

Alice loggers...

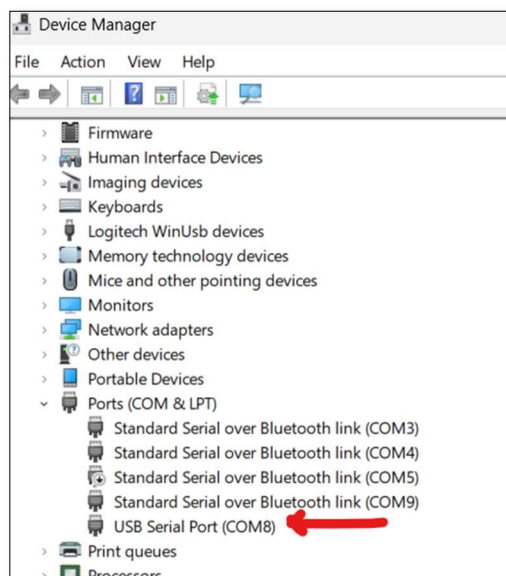
To use these loggers, they must first be connected to the comm's board and configured with the Alice configuration app. You will require a **USB 3.0 port** for this (typically has a blue edging inside the socket), more for the final data transfer from the device to your laptop.

Do not connect a non-rechargeable battery to an Alice logger as the comm's board will attempt to recharge it, which may result in a fire/explosion.

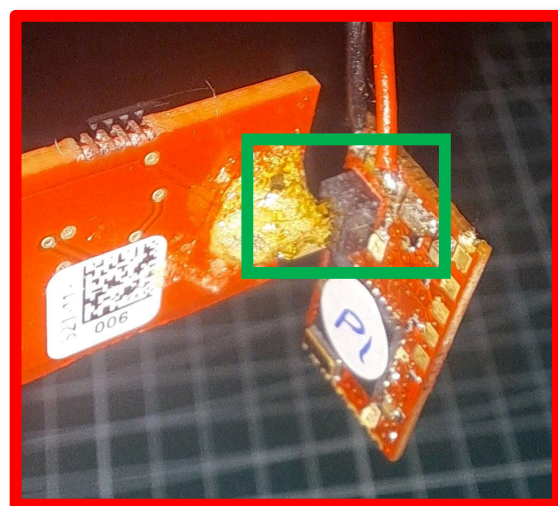
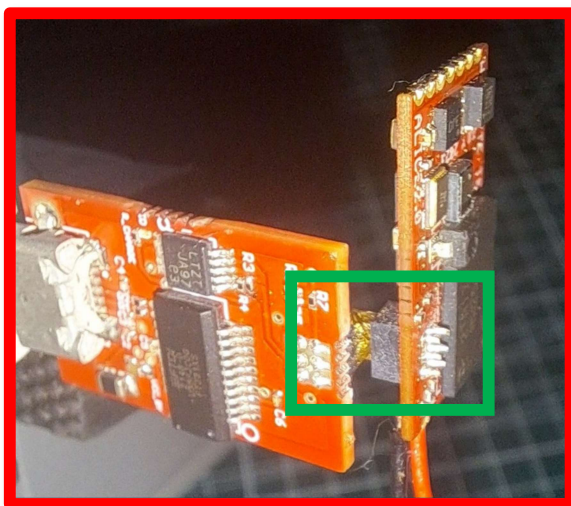
Steps are:

1. When a battery is first connected to Alice, you'll notice 4 sets of coloured LEDs pulsing. This is it checking communications on-board to the sensors and storage chip. Then, the device will enter sleep mode, indicated by a dim/brief yellow LED pulse, every 2-3 seconds
2. Connect the USB cable to the comm's board, and then connect this to the PC / laptop. A COM port should be generated

You can verify this by right-clicking on the Windows Start button and selecting **Computer Management**, and then **Device Manager**. Under **Ports**, you should see a **USB Serial Port (COMx)**:



3. You can now connect the comm's board to Alice. Please note the orientation in the photo below



When the connector (6-pins) is pushed into place, you must bring a magnet to the side of Alice until a steady yellow LED lights for 2-3 seconds. Remove the magnet, and you should then see the will

sense its presence and switch to a rapid flashing of the green and yellow LEDs, indicating it is listening for instructions. If not, bring the magnet for another few seconds and repeat

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4. **Battery charging:** If it's a small battery (40-100 mAh), please give it a good hour to fully charge. The current draw on these devices is so low, the comm's board finds it difficult to sense it charging. I've found that larger capacity batteries, such as a 100 mAh/3.7 V cell makes the red LED on the comm's show brightly while charging, otherwise it is just dim. Checking the battery voltage at the battery connection/sock with a multi-meter, while the logger is in sleep mode, is a good time/place to check. Expect around 4.18-4.20 V when fully charged. The new Alice2.0 app allows you to check the battery voltage by clicking the **Voltage Check** button
5. **Communicating with Alice:** Run the Alice app, select the same COM port number as on the Device Manager, and click the **Connect** button. This might turn green, it might not! It opens the communication port in the Alice app):

The screenshot shows the 'Alice Comm's v3' application window. At the top, there's a header with 'COM8', 'Connect', 'Rescan', and 'Alice2.0' dropdown. Below this are four main sections:

- Logger timing:** Displays 'PC / Laptop time' (12:42:48, 25/03/24) and 'Logger time' (Current time, Current date). It includes buttons for 'Send current Date / Time to logger' and 'Request current logger time value'.
- Real time plots:** Features 'Enable real time plot' and 'Start real time plot' buttons, along with an 'Acceleration range' set to 2 and a 'Set' button.
- Data extraction:** Contains 'Count data in logger', 'Export data to filename' (with 'Filename' and 'Export directory' fields), and 'Transfer data to file on PC' (with 'Progress' and 'Resume' buttons). A large red 'Exit App' button is on the right.
- Prepare for deployment:** Includes 'Voltage check' (set to 0), 'Erase memory', 'Acceleration 'g range'' (set to +/- 16g), 'Acc freq' (set to 40), and deployment options: 'Deploy by waking with magnet' and 'Begin logging at the above hour and date' (with fields for Hour, Minute, and Month).

6. The app shows the current time on the PC / laptop. To set the time on Alice, click **Send current Date / Time to logger**
To verify the time on the logger at any time from this point on, as long as the battery does not become disconnected, click **Connect** and then **Request current logger time value** and it will be displayed there. Note that the logger time is only updated at the time of the request button. Then, to ensure that the clock crystal is functioning, please press for another time request. This time should update / reflect the current time compared to the laptop
7. For deployment / to use the logger, the next step after setting the logger's clock, is to **Erase memory**. Clicking the **Erase memory** button will produce a popup with a random value between 1 and 99. Click **Ok** and enter this value into the text box beside the **Erase memory** button and click **Set**, and the erase procedure will begin. Depending on how much data there is on the memory chip will determine the erase time. a full memory chip could take several minutes. While the erase procedure is running, the yellow/green LEDs will flash. Once the erase is complete, a pop indicating *Erase complete* will appear. Note that this random value helps to prevent accidental erasure of the logger. The user must purposely enter the correct number, verifying they want to erase potentially valuable data
8. Select the g-range for the up-coming deployment; default +/- 16 g
9. Select the sampling frequency for the accelerometer (10, 20, 40, or 80 Hz); default 40 Hz

10. Click **Prepare device for deployment**. This imprints the g-range, and sampling frequency in the first page of its memory
11. A green LED will illuminate on the logger for 2 seconds, and then it will return to rapid flashing of the yellow and green LEDs
12. You can now disconnect the comm's board from the logger. Please ensure you use a firm grip and pull directly *normal* to the board, not at an angle, else you might pull the connector off of the logger. (This did not happen to me in over 100 connect/disconnects)
13. The logger, once the comm's board is disconnected, will return to sleep mode; yellow LED flashing every 2-3 seconds
14. **To start the logger logging data**, swipe a magnet near it, and it will flash briefly yellow, and possibly followed by a green LED for about a second
15. Logging is indicated by a very brief green LED (as usual) for every ~ 30 data points, so at 40 Hz, this will be > 1 Hz
16. The green LED will be more visible for the first 3 minutes, after which, it will dim dramatically to save power
17. **To terminate logging**, bring a magnet to the logger so that the yellow LED illuminates, and hold for about 5+ seconds, until the green LED illuminates. Remove the magnet
18. The logger is now in sleep mode
19. Connect the comm's board to the logger
20. Click **Connect**
21. Verify the time on the logger by clicking **Request current logger time value** (assuming that the battery connected to the logger is still good. If not, the returned time/date will likely be incorrect)
22. To extract the data from the logger, you must first instruct it to count the data (pages used in memory). Click **Count data in logger** and wait. This could be a minute or more if the deployment is over several days. When it has counted, it will display the number of data points and pages used (a page = 30 data points), and the % of the memory used (of 256 MB)

The screenshot shows a web interface titled "Data extraction". It is divided into three main functional areas:

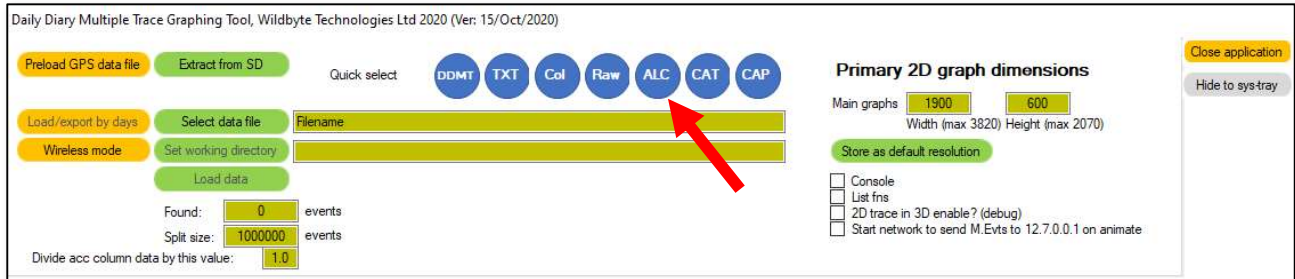
- Count data in logger:** This section includes a "Memory usage:" label followed by a progress bar and a percentage sign. Below this are two rows of data: "Data points" and "Pages", each with a corresponding progress bar.
- Export data to filename:** This section contains a "Filename" input field, a blue button labeled "Set data export directory", and an "Export directory" input field.
- Transfer data to file on PC:** This section features a "Progress" label with a progress bar and a "Resume" button.

23. Set a working directory for the exported data
24. Click **Transfer data to file on PC**. If nothing happens after a few seconds, please click it again as the logger missed the command, else, you'll see the transfer begin. Note that the transfer is in blocks of 64 pages, so if the logger only used 61 pages, it would transfer 64 pages to file, or if 100 pages were used, it would transfer 128 pages to file.
25. It's important to use a laptop with USB3 for this data transfer, and also for the laptop to not be in power save mode, or be running on battery, as this will interrupt the transfer. If the transfer pauses at all, please click the **Resume** button.
26. **To reuse the logger:**
 - you can either request current time to ensure it is correct, or just set the time (I always verify the logger time after)
 - erase its memory
 - click the prepare for deployment button
- ❖ *Any attempt to start the logger logging data, i.e., not comm's board, and bringing it out of sleep with a magnet, without erasing previous data, will result in a rapid flashing of the red/yellow LEDs.*
- ❖ *To rectify this situation, simply bring a magnet to the device to put it back to sleep, and follow from step #26 above*

DDMT (*DDMTddmmyyyy.zip*), these instructions (*Alice 2 loggers instructions.pdf*), and Alice2 comm's app (*Alicecomms_2c.zip*) are all available to download on GitHub:

<https://github.com/DDMT-Software/DDMT>

To load the data into DDMT, click the ALC button on the front panel:



The short version

For deployment:

- Connect comm's board to USB, and plug into PC
- Power up the logger with a battery and connect to the comm's board, wake the device with a magnet for 2-3 seconds until rapid green/yellow LEDs flash (listening for instructions)
- Run the Alice app and click connect
- Erase the memory, and click prepare for deployment

To get to the data:

- connect to the comm's board, wake the device with a magnet, and click connect
- request the logger time to check for drift (compare the laptop time)
- count data in logger
- set export directory
- transfer data to file on PC