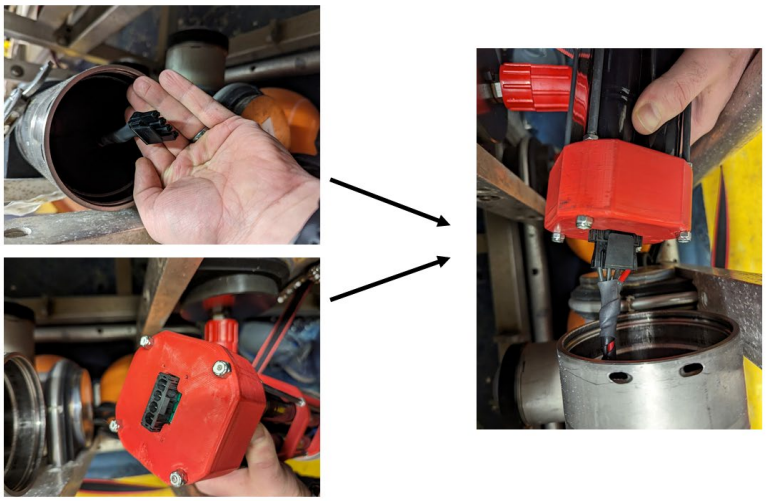
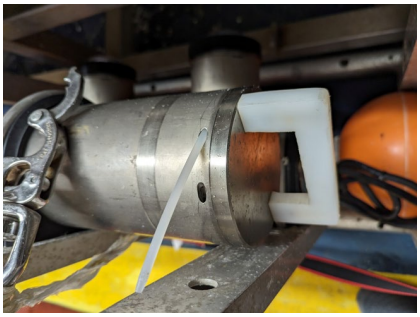
CAMTRAWL QUICK GUIDE: DEPLOYMENT AND DOWNLOADING

Deployment (also after download)

1. Connect the battery cable to your freshly charged battery pack.

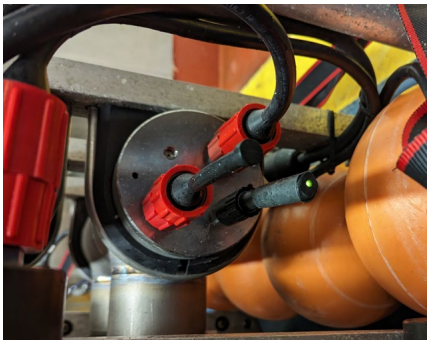


2. Slide new battery pack into the housing. After the battery pack is installed, slide the spaghetti strap in place to secure the battery in place.



3. After the battery is connected, the status LED will **slowly blink green**. This indicates that the system is in standby mode. The system draws approximately 4W in standby mode and can be left in this state for hours, but please disconnect the battery if you know it will be sitting for a day or more.

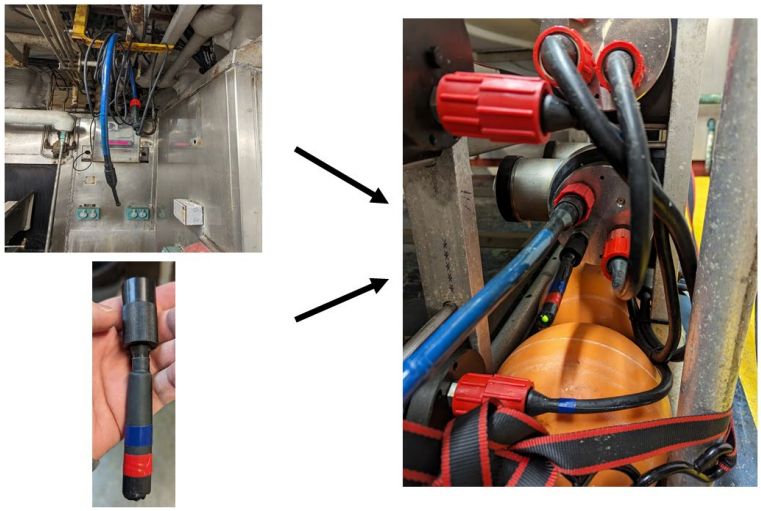
4. Ensure that all components are secure and connectors are in place and secure. CamTrawl is now ready to deploy.



Downloading

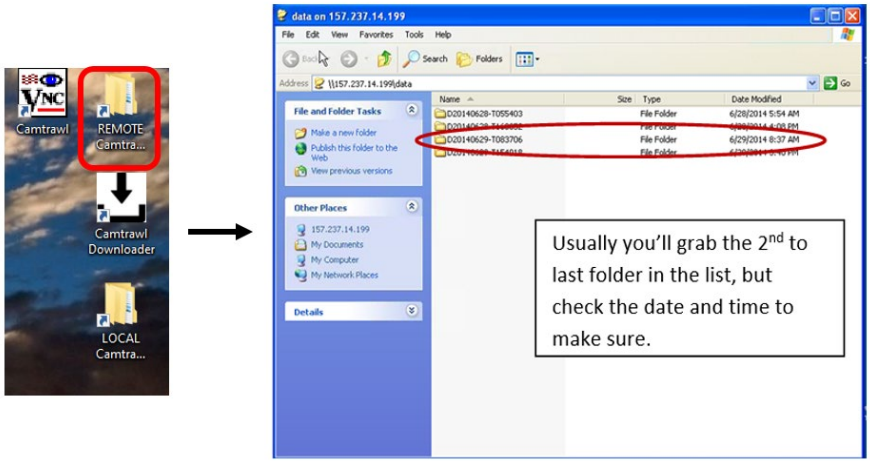
1. Remove thick black dummy plug (13 pins) and plug in the blue hanging network cable to Camtrawl.

2. Remove smaller black dummy plug (8 pins) and plug in the 'download' dummy (red and blue tape). This will cause **fast green blinking for ~ 1 min, then solid green**. The solid green light means it is ready for downloading.



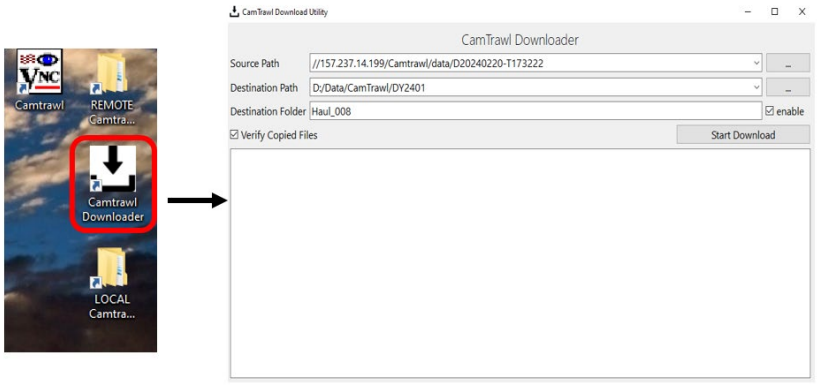
3. Go to acoustics lab to MACE rack # 5. Select the Instrument PC with the number 4 input button on the KVM switch.

4. You'll need to verify which folder (or folders) contain the data that you want to copy. You can do this by double clicking the folder that is called "REMOTE Camtrawl data", which shows the data on the Camtrawl PC. You will most likely see 3 folders in the data directory. The first folder would be the one created during the **last** download, and the last folder will be the folder that was created when booting for **this** download. In most cases, the data from the most recent deployment is in the "middle" folder but in some cases there may be multiple folders created during a trawl so you should check the date and time of the folders and/or look inside the folders for images (folders created when starting Camtrawl for download will have no images.)

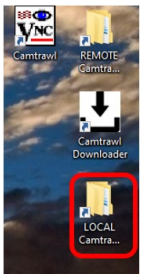


(Multiple data folders are created when the Camtrawl is at depth, brought shallow, then deployed to depth again. This happens when there are trawl issues or sometimes with shallow trawls.)

5. Once you know what folder(s) corresponds to the trawl of interest, you can double click on the Camtrawl Downloader. Select the folder you just identified in the previous step and make sure the event number is assigned (this will be the name of the folder that is created), then click 'Start Download'. If multiple folders were created for the deployment, select the next folder and download that into the same destination folder. Once the download is complete, you can exit Camtrawl Downloader.

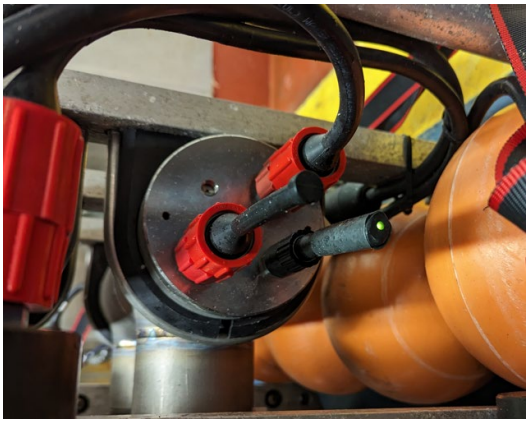


6. Verify that the data were copied by opening "LOCAL Camtrawl data" and look in the event folder of interest to make sure it has images.



7. Once you are confident that you have downloaded the deployment data, delete the data on Camtrawl. Open the "REMOTE Camtrawl data" folder, select the deployment folder(s), and delete. This can take a bit, especially if it was a long deployment. Do not proceed with the next step until deleting is finished.

8. When you are done deleting, head back to Camtrawl, and reverse the process from 1 & 2 above. Replace the blue network cable with the large black dummy plug (13 pins) + red collar screwed in. Replace the 'download' dummy plug with the black dummy. If you need to (every ~ 2 trawls), replace the battery at this stage (see Deployment section above). When Camtrawl is ready to deploy again, it should be in standby mode with the status LED **slowly blink green**. Take the spent battery (if applicable) to the chem lab and hook it up to the charger and charge it. That way it will be ready for the next deployment.



STATUS LED

The download and deployment dummies (8 pin female micro circular plug) have a bi-color red/green LED embedded in the end which indicates the operating status of the Camtrawl system.

LED dark – System does not have power. If the battery is connected, you should check the fuse in the battery can.

Slow green blink (~one blink/sec) – The system has power and is in standby mode. The PC, cameras, and strobes are off.

Fast green blink (~four blinks/sec) – The system is starting up. The PC has power and is booting, the strobes and cameras are powered on.

Solid green – The system is operational. The PC is on and the acquisition software is running. Strobes and cameras have power.

Solid red – The system is shutting down. Either the download plug has been removed and replaced with the deployment plug or the battery voltage has dropped below the shutdown threshold. The strobes and cameras are shut off and the acquisition software is shutting down the PC.

Intermittent red flash – This is seen when the battery voltage is below the minimum operating voltage, aka the battery is dead. Disconnect the battery and immediately charge it. If you see this with a freshly charged battery, there is a hardware issue and the battery should be disconnected. Check for faulty cables, leaky bulkhead connectors, shorted bulkhead connector pins, damaged strobes, or leaks inside the battery or camera housing.

POWER UP SEQUENCE

While not critical knowledge for basic deployment and retrieval, the following section outlines the system startup process in a bit more detail which may help with system debugging if things go sideways.

STANDBY MODE

When power is applied to the system it enters standby mode. 5v (computer) and 12v (camera) power supplies are off. Strobes are off. The status LED will slowly blink green.

The system will come out of standby and enter an operational mode in one of 3 ways:

1. The pressure switch is closed (if pressure switch is installed)
2. The system is deeper than the specified turn-on depth (if pressure transducer is installed)
3. The force-on plug is installed

OPERATIONAL MODE

When the system enters operational mode the status LED will quickly blink green to indicate that the system is coming online. The strobes will be turned on, then 3 seconds later the 12v supply will turn on,

then 3 seconds later the 5v supply will be switched on. After the PC has booted, the acquisition software will start and it will wait an additional 30 seconds to ensure that the cameras are fully booted. After this 30 second delay, the acquisition software will create the output directories and open the cameras, preparing them for operation. At this point the status LED will be solid green. What it does next depends on how the system was started:

If the system was turned on because the pressure switch closed or the system is deeper than the turn-on depth the system will enter “acquisition” mode, triggering the cameras and saving the data to disk.

If the system was turned on using the standard download plug, the system will enter “download” mode. The cameras are **not** triggered (though the system will respond to external triggers). The system will remain running for as long as the dummy plug is installed allowing the user to download.

The system is now in operational mode and the status LED will be solid green. It takes approximately 70 seconds to go from standby mode to operational mode.

BACK TO STANDBY

When the dummy plug is removed (either the download plug or trigger cable), the pressure switch opens, or the system depth is above the turn-off depth the system will begin the shutdown process. The status LED will now be solid red. The acquisition software will quit and the PC operating system will shut down. After the PC shuts down the 5v and 12v power supplies will be turned off as well as the strobes. Upon shutdown, the system will return to standby mode and the status light will turn off for a brief period and then slowly blink green. The shutdown process takes about 50 seconds. ***DO NOT REMOVE POWER TO THE SYSTEM UNTIL THE SYSTEM IS IN STANDBY MODE.***