

## Helpful resources:

- Adafruit STEMMA Soil Sensor: <https://www.adafruit.com/product/4026>
- I2C cable: <https://www.adafruit.com/product/3568>
- FeatherS2: <https://unexpectedmaker.com/shop/feathers2-esp32-s2>
- Swarm GitHub: <https://github.com/Swarm-Technologies/Getting-Started>
- Code with Mu: <https://codewith.mu/>
- Swarm Developer Tools: <https://swarm.space/developertools/>

## Installation Instructions:

1. Download a copy of “Example-Soil-Moisture” from the [Swarm’s Github repository](#)
2. Remove the cover from the eval kit
3. Connect the sensor to the eval kit using a JST 4-PH cable plugged into J4 (I2C Header)
4. Connect your FeatherS2 to your computer using a USB-C cable and open the storage folder
5. Create a backup of all the files stored on the FeatherS2 in case you need to revert back to the previous project that was being used
6. Delete all of the files located on the FeatherS2
7. Copy the contents of the root folder from the “Example-Soil-Moisture” repository to the FeatherS2
8. The code.py file is used to take a measurement of the soil moisture sensor approximately once every 30 minutes. The timestamp of the measurement, temperature (°C), and soil moisture level is logged and formatted into a \$TD message for transmission to the Hive. The frequency of sensor measurements can be changed in the code.py file in line 128. The code also uses the RGB LED on the eval kit to display the RSSI with the colors red, yellow, and green depending on the type of Swarm Modem being used.

9. Unplug the USB-C cable from the FeatherS2 and power on your eval kit
10. Connect the FeatherS2 to your PC using the USB-C cable. Start a serial terminal session using the following settings:

| Parameter    | Value  |
|--------------|--------|
| Baud Rate    | 115200 |
| Data Bits    | 8 Bits |
| Parity       | None   |
| Stop bits    | 1 Bit  |
| Flow Control | None   |

**Note:** The FeatherS2's COM port can be found under the device manager.

11. You will see the device's RSSI values printed in the terminal session along with the Swarm Modem startup information. You will also see the datetime values once the Swarm Modem has acquired its date and time

```
$RT RSSI=-67*2c
$TILE DATETIME*35
$RT RSSI=-70*2a
$DT 20210817141515,V*40
```

12. Unplug the USB-C cable from the FeatherS2
13. Mount the eval kit onto its tripod and place it in an area with a clear view of the sky. Monitor the RGB LED and ensure that it is that it is green

14. The eval kit will send a message to the Swarm Modem every 30 minutes (default) formatted as "Timestamp: 20210819213625, Temp: 23.7098, Moisture Level: 864"
15. The messages queued on the Swarm Modem will transmit when a satellite is in range and the device is powered on. Please ensure that the device is placed in a location where it has a clear view of the sky and there are no objects placed close to the antenna. Satellite passes can be seen using [Swarm's pass checker](#)
16. Once a message has been transmitted, it will show on the Hive under the device ID for the Swarm Modem that is installed in the eval kit
17. The data can then be pulled from the Hive using [Swarm's REST API](#)