Guide on how to use the Kineis kit / ATT platform

This guide serves as an addition to the Excel sheet, which describes the process of setting up the Kineis Kit and gaining access to it in more detail.

Most important links

[Detail installation description on GitHub]

[Explanation Video]

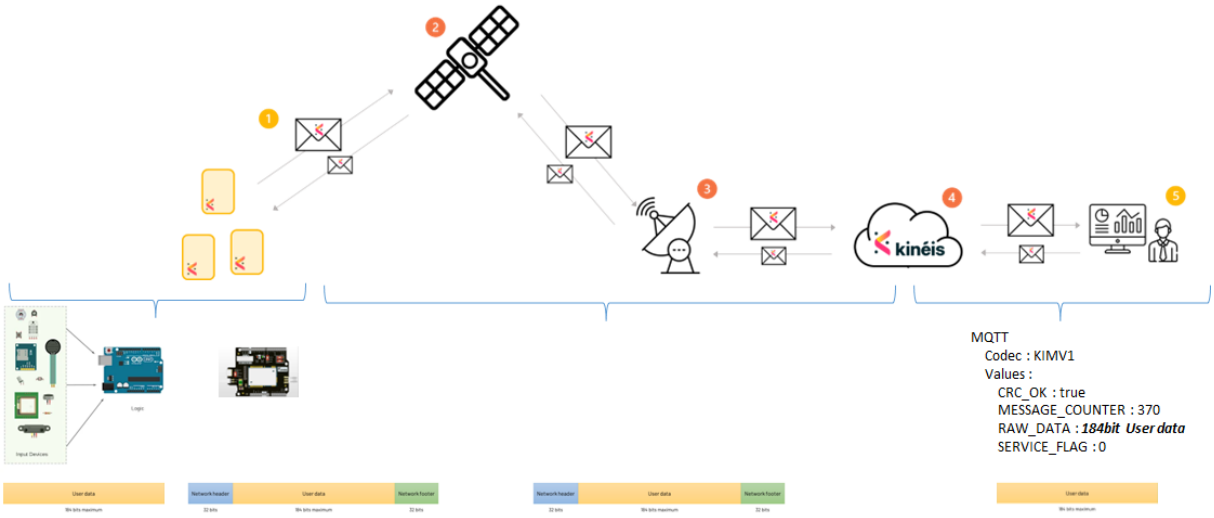
[Step-by-step overview for all parties]

[Power-Point: Technical Guide]

[Folder with all information]

General Information

The Kineis Kits we send to you are for participants to use the sensors on the Grove Beginner Kit, to send thos to one of the Kineis satellites, and then have them displayed at the Verhaert Connect Platform. Doing so, they can implement real-time data into their solution for the challenges. The overall process is furthermore illustrated in this graphic.



The package you received should include the following item:

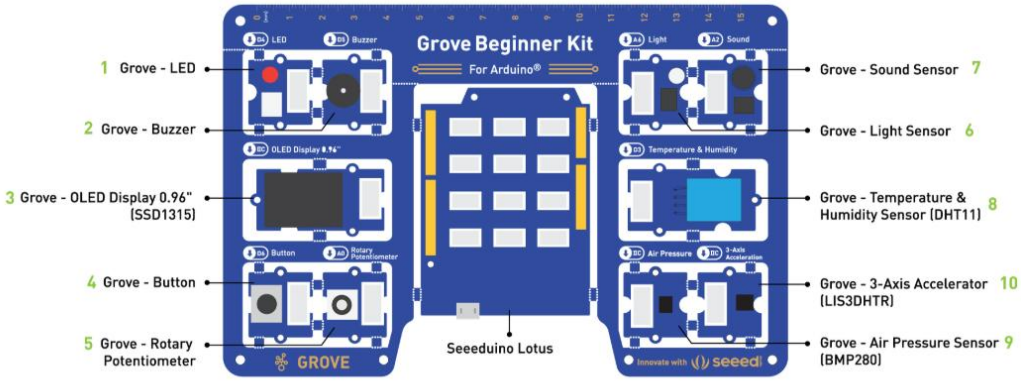
SeeedStudio Grove Beginner Kits for Arduino

Arduino Uno Rev3 board

Kineis KIM1 SPP kit

Important for the hackathon weekend are the SeeedStudio and the Kineis KIM1. The Arduino Uno Rev3 board is an addition for participants, where they can attach more sensors. Team who want to use this additional board normally know how to use it

The SeeedStudio has multiple sensors and looks as followed:



PLEASE DO NOT REMOVE ANY SENSORS FROM THE BOARD

After the hardware is assembled and plugged into a computer, the set-up should look like this:

Please watch the video in the SharePoint in case you struggle with the assembly.

Installing relevant software

To familiarize the computer with the attached kit, the team needs to install a software and do some adjustments. These steps can be found in the detailed user description on GitHub. Furthermore, they are also described in the Excel Overview.

Once the software is installed, the team needs access to the Verhaert Connect platform where they receive the output from the SeeedStudio board.

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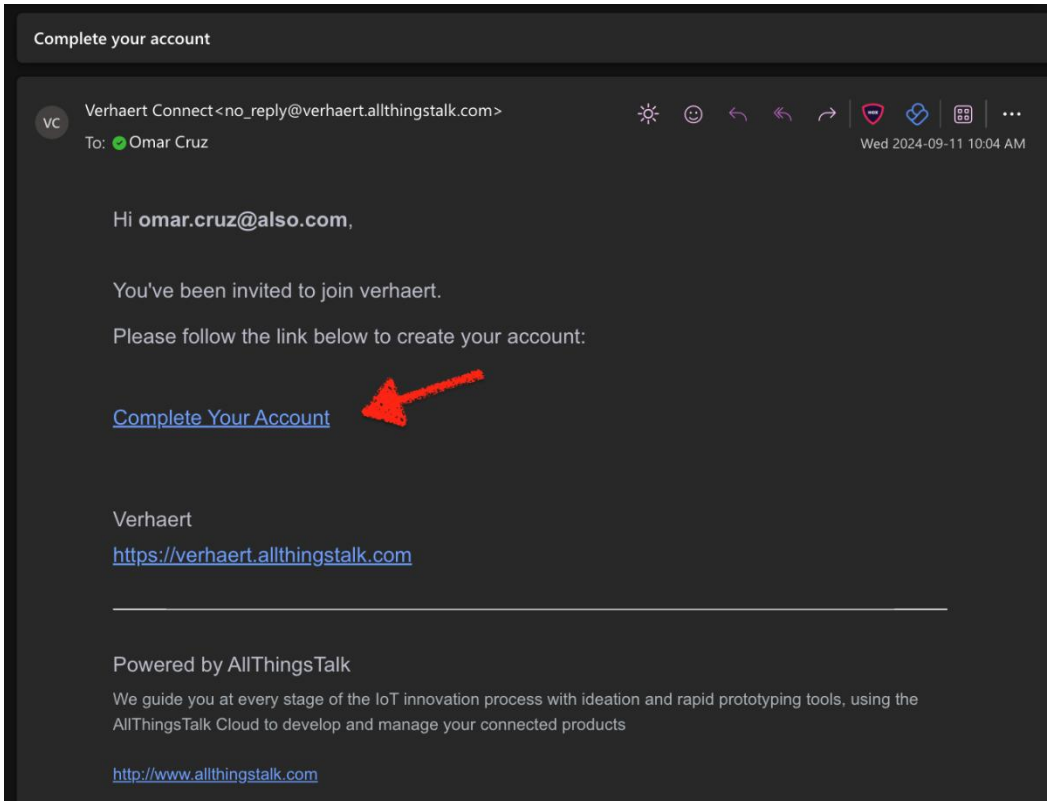
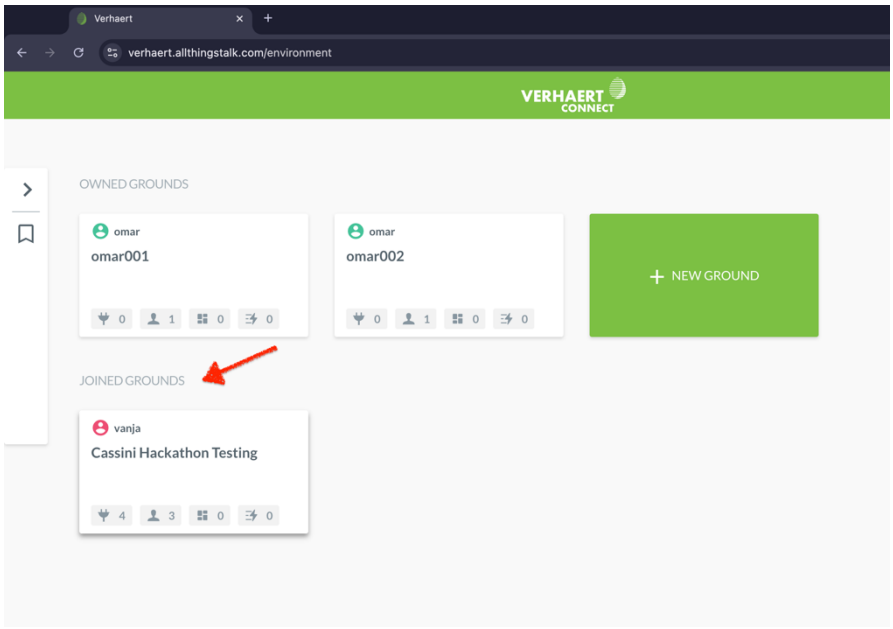
Gaining access

If a team want to work with the kit, they first need access to Verhaert Connect. TO have this access, they should follow these steps:

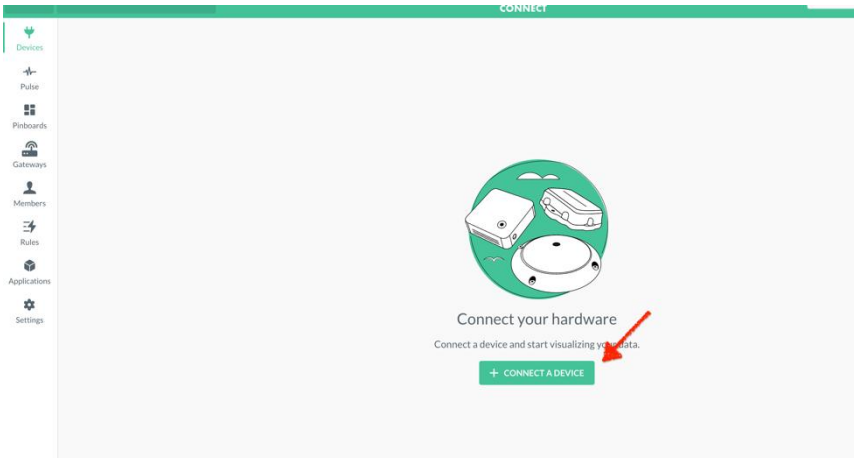
1. Requestion access in the *satellite-iot-support* channel on discord
2. Provide the central team with the requested information (team name and e mail addresses of the team members
3. Participants need to accept the link on the mail they received and create a username, password, and a multifactor authentication



4. After the login, each member will see this screen. Here, the member should go to “Joined Grounds”. The the corresponding (where the member was invited) will appear.

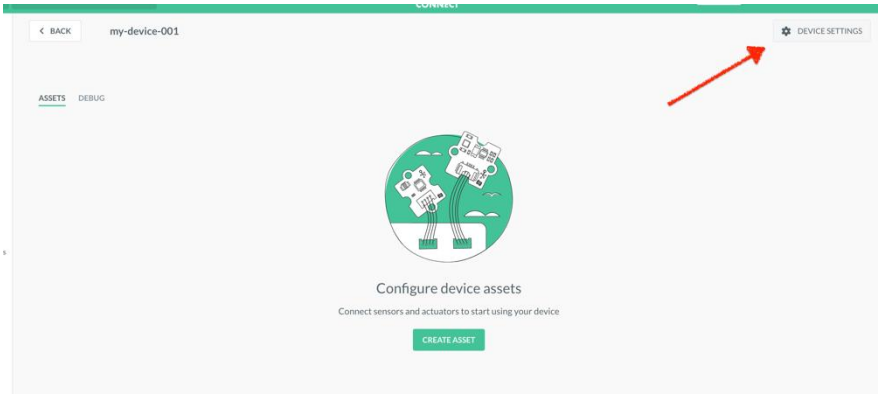


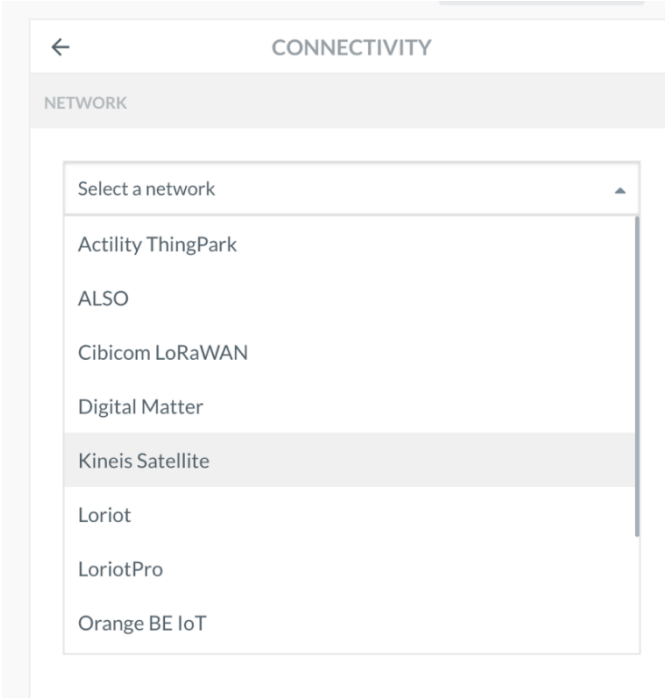
5. Members need to go to that Joined Ground and add their device. To add (connect) a device click on “Connect a device"



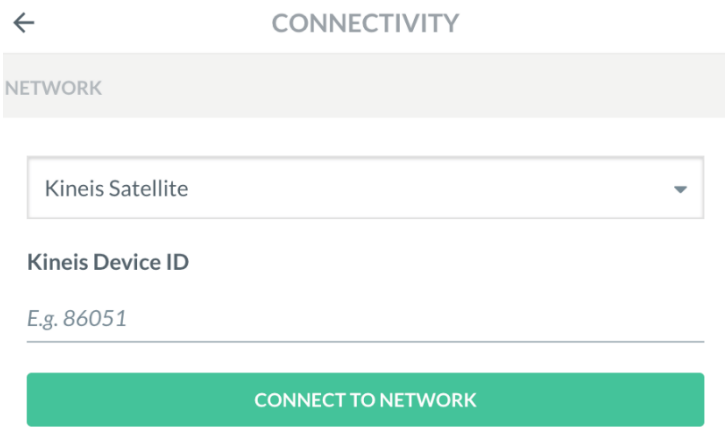
6. Then select “Arduino”

7. They need to go to “Device Settings” and in connectivity select “Kineis Satellite”

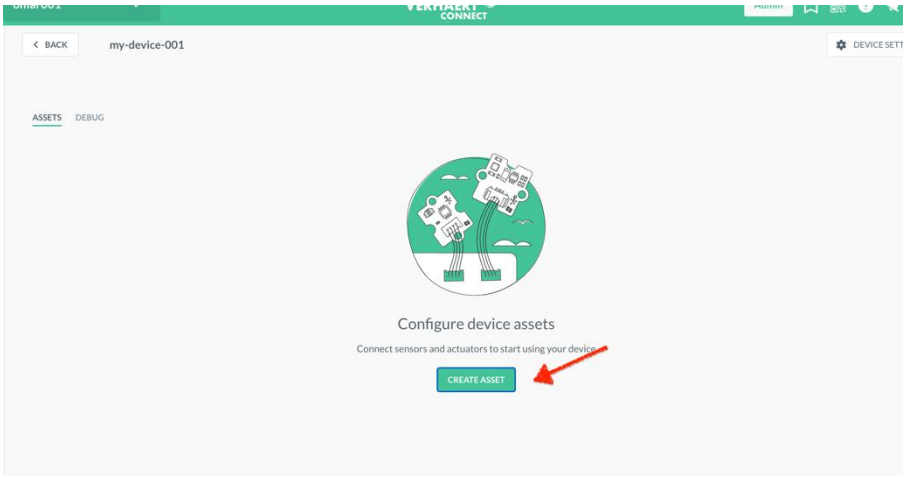


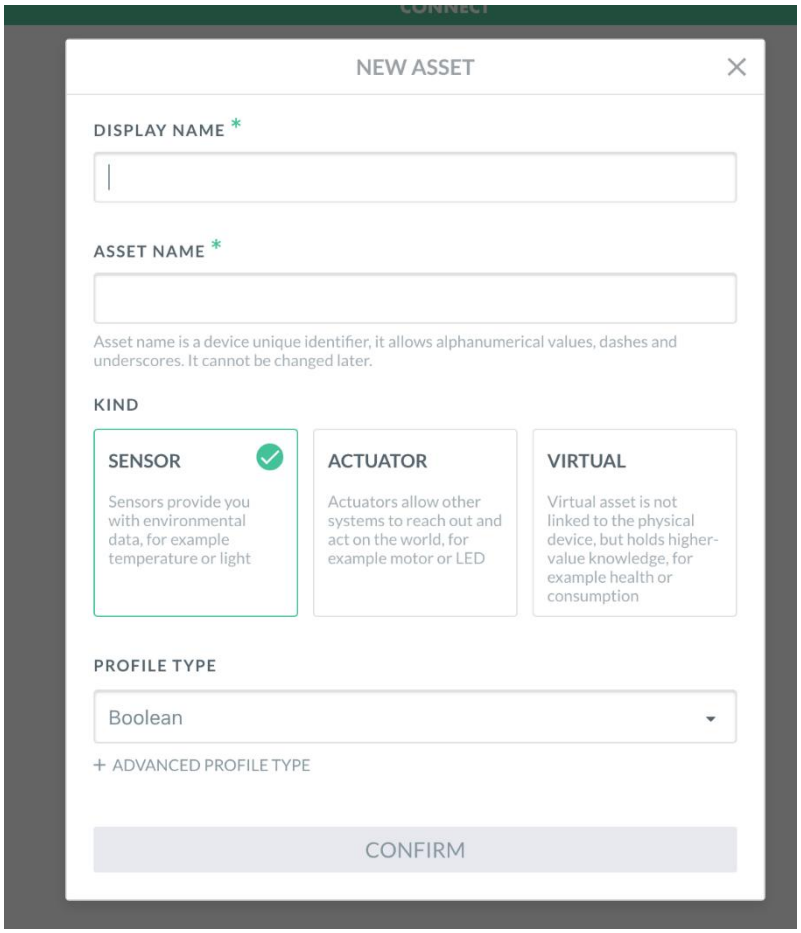


8. Enter the ID of the KIM1 module which can be found on the device itself



9. Lastly, the team needs to create assets. To do so, they need to follow these steps:





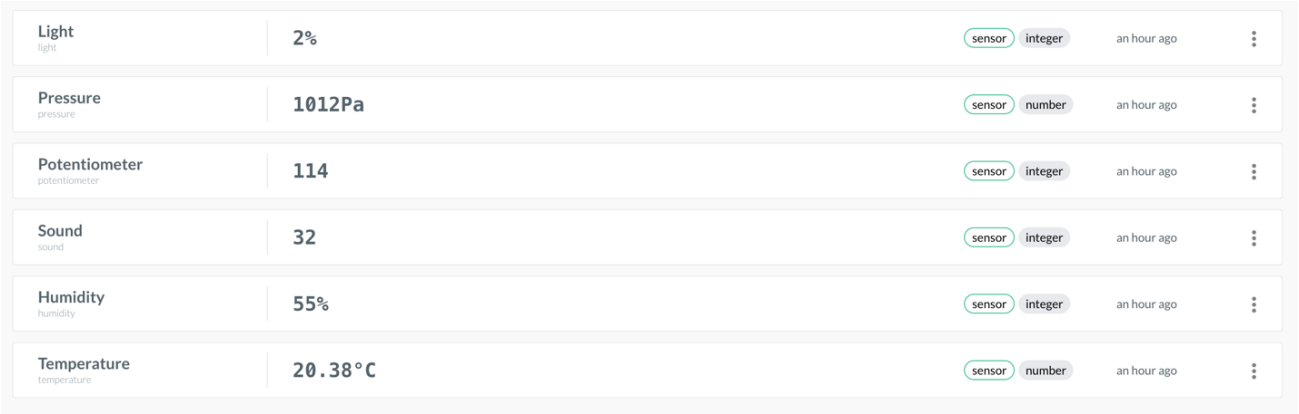
We recommend creating these assets: temperature, humidity and some others. To see the entire list, please check the [GitHub]

10. That is all!

The messages received on the platform coming from the Kineis device with the ID indicated will land on this ground.

It is important to mention that each Kim1 module can be added only to **ONE ground** at the time. In case it needs to be added a second ground, the Kineis ID needs to be disconnected from the first ground.

The moment a message is received, it will appear on the screen:



Members are invited to use Rules, Pinboards according to their needs. They can also use our rest API and also the MQTT Broker that is offered. All the documentation is here:

https://docs.allthingstalk.com/cloud/rules/

https://docs.allthingstalk.com/cloud/concepts/pinboards/

https://docs.allthingstalk.com/developers/api/get-started/

Important Details

- Make sure to put the device outside when a satellite is passing by.
  You can find the satellite passings here.
- The buzzer on the kit will produce a sound when:
  - KIM1 is not detected: `[1000ms sound] > [500ms pause] > [1000ms sound]`
  - Payload sending fails: `[200ms sound]`
  - Button press is registered: `[50ms sound]`
- The LED on the kit will light up when the KIM1 module is active.
- The range for values of light, sound and potentiometer are from 0 to 255.
- The payload being sent to Kineis needs to be **exactly** 23 bytes.
- If you change the data payload in Arduino, make sure to reflect that in the ABCL on the platform, as well as in assets.
- Do not use GPIO pin number 4 on the Arduino. This pin is used to power on/off the Kineis KIM1 module. When the Arduino is connected to the grove starter kit, GPIO 4 is the LED module, so you can observe it to figure if the KIM1 is on or off.