

2040 Thermal camera user manual

v1.0

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1 Safety

The 2040 Thermal Camera is designed for safe outdoor use. However there are a few precautions you should take when using the camera and some simple maintenance to extend its operating life.

If using mains power then please use an residual current device (RCD), such as [this](#)



Also use a [lead safety box](#) for connecting any extension cord to the power supply and ensure placed in a position where water will not pool.



Waterproofness

The camera is waterproof and designed to operate in heavy rain. Please do not try to operate it underwater.

The following steps will help ensure that the camera remains watertight.

1. From time to time check that the 4 screws on the face of the camera are tight.

2. Make sure the power connection coupling ring is tight each time you connect it (by turning it clockwise).



3. If you notice that the power socket, reset switch or pressure vent are loose then - in a dry space - disconnect power, unscrew the 4 screws on the lid of the camera and tighten the internal nuts for the loose part with a spanner. Secure the lid, ensuring the 4 screws are tight.
4. If you noticed the plastic covering over the lens has come loose or is damaged then please stop using the camera and contact support@2040.co.nz for instructions on how to have the camera repaired.
5. Inside the camera are silica gel sachets, which will absorb small amounts of water that may enter the camera body. If they become more than 60% saturated they will permanently change colour to green. From time to time in a dry location, disconnect the power, unscrew the 4 screws from the lid of the camera, remove and inspect the silica gel packets to make sure they are orange. If they are green then stop using the camera and contact support@2040.co.nz for instructions on how to proceed. Secure the lid, ensuring the 4 screws are tight.



6. When transporting, please ensure the end cap on the power supply and power socket are connected - to prevent the electrical connections from getting wet.

Battery safety

[To do when battery is available, estimated August 2019]

2 Introduction

The 2040 Thermal Camera is designed to automatically record and detector predators. It is more sensitive than other methods, more cost effective and requires less labour.

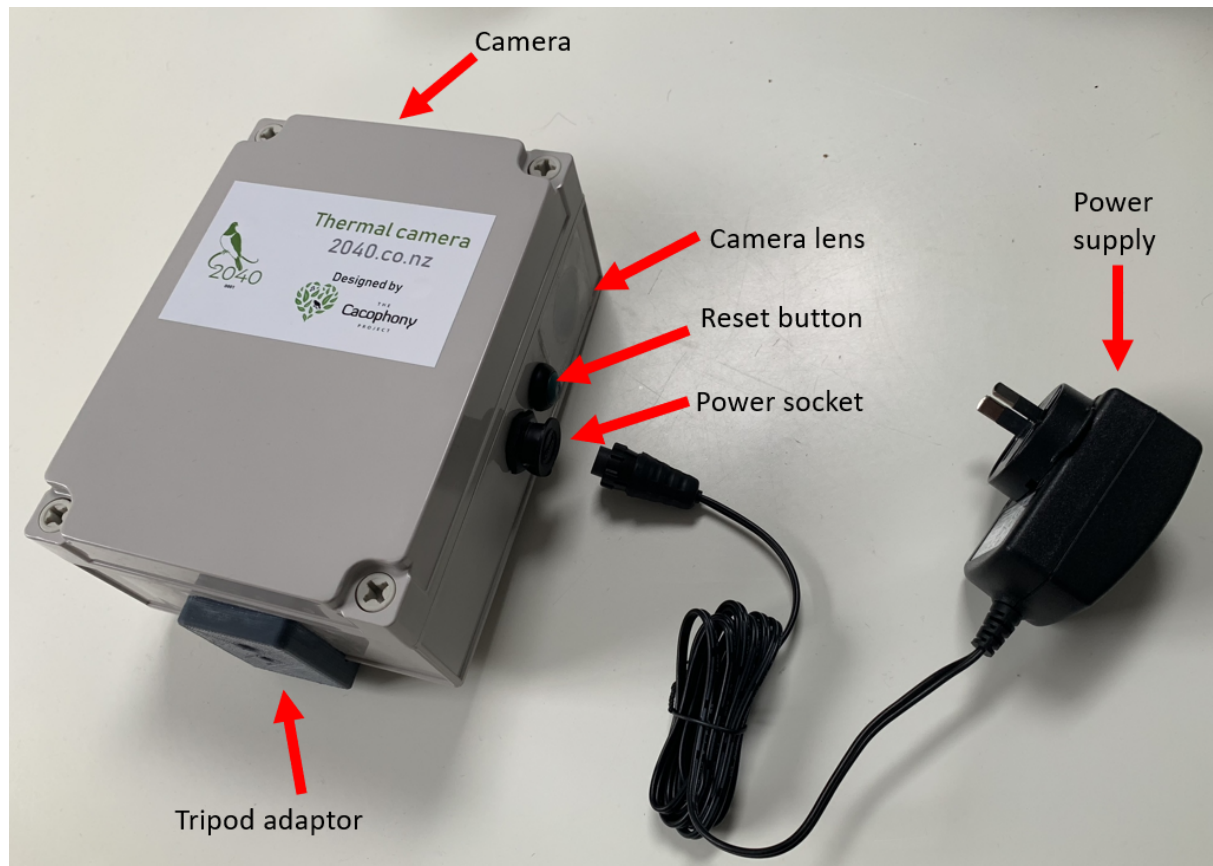
The Thermal Camera is designed by The Cacophony Project, a non-profit organisation whose mission is to develop technologies to eradicate predators from New Zealand. The Thermal Camera is manufactured and supported by 2040 Limited, a social enterprise whose mission is:

- To use the technology developed by The Cacophony Project to eradicate all predators of native birds in New Zealand by 2040.
- To make the technology available to similar projects globally
- To financially support The Cacophony Project

Thermal video recordings are made when movement is detected, stored locally and uploaded to the Cacophony servers, where they are analysed using machine vision algorithms to determine what, if any predators were present in the videos. You can log onto the Cacophony Portal, view and download the videos, add your own tags and notes and see summaries of the data.

3 The parts of the system

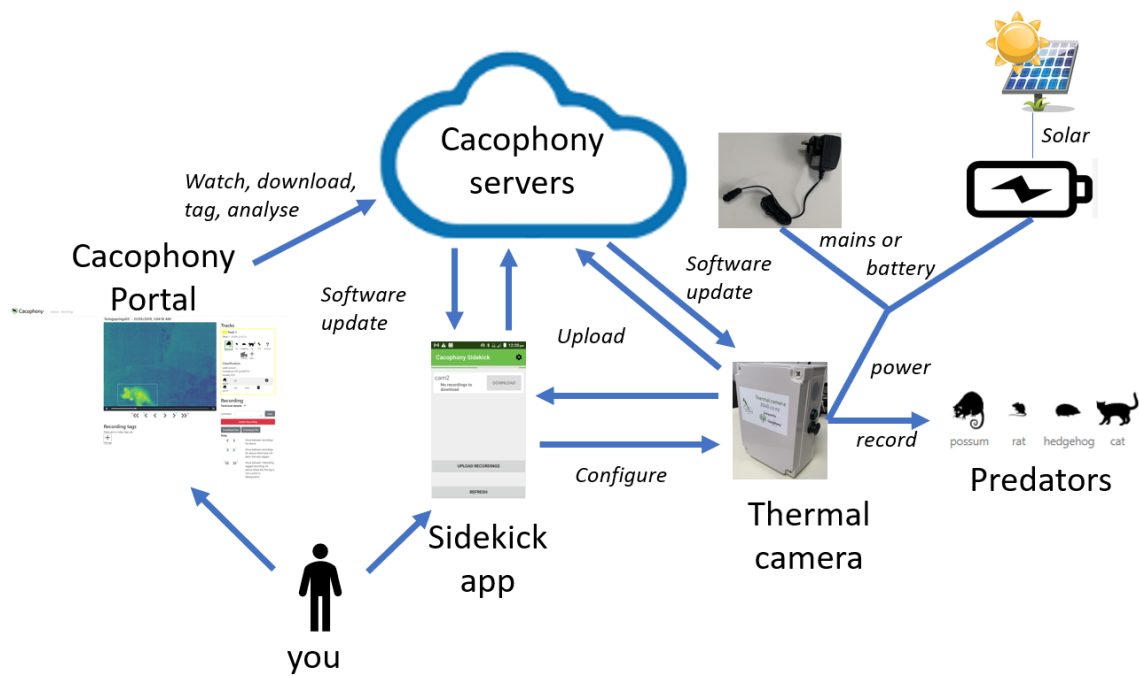
The box comes with the thermal camera and an AC power supply.



The camera can be powered by a battery (sold separately) - which is charged by an AC charger or by solar (coming soon).

The recorded videos are uploaded either directly to the Cacophony servers if the camera has a mobile or WiFi connection, or via the Sidekick app on a mobile phone, which in turn uploads the videos to the Cacophony Project's servers when it has a mobile or WiFi connection. The Sidekick mobile app is also used to configure the camera. The Cacophony Portal is used to watch, download, tag and analyse the videos.

Software updates are delivered from time to time to the camera and the sidekick app.



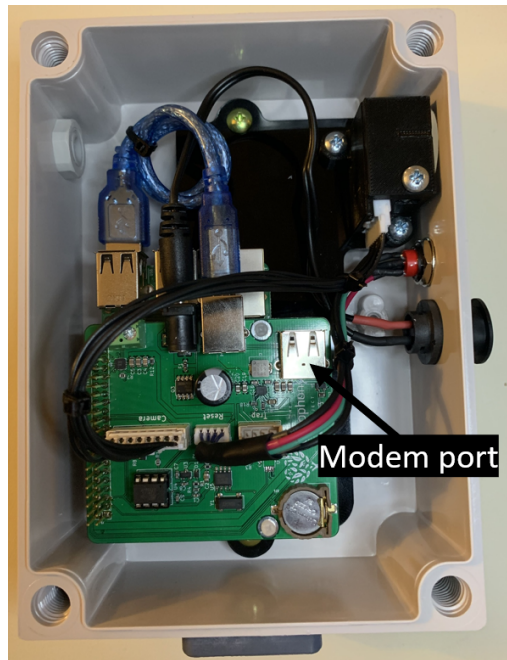
4 Setting up the camera

These are the steps for setting up the camera. You should do this when you first receive the camera in your home or office. Each of these are described in detail below.

1. Installing a modem (optional)
2. Attaching to a tripod
3. Connecting power
4. Create an account
5. Create a group
6. Install the sidekick app
7. Set up the bushnet hotspot
8. Open the management interface
9. Create a camera name and associate with a group
10. Confirm the camera is working
11. Connect to your local WiFi
12. Set the location
13. Test an upload

4.1 Installing a modem (optional)

If the area where you will be monitoring predators has mobile network coverage and your camera does not already have a modem then you can install one simply by unscrewing the 4 screws of the lid of the camera and plugging the modem in the USB slot as shown. Secure the lid, ensuring all 4 screws are tight. Note the modem does use significantly more power. If you are using a modem and powering your camera with a battery, the battery will need to be changed more often.



4.2 Attaching to a tripod

The tripod adaptor is located at the bottom of the camera and contains a hole to screw a tripod plate to and an alignment hole. Screw the tripod plate to the bottom of the camera and then attach to the tripod (sold separately).



The camera is not particularly sensitive to height at which the tripod is set, but we recommend about 1 meter off the ground for best results. We recommend securing the tripod legs with pegs to reduce the likelihood of the camera being blown over by wind.

4.3 Connecting power

1. Remove the end cap from the power socket and the power plug.
2. Align the notches of the plug and socket and insert.
3. Rotate the coupling ring clockwise to secure and waterproof the connection.



4. Turn the power on - the light on the reset button will start to flash.

4.4 Create an account on the Cacophony Portal

If you already have an account you can skip this step and log into the Cacophony Portal using your username and password.

1. Open a browser and go to <https://browse.cacophony.org.nz/>
2. Click on the register button on the top right

 Cacophony



3. Create a username and password and fill in your email

 Cacophony

Login Register

Register

Username

Email

Password

Minimum password length is 8 characters

Retype password

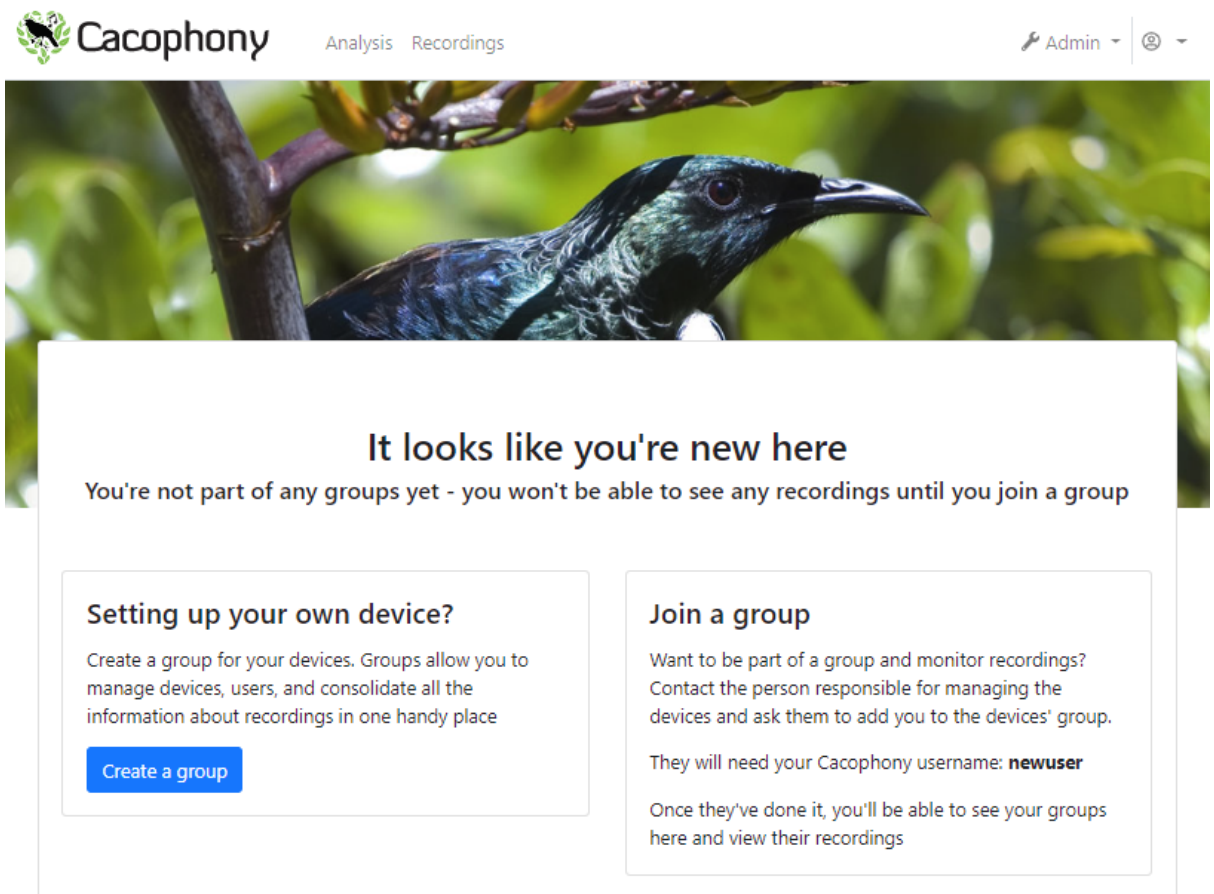
Register

4.5 Create a group

Groups are used to manage access to devices such as Thermal Cameras and [Bird Monitors](#). You must create a group for your Thermal Camera to be assigned to, even if you only have one device.

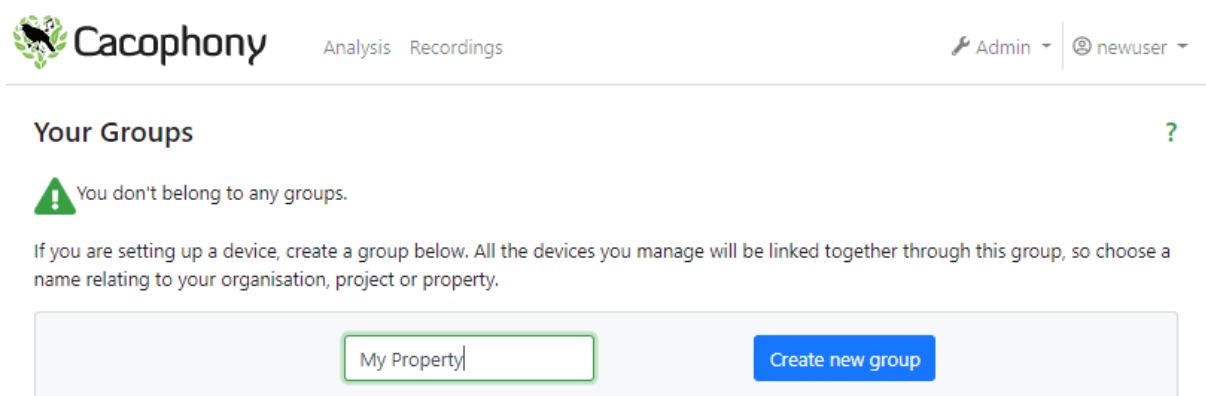
If you already created a group that you would like to assign your camera to then you can skip this step. Otherwise create a group by either:

- clicking on the “Create a Group” button if you don’t have any groups



- Or selecting Groups from the Admin menu on the top right.

Type in your group name and click on the “Create new group” button.



The screen you see now see allows you to manage your groups and give others access to the recordings associated with groups this is described in more detail in [7.8 Giving others](#)

[access to your recordings.](#)



Analysis Recordings

Admin

newuser

Group: My Property



Users



User Name	↑↓	Admin
newuser		true

Add user

☐ Admin?Add user to group

Devices



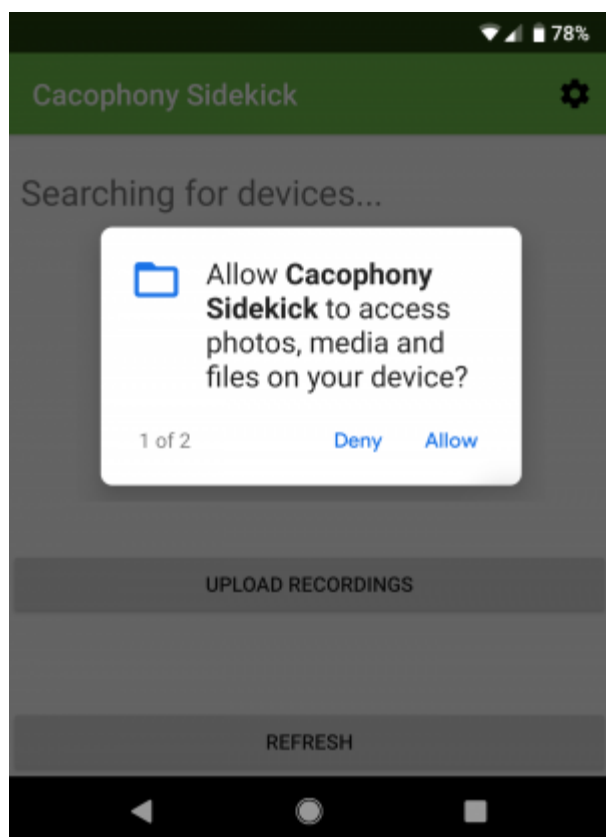
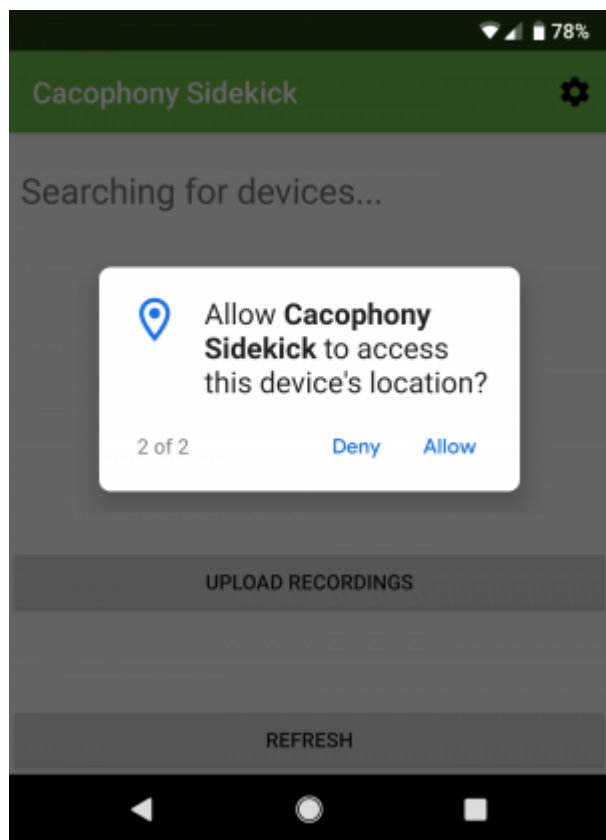
Device Name	↑↓
-------------	----

4.6 Install the Sidekick app

You use the Cacophony Sidekick app to test and configure the camera. This app can also be used to download the recordings if your camera doesn't have a modem or WiFi connection. If you have already installed the Sidekick app on a phone then you can skip this step. Otherwise you will need to install the app on an Android phone. Currently this app is not available for iPhones. If you would like this then please email us at support@2040.co.nz to help us prioritize the development of an iOS app.

Sidekick is available on the Google Play Store. To install it open the Play Store app on the Android device and search for "sidekick cacophony". Sidekick should be the first listing. Alternatively, the app can be installed via this [link](#).

Once Sidekick is installed, open it up. The first time it is run you will be asked to give Sidekick various permissions. Click "Allow" for each permission so that Sidekick can operate correctly. Sidekick needs access to the device's location because this is shared with the camera. It needs access to the media so it can store recordings from the camera and upload them to the Cacophony Project's servers.



A login screen will appear next. Enter your Cacophony Project username and password here, or if you don't have an account yet use the Register button to create yourself an account.

4.7 Set up the bushnet hotspot

Sidekick initially connects to thermal cameras via a local WiFi hotspot connection called bushnet. If you have set this up previously then just activate it now.

For some Android phones Sidekick can automatically set up the hotspot for you - it will show you a prompt. For others you will have to set it up yourself. In order to set up your Android device for this, enter the Settings app and locate the hotspot settings. Ensure the hotspot is configured with the following settings:

Hotspot Parameter	Value
Name	bushnet
Security	WPA2 PSK
Password	feathers

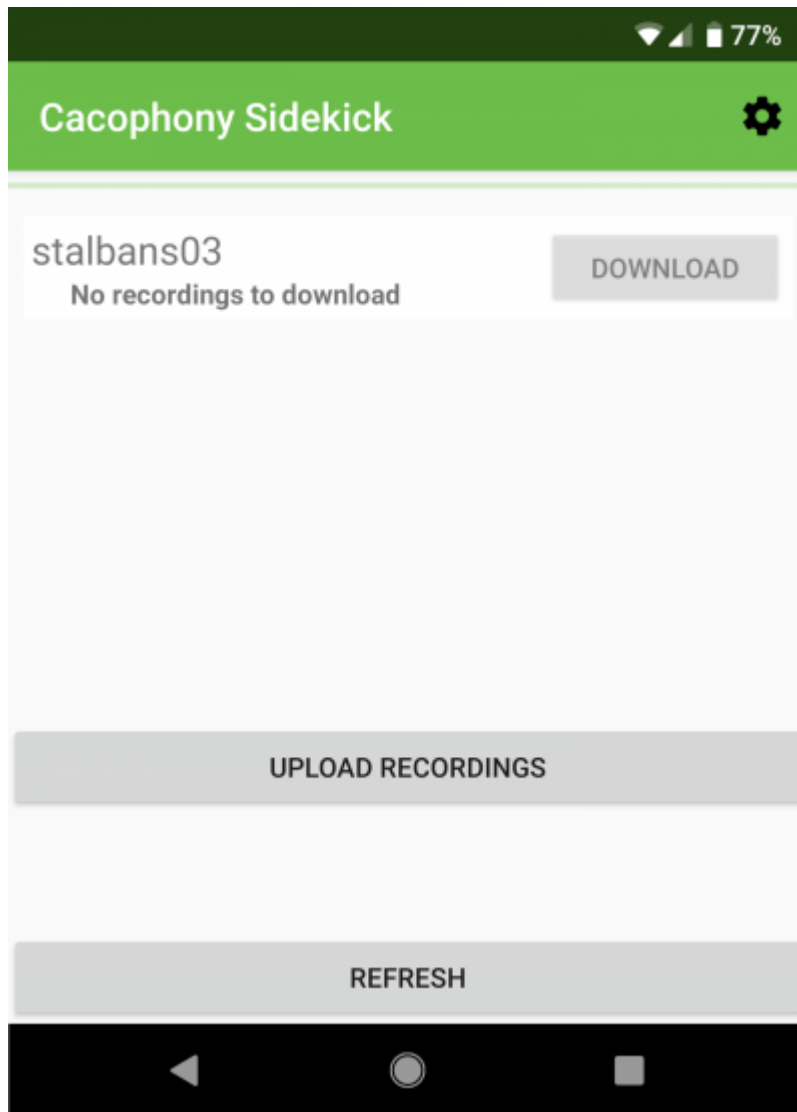
Important: The hotspot needs to be activated whenever Sidekick needs to interact with Cacophony Project thermal cameras, unless you have connected the camera to a WiFi network that your phone is also connected to.

4.8 Open the management interface

The SideKick app is used to connect to the camera and open the camera management interface. From this interface you can configure the camera and test it is working.

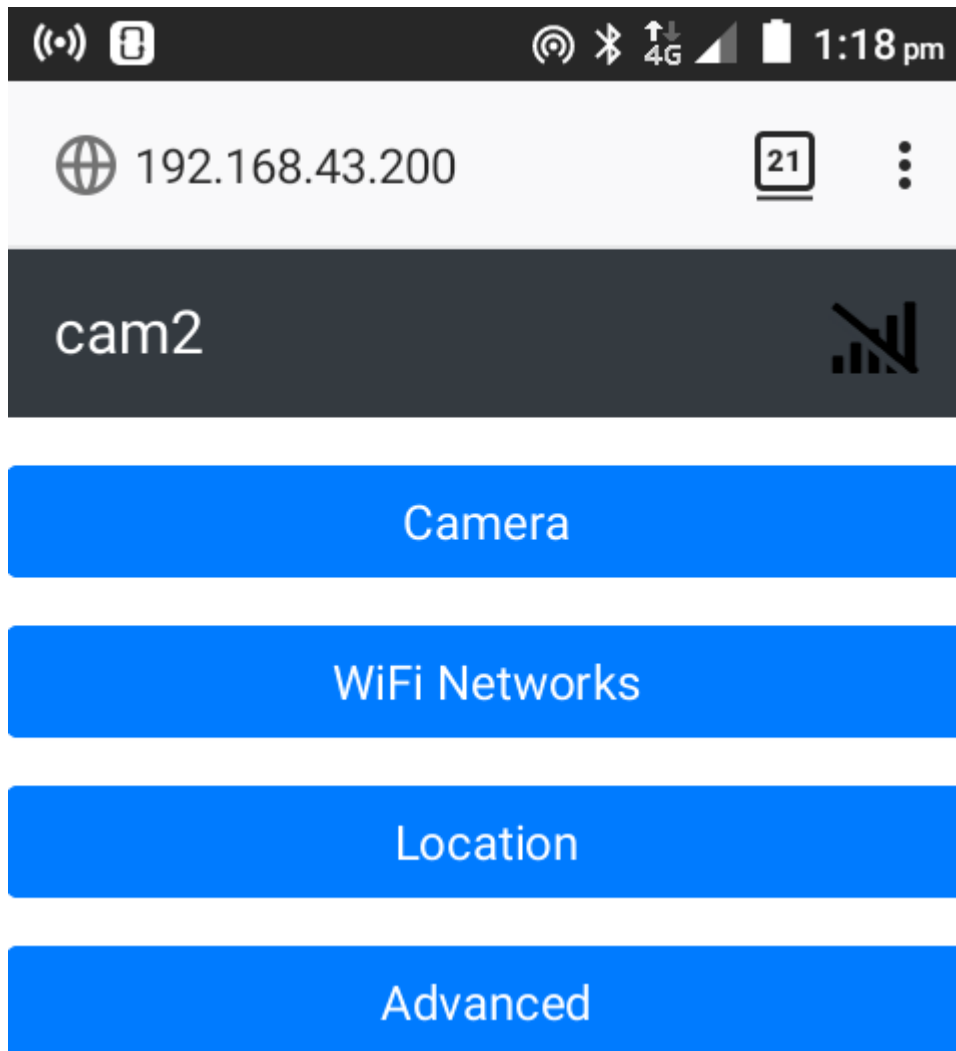
- Ensure the hotspot is active on your Android phone.
- Ensure the camera is powered on. If the camera is configured to only turn on at night (the default configuration) it will turn itself off 20 minutes after being turned on during the day. If the camera might have turned itself off, press the reset button - when the light starts flashing in a slow heart beat pulse it is ready to connect.
- Open the Cacophony Sidekick app on your phone.
- Wait a few seconds for the camera's name to appear in Sidekick. If the camera has not been named yet then this will be shown as [no name]. Click the Refresh button if

the camera has not been detected within a minute.



- When the camera name appears, tap on the name.
- The phone's web browser app will open and show the camera's management screen. Depending on the web browser installed on your phone, you may have to click an

"Open Now" button in order to see the management screen.



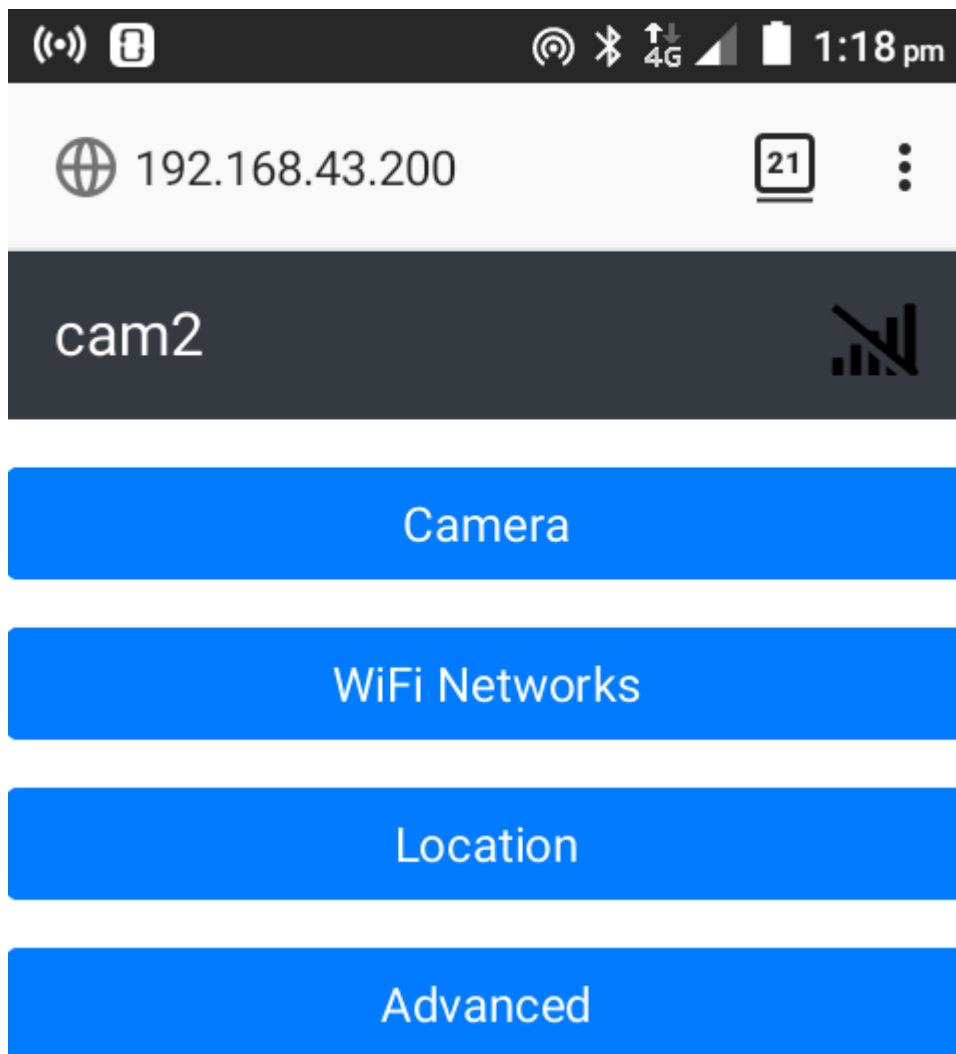
4.9 Input the name and group into your camera.

[The software to enable this isn't finished yet, for now - after you have set up a group in the Cacophony Portal let us know what the group name is and what you'd like your camera to be called - you will need to do this before we send you the camera.]

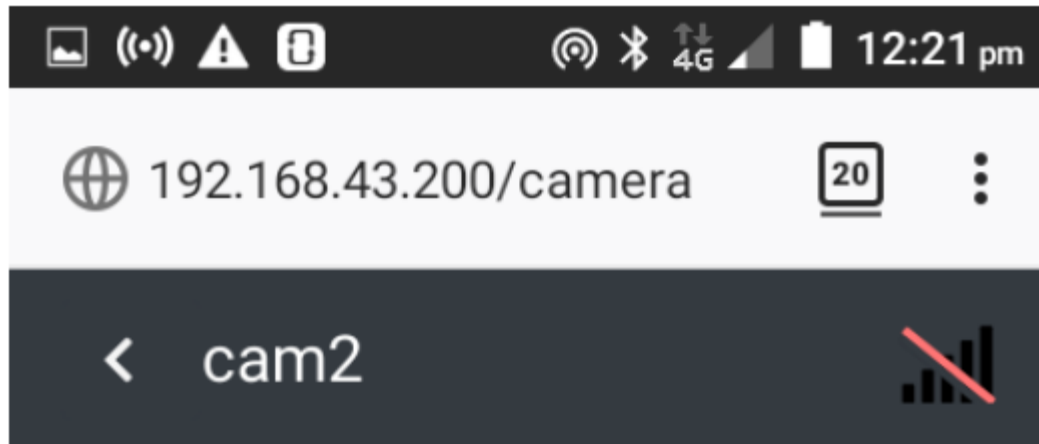
4.10 Confirm the camera is working

You can view the live camera stream from the management interface. This is useful to confirm everything is working and to position the camera when you are setting it up to record predators.

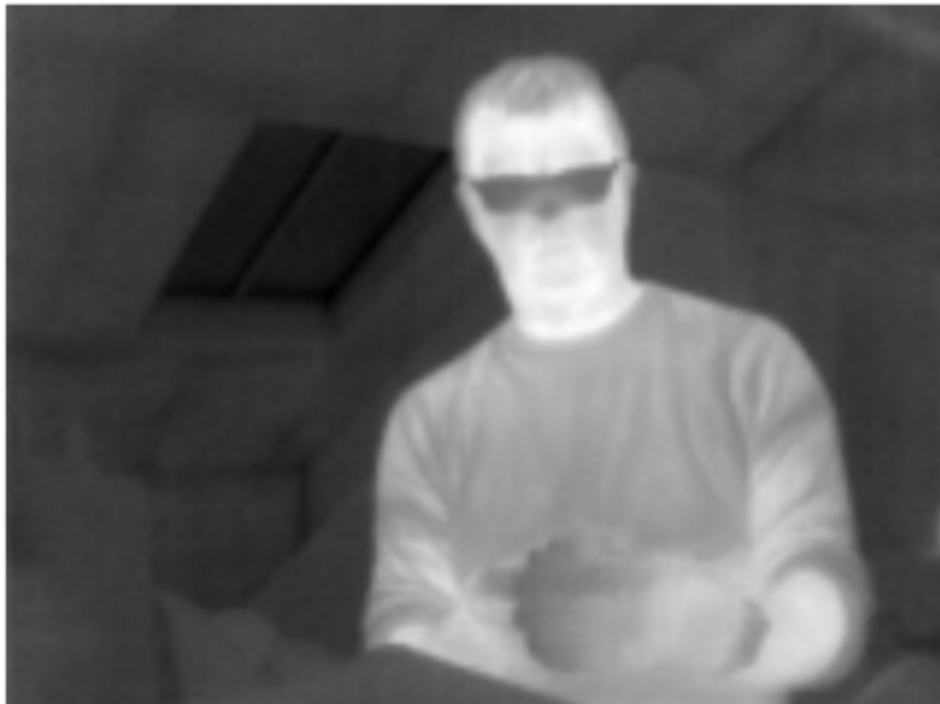
- Open the management interface.



- Click the "Camera" button and a live view from thermal camera should appear. This confirms that the camera is working.



Camera



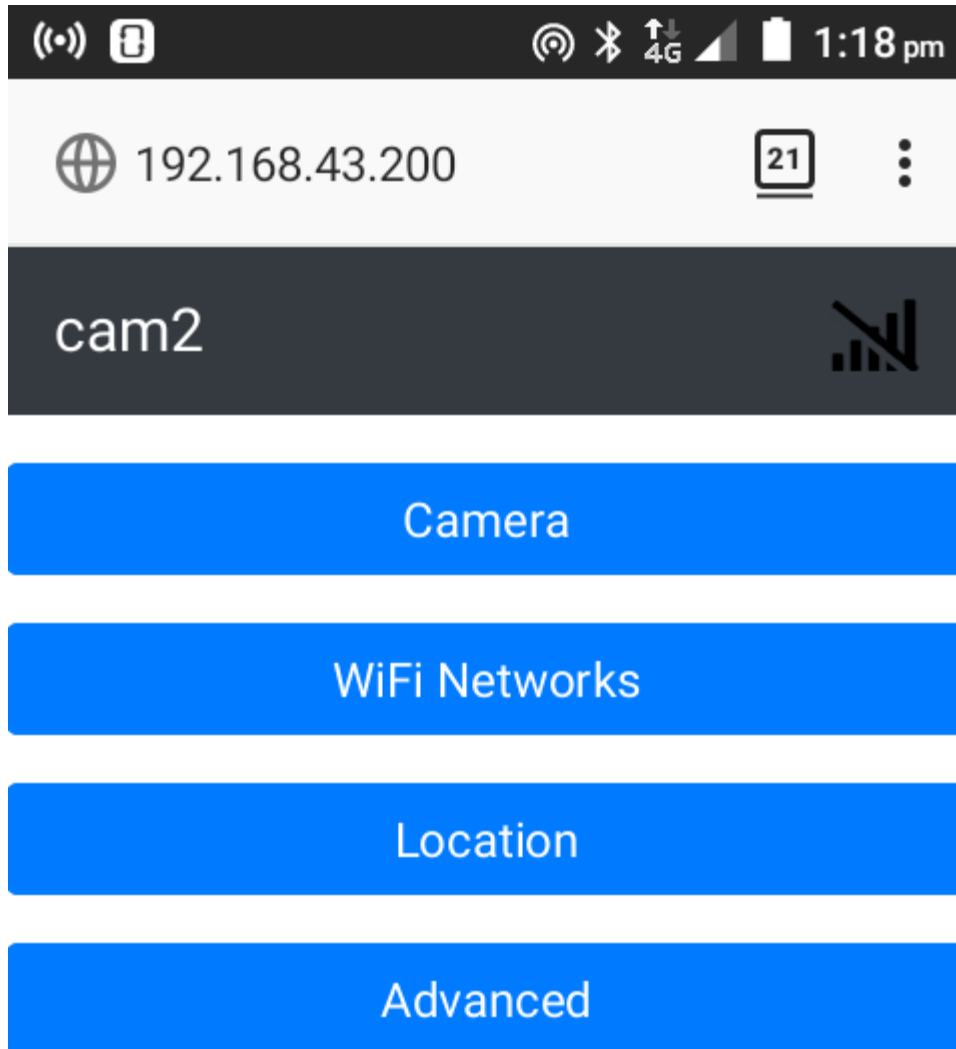
4.11 Connect to your local WiFi

The camera can connect to WiFi networks. If the camera is going to be within range of a WiFi network, and is configured to use it, then it will upload the recordings it makes to the Cacophony servers that way. If the camera has been operating without a connection and is brought back within range of a WiFi network that it has been configured for, for then it will automatically upload any stored recordings.

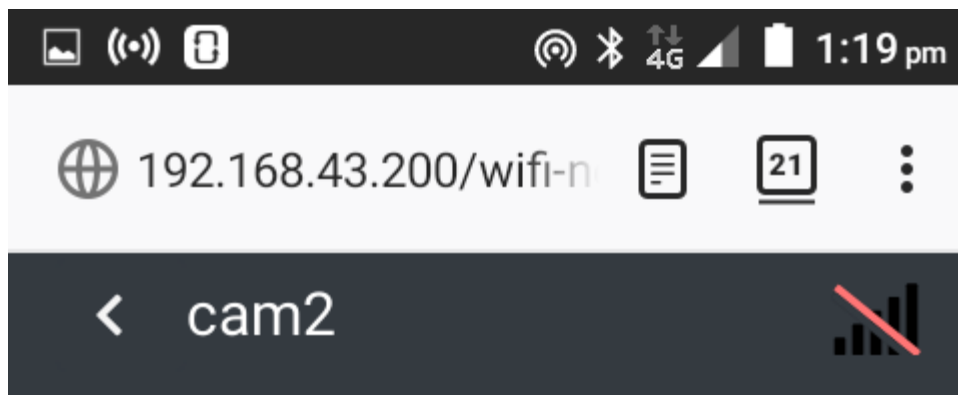
If your phone is on the same WiFi network as your camera then you don't need to turn on the hotspot to connect to it with Sidekick, it will connect via the WiFi network.

Follow these steps to connect to WiFi networks:

- Open the management interface.



- Click on the WiFi Networks button.



WiFi Networks

Add a Network

Network Name (SSID)

Password

Add Network

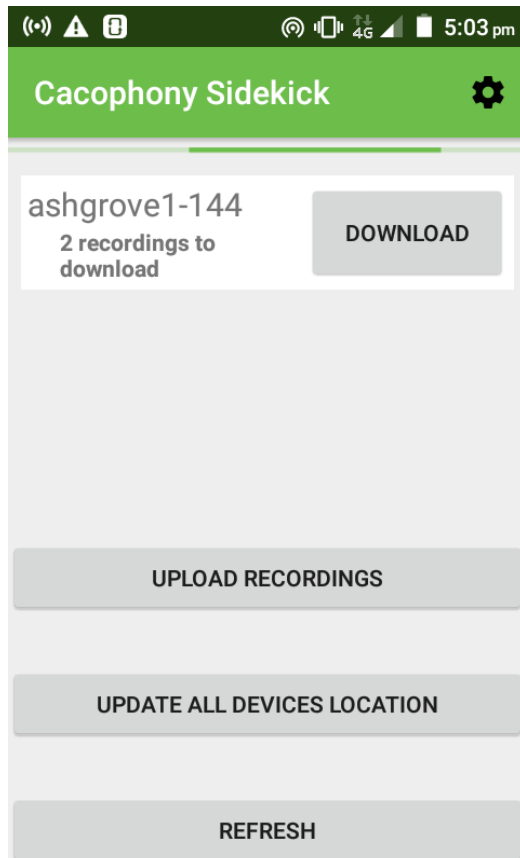
Current Networks

- Type in your Network Name and Password and click the Add Network button.
- The camera is now able to connect to the WiFi network.
- To test that this has worked ensure your phone is connected to the same WiFi network, turn off your hotspot and push the reset button. The LED on the front of the

camera should pulse with no flashing and you should be able to connect to the camera using the Sidekick app.

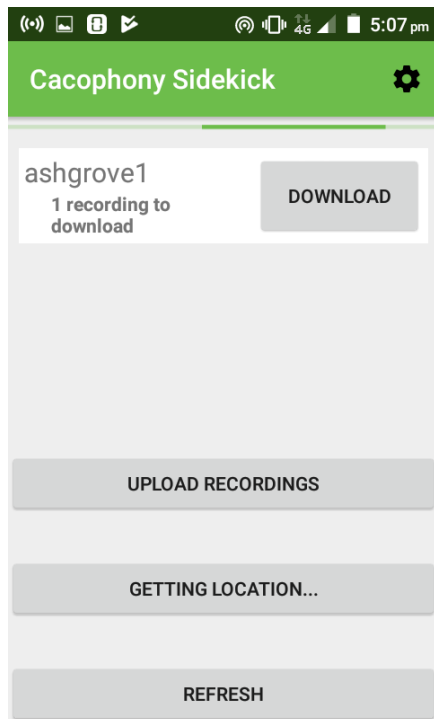
4.12 Set the location.

If the location is set on the camera, all recording it makes will be tagged with this location. To set the camera's location, open the Sidekick app and ensure the hotspot is on (or you are connecting via WiFi). You should see the camera listed in the Sidekick app.



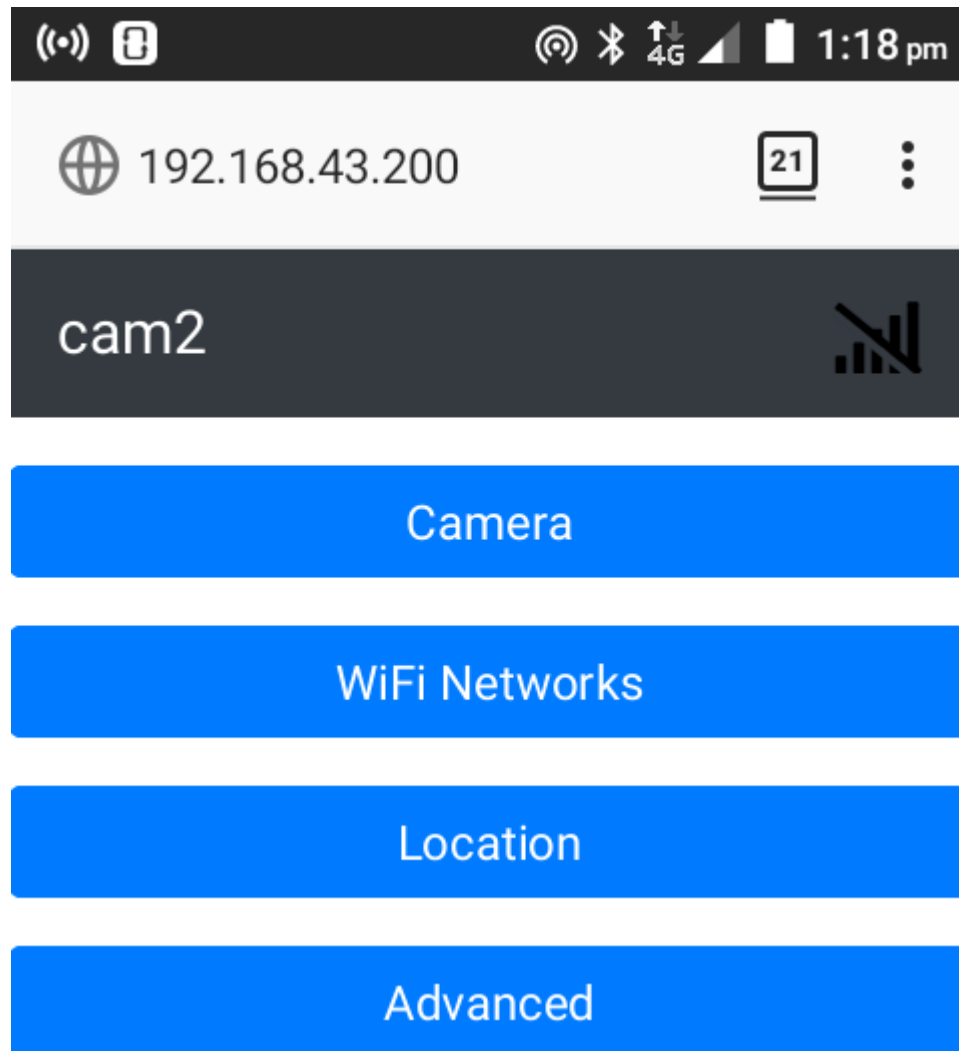
Ensure location services are on and click UPDATE ALL DEVICES LOCATION. The button name will change to GETTING LOCATION.. This may take a while. Eventually a message

will show saying that the location has been updated.



As an alternative, you may open the management interface by clicking on the camera name, and then click the Location button to manually enter the longitude and latitude of your

camera.



4.13 Testing an upload

In order to test an upload leave the camera plugged in until sunset. After sunset walk in front of the camera. This will trigger a recording which will be uploaded to the Cacophony Project's servers within a few minutes. You should be able to view your recording using the Cacophony Portal described in Section 7 [Accessing the recordings and analysing the data](#)

Congratulations your camera is set up and ready to go.

5 Recording predators

When you are ready to begin recording predators take the following steps:

- Set the tripod about 1m high and stake it securely to the ground.

- Alternatively you can strap the camera to a secure object such as a tree or post.
- Connect the power supply (either mains, battery, or battery with solar), ensuring that the coupling ring is tightened by turning it clockwise. This is important to ensure the connection is waterproof and remains secured.
- Use the Sidekick app to connect to the camera's management interface (remember to turn the hotspot on first).
- Use the Camera option on the management interface to view the live camera feed and adjust the alignment of the camera until you are satisfied.
 - As you are aligning the camera position it so it is pointing down slightly so it will not be pointing at the sky. If it's pointing at the sky then it will record a lot more uninteresting footage because the sky provides a cold, contrasting background for foliage that is moving.
- Use Sidekick to set the location of the camera.

Your camera will then begin recording when it detects predators.

Note the pulsing light that you see when you first connect power will stop after 30 minutes.

6 Collecting Recordings

Recordings created by the Thermal Camera need to be uploaded to the Cacophony servers for processing and storage. This can happen in the following ways:

1. Via WiFi if the camera is within range of a configured WiFi network.
2. Via mobile network if the camera has a modem installed and is within range.
3. By moving the camera within range of a mobile or WiFi network (take it home and plug it in - remember you need to enter the details of the WiFi network)
4. By connecting the camera to the Sidekick app and uploading the recordings to your phone. This process is described below.

6.1 Uploading recordings using the Sidekick app

These instructions assume that Sidekick has already been installed and configured on an Android phone or tablet (see [4.6 Install the Sidekick app](#)). There are two steps:

1. Collect the recordings off the camera onto the phone.
2. Upload the recordings from the phone to the Cacophony Project's servers.

To collect recordings from a thermal camera:

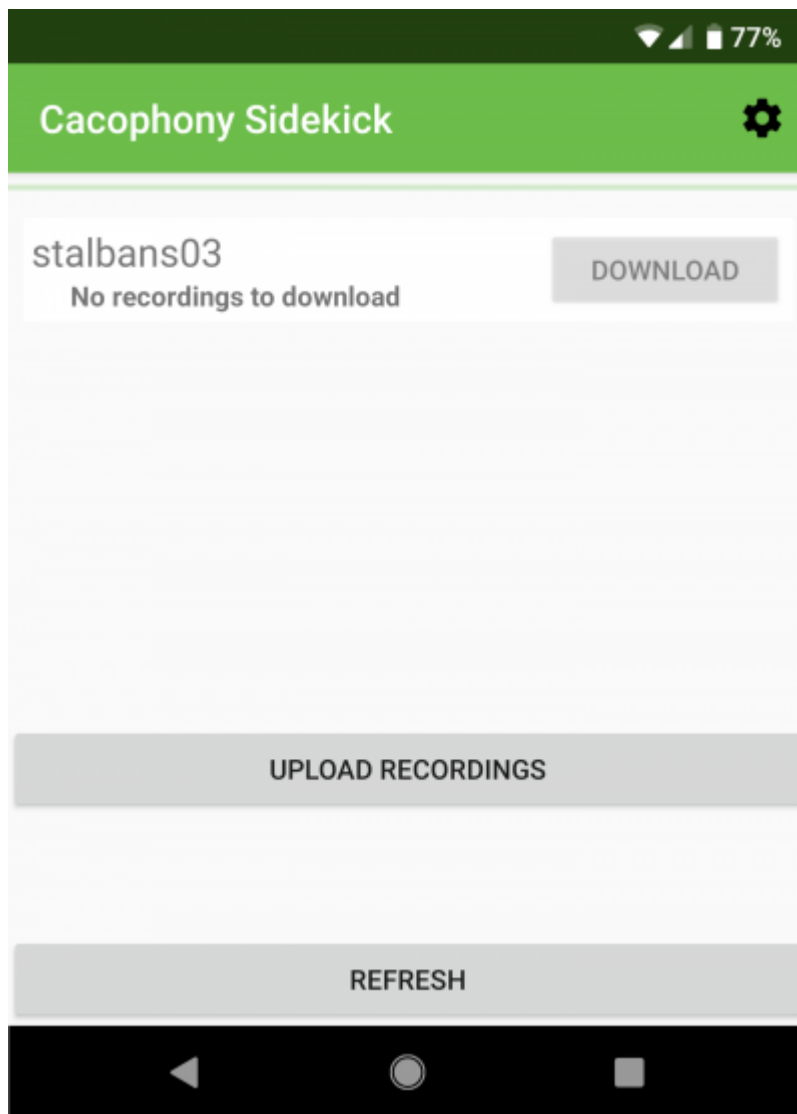
- Walk up to the camera - you should be within about 5m for the hotspot to connect.
- Ensure the bushnet hotspot is active on your Android device (see [4.7 Set up the bushnet hotspot](#)).
- If you are planning on changing battery packs, this is a good time to do so.¹

¹ Note: If you have sufficient charge on the old battery then it may make sense to change the batteries after you have downloaded the recordings to your phone

- If it is day time and you haven't changed the battery pack, it's likely that the camera will be asleep. Press the reset button and wait until its light is pulsing slowly.
- Run the Cacophony Sidekick app. It will start searching for nearby cameras.
- The camera's name should appear within a minute (or less). The number of recordings available on the device will be indicated.

- Tap the Download button to transfer recordings from the camera to the phone/tablet. As recordings are downloaded, the number of recordings on the device should count

down. When the transfer is complete, "No recordings to download" will be indicated.



- You may now leave the camera. If it is day time, and it has been configured to do so, the camera will turn itself off again after about 20 minutes.
- If there are no more cameras to collect recordings from, exit the Sidekick app and turn off the Android device's WiFi hotspot.

To upload the recordings from the phone to the Cacophony Project's servers, the phone must have access to the internet (via WiFi or mobile connection). To do this:

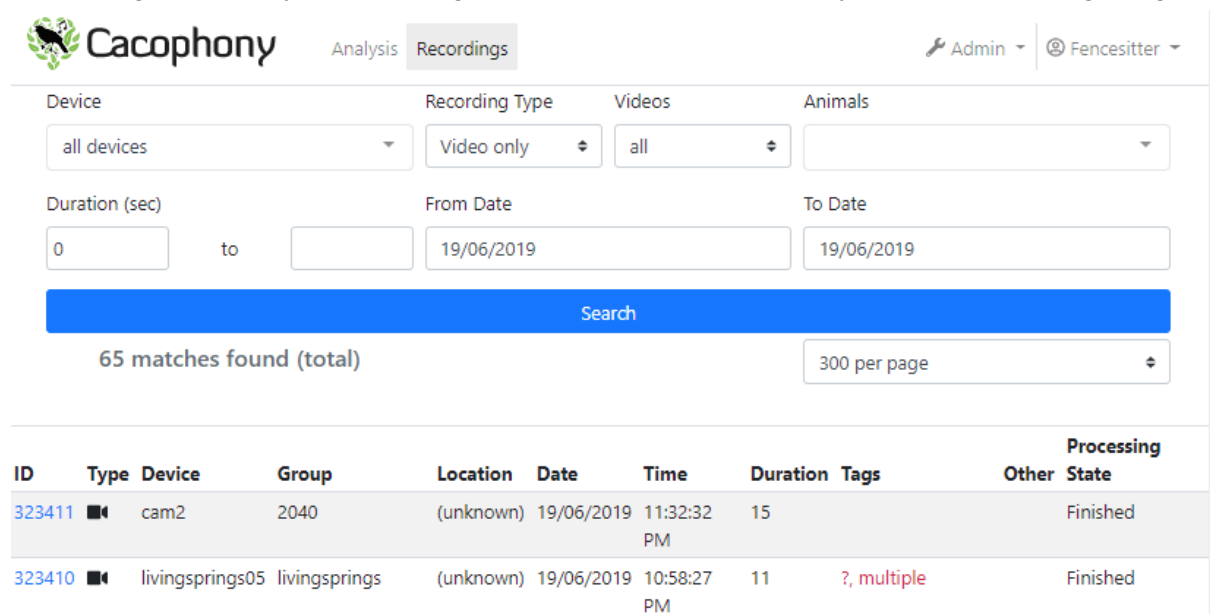
- Ensure the Android device's hotspot is **disabled**.
- Ensure the Android device is connected to a WiFi network or has mobile network coverage.
- Open the Sidekick app.
- Click the Upload Recordings button.
- The button will remain disabled ("greyed out") until uploads have completed.
- Once uploads are done, exit the Sidekick app.

7 Accessing recordings and analysing the data

Log onto the Cacophony Project portal to access the recordings and statistics with a web browser at <https://browse.cacophony.org.nz/>

7.1 Viewing recordings

When you first log on to the portal you can see the groups that you have already created. Beside each group is the number of recordings that have been made. To view the recordings from that group simply click in the group name and this will take you to the recordings page.



Cacophony Analysis **Recordings** Admin Fencesitter

Device: all devices Recording Type: Video only Videos: all Animals:

Duration (sec): 0 to From Date: 19/06/2019 To Date: 19/06/2019

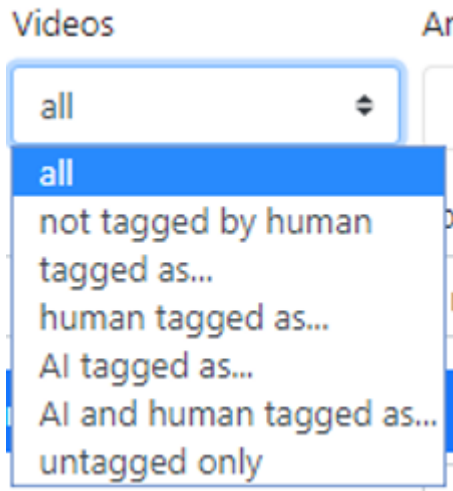
Search

65 matches found (total) 300 per page

ID	Type	Device	Group	Location	Date	Time	Duration	Tags	Processing State
323411	■	cam2	2040	(unknown)	19/06/2019	11:32:32 PM	15		Finished
323410	■	livingsprings05	livingsprings	(unknown)	19/06/2019	10:58:27 PM	11	?, multiple	Finished

The recordings page shows you the most recent recordings first and lets you search through your recordings by:

- Device or group name - either select from the drop down or type to find your device or group.
- Recording type: Video, Audio, or both. Audio recordings are made by the [Bird Monitor](#).
- If you have the Recording Type set to Videos then you can further filter by tag type:



- Animal - tagged either automatically or by human. Note you can also filter by any videos that have been tagged as interesting.
- Duration - enter a lower limit and an upper limit.
- Date range - enter a From Date and/or a To Date.

Each line in the table underneath represents a recording. The following information is shown for each recording:

- Each recording is given an ID this is shown in the first column. Clicking on this will take you to the recording




- Type: either Video or Audio
- Device: This will be the name that you have given your device.
- Group: This is the group that your device belongs to.
- Location: This is the longitude and latitude of the location when the recording was made².
- Date: The date the recording was made.
- Time: The time the recording was made.
- Duration: How long the recording is for.
- Tags: Any tags that have been added tags shown in red have been added automatically by the machine vision algorithm and have not been verified by a person. Black tags have been added manually by a person and disagree with the automatic tag. Green tags have been manually added by a person and agree with the automatic tag.
- Other - this can include a battery % where applicable.

² This assumes that the location of the camera was updated when you set it up.

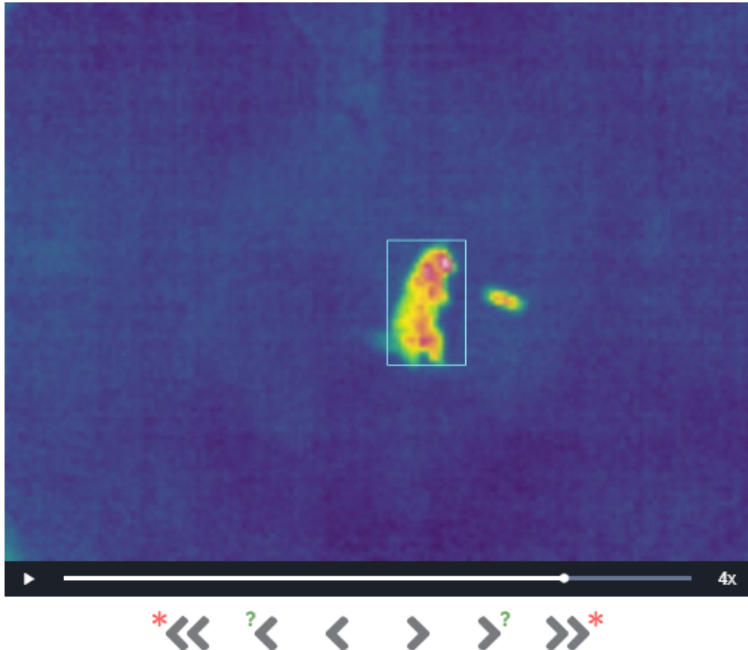
- **Processing State:** When a video is first uploaded to the Cacophony Servers it goes into a queue to be processed by the machine vision algorithms. When it has been processed it shows as "Finished".

To view a recording click on the ID of a recording. This will take you to a screen that allows you to:

- Play the recording.
- See any tags that have been assigned to the video and add additional tags.
- Add comments - simply type in a comment and press save.
- Download the recording.
- Delete the recording.
- Navigate to the next and previous recordings.
- View technical details - these will probably be of little interest to most users.







Analysis Recordings
Admin
Fencesitter




'akaroa24' - 12/06/2019, 11:22:36 PM



Tracks





Track 1
 Time: 1.11 - 51.44s (Δ 50.3s)

Classification

Label: possum
 Confidence: 0.91 (Δ 0.732) ▾
 Novelty: 0.68

	0.91	
possum		
	0.85	grant 
possum		

Recording



Technical details ▾

Comment Save

Delete Recording


Download Raw Download File

Help



 Move between recordings for device

Recording tags

There are no video tags yet.



The top of the page shows the camera name and the time of the recording. The video will start playing automatically. You can change the speed by clicking the multiplier in the bottom

right hand corner.



7.2 Tracks, tags and artificial intelligence

Objects (typically animals) in the video are tracked as they move around within the field of view. There may be multiple animals in any one recording. The machine vision algorithms run on each of these tracks and if an animal is recognised with a high degree of confidence then the track is tagged with that animal. In the video below, there is only one track and it has been marked as a possum. The box around the image is labeled Track 1 and the yellow box in the right contains the information about Track 1, including

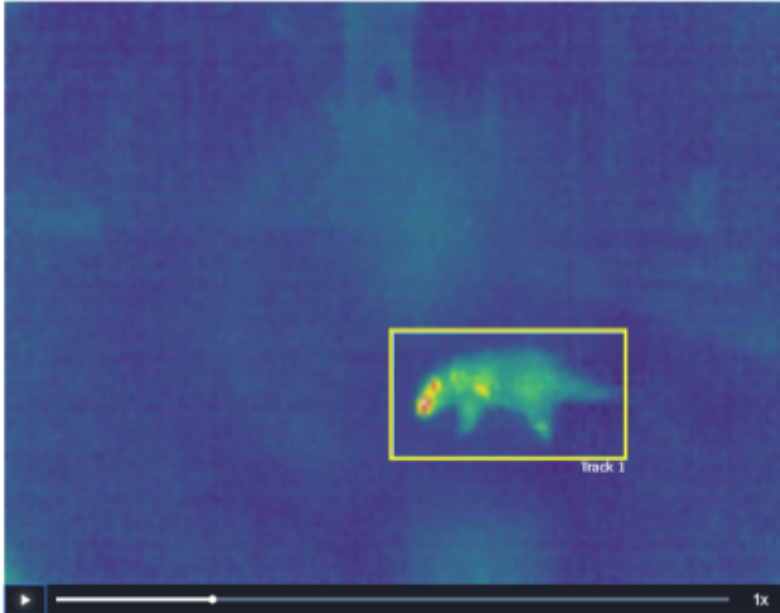
- The start time, end time and duration of the track (in this case the track is almost the same length as the video, because there is only one animal).
- Buttons for the different animals that can be tagged. If the machine vision has tagged the track then button corresponding to the tag will have a yellow box around it.
- Some information from the machine vision algorithm - showing the label it decided to give the track, the confidence and a measure of the novelty. You can click on the arrow beside the confidence number and see some additional details about the confidence the algorithm had that this track was another animal

Confidence: 0.92 (Δ 0.822) ▼

Animal	Confidence
rat	0.083
bird	0.094
stoat	0.076
possum	0.916
hedgehog	0.086
false-positive	0.048

- You can then see a list of each tag that this track has had, both from the machine vision algorithm and from manual tagging.







'akaroa24' - 28/05/2019, 8:29:38 PM





Track 1


Tracks



Track 1
Time: 0.11 - 14.33s (Δ 14.2s)


 

Classification

Label: possum
Confidence: 0.91 (Δ 0.777) 
Novelty: 0.43

	0.91	
possum		

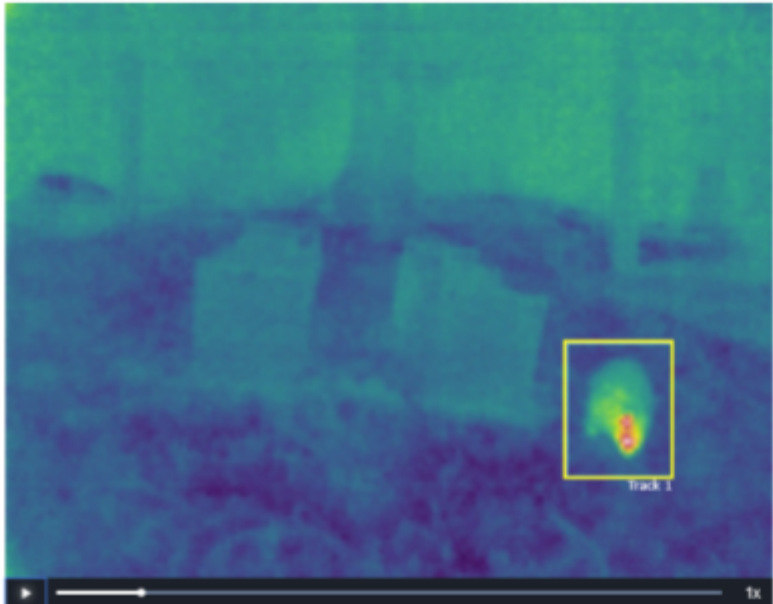
Recording

Technical details 

Comment

A recording with a single track, tagged as a possum by the machine vision algorithm







'akaroa24' - 29/05/2019, 6:22:04 PM





Track 1


Tracks





Track 1
Time: 0.78 - 29.67s (Δ 28.9s)


 

Classification

Label: possum
Confidence: 0.92 (Δ 0.822) 
Novelty: 0.47

	0.92	
possum		
	0.86	
possum	giant	

Recording

Technical details 

A recording with a single track that has been tagged by the machine vision as a possum and manually tagged as a possum. Because it has been manually tagged the box around the possum button is green.

7.2.1 Artificial Intelligence

The machine vision algorithm uses a type of artificial intelligence technique known as deep learning (also called a neural network). The algorithm learns from examples of videos that have been manually tagged. It can and does make mistakes but one of the nice features of this algorithm is that it can improve if it is given a broader range of examples. You can help improve the algorithm by tagging videos that you watch. It's useful to know both when it gets it wrong and when it gets it right.

At the moment the machine vision algorithm is only trained to classify a limited number of animals because these are the animals that are most important to track and for which we had sufficient examples to train the classifier. The animals currently classified include rats, birds, stoats, possums, hedgehogs, and false-positives. A false-positive is when a recording was made, but there was nothing of interest in the recording, for example triggered by moving foliage. If there is an animal present that is not in this group then the classifier will often make a mistake. For example cats are often classified as possums. This will improve as we collect more data and expand the list of animals that are classified

7.2.2 Tagging a track

To tag a track, simply click on the button corresponding to the animal you recognise. The current options are possum, rat, hedgehog, cat, bird, unknown, nothing and other.



If you click the "other" button then you are given a longer list to choose from, including:

- Possum,
- Hedgehog,
- Rat or mouse, we have found these, difficult to distinguish on the thermal video
- Stoat, weasel or ferret (collectively known as mustelids)
- Bird,
- Kiwi
- Cat
- Dog
- Rabbit
- Human
- Spider or insect (on camera lens or flying)
- Unidentified animal but not bird
- Just part of animal (eg tail)

- Poor tracking - use this if the box on the video is not where you think it should be - for example it is just around part of the animal, or another track has captured the animal better. This information will be used to improve the tracking algorithms.

You can also add a comment to the track. Use this if there is an animal that you recognise that is not on the list, or if you have something else you want to note about the video.

Add track tag

Tag:

cat

Confidence:

☐ low

☐ mid

☒ high

Comment:

Cancel

OK

Add track tag

Tag:

cat

Confidence:

☐ low

☐ mid

☒ high

Comment:

Choose a tag...

possum

hedgehog

rat or mouse

stoat, weasel or ferret (mustelid)

bird

bird/kiwi

cat

dog

rabbit

human

spider or insect (on camera lens or flying)

unidentified animal but not bird

just part of animal (eg tail)

poor tracking

other

7.2.3 Multiple tracks

Occasionally multiple animals will be captured on one video. When this happens video processing attempts to track each animal separately. A classification is made for track and you can review the classification and add your own tags to each track. Each track is listed on the right hand side of the video. The tagging box for the first track is opened by default.

The screenshot displays a video tracking interface. The main area is a heatmap showing animal movement, with a yellow box highlighting a specific region labeled "possum (8.1)". Below this box, the text "(50.2 possum) novelty=0.57" is visible. The video player at the bottom shows a play button and a progress bar. On the right side, there is a sidebar titled "Tracks" containing details for "Track 1".

Tracks

Track 1

Time: 1 - 5.44s (Δ 4.4s)

Classification options: possum, rat, hedgehog, cat, bird, unknown, nothing, other...

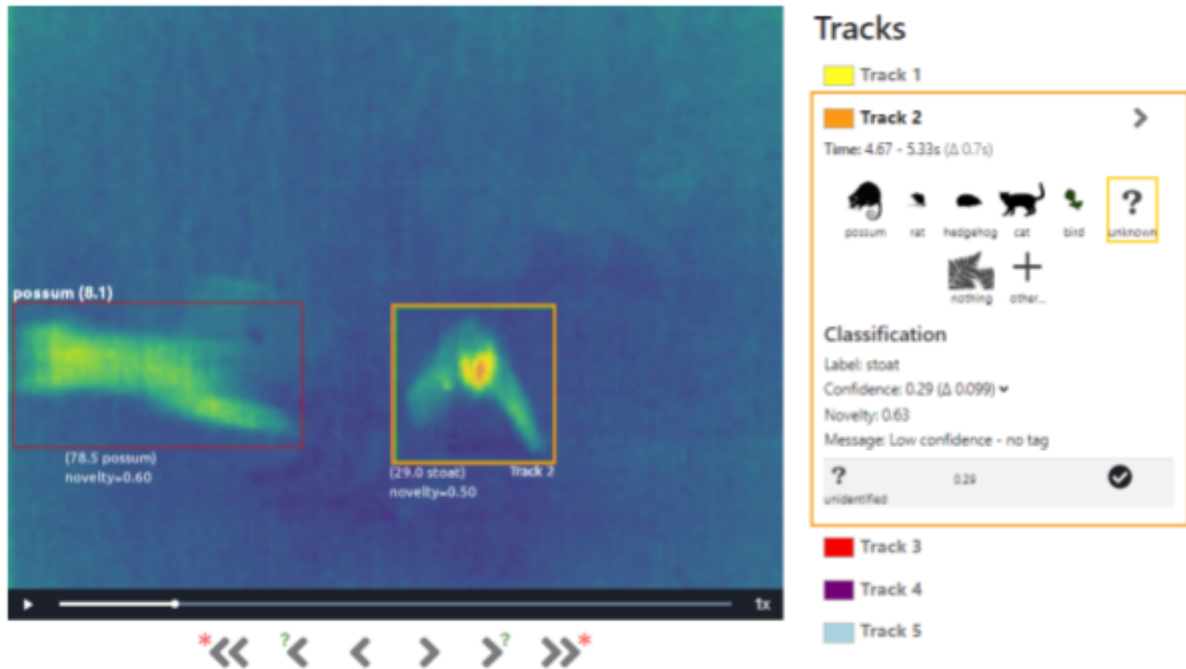
Classification

Label: possum
Confidence: 0.81 (Δ 0.668) ∇
Novelty: 0.62

possum 0.81 ☒

Track 2
Track 3
Track 4
Track 5

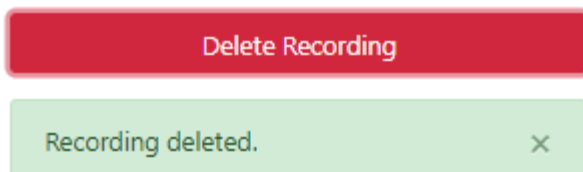
If you click on one of the other tracks then the video plays from the start of the track. The colour of the box in the video corresponds to the colour of the track on the right hand side.



In this video there are 5 tracks. Track 2 is selected in right. This corresponds to the orange box in the video. The red track 3 box can also be seen in this image.

7.3 Deleting a video

To delete a video simply click on the Delete Recording button. A message will show indicating that the video has been deleted.



You may want to delete a video if it's not interesting, shows something you didn't want recorded, or to save space.

7.4 Downloading a video

If you would like to download a video so you can share or store it there are two options. You can either download the raw video (Download Raw), or the video file that shows the tracks marked by the coloured boxes (Download File).

[Download Raw](#)[Download File](#)

7.5 Navigating between videos

There are navigation buttons at the bottom of the video to allow you to navigate between videos efficiently.



There is help at the bottom to explain what each of these buttons does:

Help



Move between recordings
for device



Move between recordings
for device which have not
been manually tagged



Move between 'interesting'
tagged recordings for
device where the first tag is
not a bird or
false/positive

7.6 Analysing your data

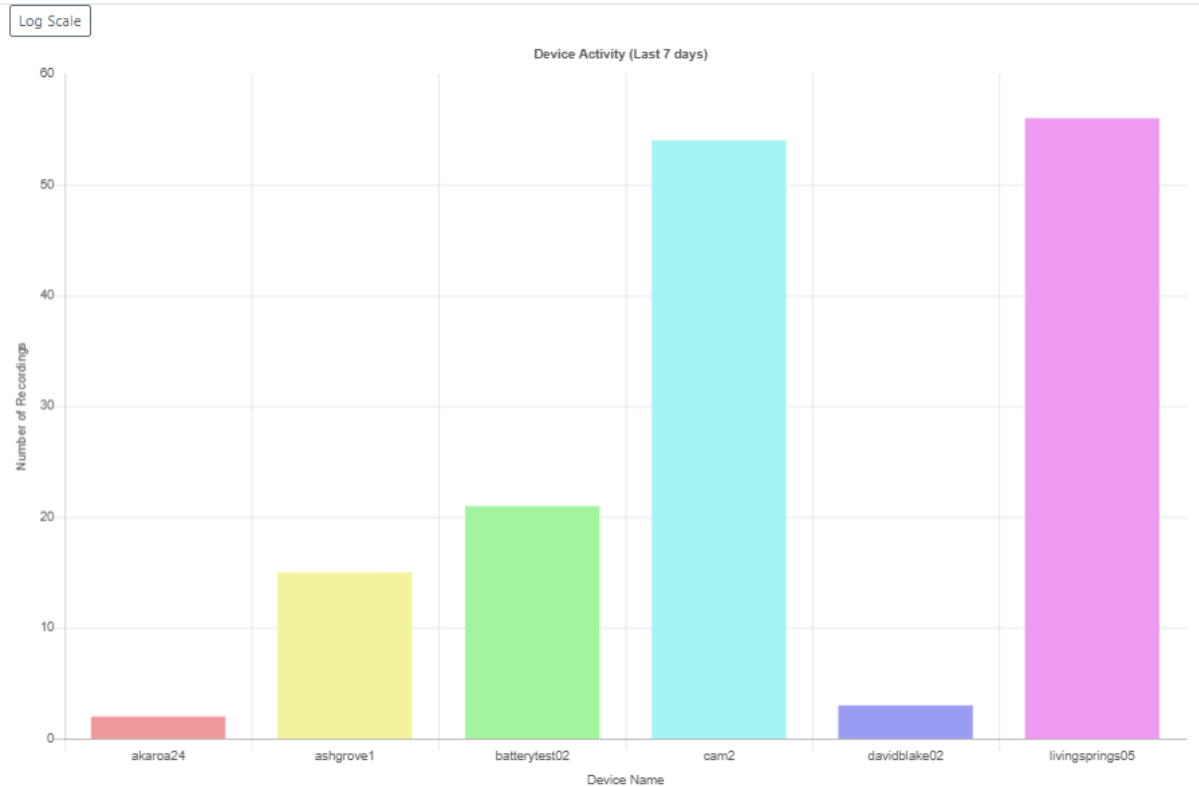
By clicking on the analysis link on the top you can quickly see how many recordings have been made by the devices that you have access to.



Cacophony

[Analysis](#)[Recordings](#)

Clicking on one of the bars of this graph will take you to the search page showing you the latest recordings for that device.



You can change the time period, recording type or group

Date range

Last 24 Hours Last 7 Days Last 30 Days Last 60 Days Last 365 Days All Time

Recording Type

Video Audio Video & Audio

Device Groups

All Groups

To do more detailed analysis you will need to extract the data and import it into a spreadsheet or other analysis program. There are a couple of ways you can do this at the moment: copy and pasting the data or accessing it via an API.

To copy and paste the data, go to the search page and put in the criteria that you are looking for. For example you may want all the recordings that contain a possum from a particular camera over a particular date range. Then simply select the lines and copy them into a spreadsheet. If there are lots of results, you can change the number of results per page up to 1000. If there are more than 1000 results then you will need to repeat this for each page of results.

Search

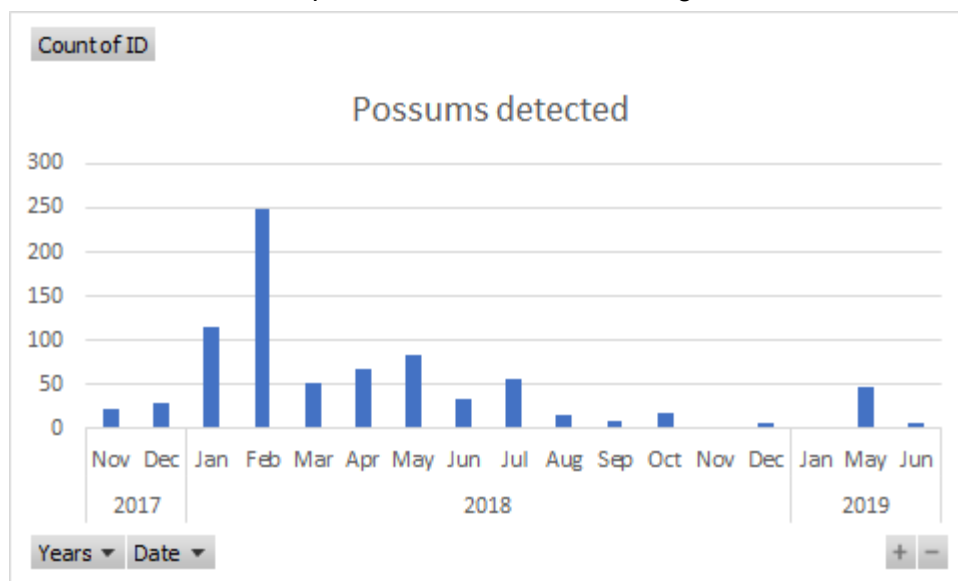
1110 matches found (total)

1000 per page

ID	Type	Device	Group	Location	Date	Time	Duration	Tags	Other	Processing State
320524	■	akaroa24	akaroa01	(unknown)	14/06/2019	6:48:27 PM	18	cat, possum		Finished
320522	■	akaroa24	akaroa01	(unknown)	14/06/2019	6:48:10 PM	14	cat, possum		Finished
319579	■	akaroa24	akaroa01	(unknown)	12/06/2019	11:23:40 PM	49	possum, ?		Finished
319578	■	akaroa24	akaroa01	(unknown)	12/06/2019	11:22:36 PM	51	possum		Finished
319577	■	akaroa24	akaroa01	(unknown)	12/06/2019	11:21:22 PM	16	possum		Finished
316316	■	akaroa24	akaroa01	(unknown)	7/06/2019	12:07:22 AM	31	bad track, possum		Finished
312795	■	akaroa24	akaroa01	(unknown)	31/05/2019	6:04:17 PM	69	bad track, possum, ?, multiple		Finished
312777	■	akaroa24	akaroa01	(unknown)	31/05/2019	5:41:19 PM	12	possum		Finished
312227	■	akaroa24	akaroa01	(unknown)	30/05/2019	9:12:10 PM	22	possum		Finished
312225	■	akaroa24	akaroa01	(unknown)	30/05/2019	9:07:11 PM	20	possum		Finished
312224	■	akaroa24	akaroa01	(unknown)	30/05/2019	9:05:37 PM	55	possum		Finished
312223	■	akaroa24	akaroa01	(unknown)	30/05/2019	9:05:15 PM	13	possum, ?		Finished
312219	■	akaroa24	akaroa01	(unknown)	30/05/2019	9:02:51 PM	63	possum		Finished
312217	■	akaroa24	akaroa01	(unknown)	30/05/2019	9:01:07 PM	33	possum		Finished
312216	■	akaroa24	akaroa01	(unknown)	30/05/2019	8:59:55 PM	33	possum		Finished
312215	■	akaroa24	akaroa01	(unknown)	30/05/2019	8:59:37 PM	14	possum		Finished
312214	■	akaroa24	akaroa01	(unknown)	30/05/2019	8:59:05 PM	32	possum		Finished
312172	■	akaroa24	akaroa01	(unknown)	30/05/2019	8:24:18 PM	12	possum, ?		Finished
312171	■	akaroa24	akaroa01	(unknown)	30/05/2019	8:24:00 PM	17	possum		Finished
312170	■	akaroa24	akaroa01	(unknown)	30/05/2019	8:11:42 PM	41	possum		Finished
312169	■	akaroa24	akaroa01	(unknown)	30/05/2019	8:11:17 PM	17	possum		Finished
311429	■	akaroa24	akaroa01	(unknown)	29/05/2019	6:28:55 PM	39	possum		Finished
311417	■	akaroa24	akaroa01	(unknown)	29/05/2019	6:22:54 PM	107	possum, ?		Finished
311410	■	akaroa24	akaroa01	(unknown)	29/05/2019	6:22:36 PM	17	possum		Finished

Book1 - Excel											
Shaun Ryan											
Tell me what you want to do											
File Home Insert Page Layout Formulas Data Review View Add-ins Help Team											
Clipboard Font Alignment Number Styles Cells Editing											
A1 ID											
ID	Type	Device	Group	Location	Date	Time	Durati on	Tags	Other	Processing State	
320524		akaroa24	akaroa01	(unknown)	14/06/2019	6:48:27 PM	18	cat, possum		Finished	
320522		akaroa24	akaroa01	(unknown)	14/06/2019	6:48:10 PM	14	cat, possum		Finished	
319579		akaroa24	akaroa01	(unknown)	12/06/2019	11:23:40 PM	49	possum, ?		Finished	
319578		akaroa24	akaroa01	(unknown)	12/06/2019	11:22:36 PM	51	possum		Finished	
319577		akaroa24	akaroa01	(unknown)	12/06/2019	11:21:22 PM	16	possum		Finished	
316316		akaroa24	akaroa01	(unknown)	7/06/2019	12:07:22 AM	31	bad track, possum		Finished	
312795		akaroa24	akaroa01	(unknown)	31/05/2019	6:04:17 PM	69	bad track, possum, ?, multiple		Finished	
312777		akaroa24	akaroa01	(unknown)	31/05/2019	5:41:19 PM	12	possum		Finished	
312227		akaroa24	akaroa01	(unknown)	30/05/2019	9:12:10 PM	22	possum		Finished	
312225		akaroa24	akaroa01	(unknown)	30/05/2019	9:07:11 PM	20	possum		Finished	
312224		akaroa24	akaroa01	(unknown)	30/05/2019	9:05:37 PM	55	possum		Finished	
312223		akaroa24	akaroa01	(unknown)	30/05/2019	9:05:15 PM	13	possum, ?		Finished	
312219		akaroa24	akaroa01	(unknown)	30/05/2019	9:02:51 PM	63	possum		Finished	

You can then process this in whatever way you like. For example a pivot table allows us to see how the number of possums detected has changed over time.



We do intend to make this export function easier. If you would like this then please let us know support@2040.co.nz. Your feedback will help prioritise the work.

If you have programming skills you can access your data via an API described below.

7.7 Using the Cacophony API

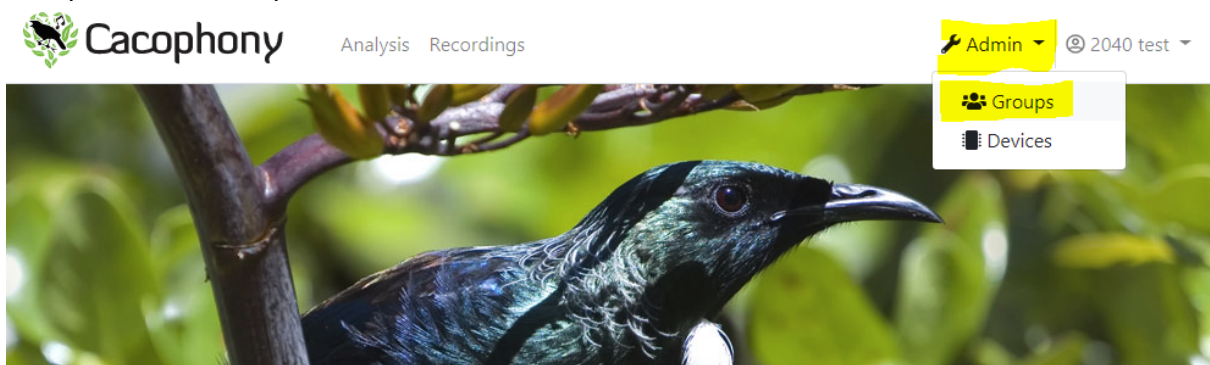
You can access all of your data programmatically using an Application Programming Interface (API). The documentation for accessing this API can be found here:

<https://api.cacophony.org.nz/>

7.8 Giving others access to your recordings.

The person to whom you want to give access to the recordings from your device must first create an account on the Cacophony Portal and let you know the username they have created.

You can give them access by clicking on the Admin link on the top right and selecting Groups from the drop down.



Select the group of devices that you would like to give them access to. You will then be able to see the group name and the devices which belong to that group. You can give them access by entering their username and clicking Add User to group button. You can make them an administrator of the group by first clicking the Admin checkbox. An Administrator has the ability to add or remove users from a group.

Group: 2040



Users



User Name	↑↓	Admin
2040 test	true	

Add user

☐ Admin?

Add user to group

Devices



Device Name	↑↓
cam2	

8 Getting help

If you need help with any problem please contact support@2040.co.nz.

9 Software updates

From time to time new versions of the software used on the camera are released. If the camera is connected to the internet it will check once per day for a new software releases which are then installed automatically. If your camera is not connected to the internet and you would like an updated version of the software then you will need to bring it somewhere where you can connect it to the internet (see [4.11 Connect to your local WiFi](#)).

The Sidekick App will also be updated from time to time. If you have installed this using the Google Play Store then any updates will be automatically applied.

The Cacophony Portal software is also updated regularly.

To see a list of all the software updates please check here:
<https://www.2040.co.nz/blogs/news/tagged/software-updates>.

10 User agreement for data storage and privacy

All the software and hardware developed by The Cacophony Project is open source and is free to use. There is a cost for the storage of the data. These costs and the end user agreement associated with this service is outlined here [link will be added later]. This document outlines who has ownership of and access to the data.

11 Transporting

Use the case, be careful with the batteries.

12 Troubleshooting

12.1 Sidekick won't connect to my camera

If your camera name doesn't show then please try the following steps:

1. Check that the phone's hotspot is on with the correct id and password.
2. Try restarting the Sidekick app.
3. Try restarting your phone.
4. With the hotspot on, press the reset button on the camera and wait until the light shows a slow pulse - this can take a minute or two.

12.2 What if I see blank images

If you see blank images on the Cacophony Portal then internally your thermal camera chip has probably become dislodged. This can happen if the camera receives a serious knock. In this case the camera will need to be serviced. You should contact support@2040.co.nz for that.



13 FAQs





13.1 Can I export the data to a spreadsheet?

Yes - this is explained in [7.6 Analysing your data](#)

13.2 Can I tag a video as interesting?

Yes -click the add tag button at the bottom of the screen when you are watching a video

Recording tags

						Additional Information	
	Animal	Confidence	By Who	When			
		0.79	Cacophony AI	6/19/2019, 2:55:38 AM		Event is 'multiple animals'	 

In the pop up you can mark it as a “Cool Video” and you can search by this tag to easily find the video again

Add tag to video

×

Event:

Animal:

Confidence:

Start time:

End time:

Cool video

Please select tag type...

Missed animal track

Multiple animals in video

Animal in trap

Cool video

Untracked animal (please specify animal)

other

min:sec

Cancel

OK

13.3 Could my batteries catch fire?

The batteries we supply are lithium iron phosphate (LiFePO_4). These are significantly safer than conventional lithium ion (Li-ion) batteries. The cells are incombustible, more stable and the phosphate based cathode material will not burn. You can see more information here <https://www.newcastlesys.com/blog/lithium-ion-vs-lithium-iron-batteries>.

13.4 I forgot to update the location - can I change this later?

Good question.

13.5 My camera rattles - is it okay?

Yes. There are silica gel packets inside the body of the camera that absorb moisture. These can rattle. If you are worried then in a dry environment remove the 4 screws on the top of the camera and remove the top. If you see something moving around that is not a silica gel packet then please contact support@2040.co.nz. Replace the top and tighten the screws.

13.6 What is the clicking I hear?

Occasionally when you power up the camera you will hear a faint clicking sound. This is normal. The sound made by the thermal camera and opening and closing its shutter during auto-calibration.