

Before you start

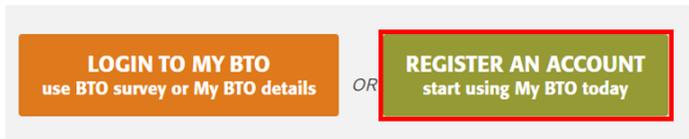
What you'll need to take part:

- ✓ A **smart phone** or **tablet** installed with the free **Song Meter Configurator** application (instructions of how to download this are provided below). This app will allow you to pair with the bat detector to record the exact location of its placement.
- ✓ A **desktop computer** or **laptop** installed with the free **Desktop Upload Client** application (instructions of how to download this are provided below).
- ✓ A **free account** with the British Trust for Ornithology (BTO) to upload your data to our systems.

To get set up, you'll only ever need to do these next four steps once!

1) Create BTO account

- If you don't already have an account with BTO you'll need to make one. To do this go to <https://www.bto.org/my-bto>
- Click on "**REGISTER AN ACCOUNT- start using My BTO today**".



- To create a new account, you will need to create a username (this will be in capital letters), fill out all of your details and accept the Terms & Conditions.
 - A message will pop up on your screen to confirm you have successfully registered. You should also receive a confirmation email from BTO.
 - Now you have created your BTO account you will need to sign up to the BTO Acoustic Pipeline so you can upload your recordings.
- 1 **Please note-** this can only be done once you have reserved your bat detector.

2) Register to the BTO Acoustic Pipeline

- When you reserve out a bat detector, you will be sent an automated email containing a web link. Clicking on this link will allow you to register/create a BTO Acoustic Pipeline account, and to then add the **North Somerset Bat Survey** to your account.



3) Install the Desktop Upload Client to manage uploading of sound recordings

The Desktop Upload Client is a free software which provides a simple way of uploading your sound recordings (as well as all the information about when and where it was recorded). You'll be able to upload recordings directly from your laptop/computer. The Desktop Upload Client is linked to the BTO Acoustic Pipeline, so once it's all uploaded it will automatically be sent for analysis.

What you'll need:

- ✓ Windows or Apple Mac **desktop computer** or **laptop**. Please note that tablets such as iPads are not compatible.
- ✓ Free space on your hard drive for installing the **Desktop Upload Client**.
- To install the Desktop Upload Client, you'll need to follow this link <https://app.bto.org/bat-pipeline/>, log in using your BTO account, and then click "**Get the Desktop Client**" on the right-hand side of the webpage.
- Install the correct version for your device (Windows or Apple Mac). Please note that when downloading the Windows version, a warning message may appear from Microsoft Defender telling you that running this app may put your PC at risk. Don't worry, this is just because the app has not yet received a significant number of downloads. In this case, click "**More info**" and then "**Run anyway**".
- Once installed, the Desktop Upload Client will create a folder on your hard drive where recordings will temporarily be saved whilst you are uploading data. To upload, open it and log in.

4) Install the Song Meter Configurator app on your smart phone or tablet

- The bat detectors we are using are called the ‘**Song Meter Mini Bat**’, which are from a company called Wildlife Acoustics.
- The detector will already be set to record from 30 minutes before sunset until 30 minutes after sunrise, recording when a bat call triggers it, which will be saved as a .wav file on the SD card. As this setting is already installed you **won’t** need to change it.
- However, what we will need you to do is record the detector’s exact GPS location (longitude and latitude).
- The easiest and quickest way to do this is by downloading the **Song Meter Configurator app** onto your smart phone or tablet.
- Please install this app, either via Apple’s [App Store](#) or [Google Play](#).



Song Meter Configurator

For Mini, Mini Bat, and Micro

GET



**Now you are all set up,
let’s start surveying!**

What's in the detector kit?

Before you visit your 1 km-square, it is important to double-check that all the equipment is in the box.

You may want to print out our **equipment checklist** to help.



Before you visit your 1km-square

Testing batteries:

- Testing one battery at a time, place the battery (located in a small box) into the slot on the **battery tester** by pushing the orange slider across to make room.
- Make sure the **positive and negative polarity is orientated correctly** by matching it with the diagram on the battery tester.
- Read the display, it should point towards “**Good**” in the green section, this means you have enough charge.
- If this is not the case, you will need to charge your batteries **before** you visit your survey square.
- To do this, plug the cable into the battery charger and connect it to a power source. Then insert the batteries into the slots and leave to charge, this may take up to six hours if the battery was very low.
- When charged **remove** all of the batteries from the charger and place back in the small box provided.
- **IMPORTANT-** you will only need four fully charged batteries to survey, if the others are low on charge, please recharge them along with the batteries you have used after the survey (see **Uploading Recordings** below).

Before you visit your 1km-square

Checking the SD card:

- The SD card saves all of the recordings, it should have been emptied by the previous volunteer, but it is important to double check, as a full SD card will not record your data.
- To do this, **insert the SD card** (located in a small box) to the slot on your computer, or the SD card reader we have provided you with, which slots into your computer's USB port.
- Click on the SD card's folder and **delete any folders or files** in it. Then simply remove the SD card and place it back in the small box.
- If your box has a spare SD card, please ensure **both** have been emptied.

Deploying the Bat Detector

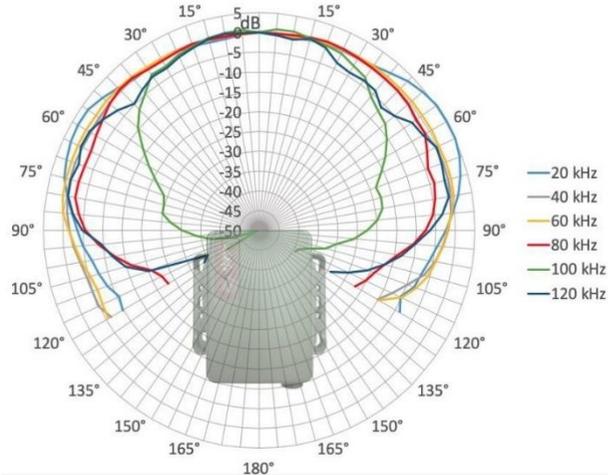
Choosing your location

- Your detector should be deployed in a suitable location such as on a woodland ride or edge. The location **should not be in an area visible to the public or where the microphone is obstructed**. This is very important for collecting good quality data and increasing the likelihood of detecting bats.
- Please double check that your chosen location is **within your survey square**.
- Here's some guidance on where to place your detector:

Do's	Don'ts
<ul style="list-style-type: none">• Make sure that the microphone is not obstructed by anything such as vegetation. Point it away from your feature• Deploy the detector near to linear landscape features (e.g. hedgerows or lines of trees), water (e.g. river or stream banks) or other natural landscape features	<ul style="list-style-type: none">• Deploy the detector near to areas with lighting (some bats do not like light!)• Deploy the detector in areas with lots of disturbances (e.g. near busy roads)• Deploy the detector in reach of livestock (they trample and lick the equipment!)• Deploy the detector where it is visible to the public or in a hedgerow which will be trimmed

The areas which can be picked up by the microphone are shown below, please do not obstruct these areas.

Song Meter Mini Bat Directionality (Horizontal)



Song Meter Mini Bat Directionality (Vertical)

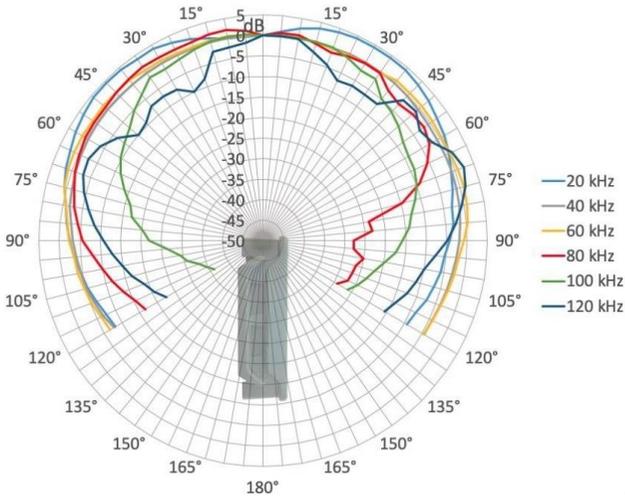


Photo credit: Wildlife Acoustics.

Preparing the detector (batteries, SD card and switching on):

- The detector is protected with a snap-on lid. To remove the lid, grasp the long edges with your fingers, applying slight pressure with your thumbs to the centre. The lid will pop off to expose the recorder's interior.
- Remove the **four fully charged batteries** from the box and insert them into the slots in the bat detector, ensuring they are oriented with the correct positive/negative polarity. Please only use the batteries provided.
- Next, slide the SD card into the card slot until you hear a **click**.
- Now you are ready to turn on your detector, to do this all you have to do is push the small white power switch in the bottom left corner to **"On"**.
- When switched on, lights will turn on for the first minute. Look at the light which is above the words **"SD Card"** and below **"Defaults"**, it should be solid **green** and will start blinking. If the light is red, it means it is not inserted properly, you will need to push the SD card in further until you hear it **click into place**.

Using the Song Meter Configurator app to record survey location:

- Make sure the **Bluetooth and GPS tracking are turned on** your smart phone/tablet and open the Song Meter Configurator app.
- When you switch on the power for the bat detector, it will automatically be detected by the app, and it should appear on your phone screen in the app. Please note that the app requires that the host mobile device has a minimum Bluetooth chipset version of 4.0.

- Make sure the detector **lid is open** and the **app is open**, press the “**PAIR (hold)**” button on the detector down for **three seconds**.
- The light which is above the word “**Bluetooth**” and below the word “**Diags**” should start **flashing green**, indicating that the detector is ready to pair.
- A “**Pair**” icon will appear on your phone screen, tap this to pair your app with the detector. The detector’s details will turn green in the app, indicating you have successfully paired.

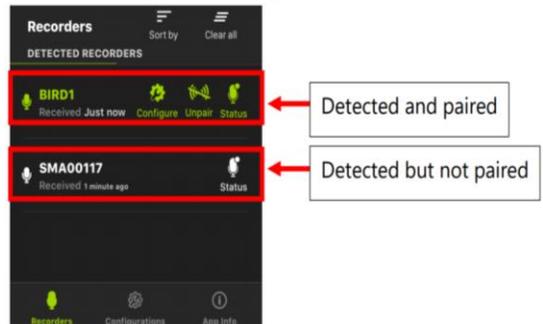


Photo credit: Wildlife Acoustics.

IMPORTANT- make sure you do this when the detector is in its recording location otherwise the GPS location will be inaccurate!

- A pop-up will ask you if you want to set the recorder’s location to your mobile device’s location. Tap “**Yes**”.
- Next, you will need to check the detector settings to ensure they are correct. Click the “**Configure**” icon and set the “**Schedule**” to “**Record bats 30 min before sunset to 30 min after sunrise (subject to triggering)**”.
- Then check the “**Ultrasonic settings**”, these should be set to:
 - Recording format= **Full-Spectrum**
 - Full spectrum sample rate= **384 kHz**
 - Minimum trigger frequency= **16 kHz**
 - Maximum recording length= **5 secs**
 - Trigger window= **3 secs**
 - Save noise files= **Off**

- Left channel gain= **12 dB**
 - Send Bluetooth beacons= **On**
- On the previous page, click “**Location & time zone**”, you should have already set the location, so only the time zone should be updated, please make sure it is set to “**UTC +01:00**”.
- Please “**Save**” the settings using the icon in the top right corner.
- Now return to the main page and tap the “**Unpair**” icon on the screen.
- Close the detector using the snap-on lid. Please make sure the lid clicks twice when closing to ensure it is watertight.
- Your detector is now **ready** to record! It will turn on automatically at the pre-set scheduled times until you collect it after six nights.

IMPORTANT- the detector should be kept in the same location for all nights, however, if for some reason this is not possible, please make sure you update the location using the app to pair again.

Attaching your detector:

- Your detector will need to be attached to a fence post, to do this, orientate the detector so that the logo is upright in the **bottom left corner**.

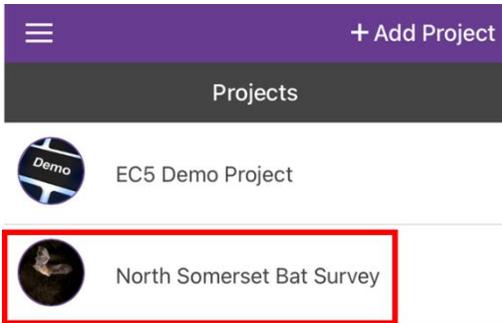


Photo credit: Wildlife Acoustics.

- Thread one reusable cable tie through the top holes on the detector and fasten it tightly against the post (use image for guidance). Use the other cable tie to do the same for the bottom holes. **Please note-** some shorter cable ties may need to be attached to each other to fit around the post.

Completing the EpiCollect “Set out” form:

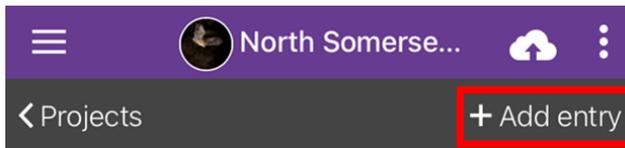
- If you have **not** signed up to our project on the EpiCollect app, please see our Troubleshooting guide.
- In the EpiCollect5 app, click on the “**North Somerset Bat Survey**” project and then click “**+ Add entry**”. This will open up a form for you.



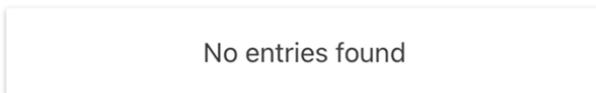
- Please complete the first page as appropriate, adding your survey square’s grid reference (e.g. ST5642) as the “**Site name**”.

- Then click “**Next**” in the top right-hand corner. As you are deploying your detector, please choose the “**Set out**” option and proceed.

- Continue to fill out the form with all the required details. When adding the detector’s location, please stand as close as possible to the detector and press the green “**Update location**” button to automatically add the coordinates.



recording site entries



- Please **ensure the accuracy** is below 10m, keep pressing ‘Update location’ until accuracy falls below 10m if needed.

- You will be asked to take two photos in this form. The first asks for a photo of the **detector in place**, to allow us to see whether the detector has been deployed correctly. Here are examples of correct and incorrect photos of this type:



- The second photo you will need is of the length of your feature (e.g. hedgerow), below are correct and incorrect examples:



- Once you have completed the form click “**Save entry**” and then “**Upload data**”. Click through the options to upload your data, photos, videos or audio. A confirmation message will appear, letting you know your upload has been successful.
- After upload, you can edit or delete your data by clicking on your entry and making any necessary changes. **Please note-** you must re-upload your entry after making any changes.

Now you’re all done you can leave the detector to record North Somerset’s bats!

After Recording

- Once all six recording nights have been completed, return to your 1km-square. Detach the detector from the pole and disassemble all of the equipment, placing it back in the correct places.
- Open the snap-on lid and turn the power switch to “**Off**”.
- Remove batteries and place them back in the small box.
- Remove the SD card by gently pushing it into the slot further so it slides out when released. **IMPORTANT-** make sure this is done **after** the power has been switched off.
- Pack up all of the equipment, making sure everything is returned to the box. You may want to use the equipment checklist to help.

Completing the EpiCollect “Collect” form:

- Before you leave your survey location, please use the EpiCollect5 app to complete the collection form.

- As before when deploying your detector, you will need to click on the “**North Somerset Bat Survey**” project and then click “**+ Add entry**”.
- Please complete the first page as how you did when deploying your detector.
- Then click “**Next**” in the top right-hand corner. To open the collection form, choose the “**Collect**” option.
- Proceed to fill out the form as required and then save and upload the entry as above.
- Once this is done your field work is complete! Next, you’ll need to go home and upload all the recordings onto the BTO Acoustic Pipeline for us to analyse.

Setting out or collecting?

** This field is required*

Set out

Collect

At Home

1) Upload data onto BTO Acoustic Pipeline

- Insert the SD card into an internal SD card slot on your computer or the SD card reader we have provided, which slots into your USB port.
- Open the **Desktop Upload Client** on your computer by clicking on the **BTO Acoustic Pipeline** icon that you previously installed.
- Login using your email address and password.
- Click “**Start New Upload**”, then “**Choose files for upload**”, and then “**Select Files**”.
- Click the **folder** containing all the .wav files that you want to upload, please do not select individual .wav files, as this will not work. (Please note that if you are using the Windows version, the .wav files will not be visible in the folder, don't worry they are there!)
- If your data is too large to upload as one, you can divide your files up and upload multiple times- please ensure that you are **not** uploading the same files more than once.
- Next, click “**Add survey metadata**” and then “**Enter data**”.



2) Record survey metadata

- Adding metadata will provide additional information about the survey alongside the recordings.
- You'll have the option to add a name to the file e.g. “River bank” or “Park”, by clicking “**Upload Name**”.
- You will need to assign the data to a “**Project**”, it is really important that you choose the correct survey, “**North Somerset Bat Survey**”, to ensure the recordings are analysed properly and that any important findings are highlighted.
- Next, you'll need to upload the survey location. If you paired the detector with the **Song Meter Configurator** app when you visited your 1km-square, the GPS location will have automatically uploaded, and you will not need to do anything.
- Once this is all complete, click “**Save data**”.

Survey Metadata

Upload Name:

Upload Size: 25.1MB

Project:

Account Balance: 985 credits

Please specify a lat/lon for each recording (wav file). You can select this via the map by clicking on the  options button on the recording row. Once you've entered a lat/lon, you can copy it to other recordings using the same options button.

Filename	Survey Date	Latitude	Longitude	
20210716_215353 unkl soc.wav	16/07/2021			
20210716_220051 LHS.wav	16/07/2021			
20210716_220557.wav	16/07/2021			
20210716_221238 Mnat pos.wav	16/07/2021			
20210716_221411 Myo x2.wav	16/07/2021			
20210716_221602 - LHS .wav	16/07/2021			
20210716_222047.wav	16/07/2021			
20210716_222258.wav	16/07/2021			
20210716_223250.wav	16/07/2021			



3) Uploading recordings

- Click on **“Prepare recordings”** and then **“Start Upload”**. **IMPORTANT-** The process of uploading six nights of recordings can take a while, please ensure you **leave enough time** to upload, it may be a good idea to leave it uploading overnight.
- As soon as the upload has started (no need to wait until it is completed), please **delete** any files or folders on the SD card so the next person has space to record. Then safely **eject the SD card** and place it back into the small box.
- Recharge all batteries used during the survey, and any which were low on charge when testing before. **IMPORTANT-** when finished charging you must **remove all of the batteries** from the battery charger, as they may leak if left. Place them in the small box provided.
- The Desktop Upload Client will display the progress of the upload. You can **“Pause”** and **“Resume”** the upload if needed and if you shut down your computer or lose internet connection, just make sure you **launch the app again** and the recording can be resumed.
- Once the upload has been completed, simply close the Desktop Upload Client and you're done!
- 18 The kit can then be returned to our Detector Hosting Centre on the arranged date.

Problems uploading the data:

If you are unable to upload the data, please do **NOT** delete the files!

- Firstly, contact the BTO's support email at acoustic.pipeline@bto.org, they should be able to guide you through any issues.
- If you are still unable to upload, please email us at northsomersetbats@uwe.ac.uk. We will provide you with an address and reference number so that you can send us your SD card to upload. We can then send your results back to you.

Questions?

If you have any questions or are having any issues, please refer to the **Troubleshooting** document provided in our detector kits or head to our FAQ page on our website.

For issues with uploading data/the Acoustic Pipeline please contact the BTO's support email at acoustic.pipeline@bto.org.

If you need further assistance, please email us at northsomersetbats@uwe.ac.uk.

Please do **not** contact the Detector Hosting Centres.

<https://batconservationresearchlab.co.uk/north-somerset-bat-survey/>

