Intel-IrriS

PRIMA
PARTNERSHIP FOR RESEARCH AND INNOVATION
IN THE MEDITERRANEAN AREA

Intelligent Irrigation System for Low-cost Autonomous Water Control in Small-scale Agriculture

Intel-IrriS

Building the INTEL-IRRIS LoRa IoT platform Part 4: the INTEL-IRRIS Irrigation WaziApp

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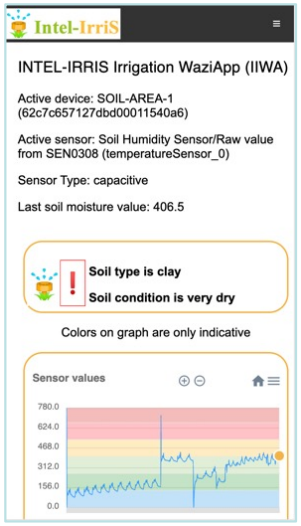
UNIVERSITÉ DE PAU ET DES PAYS DE L'ADOUR
LIUPPA

WAZIUP
IoT – from idea to reality
WAZIHUB

INTEL-IRRIS Irrigation WaziApp

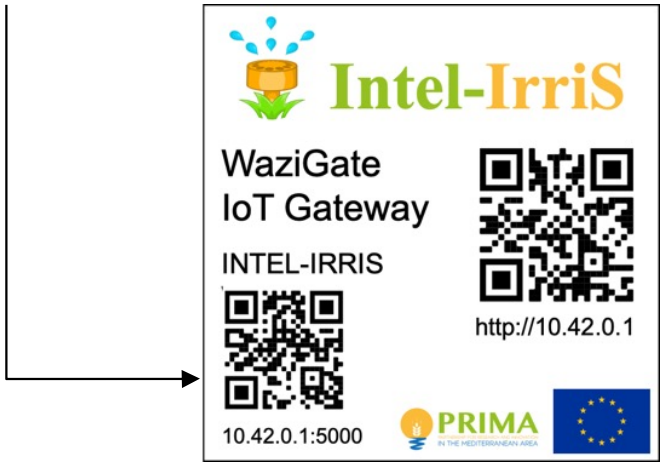
- The INTEL-IRRIS Irrigation WaziApp (IIWA) is an embedded application running on the INTEL-IRRIS WaziGate itself
- It is included in the starter-kit to implement the "intelligent Irrigation in-the-box" & "plug-&-sense" approach
- Its objective is to enhance the irrigation indication by applying sensor calibration models with soil/plant/weather parameters



Connect to IIWA

- First, connect to INTEL-IRRIS WaziGate WiFi which should look like WAZIGATE_XXXXXXXXXXX
  - Password is loragateway
- Otherwise, with the OLED screen, a QR code for automatically joining the WiFi network is periodically displayed for 10s
  - scan the displayed QR code with a smartphone to connect to WaziGate's WiFi
- Then, scan the static QR code on the WaziGate sticker to connect to the INTEL-IRRIS Irrigation WaziApp on : http://10.42.0.1:5000

WAZIGATE_DCA6325C2A7A



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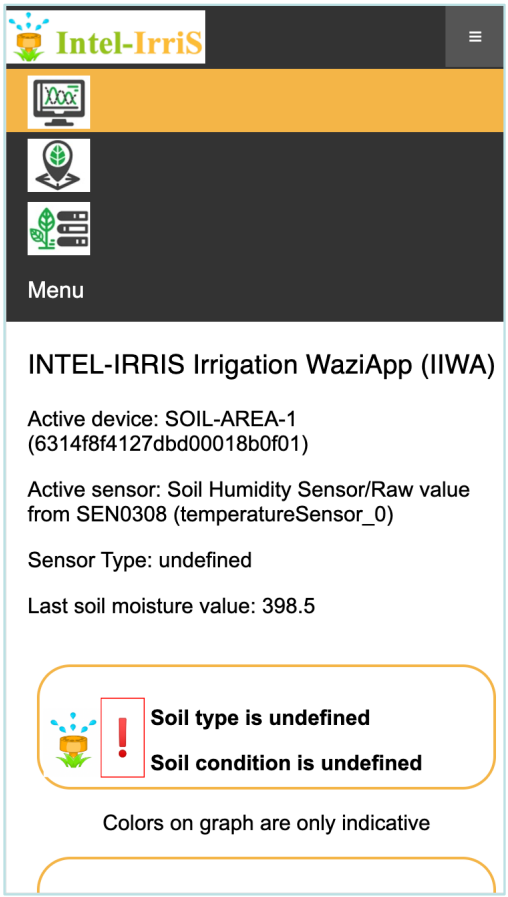
IIWA main screens

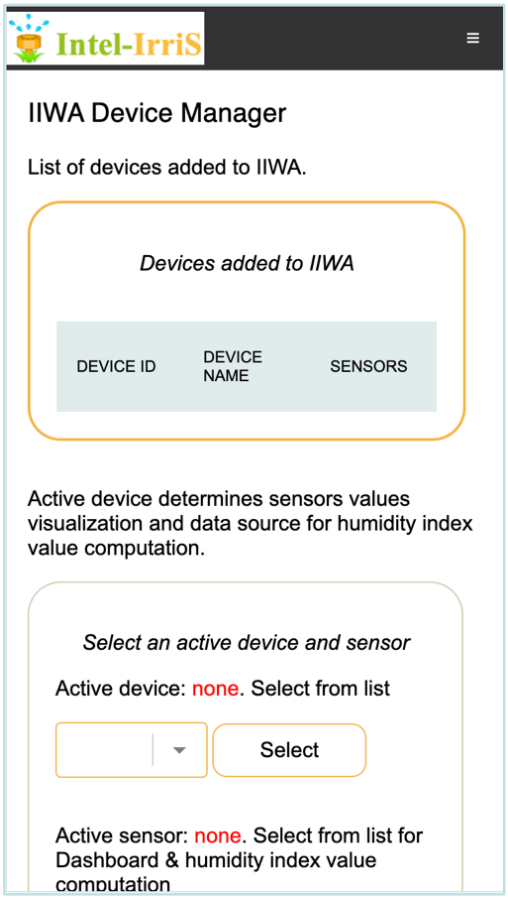
- Dashboard, Device Manager and Sensor Configuration

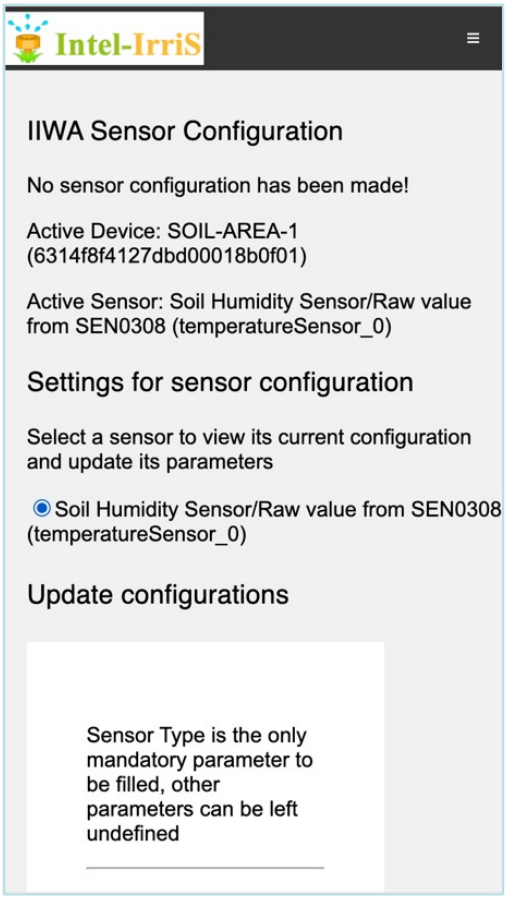
Dashboard →

Device Manager →

Sensor Configuration →

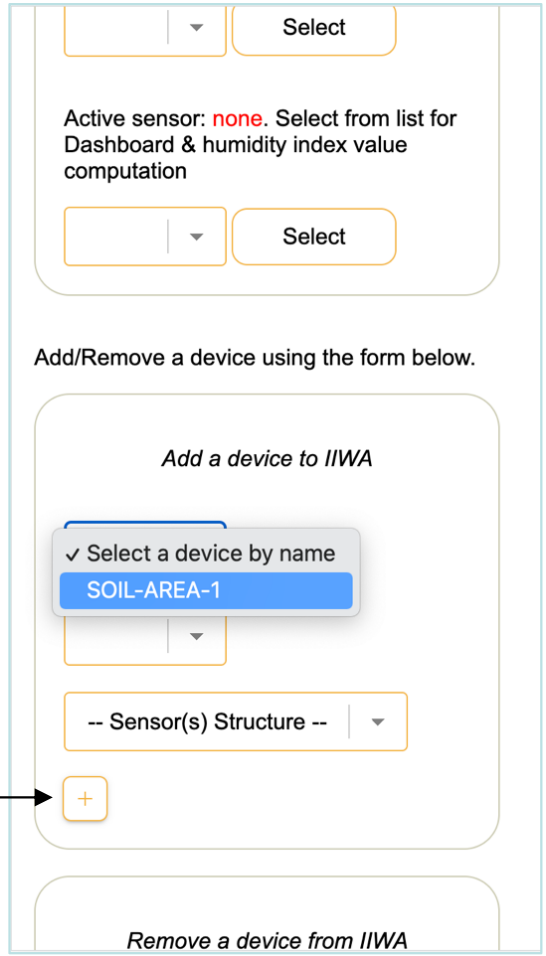


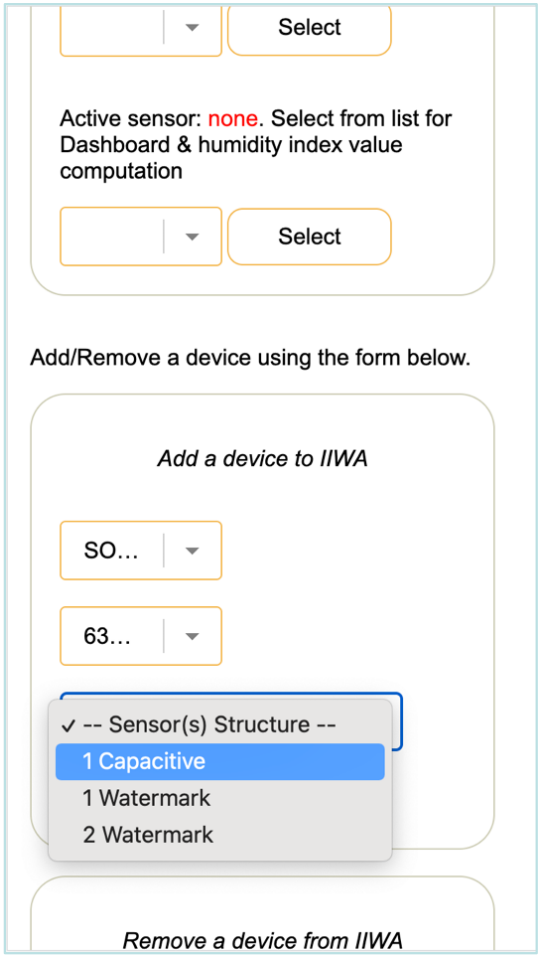




Add a device to IIWA

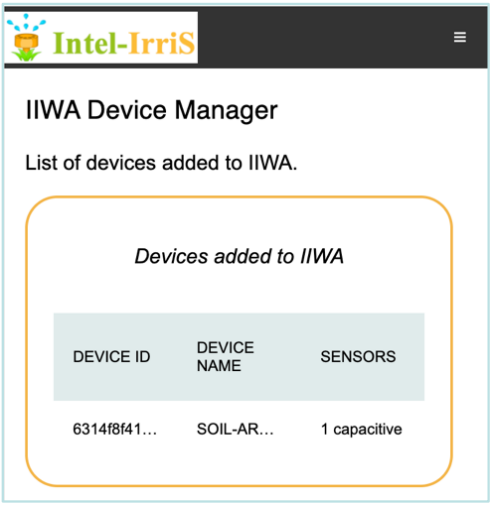
- IIWA only monitors devices that are added to the IIWA application
- By default, there is no device associated to IIWA
- Go to Device Manager to add the default capacitive sensor device
- The device name is SOIL-AREA-1
- Select "1 Capacitive" as sensor structure
- Click on "+" icon



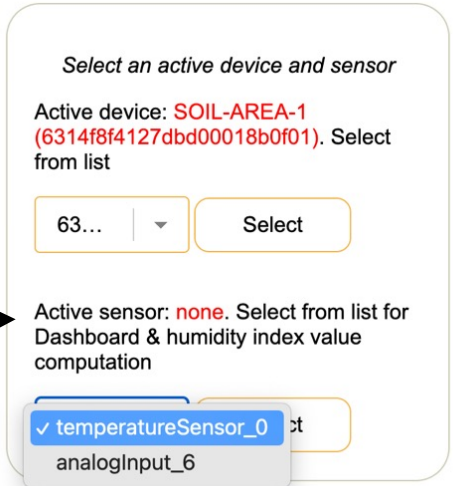


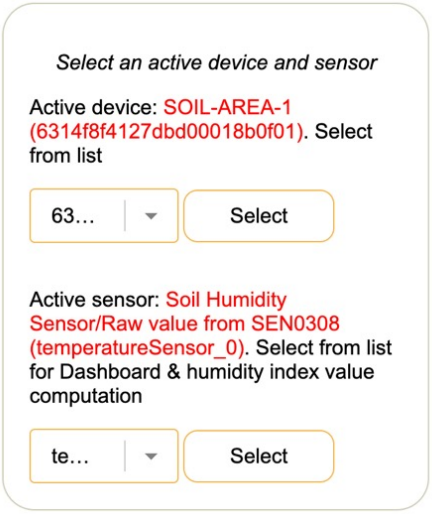
Select the active device

- The list of added device is updated
- Then, an active device/sensor pair must be selected for sensor configuration
- Normally the newly added device is selected as active
- Select temperatureSensor_0 for the active sensor



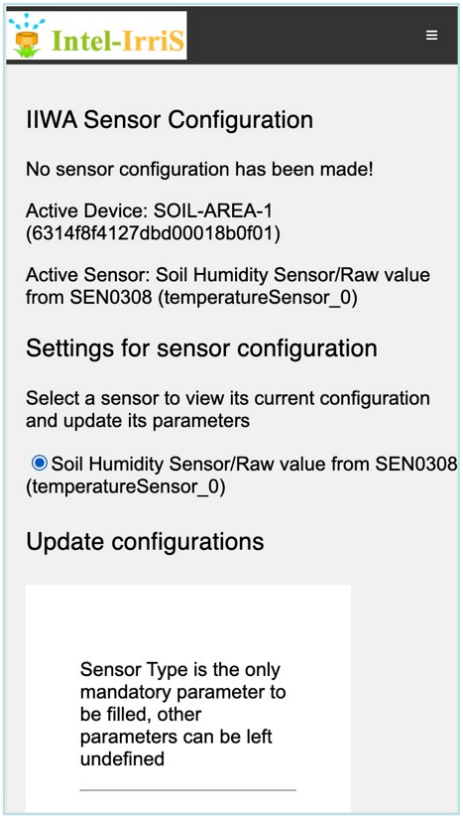
Active sensor is "none", so we need to select a sensor

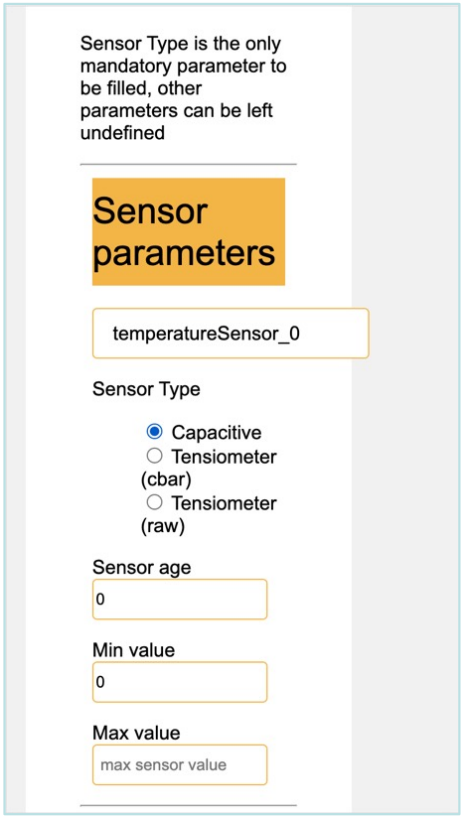


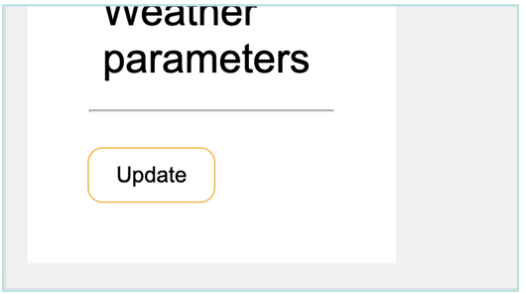


Sensor configuration

- To enable IIWA to calibrate the sensor, the minimum information is to provide the sensor type
- Go to Sensor Configuration and select the Soil Humidy Sensor
- Then, open "Sensor Parameter" tab and select "Capacitive"
- Scroll to the bottom and click on "Update"

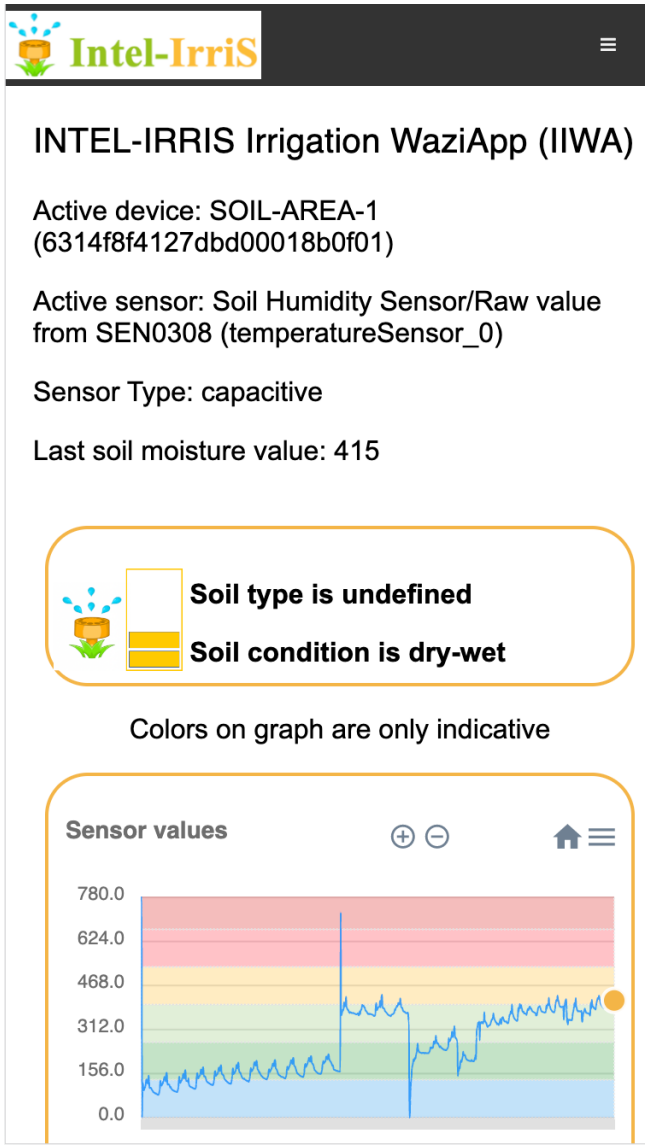






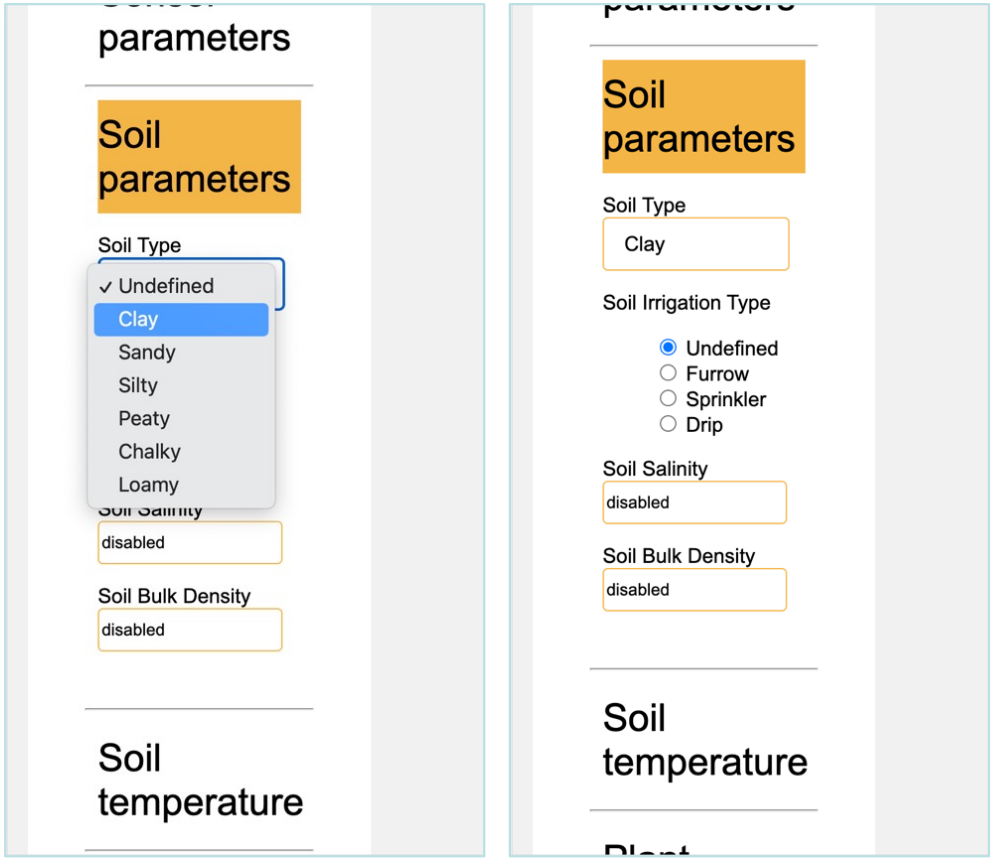
IIWA dashboard

- Now that a device/sensor pair has been defined, IIWA dashboard can display information for the active sensor
- The soil type, and other parameters, are still undefined therefore IIWA takes the default value to determine irrigation conditions
- The "dry-wet" indication in this example not correct



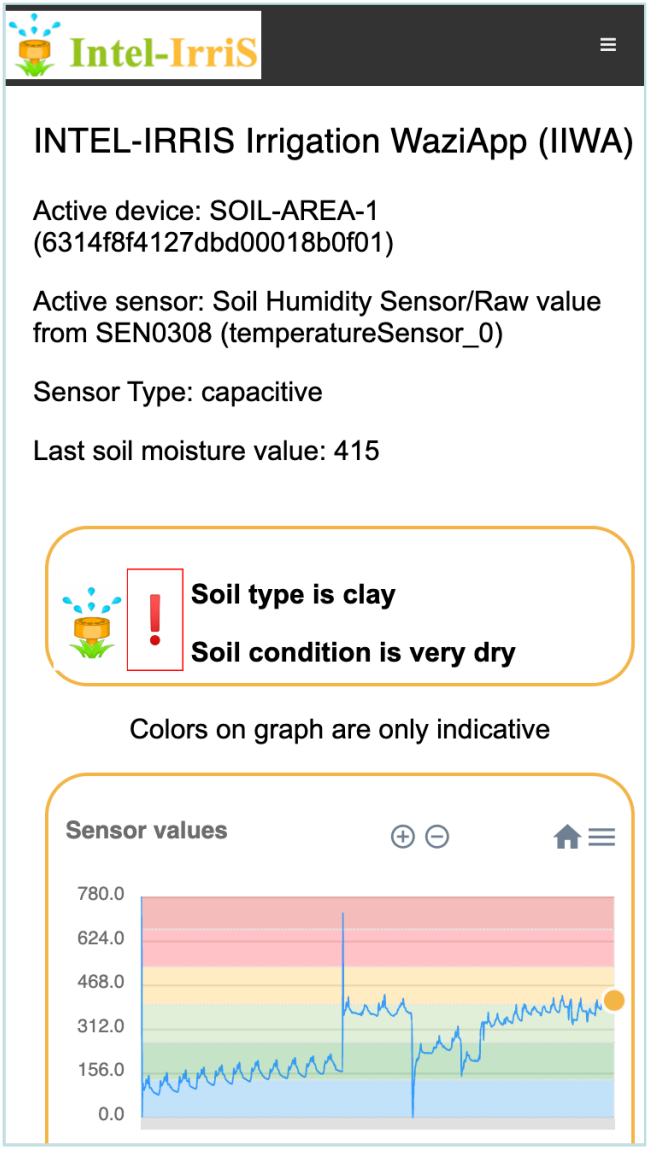
Advanced configuration

- We will configure soil type to better reflect the reality
- Go back to Sensor Configuration and select the Soil Humidity Sensor
- Here, we go to "Soil Parameter" tab and select "Clay" as soil type
- This is the soil type where the sensor is installed for this example
- Don't forget to click on "Update"

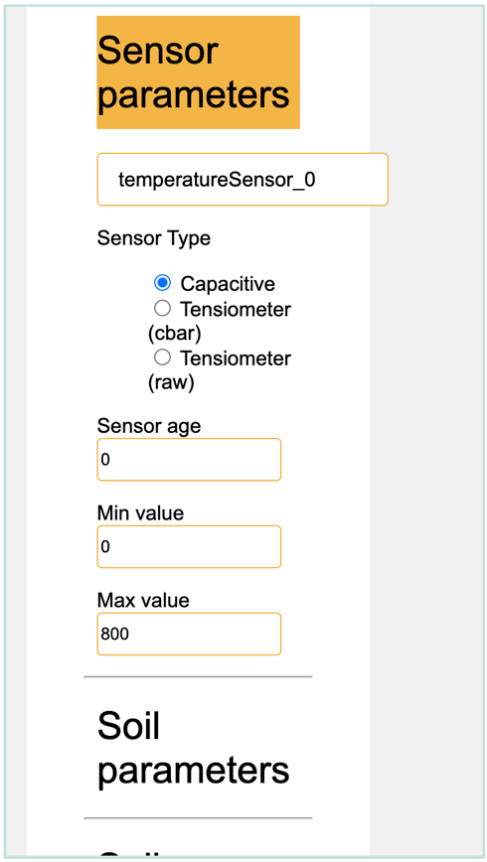


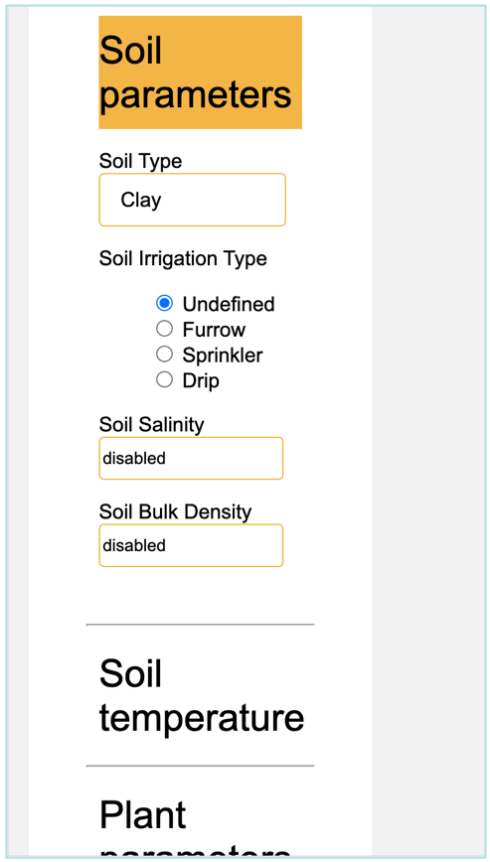
Get back to the dashboard

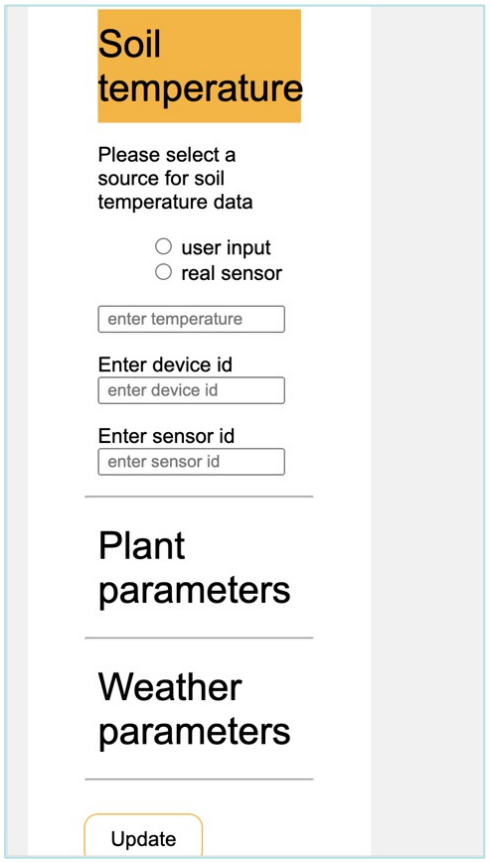
- When getting back to the dashboard, the irrigation indication has been corrected by taking into account the soil type
- The soil condition is reported to be "very dry" which is the case in the deployment example used for this tutorial
- More parameters will be integrated in IIWA during the INTEL-IRRIS project

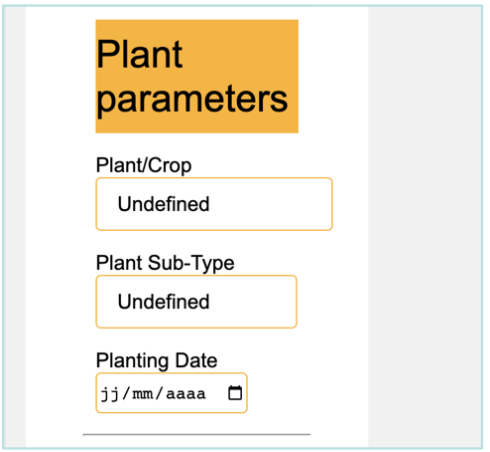


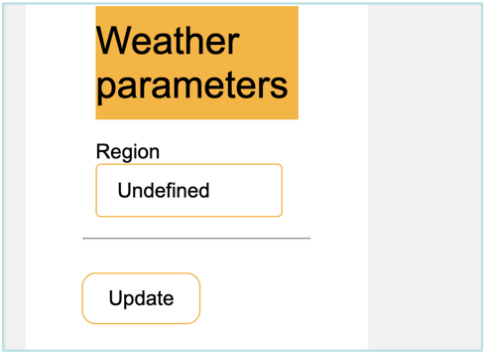
List of advanced parameters







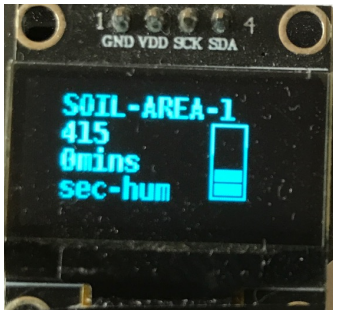




Indication on the OLED screen

- IIWA monitors devices that are added to the IIWA application and only process sensor data from sensors that have been configured – i.e. at least the sensor type must be selected
- When the device/sensor has been properly configured then "IIWA" text is shown on the summary screen associated to the device
- If the irrigation indication computed by IIWA is older than the received time of the last value from the device then "IIWA" text will not show anymore, indicating that the irrigation indication may not be accurate
- This can happen if IIWA application is not running for some reasons. In this case, try to reboot the INTEL-IRRIS WaziGate if you are sure that device/sensor configuration has been performed properly

IIWA is active. Irrigation indication "très sec" (very dry) reflects the soil condition



IIWA is NOT active. Irrigation indication "sec-hum" (dry-wet) does not reflect correctly the soil condition as sensor type and soil type are not taken into account