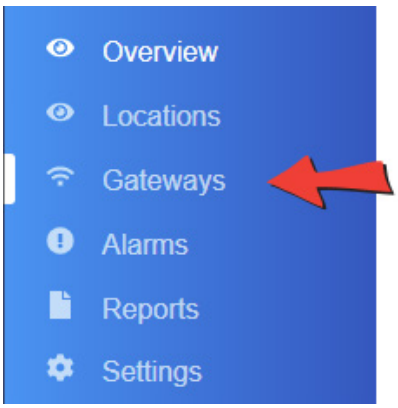
Clever Logger does not use passwords.
Instead, we get the browser to remember you.

Log in once on any device and it will remember you on that device for next time. Clever, huh?

2. Adding your first gateway

The gateway is the device that connects your Clever Loggers to the internet, so we need to get it hooked up before we can go any further.

Adding the gateway to the dashboard



In the dashboard (cloud.cleverlogger.com), click on the **Gateways** menu item.

Click on the **Add a Gateway** button in the top right corner.

Give your gateway a name and enter the **ID** and **PIN**. You will find these on a sticker on the bottom of the gateway.

For now, just accept the defaults regarding Offline Alarms. You can edit them later if necessary.

Click on **Add Gateway** to complete the process.

Decide where to place your gateway

The gateway communicates with the loggers using Bluetooth, which has a limited range, so planning where to put the gateway is an important step. If it is too far from the loggers or if there are obstacles in between, you will have communication issues.

Ideally the gateway should:

- be in the same room as the loggers,
- not be blocked by items, especially metal items (e.g. don't put it in a metal comms cabinet)
- be out of the way of staff so the cables won't be bumped

The location of network ports in your office is often a critical factor in determining where the gateway can be placed. If there is no network port in the same room as the logger, then connecting to wi-fi may be useful to allow you to bring the gateway closer to the logger.

Connect the power cable

Plug the power cable into this slot.

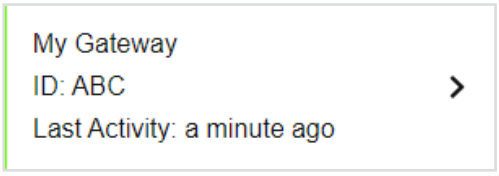
Check that the power is on by looking for a red light inside the gateway.

Connecting to the internet using an ethernet cable

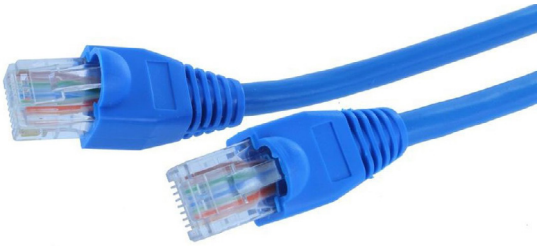
Use the supplied Ethernet cable to connect this port on the gateway with an Ethernet port on your office network.

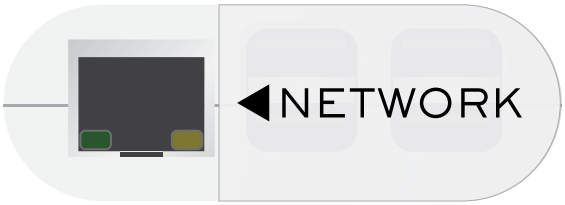
The gateway will use DHCP to acquire an IP address on your network.

In most cases, no other actions are necessary. The gateway will now be visible on the dashboard.



If your gateway does not appear on the dashboard, see the **Information for IT departments** in **Appendix 1.**





Connecting to the internet using wi-fi

Connecting to wi-fi often means you can position the gateway closer to the logger and get a better signal.

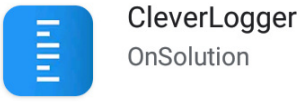
Please note that Clever Logger cannot connect to Enterprise Wi-Fi (with username) or hidden wi-fi networks.

The gateway does not have a screen or a keyboard, so we need some way to choose the right wi-fi network and type in the password. For this, we will use your mobile phone. And to do that, you will need to **install our free app**.

Installing the Clever Logger app

The Clever Logger App is available for both iOS and Android.

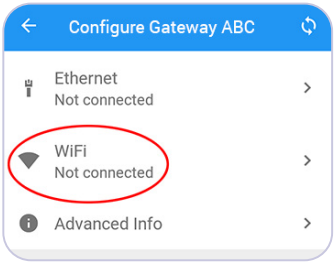
Search for "CleverLogger" in the appropriate app store.



Logging into the app is the same as logging into any device - enter your email, receive a 6-digit code in your inbox, and copy that code into the app login screen.

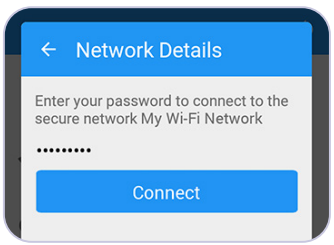
Step-by-step procedure

1. Reboot your gateway. Wait 30 seconds for the power light to start flashing, indicating the gateway is ready to connect.
2. In the app, tap on Gateways in the menu and tap on your gateway to select it.
3. Tap on the Configure Wi-Fi button
4. Tap on WiFi



5. Choose your wi-fi network

6. Enter your password



Your gateway should now connect to the internet.

After about a minute, the red light on the Gateway will stop flashing and remain on to show that the Gateway is connected.

The phone will disconnect from the Gateway. This is expected. It has done its job.

3. Creating your first location

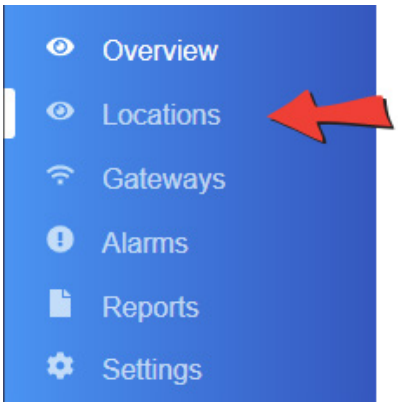
Turning on the logger

Loggers are switched off when you receive them. **Press and hold** the Power button until the **In Use** light comes on (approx 5 seconds) . The light will stay on for a few seconds and then go out.

After that, the light will flash once briefly every 10 seconds to show that the logger is running.

NOTE: After you first turn them on, it can take up to a couple of minutes for the logger to be visible in the dashboard.

Adding the location



Make sure your gateway is close to you and connected to the internet.

Select **Locations** from the menu.

To configure the logger, click on **Add a Location** in the top right corner of the screen.

You will then step through each stage of configuring the logger - see next page.

After each step, press the Next button.

Add Location stages

Device

This screen will show all the switched on loggers in range of the gateway.

If you do not see any devices listed, check that your logger is switched on. The red **In Use** light should flash briefly every ten seconds.

Check also that it is in Bluetooth range of the gateway.

If you see more than one logger in this list, you can identify your loggers by their serial number.

Presets

There are a number of presets that you can choose to simplify configuration. Choosing one of these options will pre-fill some fields with suggested values. You can still adjust these values as you like. Or choose Custom to not receive suggestions.

Preferences

Name and Description

Give the location a name, e.g. Big Fridge, Main Cool Room, Ingredient Store Room - something that will help you identify the location. If you have a lot of loggers, you may wish to also add a description, but that's optional.

Log Interval

This is how often a temperature will be added to the log. By default, it is set at **5 minutes**. Unlike some other loggers, adjusting the Clever Logger log interval **makes no difference to battery life**, so unless you have a good reason for wanting a slower interval, we recommend that you leave it at 5 minutes.

Timezone

This should be automatically set to the same timezone as your computer. If you want to change it, you can do so.

Low and High Temperatures

Here you can set the alarm limits. If you chose a preset, these will be automatically filled for you.

The **Threshold** is the point at which the alarm is generated. e.g. if you set a Low Temperature Threshold of 2°, any temperatures below that will be flagged as abnormal and can trigger an alarm.

The **Delay** is how many **consecutive abnormal temperatures** are required to trigger the alarm. If it is set to "Immediate", you will be alerted if a single abnormal temperature is detected. It is often more useful to set a **short delay** before an alarm is triggered, e.g. 15 minutes, to allow a fridge to recover from having its door opened.

Notification Groups

Choose who should be alerted about temperature alarms at this location.

Low and High Humidity (only on some loggers)

If your logger also measures humidity, you can set alarms limits in this section.

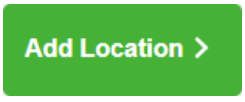
Low Battery

Choose who should be notified when this logger's battery need replacing.

Offline Alarms

If this logger **loses its connection with the gateway**, choose whether to notify someone - we recommend that you do.

Such disruptions are often temporary and the logger will still be recording data even when not connected, so it is usually OK to set a delay of 15 minutes or more on this alarm. However, if you are continually getting Offline Alarms, you should change the location of the loggers or gateway to improve communication.

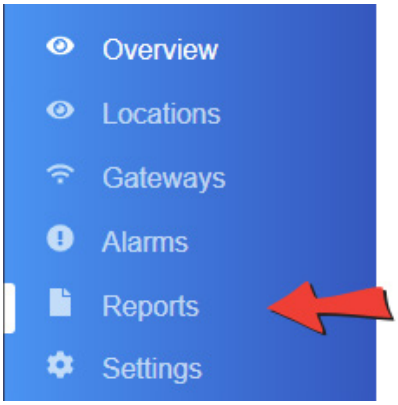


Click the **Add Location** button to finish the setup.

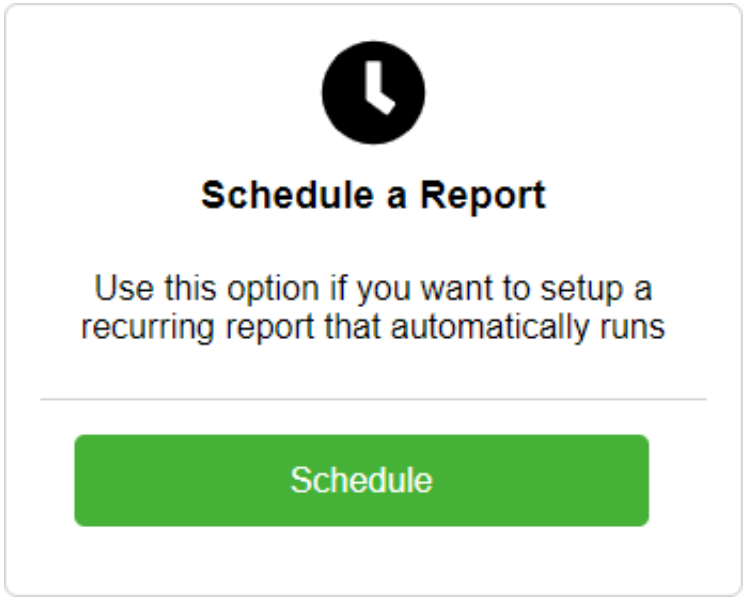
4. Creating your first report

Reports are the keystone of Clever Logger's success.

No longer do you need to manually download data. Instead, reports are emailed **directly to your inbox**. You can create as many reports as you like.

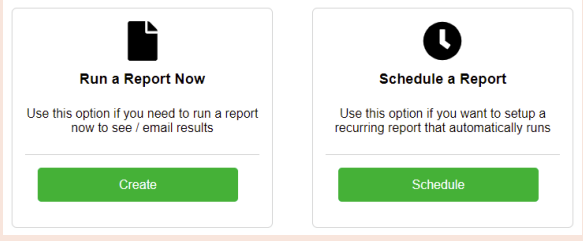


To begin your first report, choose Reports from the menu and click on the **Add a Report** button in the **top right corner** of the screen.



Under **Schedule a Report**, click on the **Schedule** button

What's the difference between **Run a Report Now** and **Schedule a Report?**



This section deals with how to set up automatic scheduled reports, but the instant reports are a fantastic feature in Clever Logger.

If you have a temperature breach and you need to see the data related to that breach, it's a simple process to spit out a report for any of your locations and any date range. Just click on Run Report Now and follow the prompts

Create Report stages

Select Report Type

Min/Max - Gives the minimum and maximum temperatures. For daily reports, you will see an hourly min/max. For weekly or monthly reports, you will get a daily min/max.

Min/Max + Extremes (most popular) - This is just like the Min/Max report but if there has been a breach, it will show complete record of the out-of-range temperatures.

All Readings - As it sounds - a complete record of all readings.

Date	Minimum	Maximum
Fri May 03 2019 12:00AM	5.30°C	6.30°C
Sat May 04 2019 12:00AM	5.50°C	5.80°C
Sun May 05 2019 12:00AM	5.70°C	5.90°C
Mon May 06 2019 12:00AM	5.60°C	5.80°C
Tue May 07 2019 12:00AM	4.70°C	10.20°C
Wed May 08 2019 12:00AM	4.60°C	5.30°C
Thu May 09 2019 12:00AM	4.50°C	6.00°C

A report showing the daily min/max for a week

Select Locations to include in the report

You can include all your Locations in a single report or create a separate report for each Location.

There is no limit to the number of reports you can create.

Select file type

PDF: Recommended option for Min/Max reports.

Excel: Recommended option for All Results reports. File is in .xlsx format.

CSV: Not recommended. Stands for comma separated values. This is a simple format that is really only useful for importing the data into other systems.

Name the Report

Use something descriptive. e.g. Fridge 1 Weekly Report

Choose a Time

Every Day: This report will be emailed at the same time each day and contain data from the previous 24 hours.

Every Week: The report will be sent at midnight of the day before the chosen day.
e.g. If you choose Monday, the report is sent at midnight between Sunday and Monday. Contains data from the previous seven days.

Every Month: The report is sent at midnight at the end of each month and contains the data for that calendar month.

Select recipients

Choose from the list of your users who will receive this report.

That's it!

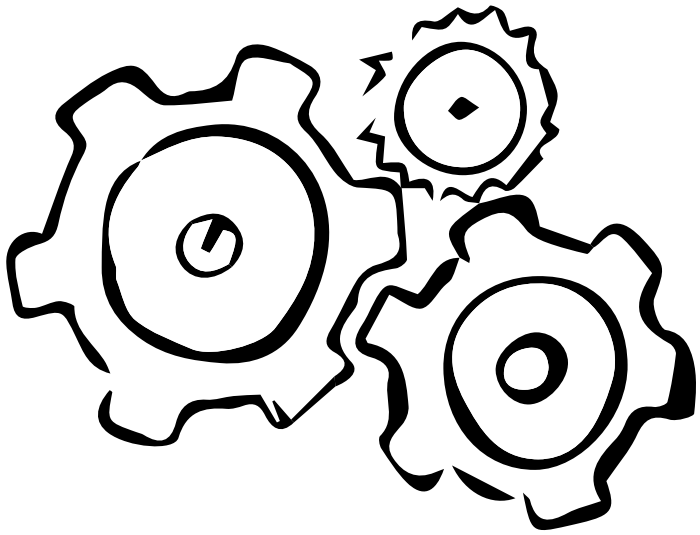
Your Clever Logger should now be connected to the internet and saving data to your account.

You should be set up to receive notifications if something goes wrong.

And you should have a scheduled report created.

If you have had any trouble with these steps along the way, check out the troubleshooting section at the end of this guide.

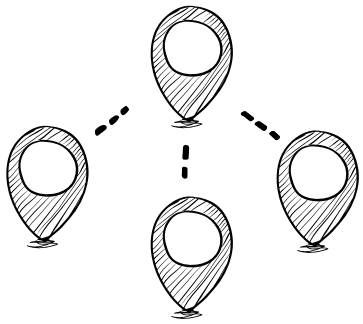
If you still cant get things going, we're here to help. Call us on **1300 80 88 89**.



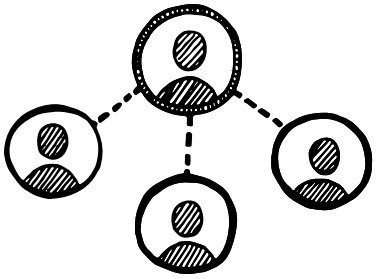
02

USING CLEVER LOGGER

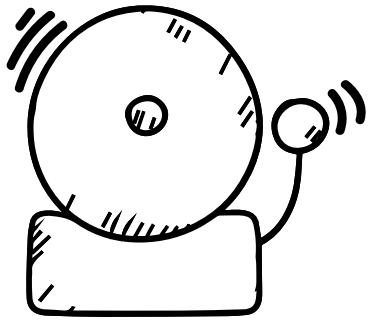
In this section...



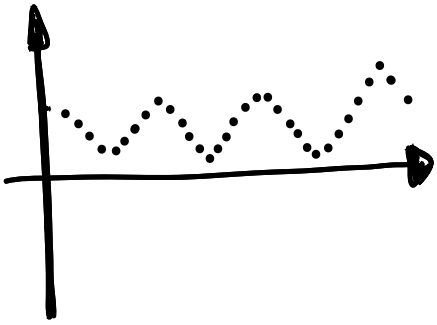
MANAGING ORGANISATIONS
AND SITES



MANAGING USERS
AND NOTIFICATION GROUPS



ALARMS



VIEWING YOUR RESULTS

Managing organisations and sites

Clever Logger is scalable to any-sized organisation. If you have a large organisation with multiple sites, this section will be useful.

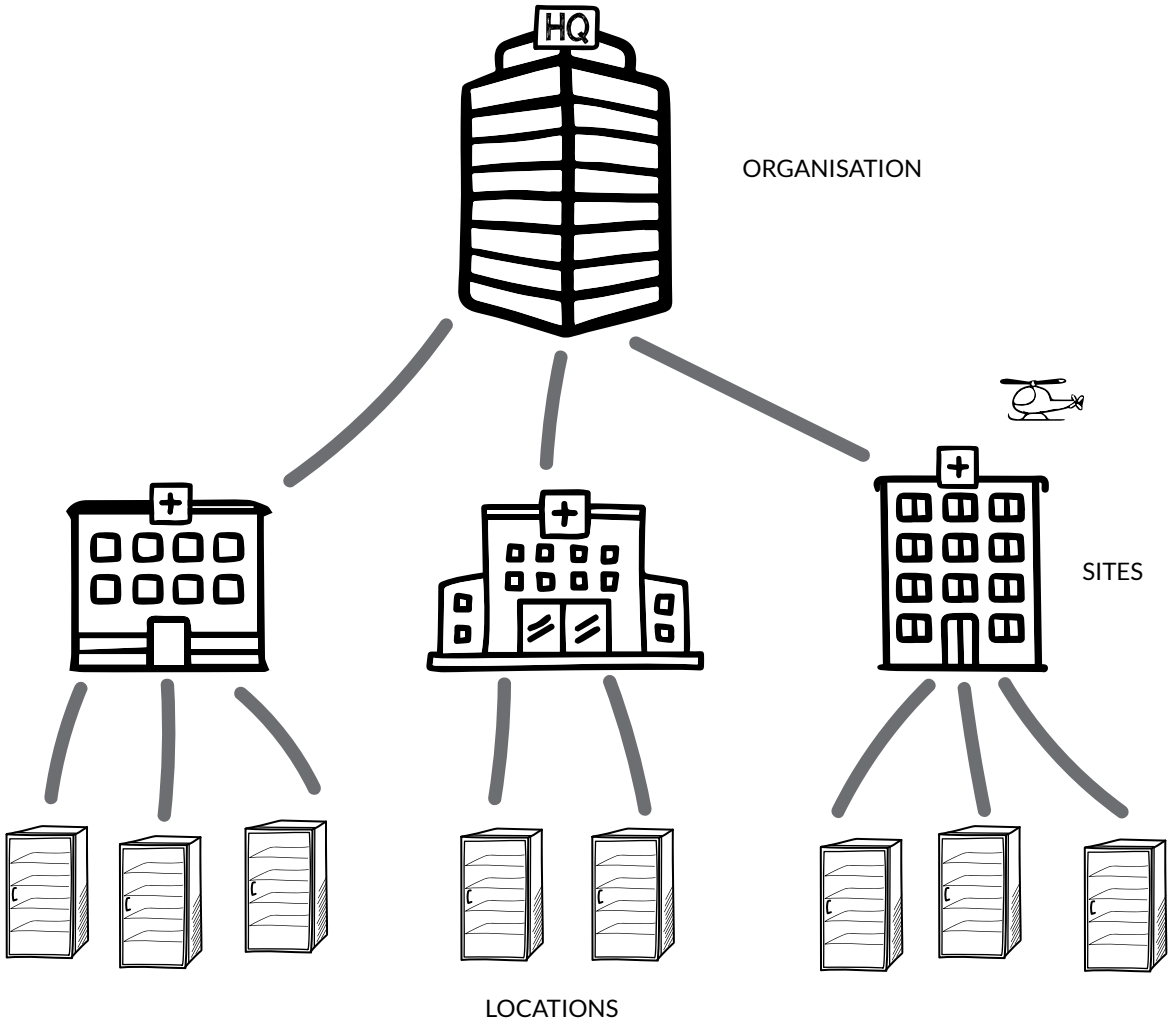
If you only have one site, you don't need to know <u>any of this</u>.

Organisations, Sites and Locations

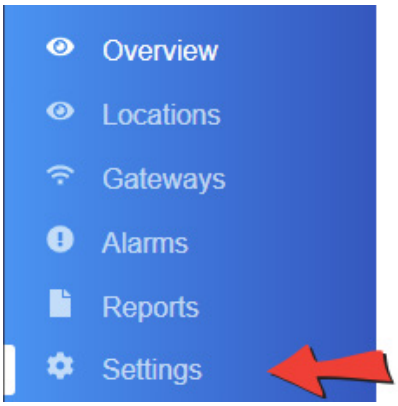
Imagine a chain of private hospitals - this is our Organisation.

Each of the different hospitals is a Site.

And each of the fridges, freezers and storerooms is a Location.

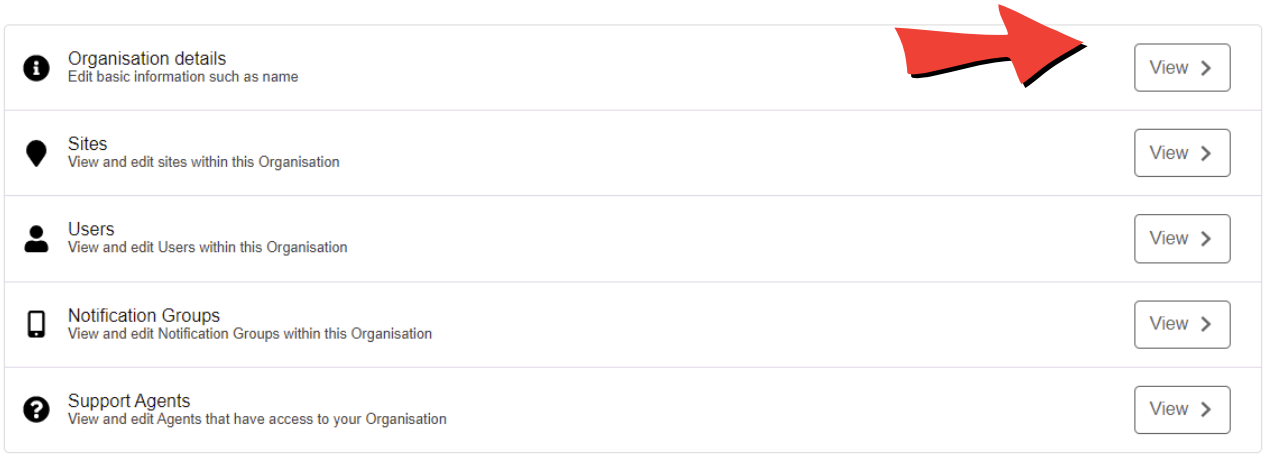


The Settings panel



Click on the **Settings** menu item to open the **Settings** panel.

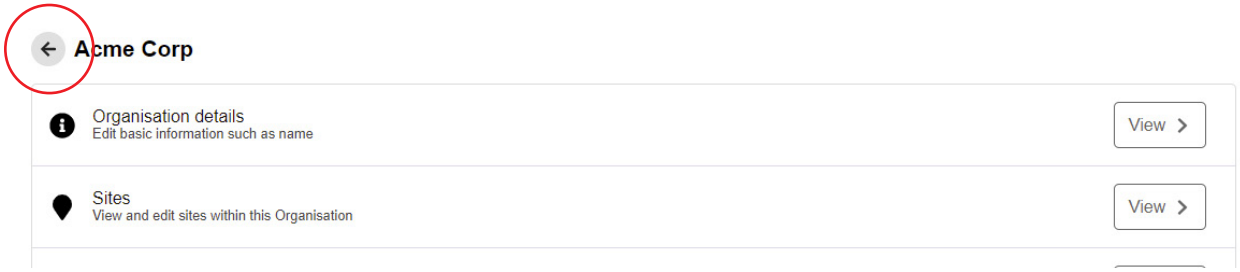
Changing the organisation name



On Organisation Details screen, you can Change the organisation name

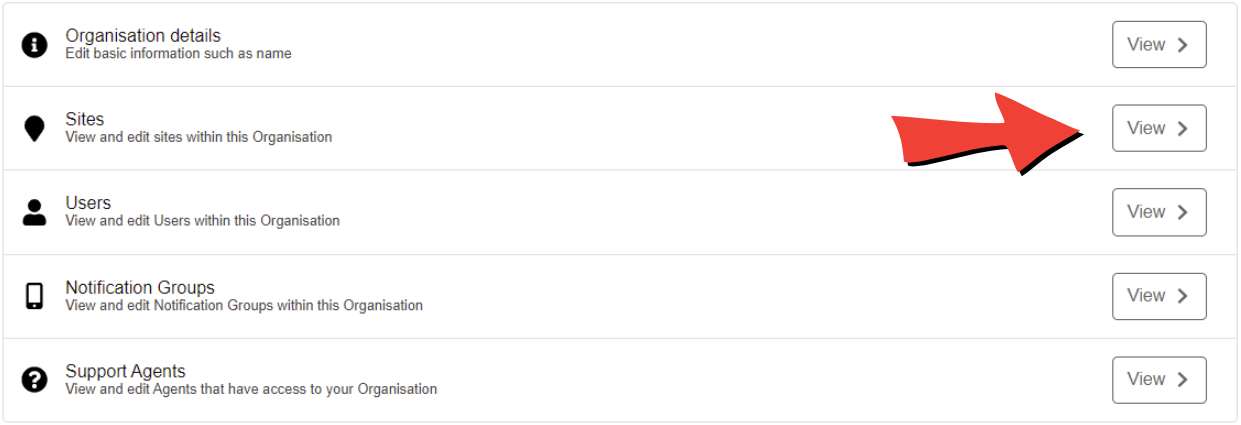
You can also add and update contact details that make it easier for us to contact you if we spot an issue with your system.

Creating a new organisation



To create a whole new organisation, click on the **Back** link as shown, and then click the **Create Organisation** button.

Managing your sites



Click on the Sites tab and you will see a list of your sites.

Most people will have just one site in the list with the default name of "Site 1".

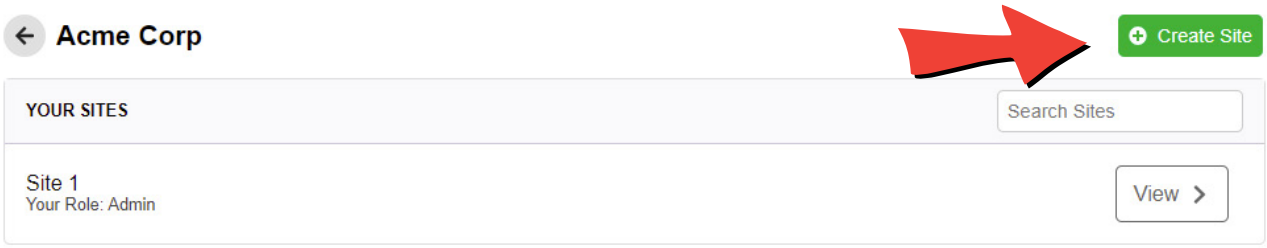
Click on the **Edit** button to edit the site.

You will see the options for managing the site, which are fairly self-explanatory.

The **Details** tab lets you change the name of the site.

The **Users** tab and the **Notification Groups** tab are covered in the next section ***Managing Users and Groups***

Creating a new site

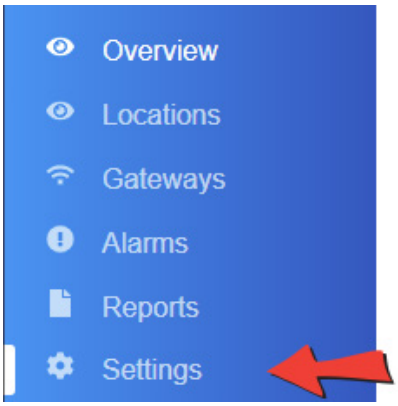


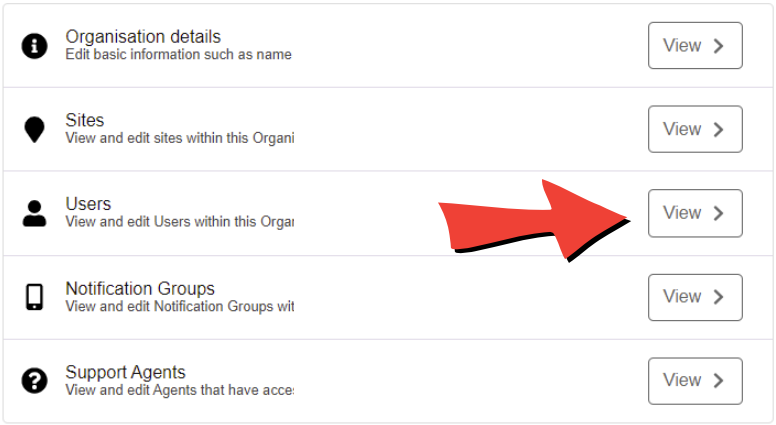
To create a new site, click on the **New Site** button.

Managing Users and Groups

You can add as many users to your Clever Logger account as you like.
Each user must have a unique email address.

Only authorised users can receive alarms and report emails.



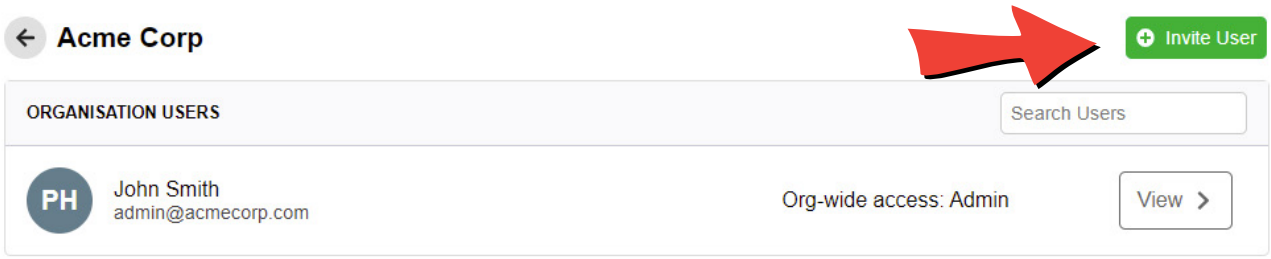


Understanding permission levels

There are six different permission levels within Clever Logger. Each level can do different things.

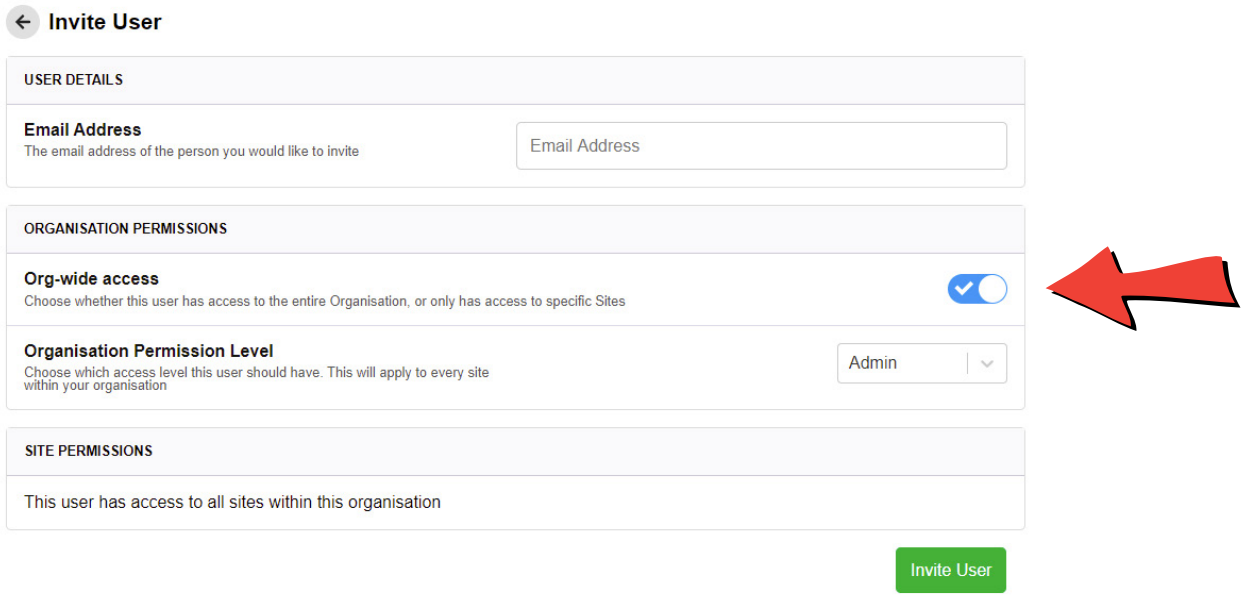
	No Access	Viewer	Operator	Controller	Editor	Admin
View temperature/humidity data		✔	✔	✔	✔	✔
View alarms		✔	✔	✔	✔	✔
View configuration/settings		✔	✔	✔	✔	✔
Receive alarm notifications		✔	✔	✔	✔	✔
Receive reports		✔	✔	✔	✔	✔
Respond to alarms			✔	✔	✔	✔
Create and view reports				✔	✔	✔
Add, edit & remove Notification Groups					✔	✔
Add, edit and remove Locations					✔	✔
Add, edit and remove Gateways					✔	✔
Add new sites						✔
Change organisation/site details						✔
Add, edit and remove users						✔

Adding a new user

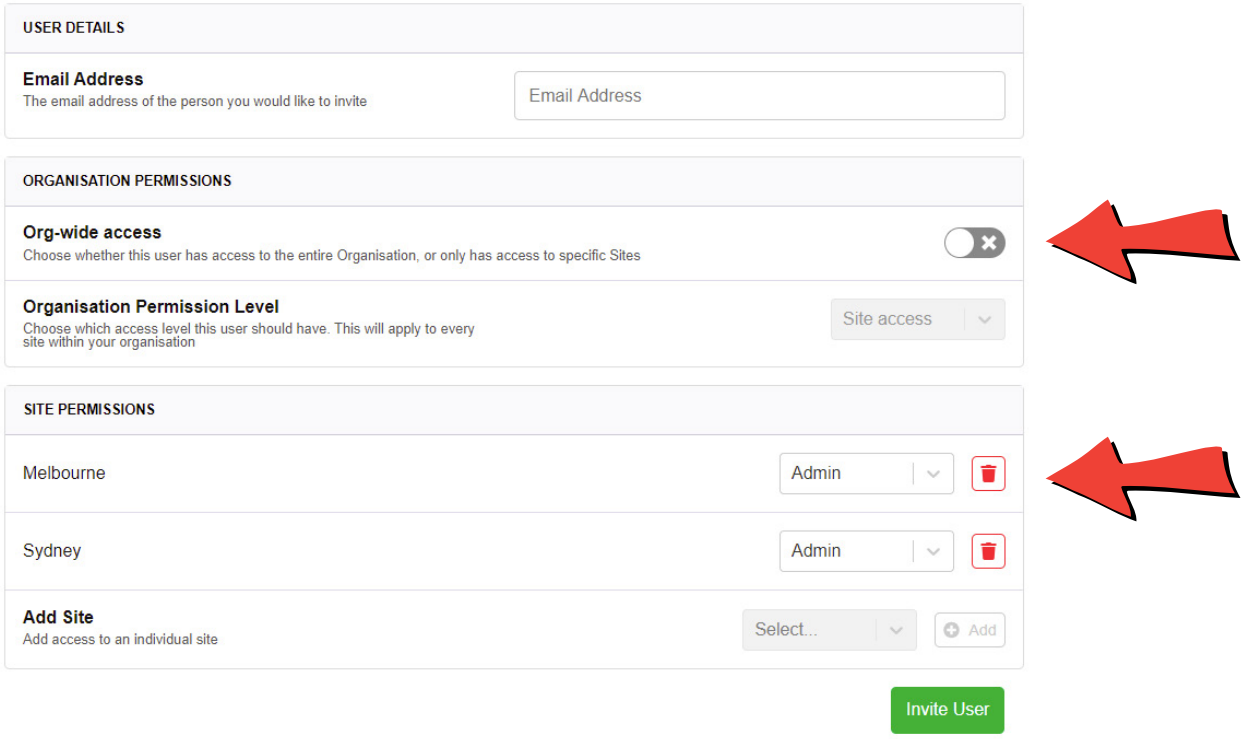


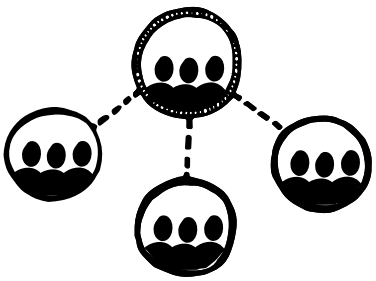
Setting the User's access levels

By default, new users have **organisation-wide access** - that is, they can see all sites.



To restrict a user to a **particular site or sites**, untick the Org-Wide Access button. This will display a list of your sites, allowing you to set individual access for the user.





What are notification groups?

One of the biggest advantages of Clever Logger over traditional loggers is the ability to send out instant alarms when something happens.

A notification group is the groups of users who will receive these alarms.

Three things to understand...

1. You can have as many notification groups as you like

2. Each notification group can have as many users as you like

3. Notification groups can be organisation-wide or site-specific

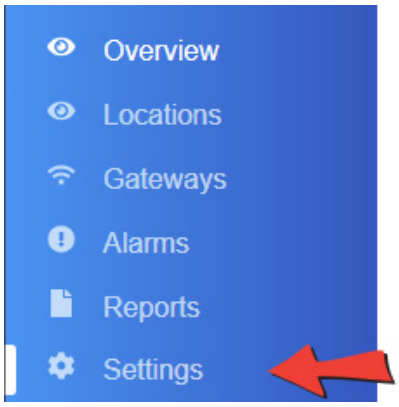
Some examples:

Bob works in Lab A. Sue works in Lab B.

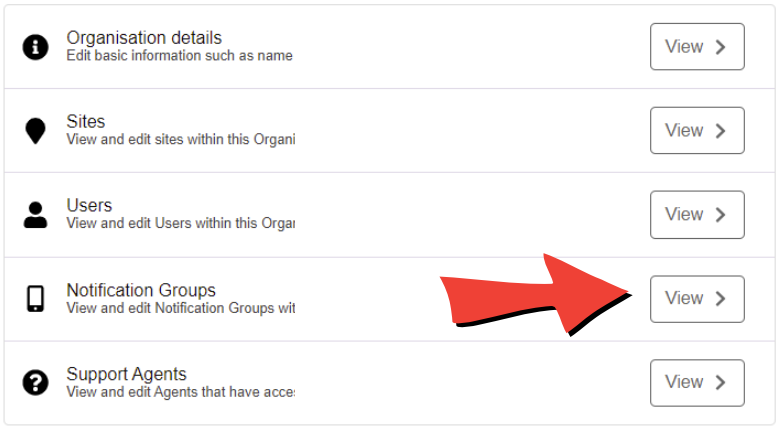
Their admin creates a Lab A group that includes Bob, and a Lab B group that includes Sue. A logger in Lab A records some abnormal temperatures. Only Bob is notified.

There are three nurses at a medical centre. All of them are equally responsible for a vaccine fridge. Their practice manager creates a notification group and adds all three nurses to the group. She creates a separate group for herself. If there is a temperature breach, all three nurses are notified immediately. If the nurses don't respond to the alarm within 30 minutes, the alarm escalates to her.

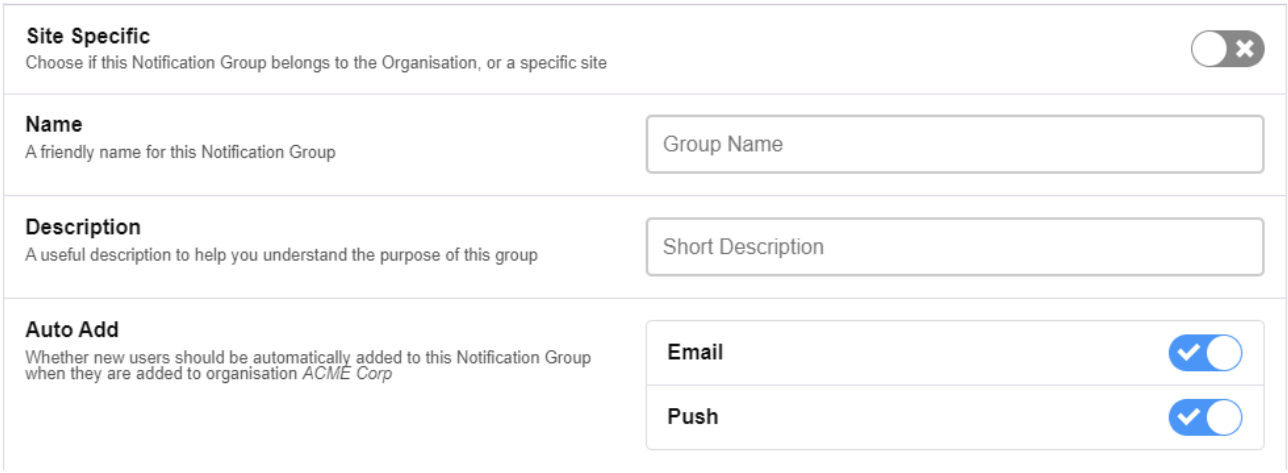
Managing notification groups



Click on the Settings menu item to open the Settings panel.



Adding a new notification group



Site Specific

If this group will be limited to a specific site, slide the switch and select a site.

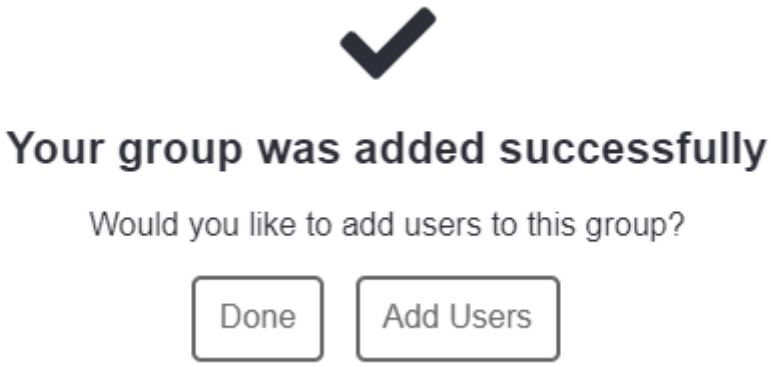
Name and Description

Give the group a name. The description is optional.

Auto Add

Select what happens when a new user is created.

For example, in the screen above, if a new user is added to the organisation they will automatically be added to the notification group and receive both email and phone notifications. To prevent this from happening, switch off the email and push buttons.

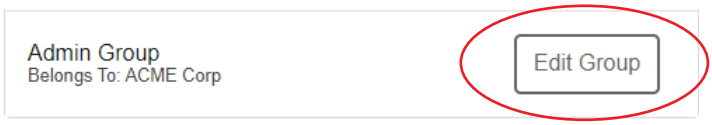


If you like, you can now manually add other users to the group. Or click **Done** to return to the group list.

Adding a user to a group

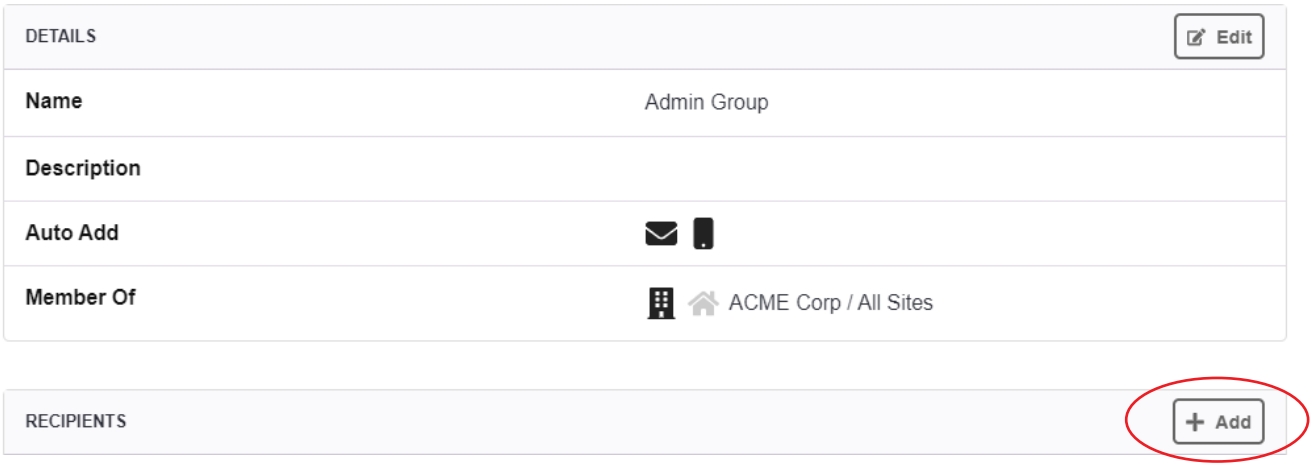
You can add users to a group at any time.

Select your group from the list and click on the **Edit Group** button to open this screen.



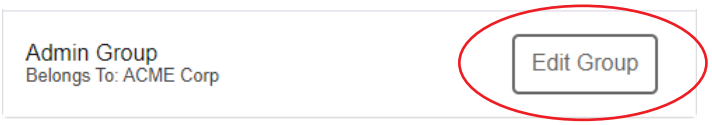
Click on the **Add** button.

Choose the user from the list and set their notification preferences. Remember that only authorised users will appear in the list.



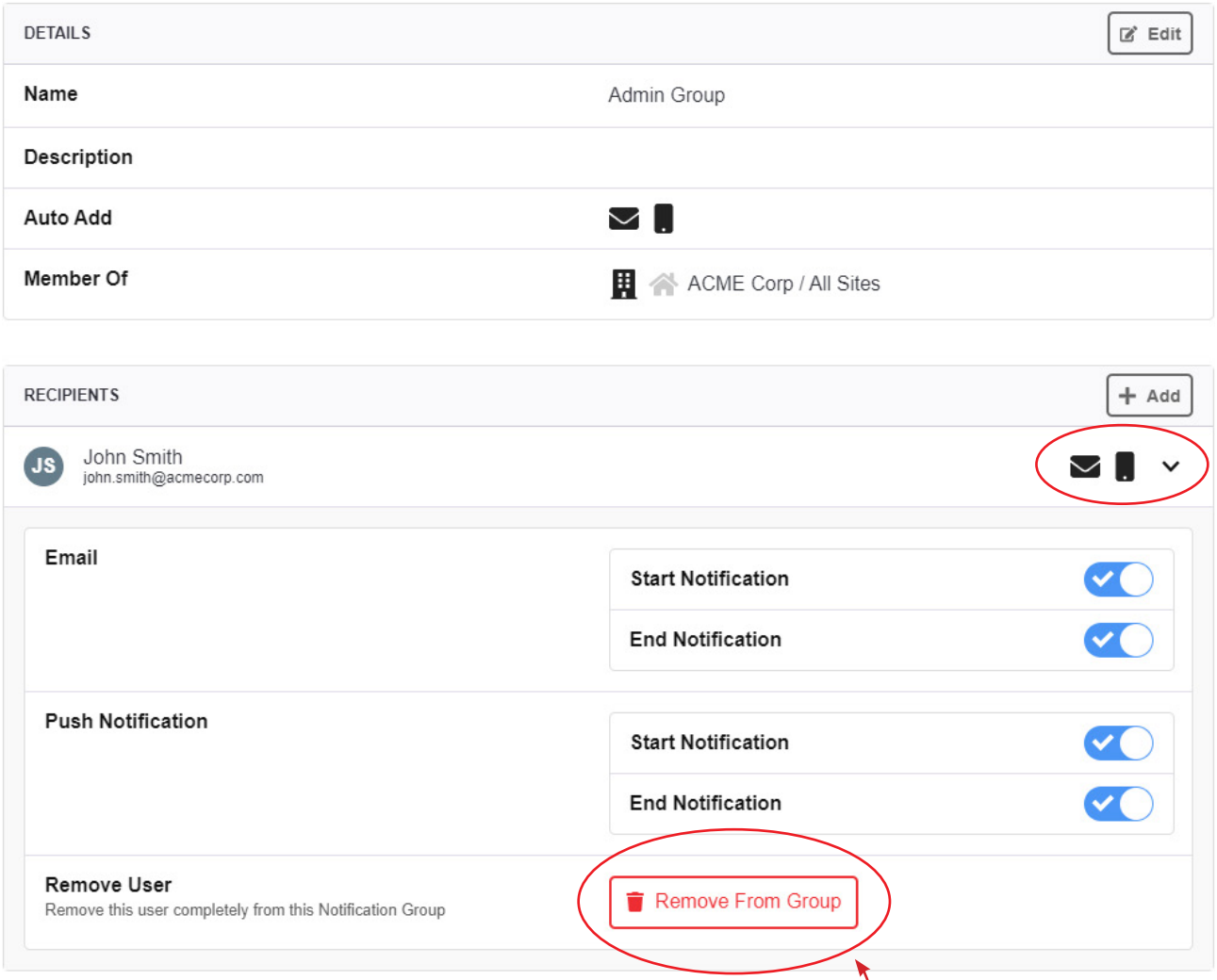
Changing a user's notification preferences

Select the notification group from the list and click on the **Edit Group** button to open this screen.



You can see a user's current preferences at a glance.

To edit them, click on the **Options** arrow (circled) and change the switches.



Removing a user from a group

Also on this screen, you can see the red **Remove From Group** button. Use this to completely remove the user from the group.

Managing Alarms

Alarm types

There are a number of different alarms types generated by Clever Logger:

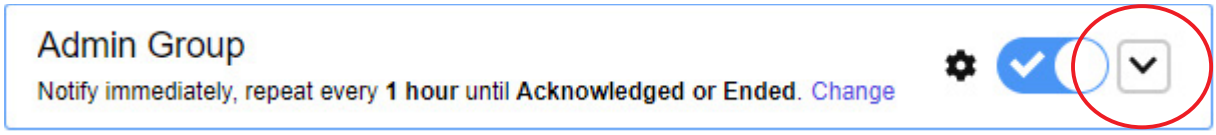
GATEWAY

Alarm Type	Symbol	Explanation
Offline		The gateway has lost its connection to the internet. This could be because the power is out or the internet is down. If the logger is connected to wi-fi, it could mean that the wi-fi router has been switched off

LOCATION

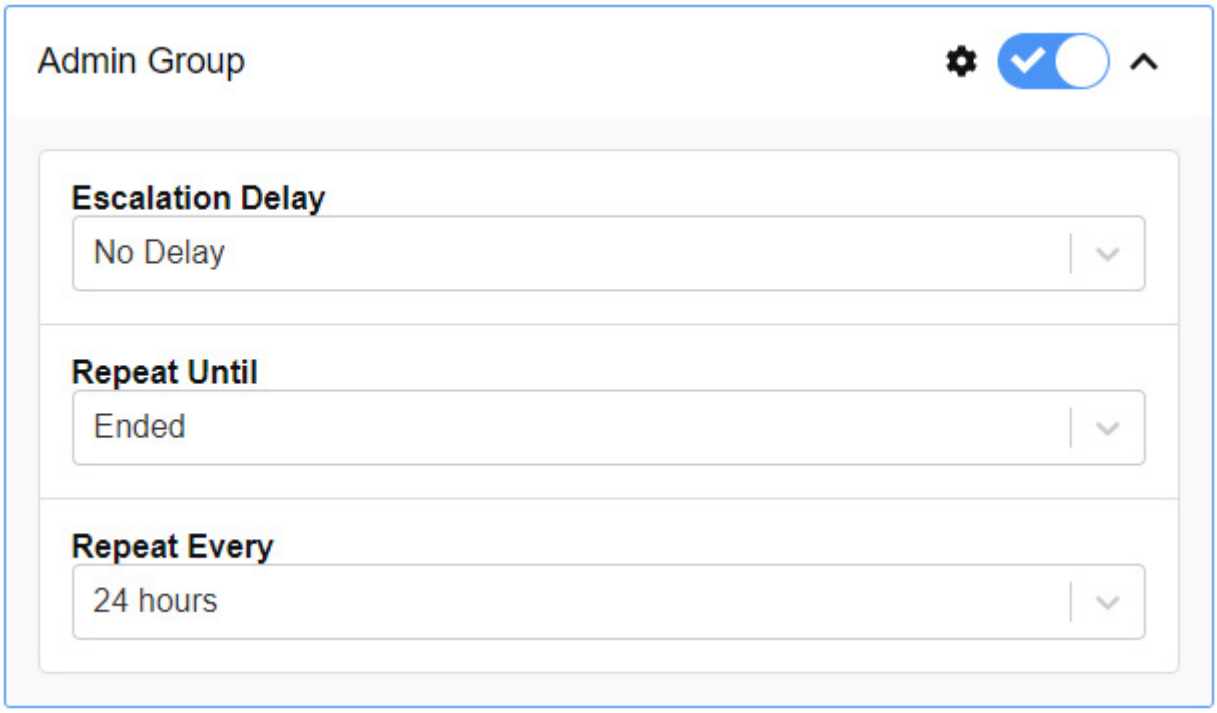
Alarm Type	Symbol	Explanation
Offline		The logger has lost its connection to the gateway. This could be because the logger is too far away or the signal is being blocked. It could also mean the logger's battery is flat.
Low Temperature		The logger has recorded temperatures below the **threshold** for a period longer than the **delay**.
High Temperature		The logger has recorded temperatures above the **threshold** for a period longer than the **delay**.
Low Humidity		The logger has recorded humidity below the **threshold** for a period longer than the **delay**. (Humidity loggers only)
High Humidity		The logger has recorded humidity above the **threshold** for a period longer than the **delay**. (Humidity loggers only)
Low Battery		The logger's battery is nearing the end of its life and should be replaced as soon as possible.

Changing how often alarm reminders are sent



All Clever Logger alarms are set to repeat (or nag) until something is done.

You can change the frequency of these reminders or disable them completely.



Escalation Delay

Set a delay before **this group** receives the first reminder.

This allows you to have one group notified immediately but escalate the notifications to another group if the first group doesn't respond.

Example: A notification group containing two nurses is set up to be notified immediately about a vaccine fridge. A second notification group containing the practice manager is created with an escalation delay of 30 minutes. If an alarm condition occurs, the nurses are notified immediately. If they don't respond with 30 minutes, a notification is then sent to the practice manager.

Repeat Until

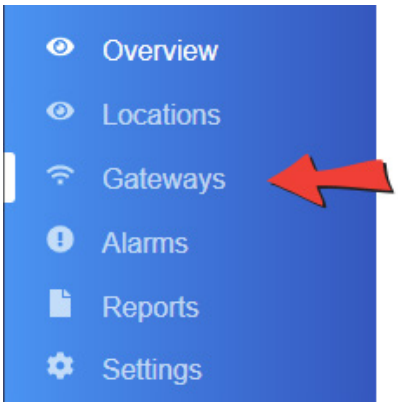
Change what will stop the repeats.

- Repeat Disabled - Turn off all repeats
- Acknowledged - The alarm is acknowledged
- Ended - The alarm condition ends e.g. a power is restored and the gateway comes back online
- Acknowledged or Ended - either of the previous things happen
- Acknowledged and Ended - both of the previous things happen
- Closed - The alarm condition ends and the alarm is closed

Repeat Every

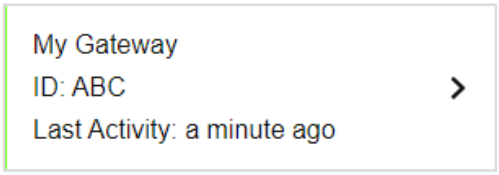
The frequency of reminder notifications.

Changing gateway alarm settings

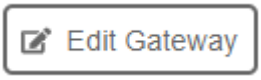


Choose **Gateways** from the main menu.

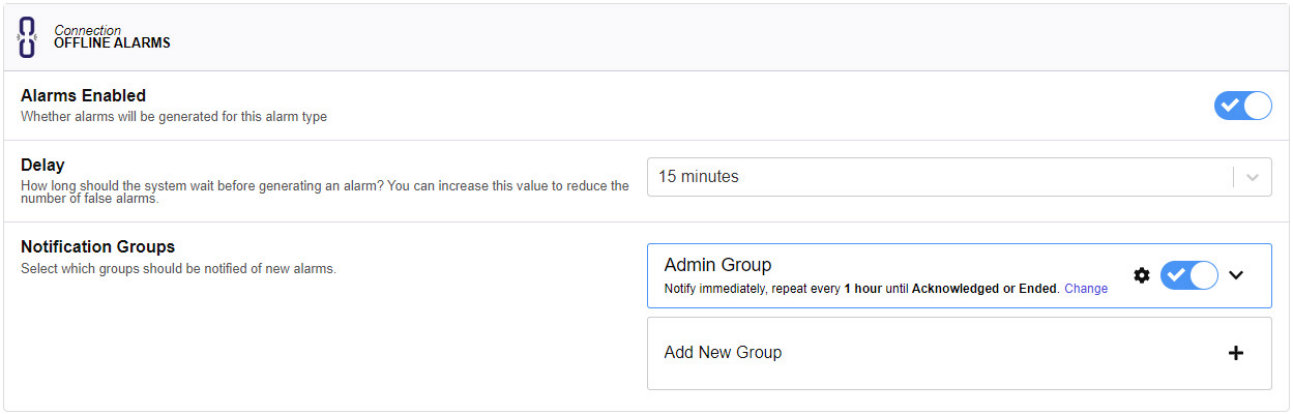
Choose your gateway from the list.



Click **anywhere in the panel** to open the gateway details page.



Click on the **Edit Gateway** button in the top right corner of the screen.



Alarms enabled

You can switch off alarms completely. For instance, if the gateway is to be switched off and not used for a while, you could switch alarms off to avoid receiving notifications. Otherwise, we strongly recommend that you have alarms enabled.

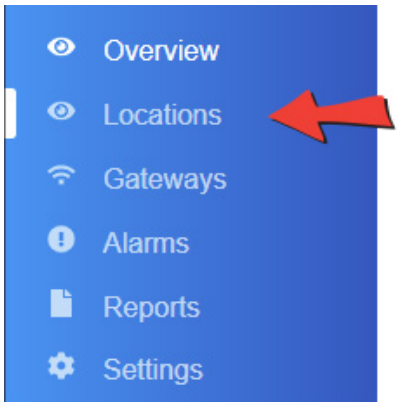
Delay

This is how long it is between when the system detects that it cannot communicate with the gateway and when it begins to send you notifications. If your internet connection frequently drops out, you may wish to set this a longer delay (say, 20 minutes) to avoid frequently offline alarms. Otherwise, we recommend you leave it as the default 5 minutes.

Notification Groups

Choose who will be notified about the alarm. Set reminder frequency (see previous page).

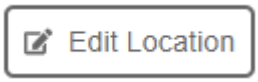
Changing location alarm settings



Click on **Locations** in the main menu.

Choose a location.

Click on the **Edit Location** button in the top right corner.



Each of the alarms can be configured individually.

Alarms Enabled

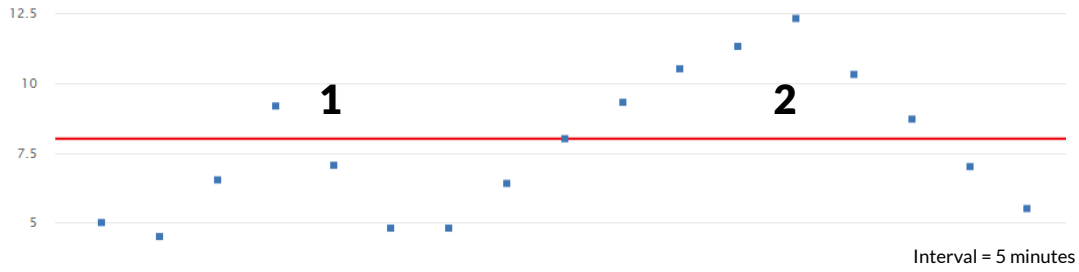
If you don't want to receive alarm notifications, you can disable them entirely with this switch.

Threshold

This is the point at which the alarm will trigger. e.g. If you set a low temperature threshold of 2°, any temperatures below this will trigger the alarm.

Delay

The delay is how many abnormal readings are required to trigger an alarm.



Example: The delay is set to 15 minutes. The first spike (1) does not trigger the alarm because it lasts less than 15 minutes. The second spike (2) triggers an alarm because the temperature remains above the threshold for more than 15 minutes.

It is generally useful to have a small delay (10 or 15 minutes) so that something like briefly opening a fridge door doesn't trigger an immediate alarm.

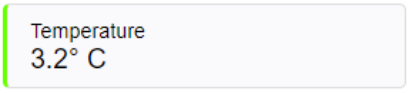
Notification Groups

Select who will be notified about this alarm.

Viewing your results

Clicking on a Location brings up the results page. Here you can see the current temperature and a graph of historical data. This section is a tour of this page.

Current temperature



This is the most recent temperature logged. It will update every few minutes.

Last Seen vs Last Log

One of the most common questions we are asked is “What is the difference between Last Seen and Last Log?”

The logger measures the temperature every few seconds and it broadcasts these readings using Bluetooth. The gateway picks up these temperatures and shoots them through to the dashboard a couple of times every minute. This is the **Last Seen** temperature.

But these temperatures are not added to the log (otherwise we’d just drown in all that data). Instead, the system waits and only adds a temperature to the log at a set interval. This is generally every five minutes, but you can set it specifically by editing the location and changing the Log Interval. This is the **Last Log** temperature.

Viewing the graph

By default, you will see a graph of the last seven days of data. But you can change this view in various ways.

Above the graph you will see these three buttons.

Options button

Telemetry Type - Choose between Temperature, Humidity (for humidity loggers only), and Signal Strength

Timezone - By default, the graph will show times relative to your current time zone. If you are viewing data from a logger in another timezone, you can change this setting so that the times you see are the same as someone in that zone.

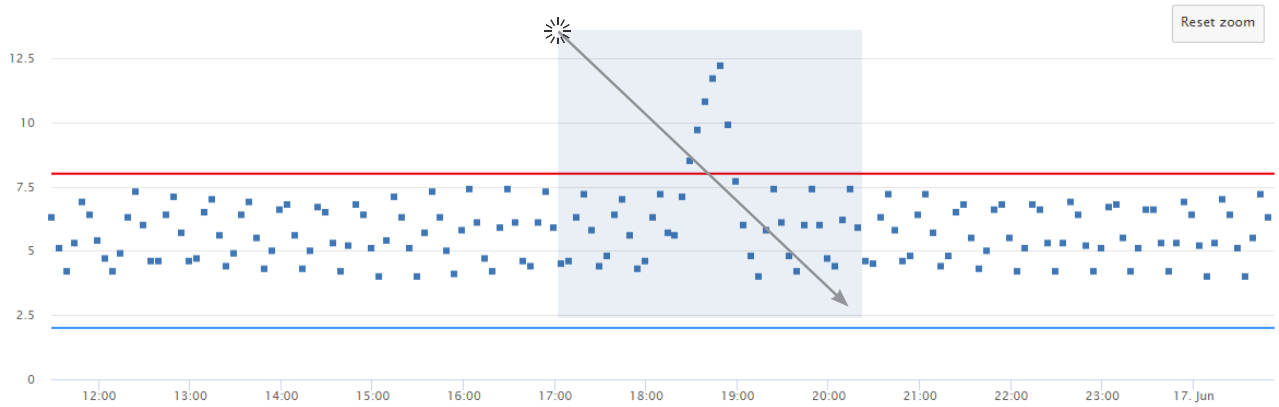
Date Range - Choose from a range of preset date ranges, or select **Custom** to set your own. (Bear in mind that selecting a large date range will take longer to display as more data must be retrieved from the database.)

Graph/List toggle

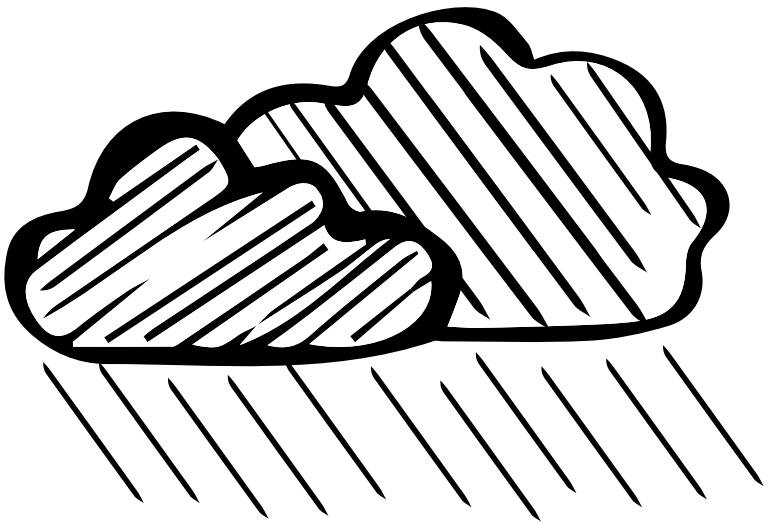
Switch between seeing the data displayed as a graph and a list.

Zooming in and out on the graph

To zoom in on the graph, place your mouse at the top left of the area you would like to zoom in on, click, and drag to the bottom right.



To zoom out again, click the **Reset Zoom** button.



03
TROUBLESHOOTING

Gateway is offline

Gateway has never been connected

If you think your gateway should be connecting but it's not, there may be settings on your network that are preventing it. Check out the **Information for IT departments** in **Appendix 1**.

If you get stuck, call us on 130 80 88 89.

Gateway was connected but is now offline

Check the power

It's amazing how often this is the problem. Someone has unplugged the gateway to charge their phone. Always the first thing to check.

Check that the power is on by looking for a red light inside the gateway.

Reboot the gateway

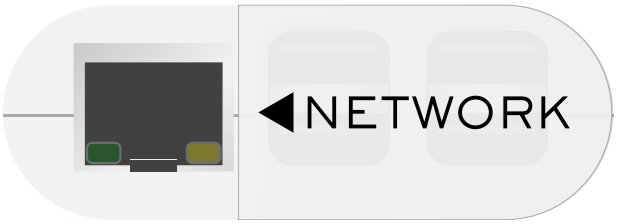
The gateway is basically a mini computer so, if it's playing up, a quick reboot will often fix the problem. Simply pull the power cord out and put it back in, or turn the power off and on at the switch.

Check on the dashboard to see if the dashboard comes back online.

Check the internet connection

Ethernet

- Follow the cable from the gateway to the wall port to check it is securely plugged in.
- Check the lights on the gateway's network port. If there is "traffic" on the network (i.e. if the gateway is receiving or transmitting data), you should see one of the lights flickering.



Wi-Fi

- Check that the wi-fi connection is active. Can you connect to it on your phone and then open a web page? Sometimes the router might need a reboot.
- Has the wi-fi password changed?

Ask your IT department

Sometimes IT people change settings or tighten security and these changes cause the gateway to drop offline.

There is information about Clever Logger's requirements in the **Information for IT departments** in **Appendix 1**.

Logger is offline

The gateway is expecting to hear from the logger regularly. When it doesn't receive data from the logger for a certain amount of time (which you can configure), it generates an offline alarm.

This failure in communication will be caused by one of three things:

1) The logger is too far from the gateway

The logger and the gateway use Bluetooth to communicate. Theoretically, Bluetooth has a range of 100m but, in real life, it is much less. We recommend that, wherever possible, you have the gateway in the same room as the logger.

To check whether the problem is due to signal strength, take the logger and place it right next to the gateway. Within a few minutes, the logger should be visible in the dashboard.

If the logger and gateway still can't communicate when they are only a short distance apart, then the problem is something else.

2) The logger is off or its battery is flat

Look closely at the logger. If it is functioning correctly, the **In Use** light will briefly flash red every **10 seconds**.

If there is no flashing light...

If the logger is new, it may not have been started yet. Press and hold the power button for 5 seconds until the red light comes on. Check again for the In Use light flashing every ten seconds.

If the logger has been logging for a while and has stopped, the battery may be flat. Logger batteries should last at least 18 months (although we recommend you change them every 12 months), however, occasionally we come across batteries that go flat sooner than that.

See How to change the logger battery in Appendix 2

3) The logger is faulty or damaged

If the logger is switched on and right next to the gateway, and the red In Use is flashing but we still can't see it in the dashboard, we'll assume the logger has failed for some reason.

Call us to organise a replacement.

Information for IT departments

Clever Logger will 'just work' on most networks, however on some corporate networks, you may need to get your I.T. team to configure some settings to allow it to work through the firewall.

The below information should help, or they can call or email us if they have any other questions.

Firewall Considerations

Clever Logger gateways need **HTTPS** access to the Clever Logger servers, as well as **NTP** access to accurately get the time. Please refer to the table below for a list of domains that need to be accessible. You can use the 'Run Connectivity Test' functionality of the Clever Logger app if you are having issues getting the Gateway connected to the internet.

Note: it is preferable that you use a domain name for a firewall rule, not a specific IP address, as the IP addresses associated with these domains will change dynamically

MAC Address

The Wi-Fi and Ethernet MAC addresses of your Gateway can be found via the Clever Logger web app, in the Gateway details screen, or via the mobile app

Ethernet

- **100Base-T** and **Gigabit**
- **Power Over Ethernet (POE) adaptors** are available. The device does not directly support POE. The external adaptor is relatively small and compact, and was the most cost effective way of providing POE. An inbuilt POE option was considered but was much more expensive and added to the size of the gateway.

Wi-Fi

- **Frequencies:** 2.4GHz and 5GHz 802.11.b/g/n/ac
- **Protocols:** WPA and WPA2.
  NOTE: WEP, WPA-Enterprise, and hidden networks are **NOT** currently supported.

Wi-Fi is probably the most challenging aspect of rolling Clever Logger out across so many sites. We currently support about 99% of sites without any issues. For the occasional 1%, we can make two offers:

1. We will have a software developer work with you to make the gateway work with your wi-fi. In some cases this has taken a while to work out what was the issue on site and to develop a solution. Once we fix the issue it becomes part of the standard product.
2. We refund your money.

NTP

The Clever Logger gateway requires **NTP** to sync the time. It will first attempt to use your own local NTP servers (information supplied via DHCP), and if that fails it will attempt to contact the NTP domain listed below.

Ensure that your NTP is available to the gateway. In some sites the NTP was behind the firewall and blocked to the gateway.

Domains

Following are the list of domains that Clever Logger currently needs access to.

Domain	Details	Notes
api.cleverlogger.com	HTTPS - TCP Port 443	Will be made redundant soon
mender.cleverlogger.com	HTTPS - TCP Port 443	Will be made redundant soon
mender-s3.cleverlogger.com	HTTPS - TCP Port 443	Will be made redundant soon
timehtp.cleverlogger.com	TCP port 80 (HTTP), UDP port 123 (NTP)	Will be made redundant soon
gateway.prod.temperatureapi.com	HTTPS - TCP Port 443	
updates.prod.temperatureapi.com	HTTPS - TCP Port 443	
downloads.prod.temperatureapi.com	HTTPS - TCP Port 443	
time.prod.temperatureapi.com	TCP port 80 (HTTP), UDP port 123 (NTP)	

Firmware updates

The loggers (the actual devices in the fridges) do not have OTA upgradable firmware and can not be updated.

The gateway can be upgraded automatically by us. We target which gateways will be upgraded. Our rollout process is typically in stages:

- roll out to our beta test sites to ensure stability
- progressively rollout to all sites over a number of days (or weeks) to ensure that any problems are picked up before a full rollout

It is possible to remove a site from the automatic upgrade cycle, but our preference is to have all gateways running on the latest version of firmware.

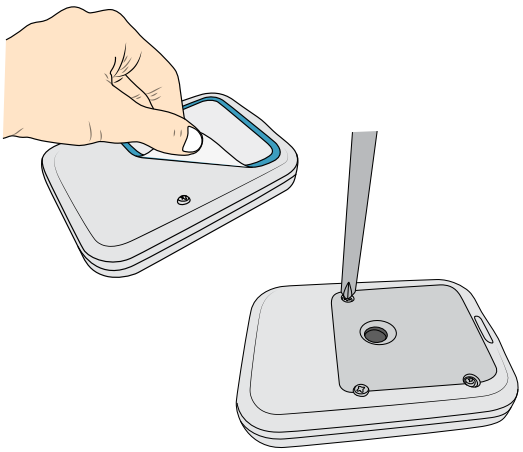
Security

We have an article specifically on the security aspect of Clever Logger at https://cleverlogger.com/how-secure-is-clever-logger/

Basically:

- Only temperature data is transmitted from our loggers to the gateway via BLE. This poses no security risk to your network.
- Only temperature data is transmitted from our gateway to our cloud based server, and configuration data such as sampling rate is sent from the server to the gateway, and uses HTTPS.
- Using options like a VPN allow you to totally isolate our gateways if required.

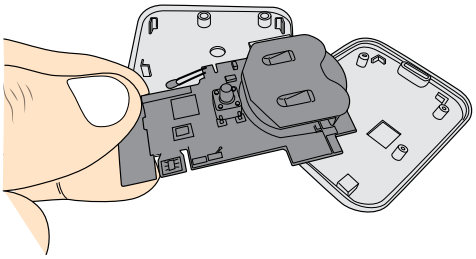
How to change the battery in a logger



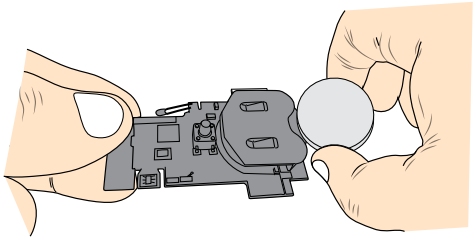
CLT-01, CLX-01 and CLD-01 models

Slip a flat blade under the front sticker and carefully peel it off.

Remove the four Philips head screws and set them aside.

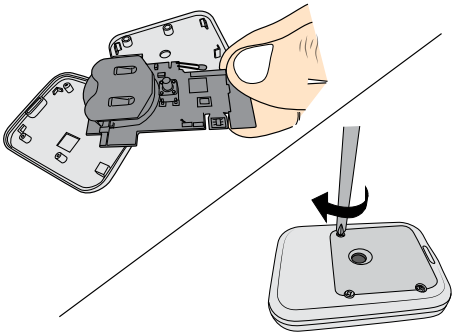


Remove the circuit board.

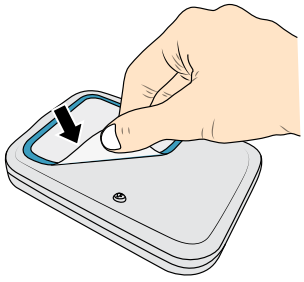


Replace the battery with a new **CR2450** battery.

Choose a good quality brand.



Return the circuit board to the logger, replace the cover and screw it down.



Replace the sticker.

CLH-01, CLX-01 model

The process is basically the same, except the screws are on the back, not under the sticker.

CLEVER LOGGER

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