



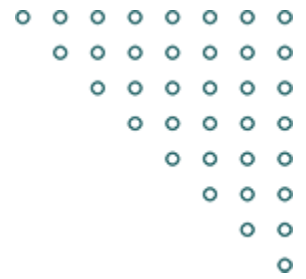
Wireless Precision Irrigation Automation IoT Platform



# IRRIOT

## Installation Instructions

Version 1.7 | 2023-04-28



# Base Unit Installation

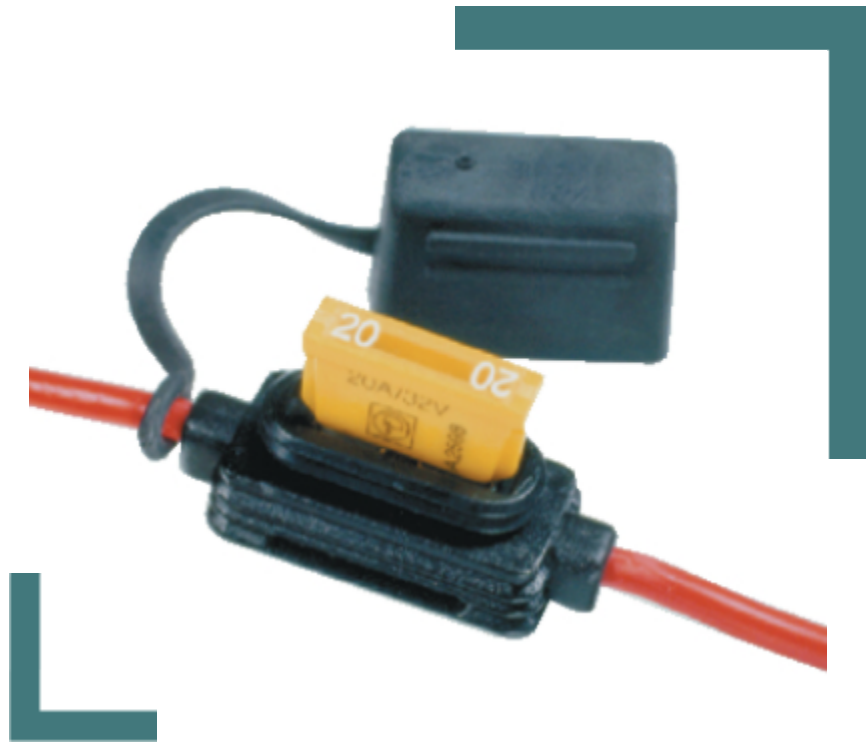
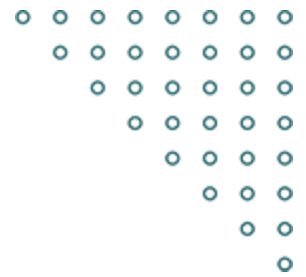
Begin installation with the Base Unit, the Wireless Irrigation Controller itself.

## Mounting and Powering the Unit

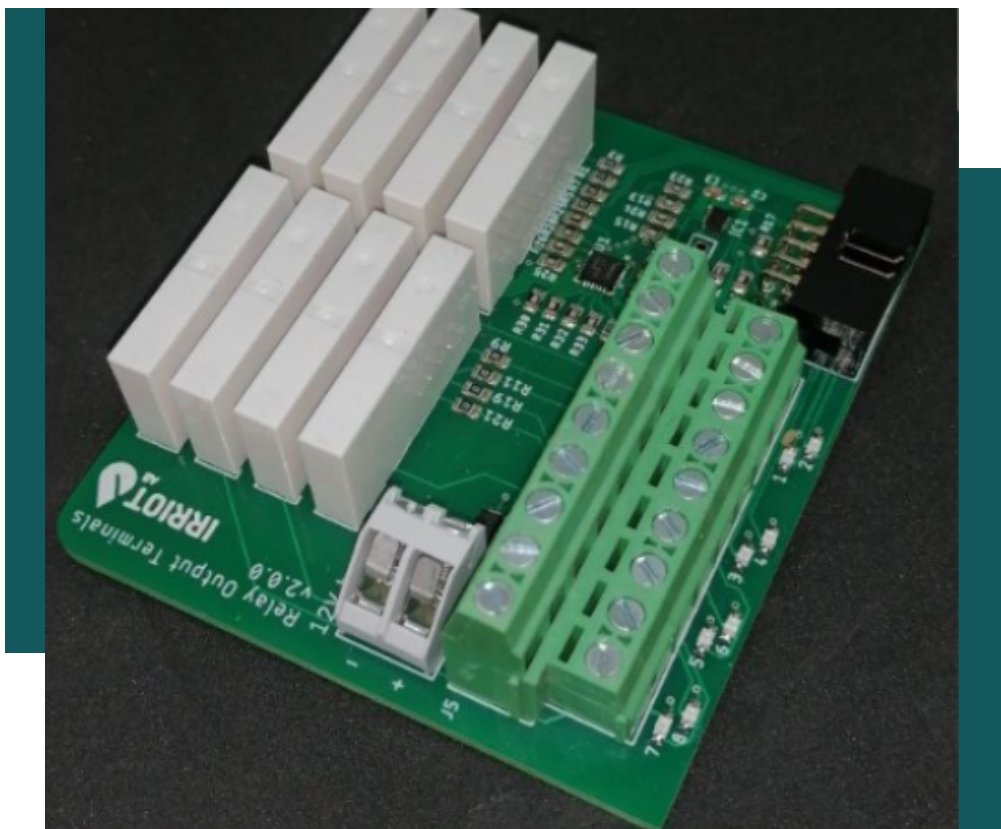
The Base Unit requires mains power. The unit is equipped with a 2m cable with a EU plug. The Base Unit hangs on two screws, with one extra screw underneath the sliding latch for robustness:

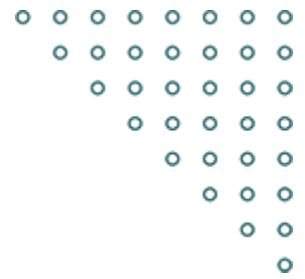


If your Base Unit is equipped with one of the extension modules (optional), a 12V backup battery, e.g. a standard car battery, can be connected to it. The battery is not used (not discharged) while the unit is connected to mains power. In the event of mains outage, the battery automatically takes over without any service interruption. A fully charged 65Ah car battery will supply the Base Unit for at least 1 month, providing for all scheduled and manual irrigation. An inline fuse with nominal value 3A must be used between the battery and the extension board's terminal :



The screw terminal on the RE-8 extension board is located on the bottom side of the board, marked 12V and - and + for wiring:





Pull out the Extension board halfway to get access to the screws. Observe the polarity! There are "+" and "-" signs beside the terminal.

To provide for the entry for the backup (or any other external) cable, cut the rubber inlet cover appropriately:





## Antenna Installation

The controller is co-located with the high-gain ceramic antenna. The RF cable provided is 10m long coaxial 50 Ohm RF cable, black:



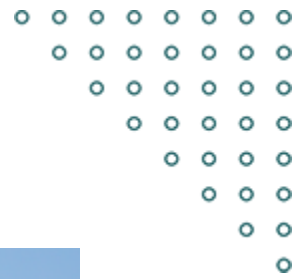
The cable should not be modified by the customer. It is not possible to shorten or extend an RF cable without severely undermining radio performance. If your requirements can not be met with the 10m cable between the antenna and the Base Unit, please order a cable with desired length from us or other electronics/radio professionals. The cable has an N-type socket on the antenna side and SMA plug on the Base Unit side. The Base Unit has two RF ports, both residing on top of the unit.

The Base Unit has two RF ports, both residing on top of the unit. The left side connector is for WiFi. It has the antenna mounted upon delivery. The RF connector to the right, is for LoRa communication. That is where you connect the black RF cable coming from the high-gain antenna:



Choosing the location and height of the antenna is the most important factor for stable connectivity. One should struggle to provide a direct line of sight between the high-gain antenna and the Remote units.

On the coming pages you can see a few good examples of antenna installation:





When selecting the location for the high-gain antenna/Base unit consider that you will mostly control irrigation from the app. Thus placing the Base closer to the valves (or pump) is better than placing it closer to your home/office.





In some cases a 17cm whip antenna is sufficient to provide the required coverage. The antenna is included in the delivery for test purposes but it can be used for smaller installations too:





## Pump Control (optional)

If your Base Unit is equipped with a Relay Extension Module, you can configure the Unit to provide up to 8 start and stop signals. It could be pump or fertilizer control, as well as any other equipment such as 24VAC solenoid valves.

Notice that the outputs are passive relay contacts. Typically a frequency pump controller has a factory default configuration for one digital input specifically allowing to activate or deactivate the pump externally. Normally it is between the 24V output pin on the frequency controller and the digital pump activation pin that the wires from the Base Unit should be connected. If in doubt, ask your pump supplier or IRRIoT engineers. The picture below illustrates where the control wiring for pumps go from:



Pull the wires through the inlet cover underneath the unit. Pull out the Extension board to access the terminal's screws. Screw the wires (no polarity). Push the board back in, when the wires are connected.

In order to get the pump activated when a specific wireless station opens its valves, the wireless station should be configured accordingly through the menu.



## Rain Sensor

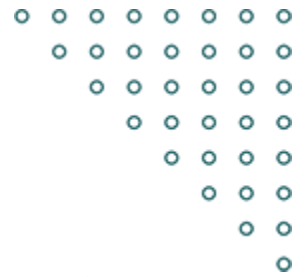
A rain, or any other switch-type sensor, can be connected to the Base Unit.



The terminal to the left corresponds to Base Sensor 1, the other terminal is sensor 2.

Pull the Rain Sensor's wiring through the inlet in the bottom, and connect to the terminal (push the pad with a screwdriver and stick the wire all the way in).

The Rain Sensor can be connected to a Remote Unit too.

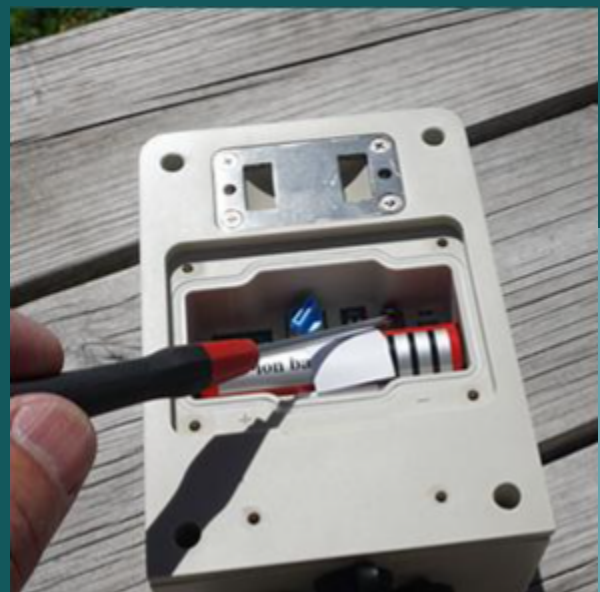


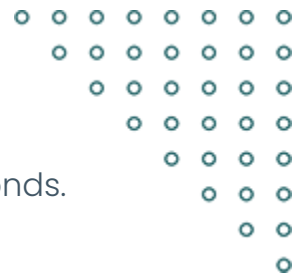
## Remote Units' Installation

Now it is time to install the Remote Units. Whenever possible the Remote Units are paired with the Base Unit on delivery. They have a number assigned. This is the Wireless Station number. When the Remote Unit is delivered unpaired, the user has to pair it first (see User Manual).



All you need to do to get them up, is to power up. For this, unscrew the latch on the back and lift up the little rocker switch:





Both the LED inside and the alarm LED outside will illuminate for 3 seconds.  
Screw back the latch. The Remote is activated.

For mounting the Remote Units, consider the following options:

A. The bracket

B. The hose clamp or just a plastic tie, whichever suits you best:



Each unit comes with a pair of 1.5m valve cables:

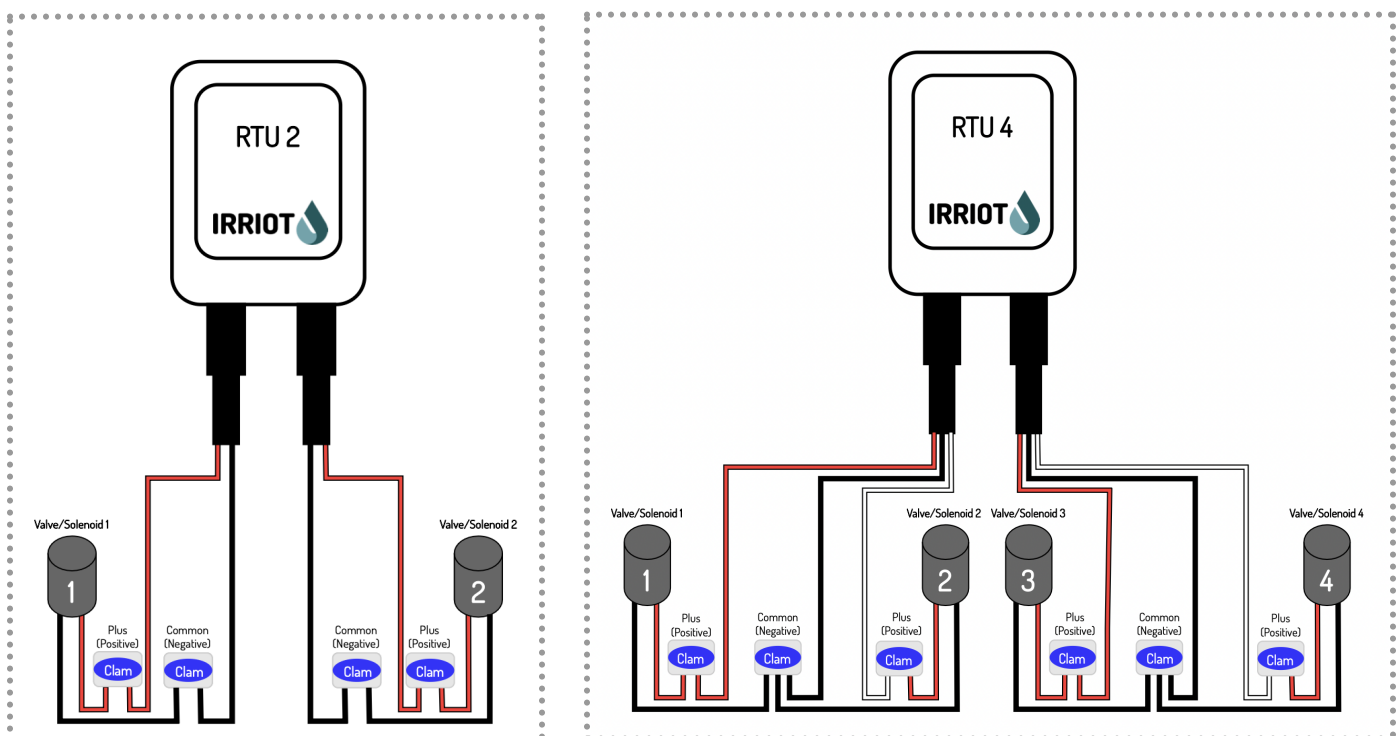


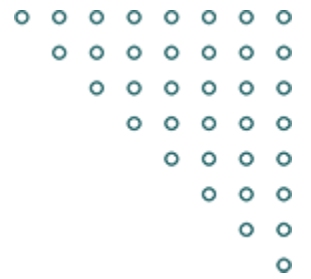


Depending on the type of the node (RTU-2.x or RTU-4.x) the included cables shall be 2-core or 3-core. You can extend or shorten these cables freely to reach out to valves a hundred meters away if desired. Use the blue watertight silicon connectors to attach to the solenoids in the field (press all the way down with the pliers for a proper contact!).

Wiring of the 2-core cable (RTU-2) is straightforward: connect the black wire to the black wire of the solenoid, connect the red wire to the red wire of the solenoid. Looking up front the left connector is Valve 1 and the right connector is Valve 2. See the left picture below.

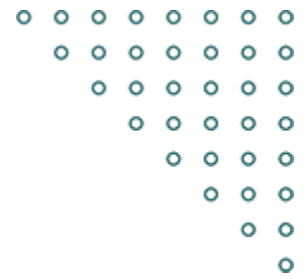
Wiring of the 3-core cable (RTU-4) is done according to the right picture below. Connect the red wire to the red wire of Valve 1, connect the white wire to the red wire of Valve 2. The black wire is shared among all four valves. You have one black wire on each of the two cables. Use any, or both, whichever is more convenient. Looking up front the left connector is Valve 1 (red) and Valve 2 (white) and the right connector is Valve 3 (red) and Valve 4 (white).





Remote Unit (RTU) should be mounted at least 1.5m above the ground.  
The small height difference can make a great difference in radio performance.





# IRRIOT Cloud Service

## Registering User Account and the Base Unit

The next step is to connect to the IRRIOT Cloud. Firstly, connect the WiFi dongle to the permanent WiFi in your area. Please follow the below tutorial:

<https://www.youtube.com/watch?v=9i5A5EQayJw>

or <https://www.youtube.com/watch?v=a7LbbFnc0Bo>

Upon successful establishment of the Hub connection, the LED on the WiFi dongle will lit green:

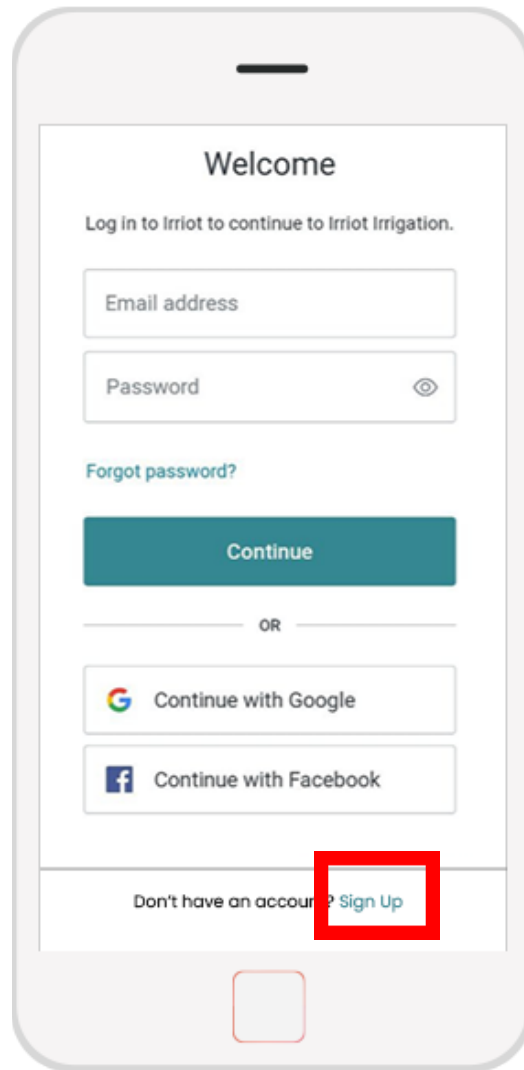
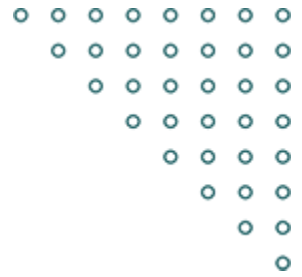


Next, you have to create your account and register your Base Unit in the cloud.

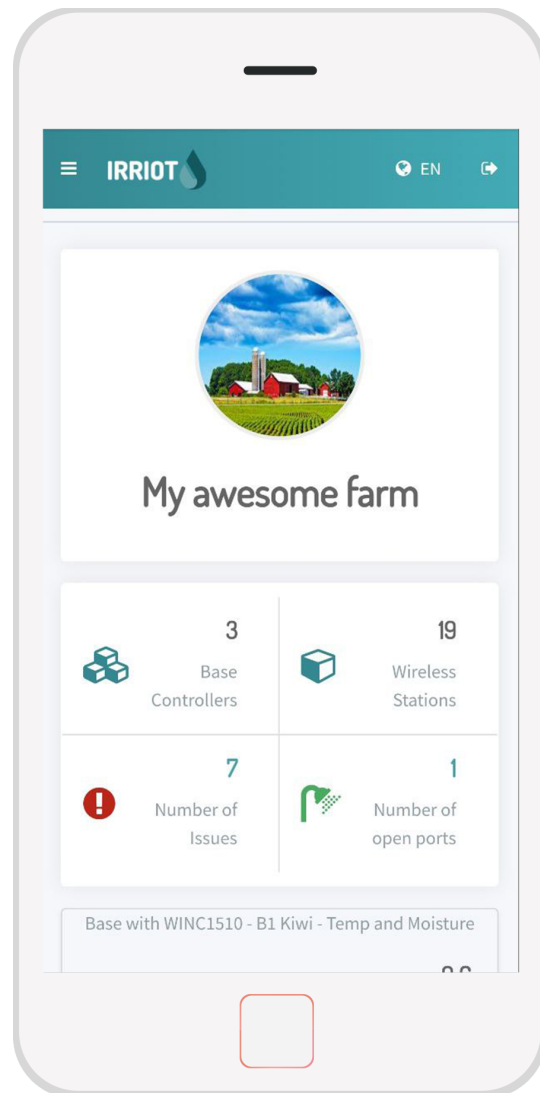
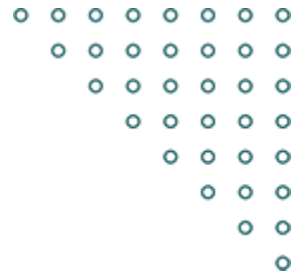
In a browser in your mobile, type [app.irriot.com](http://app.irriot.com)

You'll see the login page. Choose Sign up:

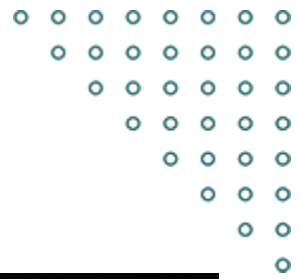


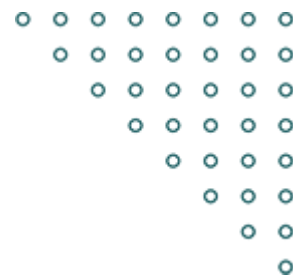


Once the registration is complete, just follow the wizard for registering your Base Unit. You will need your unique Base Unit ID. You can see it in Menu About... or inside the Base Unit under the sliding latch. Type it in the Wizard when asked for. If all is successful, on completion of the wizard you should see something like this:



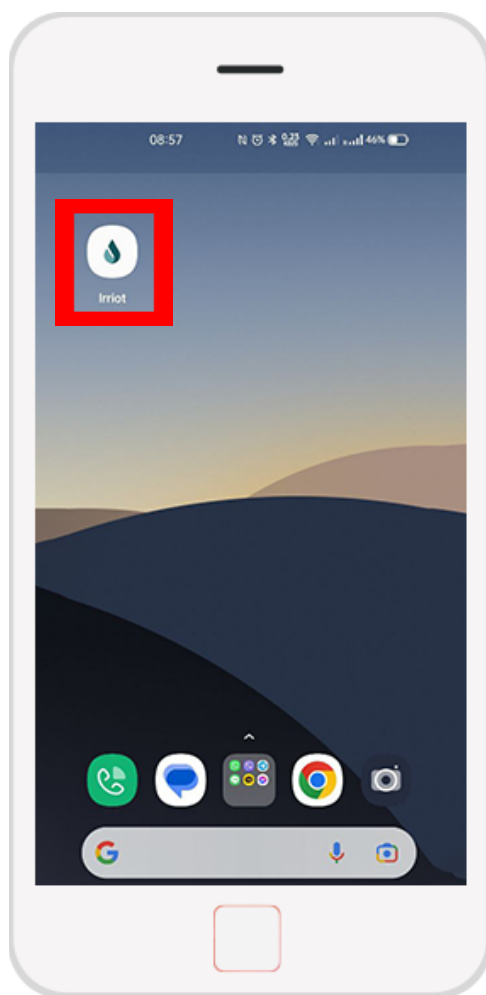
Now you have to restart the Base Unit to sync up with the Cloud. You can pull the wall plug, or push the reset button underneath the slider in the Base:





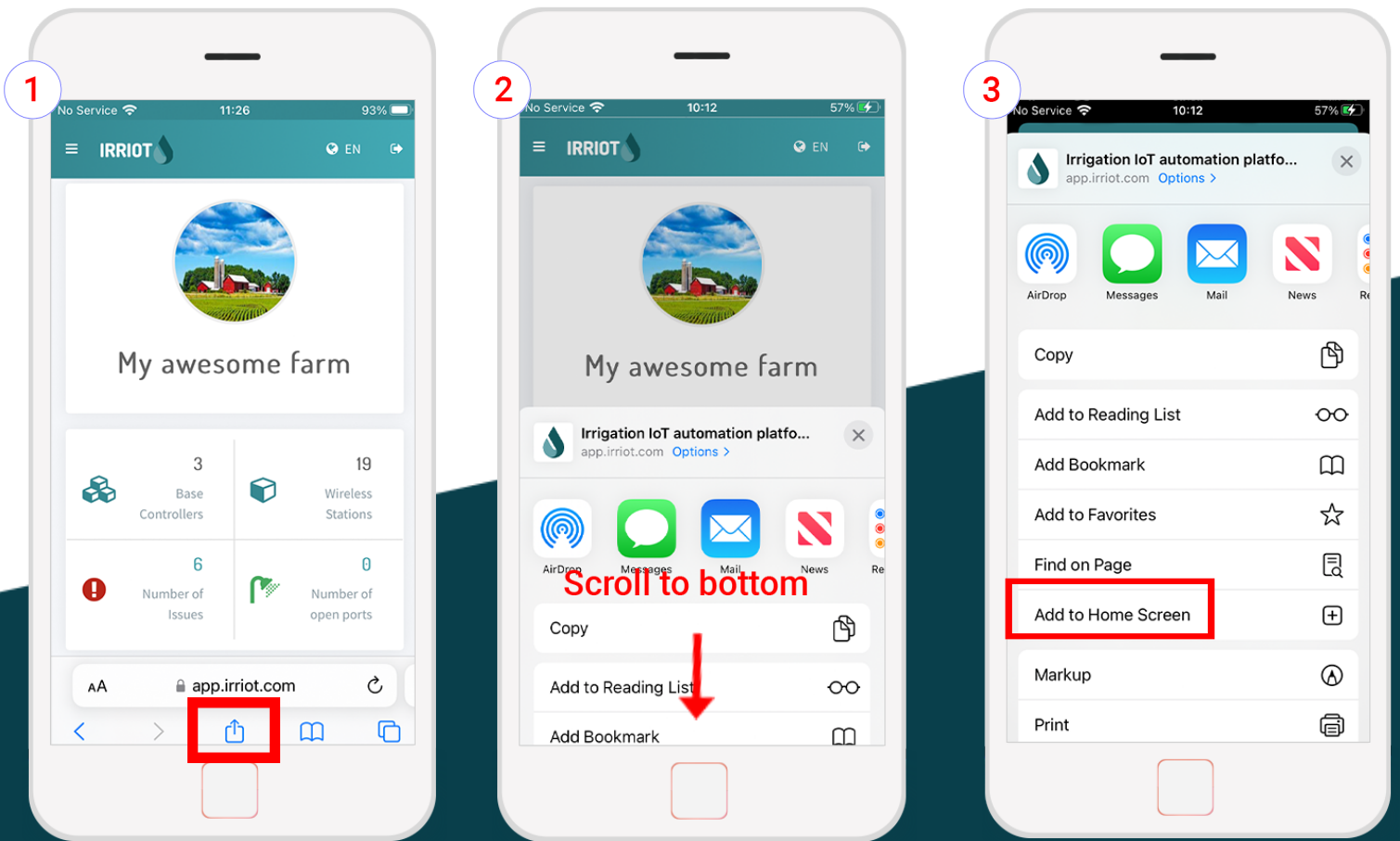
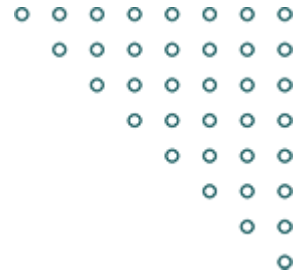
## Adding the app to home screen

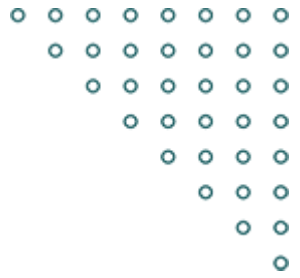
It is convenient to have IRRIoT app available at your fingertips from your device's home screen, like this:



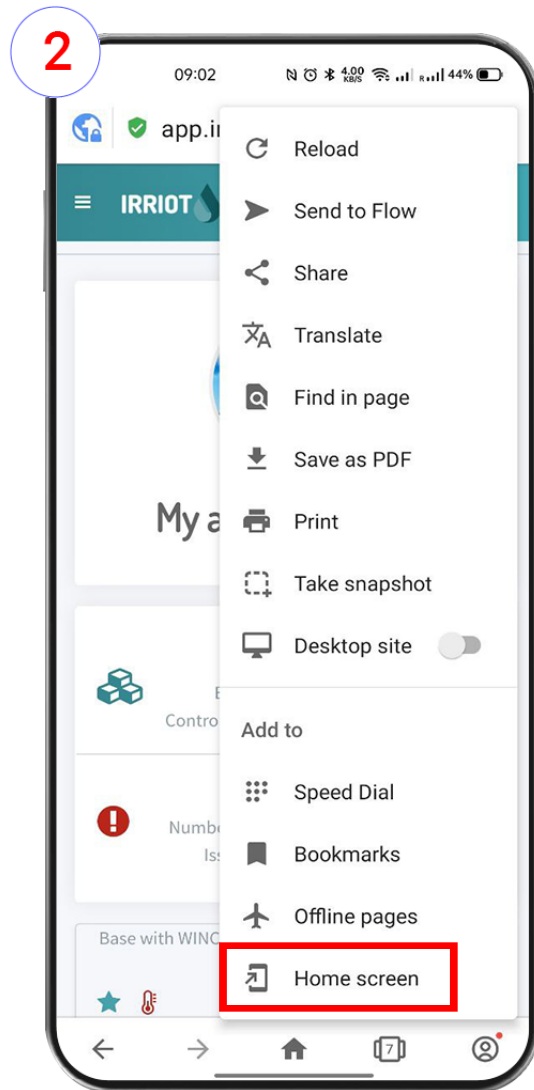
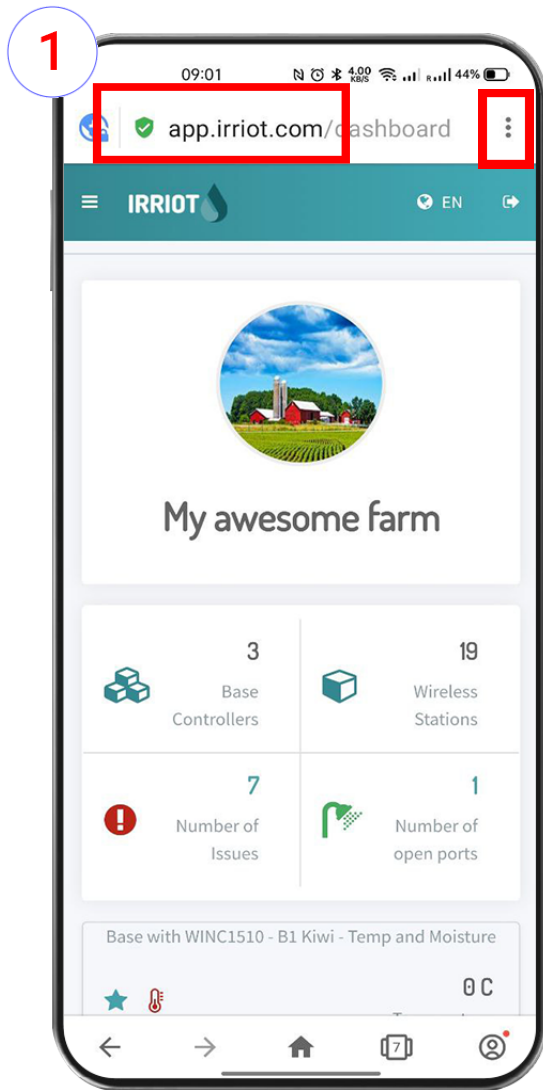
To place the icon on the home screen follow the below steps, depending on the mobile device's type. Notice that you should do this from the web browser after the registration is completed.

# iPhone or iPad





## Android Device





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