

frogparking

Frogparking Site Hardware Installation Instructions

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FROGPARKING SITE HARDWARE INSTALLATION INSTRUCTIONS

This document is for authorized Frogparking installers only.

The instructions detailed below are for installing the following Frogparking hardware:

1. Wireless Link (a Frogparking gateway)
2. Surface mount Frog sensors

Each piece of hardware is covered in detail in a dedicated section. Review the tools required and then visit the appropriate hardware section for further instructions.

Tools required

The following tools will be required to successfully install your Frogparking hardware.

General

- Samsung Galaxy S3 or S4 with data services and the latest installer app. loaded (contact Frogparking for the app).
- Laptop (if checking system status on site). Requires WIFI or data services but could be tethered to smartphone for web access.

Wireless Link Installation

- SIM card with data services and details of required settings for the data service.
- No1. Philips screwdriver
- No2. Philips screwdriver
- 'Band-it' strapping, buckles and strapping tensioning tool (<http://www.band-it-idex.com/en/products/Tools/BAND-IT%20Tool.html>)

Note that the Band-it strapping hardware to fix the wireless link bracket to a pole is listed here as it is not included as part of the Wireless Link and is up to the installer to supply.

- Tin snips
- Pliers
- Hammer
- Ladder or alternative to reach installation height safely.

Frog Installation

- Cordless Hammer drill with 2 batteries (Recommended by Frog: Ramset R28 Lithium Ion)
- 5mm masonry drill bits (standard, approximately 1 per 100 frogs with space markers)
- 6mm masonry drill bits (for concrete and paving stones only, alternatively use 5mm masonry bit and 30mm masonry screws)
- Brush
- Cordless power drill with 2 batteries (18V minimum, recommended by Frog: Hitachi 18V Lithium Ion)
- On site power for charging batteries e.g. generator. Ensure enough hot points for all chargers/devices!
- T30 Torx driver bits
- Drilling jig

With all the required tools ready to go, you can now begin installation.

1. Wireless Link Installation

The Wireless Link is an essential part of the Frogparking system, providing the bridge between the sensors and the web based management system.

Installing a Wireless Link involves several key steps:

1. Fit the SIM Card
2. Register the Wireless Link on the Frogparking system
3. Mount the Wireless Link

Instructions for each step are given below.

Fitting the SIM Card

If you are supplying your own SIM card for the Wireless Link data services, this will need to be fitted.

Follow the below steps to fit the SIM card...

1 Remove the mounting bracket

If the Wireless Link was shipped with its mounting bracket attached, use a No.2 Philips screwdriver to remove the 4 screws holding the bracket in place.

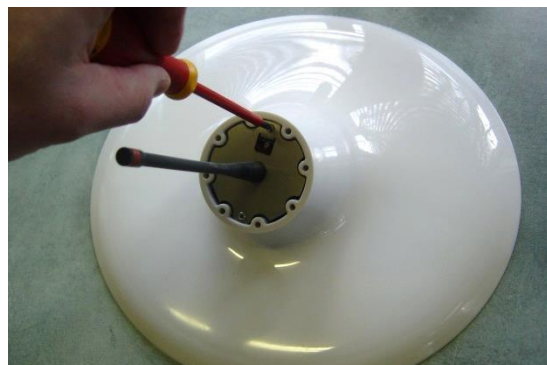
Remove the bracket taking care not to damage the antenna (if fitted).



If the antenna is not fitted – fit it now.

2 Remove the circuit board and battery sub assembly

Using a No.1 Philips screwdriver, remove the 2 screws holding the sub assembly in place.



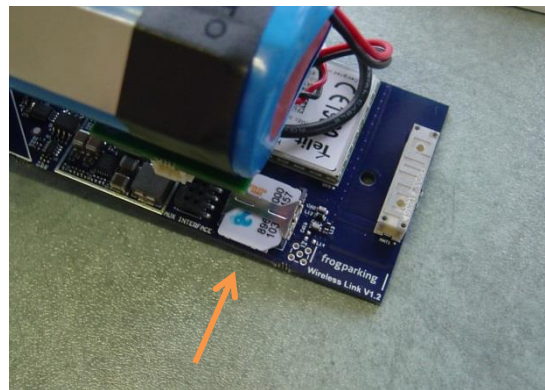
Carefully slide out the sub assembly taking care not to damage the circuit board.



3 Insert the SIM card

The SIM card holder is located near the end of the board on the side facing in towards the battery.

Insert the SIM card so that the contacts are facing down and the chamfer on the corner of the card is to the outside of the board.



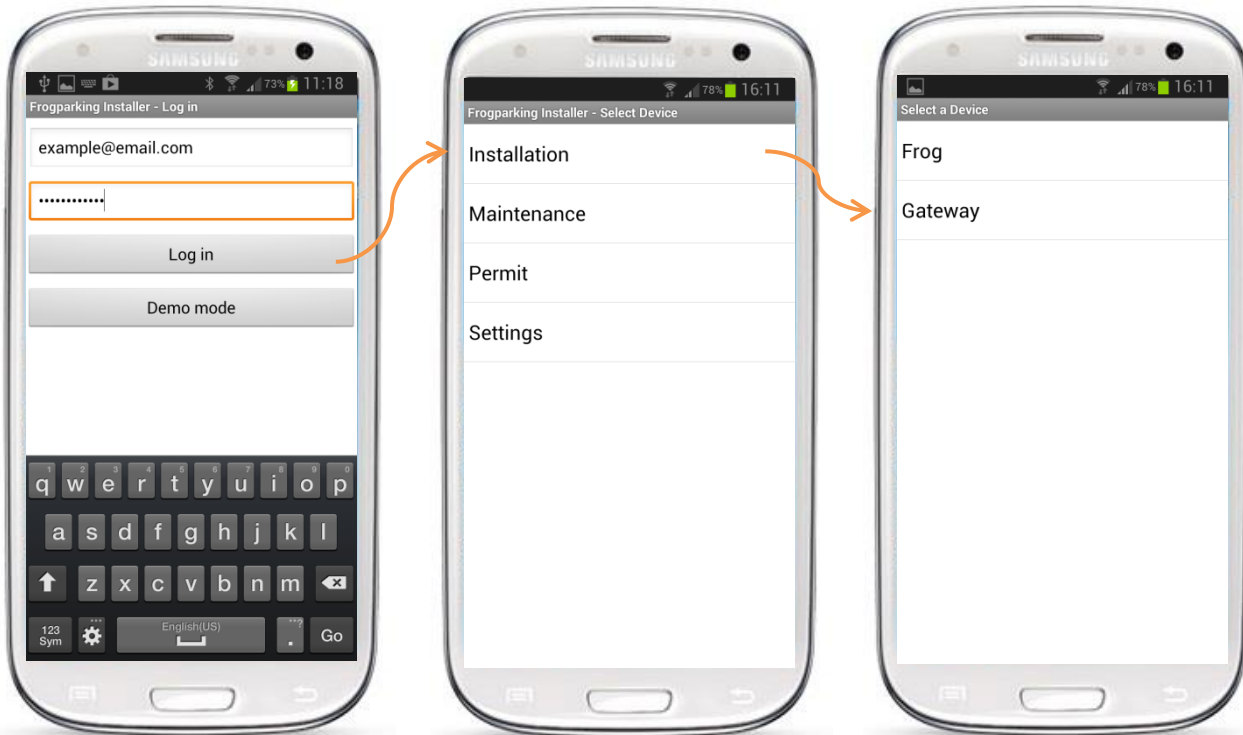
It is a good idea to check the operation of the Wireless Link with the SIM card prior to mounting the Wireless Link, as once mounted it will be more difficult to reach and the LED's are not visible. See the later section on Registering the Wireless Link for further details.

Registering the Wireless Link

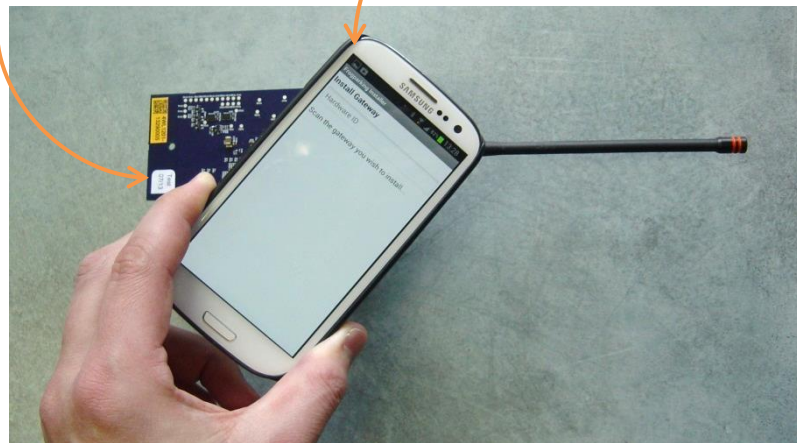
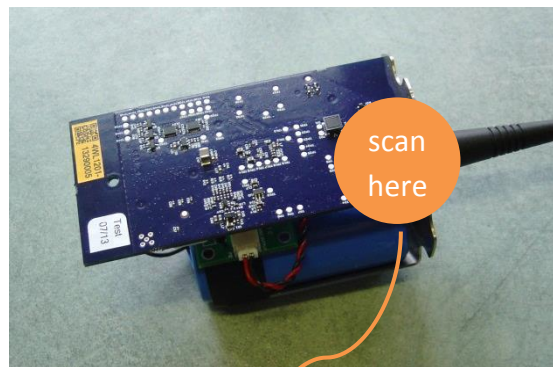
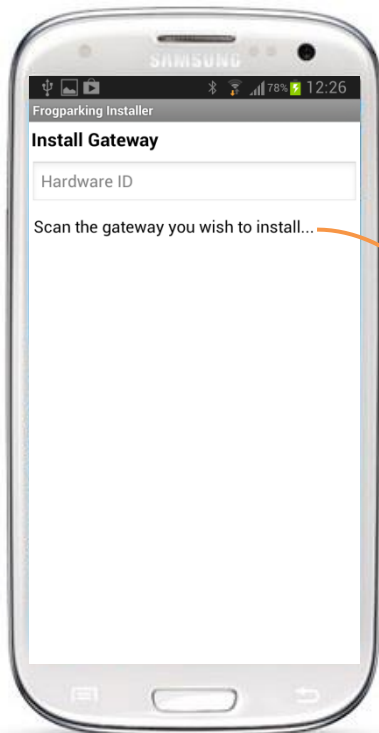
To register a Wireless Link on the Frogparking system, the Frogparking installer app. is required on a Galaxy Samsung S3 or S4.

Follow the below steps to register, setup and activate the Wireless Link. These steps presume the SIM card has already been fitted and the Wireless Link is ready for operation. If the Wireless Link's antenna has not yet been fitted, fit the antenna now.

1 Start the Frogparking Installer app, log in and navigate to the install gateway screen



2 Scan the gateway...

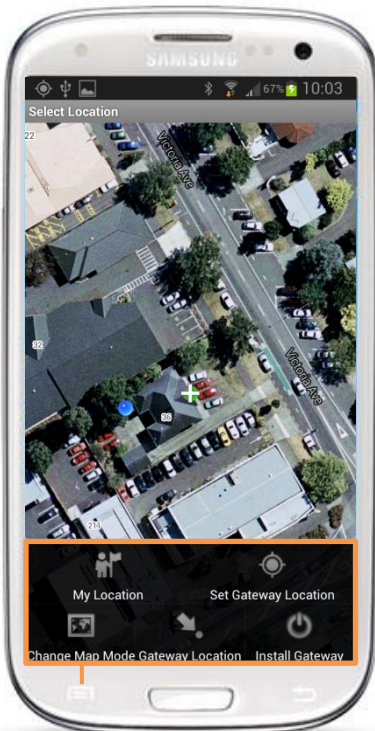


3 Enter the settings...



- The appropriate APN to access the SIM cards data services
- An ID number to identify the SIM card, typically the number printed on the SIM card.
- The user name for the data services (if any)
- The password for the data services (if any)
- If it is desirable for the gateway to have custom operational hours outside of the default settings for the organization, un-tick the 'Default Times' box and use the 'Set Wake Up Time' and 'Set Sleep Time' buttons to define the appropriate times.

4 Set the Gateway Location



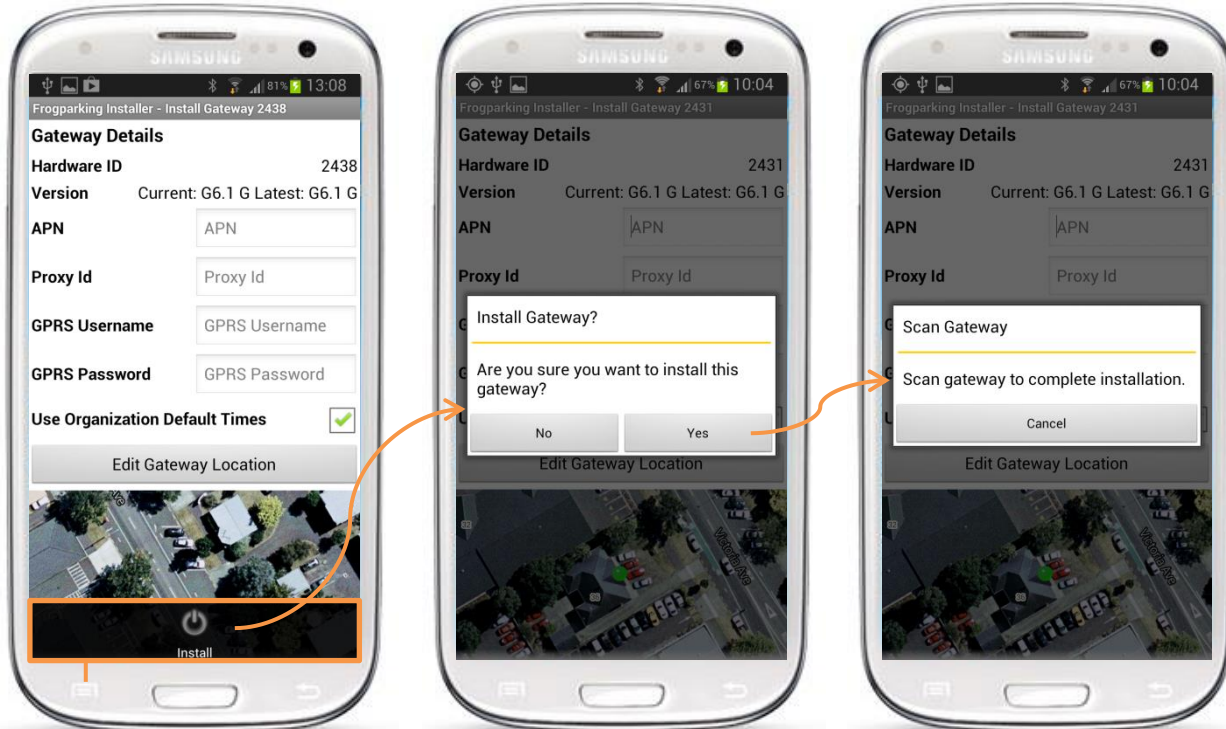
Next, press the 'Set Gateway Location' button to go to the map screen for locating the gateway in the system. A blue dot will show your current location.

Scroll the map until the white cross is positioned where the gateway is located and then activate the menu and press 'Set Gateway Location'. A green dot will now show the marked position.

The 'My Location' button will centre the map on the current GPS position. 'Gateway Location' will centre the map on the existing gateway location if one has previously been entered. 'Change Map Mode' will toggle on and off the satellite images displayed on the map.

When done, press the back button to return to the previous screen to check details, or 'Install Gateway' to proceed with the installation without double checking details.

5 'Install' the Gateway

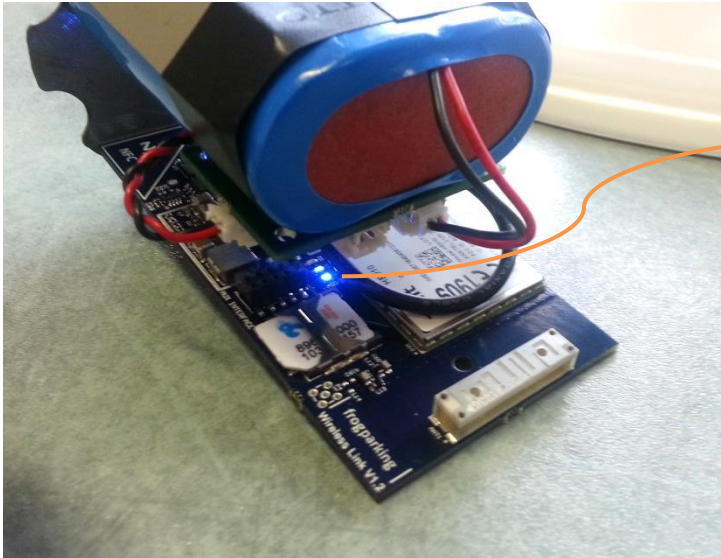


Now that a location has been entered, the map is shown below the details and the button has changed to 'Edit Gateway Location'. Check all details and then select install under the menu, follow the prompts and scan the gateway to complete the installation.



It is critical that the gateway is successfully scanned to complete the installation. This scanning activates the main processor and instructs the gateway to start normal operation. This will take approximately 4 or 5 seconds after the 'beep' indicating the app has started communicating with the gateway.

6 Check the Operation



Green and Blue LED's pulsing

Within a few minutes, after the Wireless Link has booted and completed its self-check, the blue LED will start pulsing. The Wireless Link is then in normal operation and is trying to contact the Frogparking webserver. When the green LED starts pulsing in synchronisation with the blue LED, the Wireless Link has connected with the Frogparking webserver and is ready to work i.e. the SIM card and settings are correct.



LED's not blinking correctly?

Check the following if the LED's do not start blinking together:

- Hours of operation. The gateway may have contacted the web server and been instructed to sleep as the current time is outside the normal hours of operation.
- SIM card correctly inserted
- APN settings
- Power level
- All power connections
- That the Wireless Link has been activated

If these things are all okay, contact Frogparking for further assistance.

7 Reassemble the Wireless Link

Reverse the steps described earlier to reassemble the Wireless Link, taking care not to damage the circuit board when inserting the sub assembly.

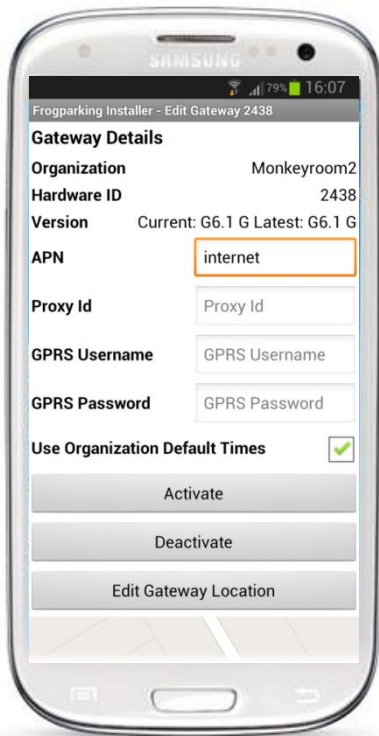


Ensure the solar panel has been connected to the charge controller

The Wireless Link is now ready for mounting in an appropriate location. However, the details registered on the system can be edited.

Editing the Wireless Links Details

At any stage the details of the wireless link can be edited using the installer app. Start the app, log in and navigate to the gateway installation page as per the first steps of installing a new gateway. Scan the gateway or enter the gateways Hardware ID...



Edit the details as desired and then select save from the menu. Some changes will require scanning of the gateway to take effect, scan the gateway as prompted by the app.

If the gateway will not be in use for some time, it can be deactivated. Once deactivated, the gateway will be in a deep sleep state until activated again by the app.



Changing the APN settings and Activating/Deactivating a Wireless Link cannot be done remotely, ensure these settings are correct and that the Wireless Link is in the correct state before leaving the site.

Mount the Wireless Link

There are several key factors to be considered when mounting the Wireless Link.

- Range

The Wireless Link should be mounted in relative close proximity to the Frog sensors it is required to service.

- Interference

The antenna on the Wireless Link should be no closer to a metal object than the supplied mounting bracket allows. Also, it should not be positioned in close proximity to other antennas.

- Security

The Wireless Link should be at a height of no less than 3.2m from the ground to minimize the risk of vandalism.

- Solar Exposure

The Wireless Link is solar powered and therefore should be positioned to optimise exposure to sunlight. Orientation of the solar panel and potential shading from nearby objects should both be considered when choosing the optimum mounting position.

The Wireless Link enclosure can be mounted to its bracket in 40 degree rotational increments to assist in positioning to maximise solar exposure.

The position for the Wireless Link is a balance of these factors and all factors should be optimised to ensure the reliable operation of the Wireless Link.

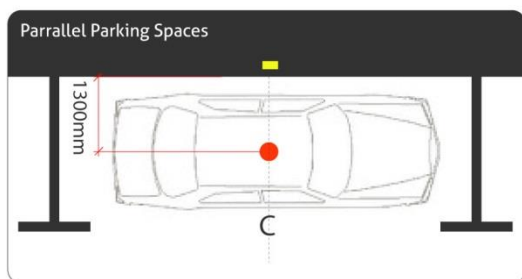
2. Frog Sensor Installation

The Frog Sensor detects the occupational state of a parking space and communicates this information to the Frogparking website via the Wireless Link or other suitable Frogparking gateway.

Installing a Frog Sensor involves the following steps

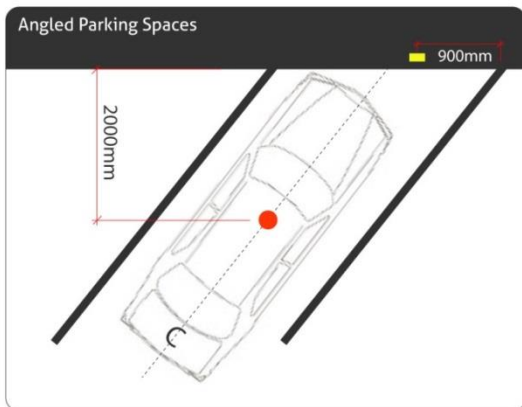
1. Mounting the sensor to the surface
2. Mounting the space number marker
3. Registering/activating the sensor on the Frogparking system

Details on each step are given below. However, before beginning, determine the appropriate position for the sensor and space marker based on the space type.



For parallel parking spaces, the sensor should be mounted in the centre of the parking space 1300mm from the curb, which corresponds to one extended 'click' from the closed position on the sensor drilling jig.

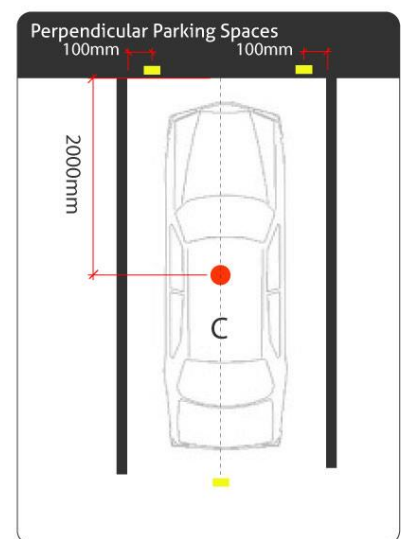
The space marker should be mounted on the curb/pavement centred on the park in line with the sensor. In cases where there is no curb or pavement, and vehicle occupants are expected to move away from the vehicle along the 'road', it is acceptable to mount the space marker on the 'road' side of the parking space.



For angled or perpendicular/straight car parks, the correct sensor position is in the centre of the parking space 2000m straight out from the curb. 2000m corresponds to the last click before full extension on the sensor drilling jig.

Position the space marker as shown for the corresponding space type. In perpendicular parking spaces, the space marker should be positioned relative to the driver's side of the vehicle.

Again, if there is no curb or pavement and vehicle occupants will typically move away from the vehicle along the 'road', mounting at the rear of the car park is acceptable. In this case, the space marker should be mounted in the centre in line with the sensor.



Now that you have determined the correct position for the sensor and space marker, you are ready to proceed.

Mounting the Frog Sensor

Follow the below steps to mount the sensor to the road surface...

1 Place the jig

Check the jig is at the correct extension for the parking space type as described above. Place the end against the curb and judge the centre position of the drilling head by eye. Note that the drilling jig should be square to the curb even on angled parks to ensure the correct mounting position.



2 Drill the sensor mounting holes



Using a 5mm masonry drill bit and an appropriate hammer drill, drill through the drilling holes on the jig.

On extremely hard to drill surfaces, it might be necessary to alternate holes, drilling only a small amount on each hole and clearing the drillbit between holes. This will prevent the drillbit from damage due to overheating.



There are two sets of holes in the drilling jig, one set of holes for the solar sensor, the other for the battery sensor. Ensure you use the correct hole pattern for the sensor you are mounting.

3 Screw down the sensor

Position the sensor over the drilled holes and with a powerdrill, screw down the three 6mm x 50mm mounting screws. Note the frog's head on the sensor must face the curb.



This completes the physical mounting of the sensor, now mount the space marker and register the frog on the system.

Mounting the Space Marker

The space marker mounting steps are similar to the sensors...

1 Drill the mounting holes

The same size drill bit (5mm masonry drill bit) as the sensor is used for drilling the space marker mounting holes. Using the space marker drilling jig, drill the mounting holes in the position determined earlier.

2 Assemble the space marker

Assemble the desired space marker numbers into the mounting frame.

To avoid confusion to users and enforcers, the system will not allow the same space numbers in close proximity to each other. If in doubt, register the sensor with the desired space number on the system first, then if the space number breaks the proximity rules, the installer app. will flag the error and stop the registration to enable the selection of a different space number.



3 Screw down the space marker



Using two 6mm x 30mm mounting screws, screw down the space marker assembly with a power drill.

Note that if the space marker is mounted on the curb, it should be readable from the pavement.

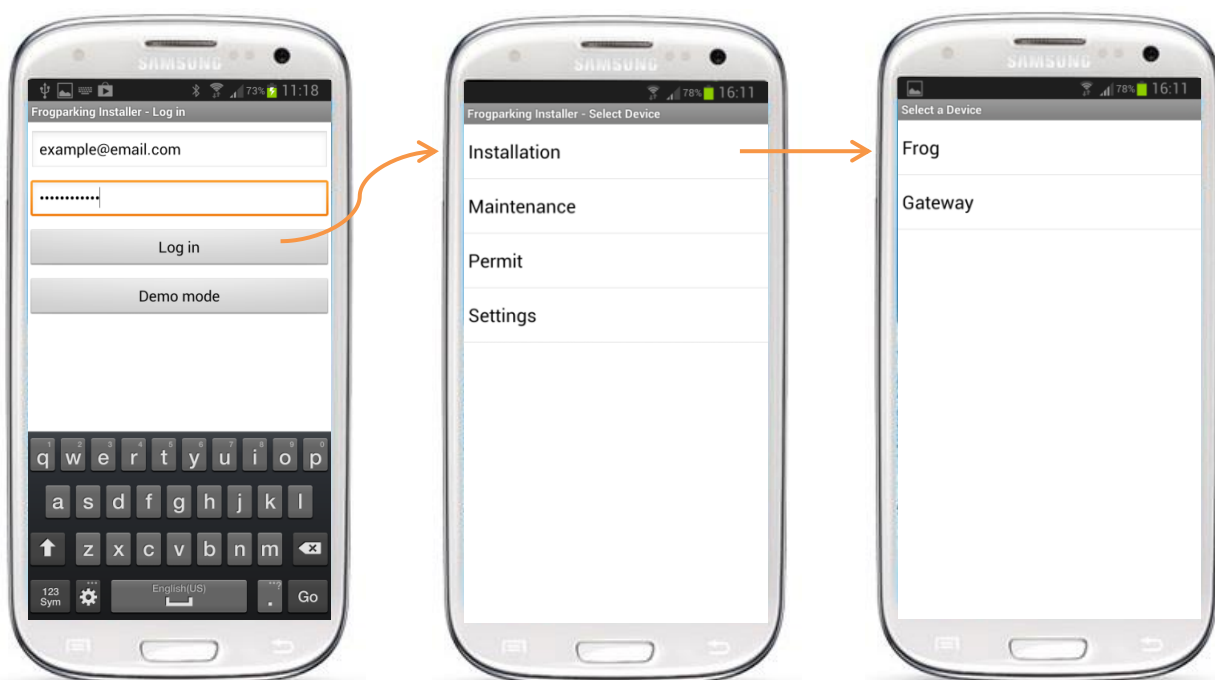
With the sensor and space marker securely fastened, the sensor is ready for registering on the system.

Register the Frog Sensor

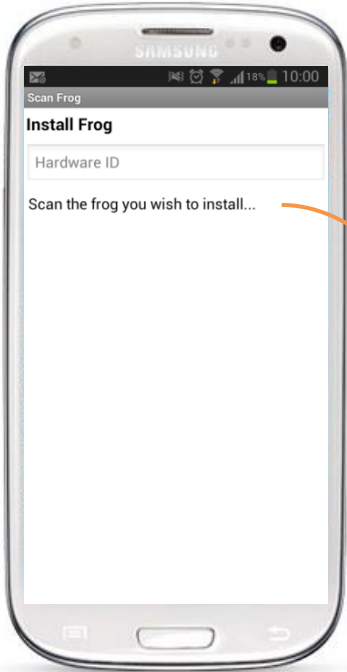
Before the sensor can become operational, it needs to be registered on the system and activated. To register a sensor on the Frogparking system, the Frogparking installer app. is required on a Galaxy Samsung S3 or S4.

These steps presume the sensor and space number have been mounted to the road. However, it is also possible to mount the space number after registering to ensure the space number is compatible with other sensors and space numbers in the nearby area.

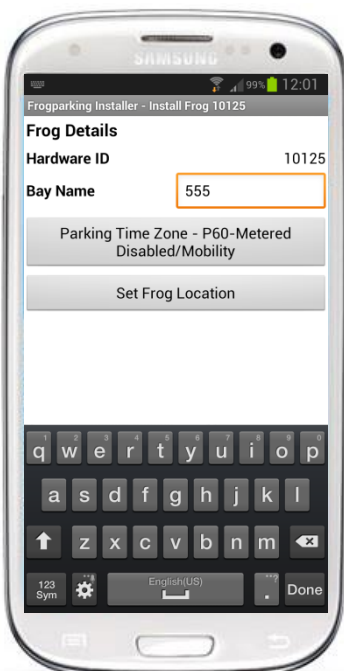
1 Start the Frogparking Installer app, log in and navigate to the install frog screen



2 Scan the frog...



3 Enter the desired 'Bay Name' (space number)



Note that the system will not check the proximity of other spaces with the same number until the install button is pressed in the final step.

4 Check the time zone

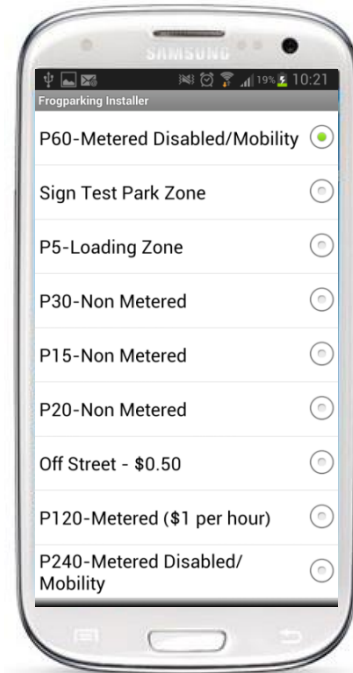
If the correct time zone is not shown (the first time zone on the list is the default), then press the 'Parking Time Zone' button and select the correct time zone.

Time zones for a sensor can be edited remotely via the website.

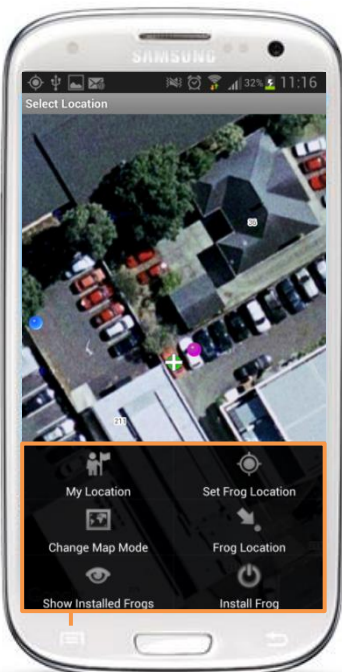


No time zones showing on the list?

Adding and setting up time zones is done via the website, contact the system administrator to setup the required time zones. The list of time zones on the phone will automatically update when they are added on the website.



5 Set the Frog sensor location



Press the 'Set Frog Location' button to go to the map screen for locating the sensor in the system.

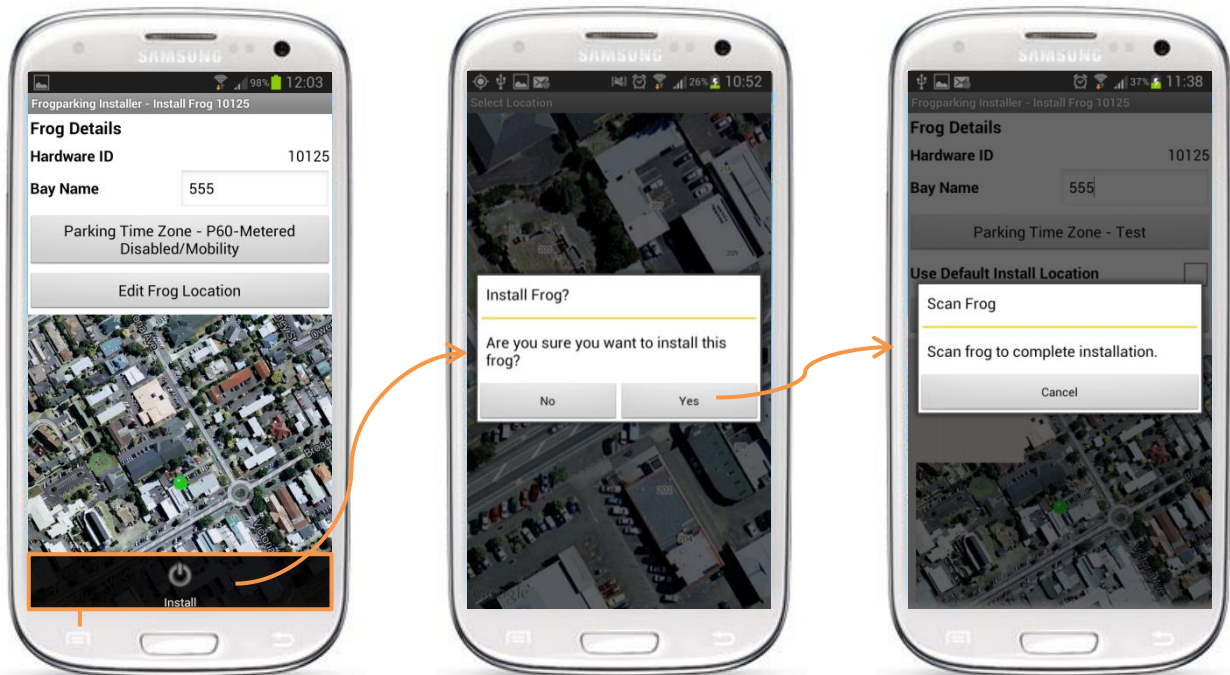
Some coloured dots are shown on the map. Blue is the current position of the Samsung, a pink dot is the last installed frog, red dots are previously installed frogs (which can be toggled on and off) and the current sensor location will show as a green dot once set.

Scroll the map until the white cross is positioned where the frog is located and then activate the menu and press 'Set Frog Location'. A green dot will now show in the selected location.

The 'My Location' button will centre the map on the current GPS position. 'Frog Location' will centre the map on the existing frog location if one has previously been entered. 'Change Map Mode' will toggle on and off the satellite images displayed on the map. 'Show Installed Frogs' will show all the frogs installed in the nearby area. Note the number of frogs shown is set in the settings menu.

When done, press the back button to return to the previous screen to check details, or 'Install Frog' to proceed with the installation without double checking details.

6 'Install' the Frog



Now that a location has been entered, the map is shown below the details and the button has changed to 'Edit Frog Location'. Check all details and then select install under the menu, follow the prompts and scan the frog to complete the installation.

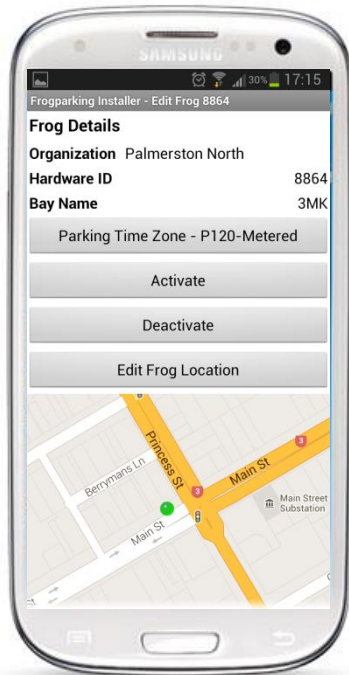


It is critical that the sensor is successfully scanned to complete the installation. This scanning activates the main processor and instructs the frog to start its initial processing and system synchronization, after which it will resume normal operation. Sensor activation can't be completed remotely.

The installation for the Frog sensor has now been completed. Note that after activating a Frog sensor, it may take up to 24 hours for the sensor to be ready for normal operation.

Editing the Frog Sensor Details

At any stage on site, the details of the sensor can be edited using the installer app. Start the app, log in and navigate to the frog installation page as done previously. Scan the frog whose details you wish to change or enter the Frog's Hardware ID. A similar screen as per initial installation will show...



Edit the details as desired and then select save from the menu. Activating or Deactivating will require scanning of the frog to take effect, other changes are simply saved to the website. The app will prompt for scanning if required.

If the sensor will not be in use for some time, it can be deactivated. Once deactivated, the sensor will be in a deep sleep state until activated again by the app.



Activating/Deactivating a sensor cannot be done remotely, ensure these settings are correct and that the sensor is in the correct state before leaving the site.

3. FCC Compliance Documentation

Frog Sensor and Wireless Link:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received,

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.



Warning: Changes or modifications not expressly approved by Frogparking Ltd could void the user's authority to operate the equipment.