APPLIEDSTREETVIEW

RTK

High-Accuracy positioning for Spatial

Manual

Version 2019-05-15

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What’s in the case?

1x Custom-made data-cable with Bluetooth dongle for the NTRIP RTK correction signal.

Features

- Replaces the cameras standard data cable
- Has a Bluetooth adapter for the RTK correction data by NTRIP
- Powered by the camera
- Works with the OBD2 adapter for the wheel signal
- Cable length: 5 m

What else is needed?

- A mobile phone with LTE and Bluetooth.
- RTCM 3 correction data by NTRIP
- Free Levebure NTRIP client for Android (from the Android Play Store)

Pre-purchase RTK test

Please check that the RTCM 3 correction signal is available to you:

1. Please download the free Lefebure NTRIP client to your Android phone.
2. Find a NTRIP provider. Sign up if needed, or ask for a free test account.
3. Set it up in the free Lefebure NTRIP client and verify it works for you in your area.

This Manual

This manual covers aspects specific to RTK only.
You should already be familiar with the Camera and the Remote Control.

Other manuals of interest:

- Remote Control manual.
- Camera manual.
- Car Mount manual.

Set-up

Cabling

Unplug the standard data-cable from the Camera.
It’s a bayonet plug.
You first need to rotate the fastener of the plug: Top towards the camera.
Then carefully unplug it.

Plug in the new RTK data-cable.
It’s a Bayonet plug.
You first need to rotate the fastener of the plug: Top away from the camera.
Then plug it in with the marker (inside the plug) pointing down.
Then secure by rotating the fastener, top towards the camera.

The remaining of the set-up is the same as it is with the standard data-cable:

Connect the Spatial to the new RTK data-cable by aligning the red points of the Plug and the Spatial.
Connect the antenna to the Spatial by hand. No tools are needed.
Connect the OBD2 adapter to the new RTK data-cable by hand. No tools are needed.
For best accuracy and robustness it is highly recommended to always use the OBD2 adapter.

Spatial configuration

We like to get the position and direction of the streetview.
Streetview means the center of the camera-head.

For this the offsets

- from the Spatial to the GPS antenna
- from the Spatial to the camera-head

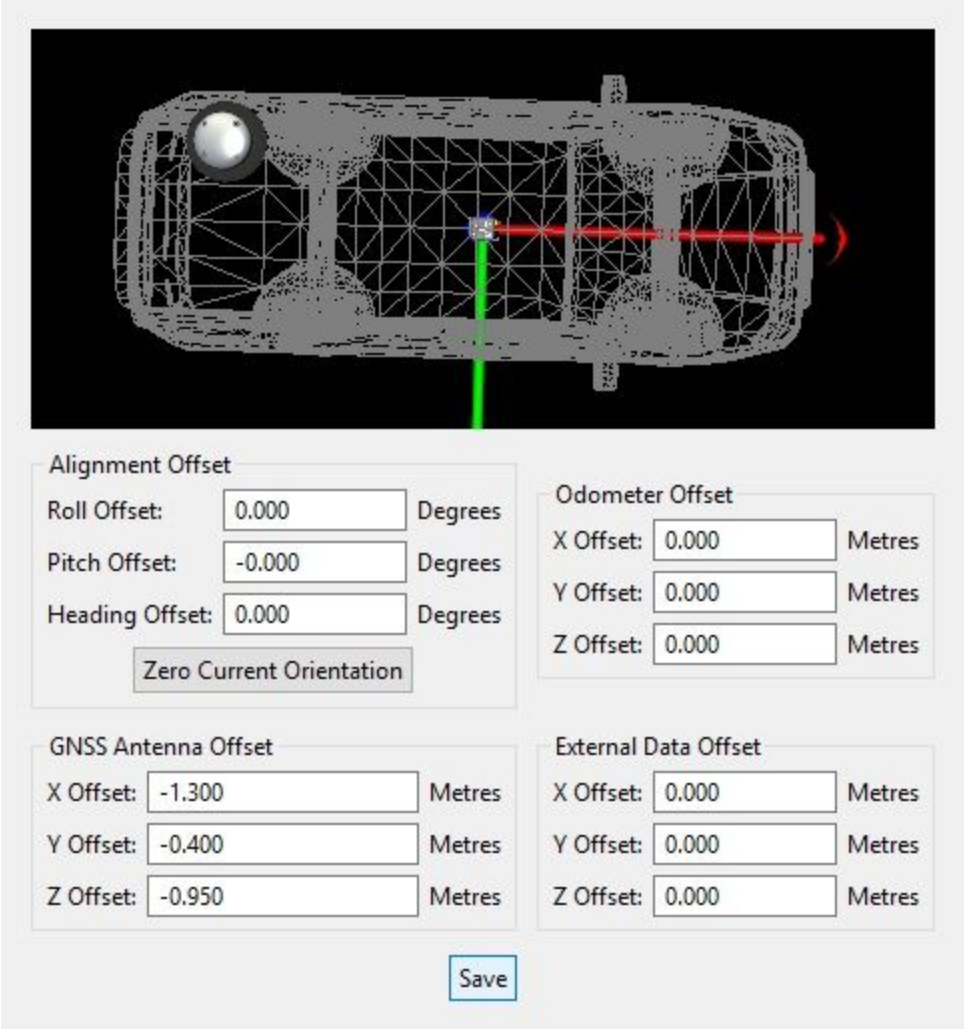
need to be entered into the Spatial.

Spatial to GPS antenna:

These values can be entered with the free Spatial Manager:
Spatial Manager -> Configuration - Alignment

In this example the Antenna is

- 1.30 m behind the Spatial
- 0.40 m to the left of the Spatial
- 0.95 m above the Spatial

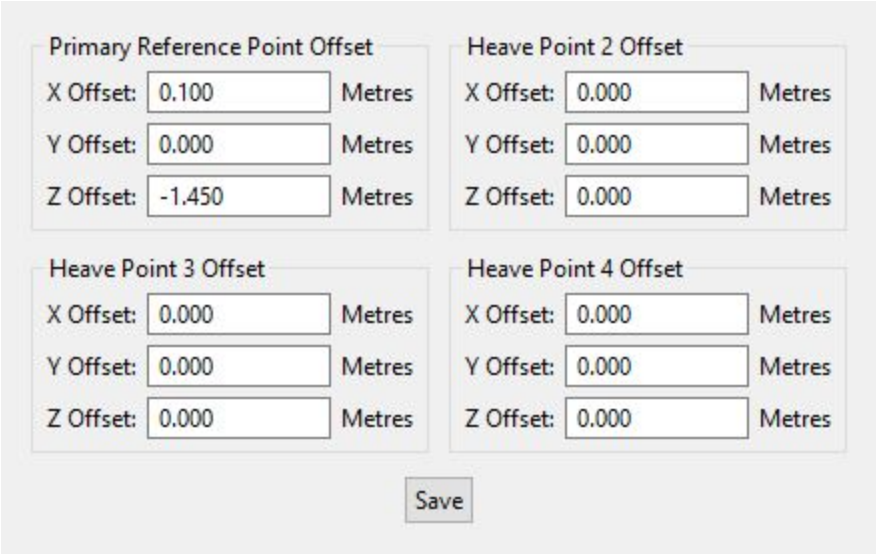


Spatial to camera-head:

These values can be entered with the free Spatial Manager:
Spatial Manager -> Configuration -> Reference Point Offset

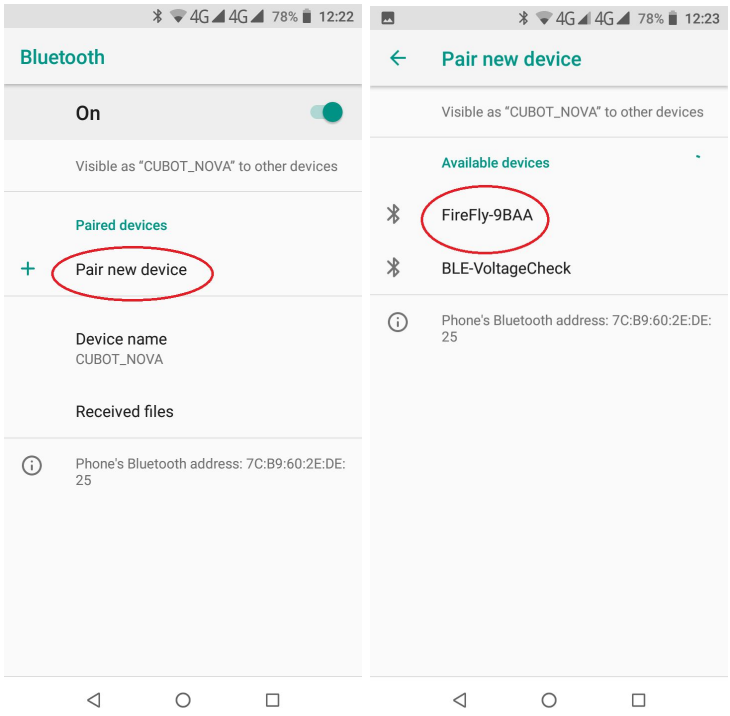
In this example the camera-head is

- 0.10 m in front of the Spatial
- In line with the Spatial. (No left/right offset.)
- 1.45 m above the Spatial

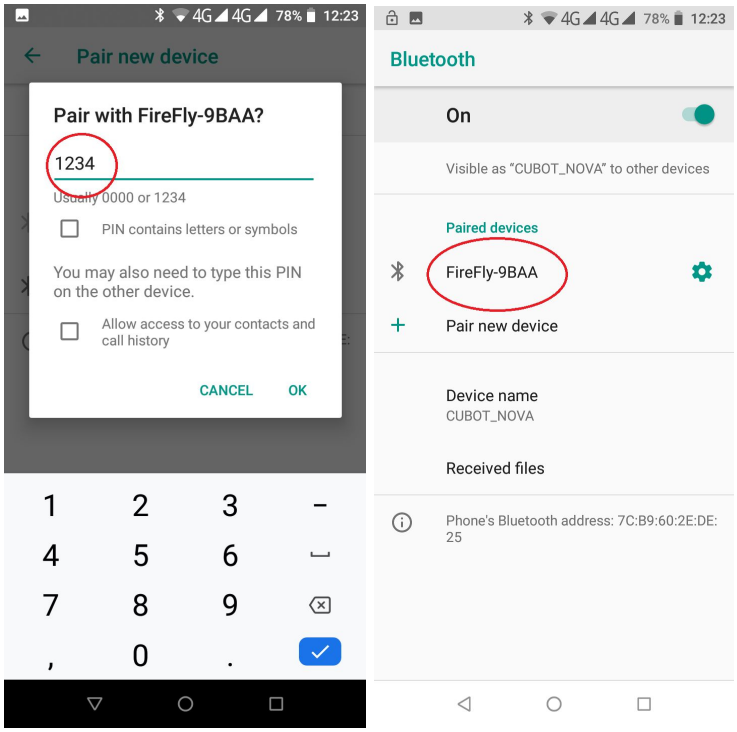


Bluetooth

Connect the phone by Bluetooth to the BT dongle of the RTK data-cable.
The device is always named **Firefly-....**



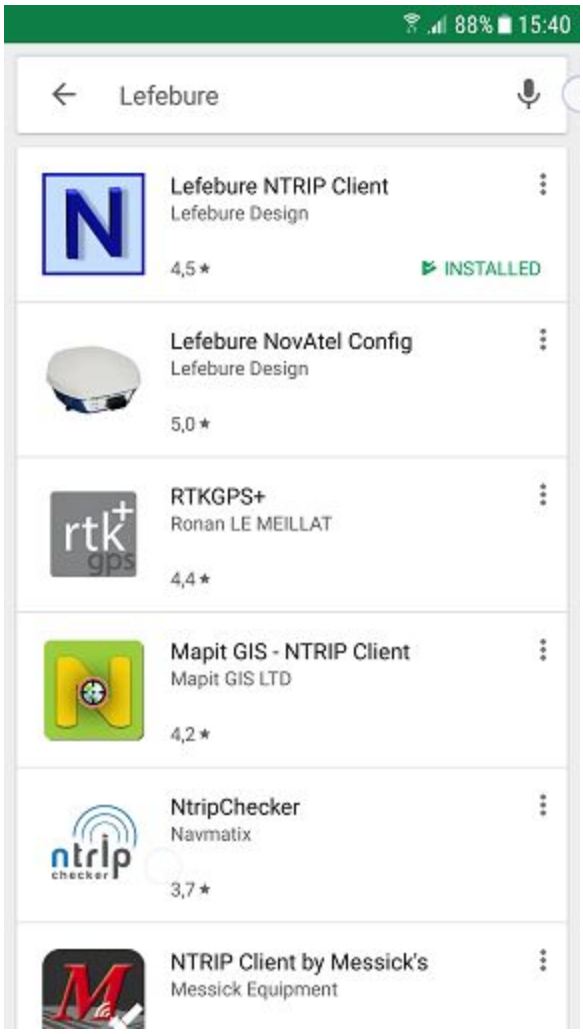
The password is: **1234**

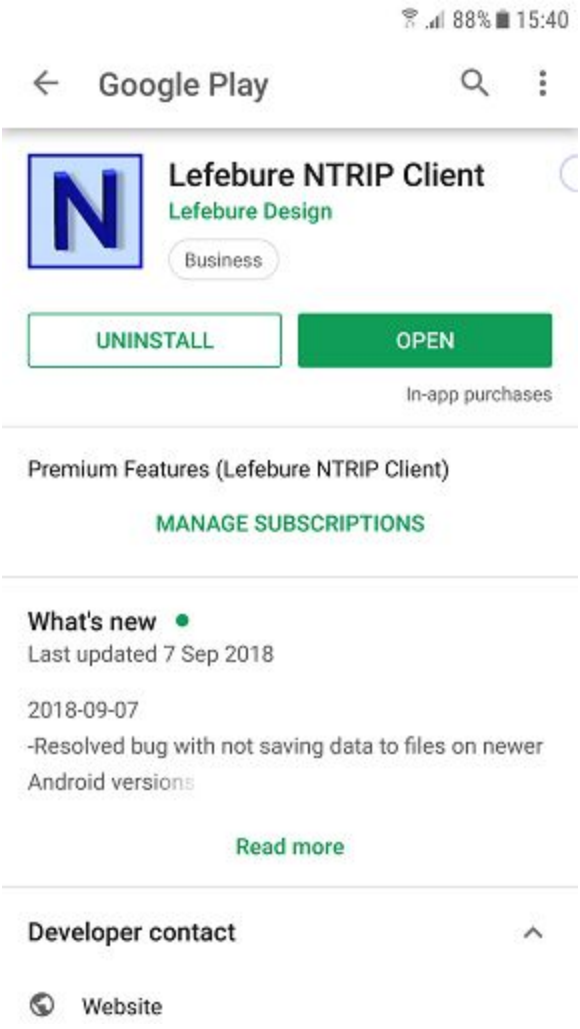


NTRIP client

Installation

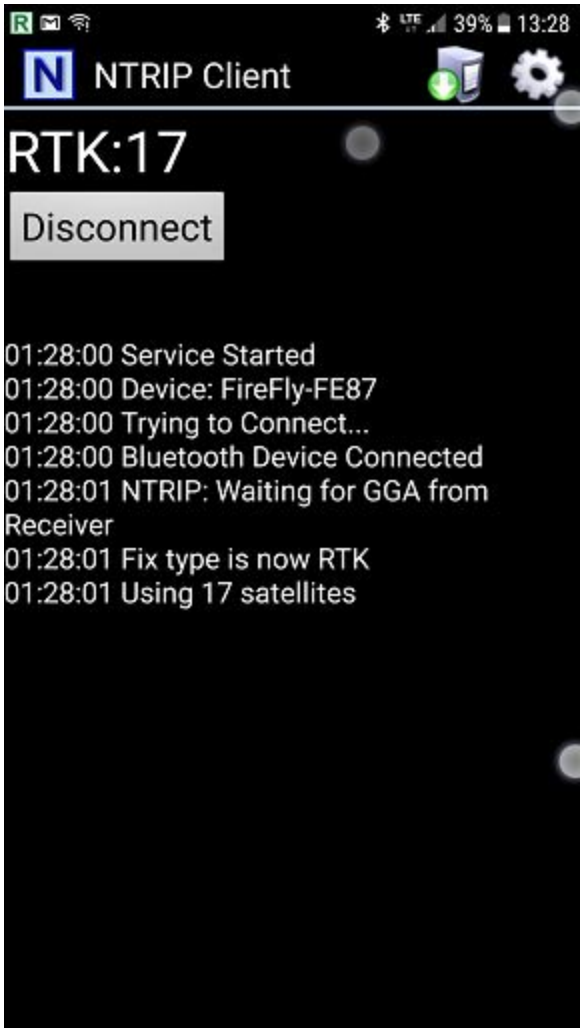
Download and install the free **Lefebure NTRIP client** from the Google Play Store.
We tested with version **2018.09.07**.



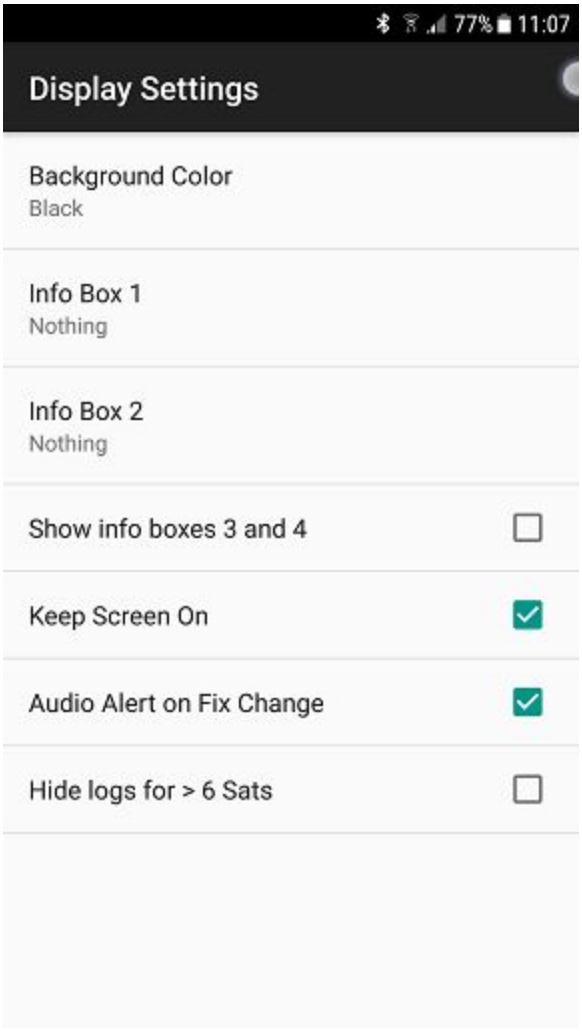


Screenshots

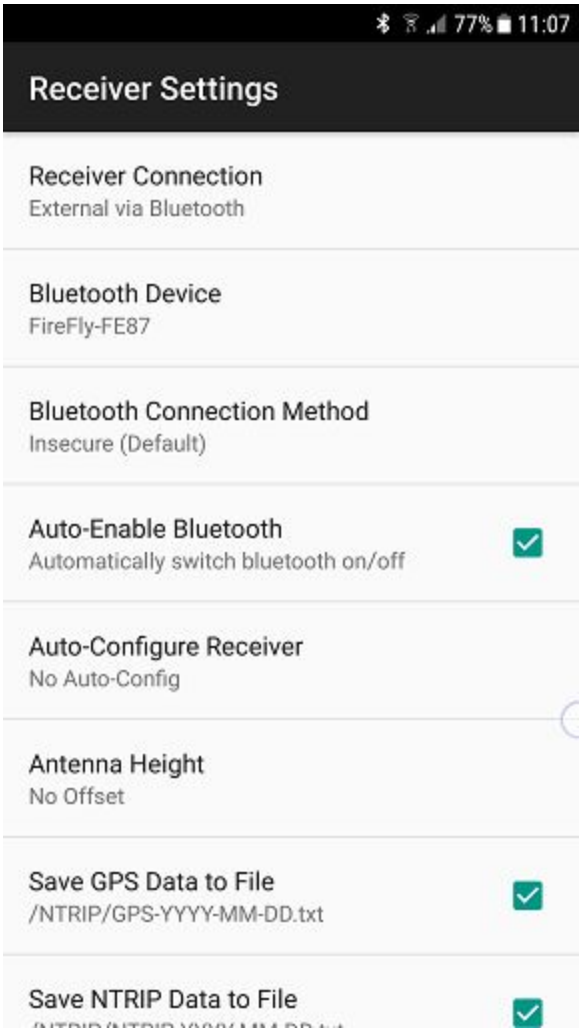
Main screen



Display Settings

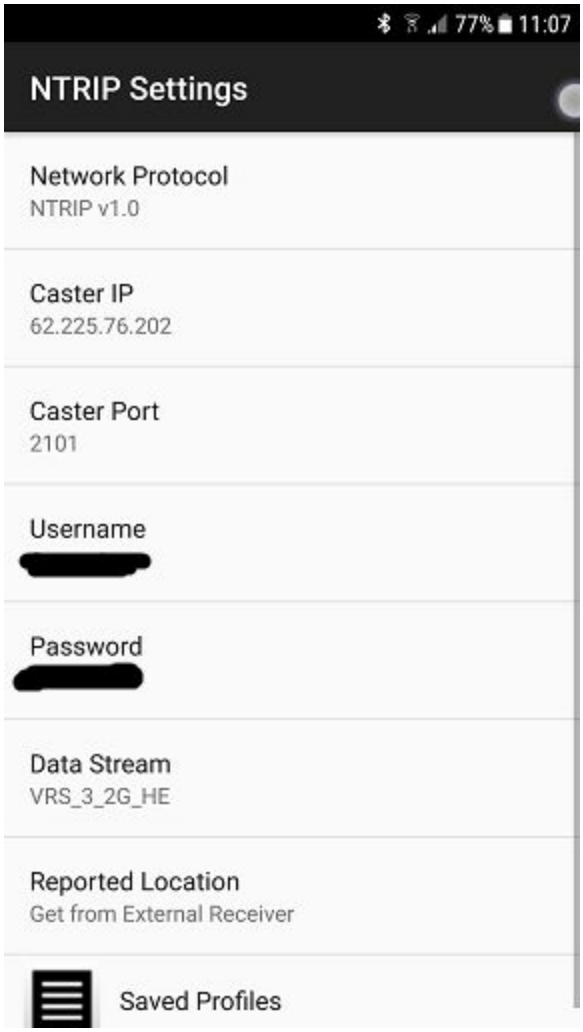


Receiver Settings



NTRIP settings

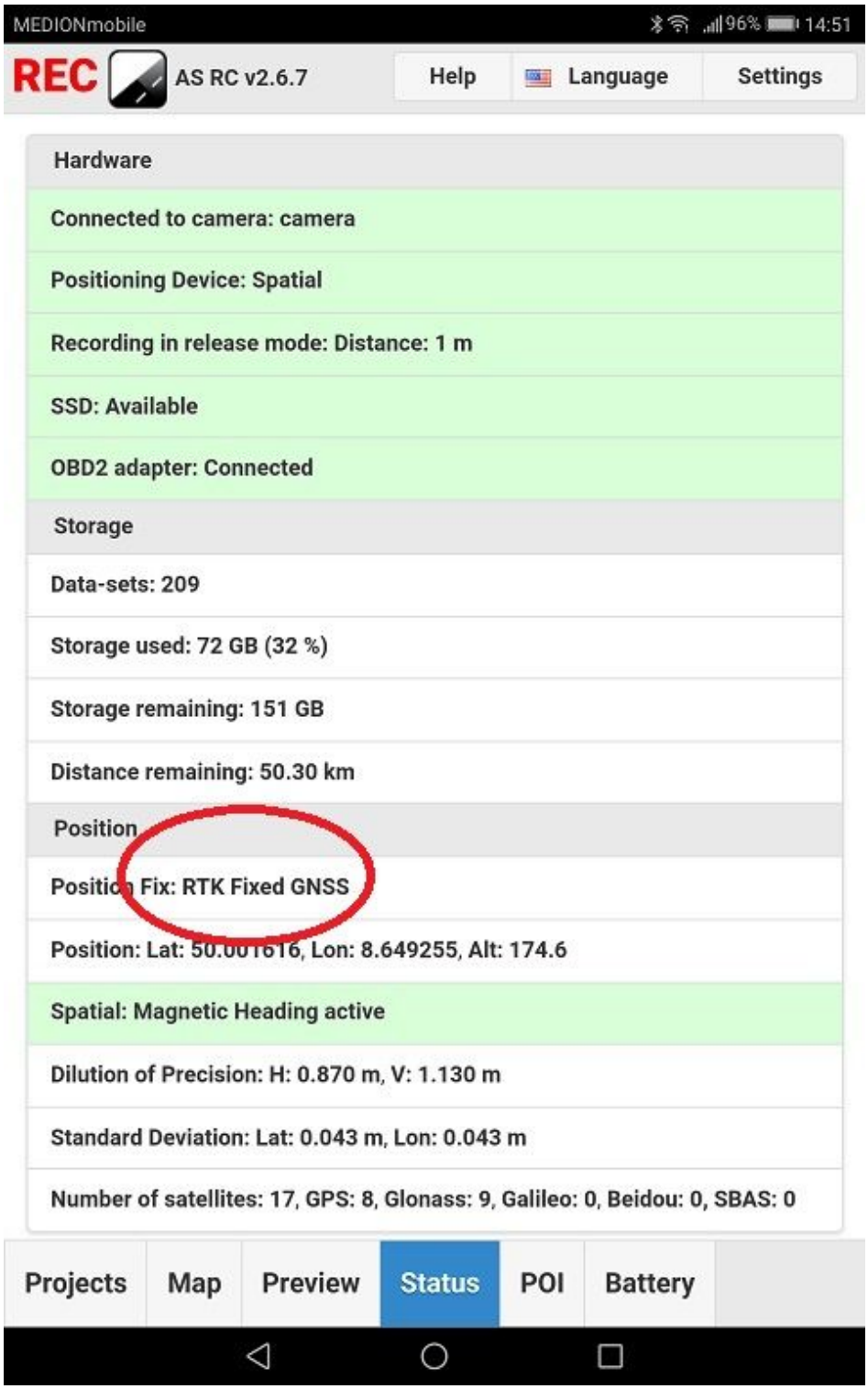
Please use a **NTRIP service** available to the recording area. This is just an example.



Hint: Save your NTRIP settings as a profile.

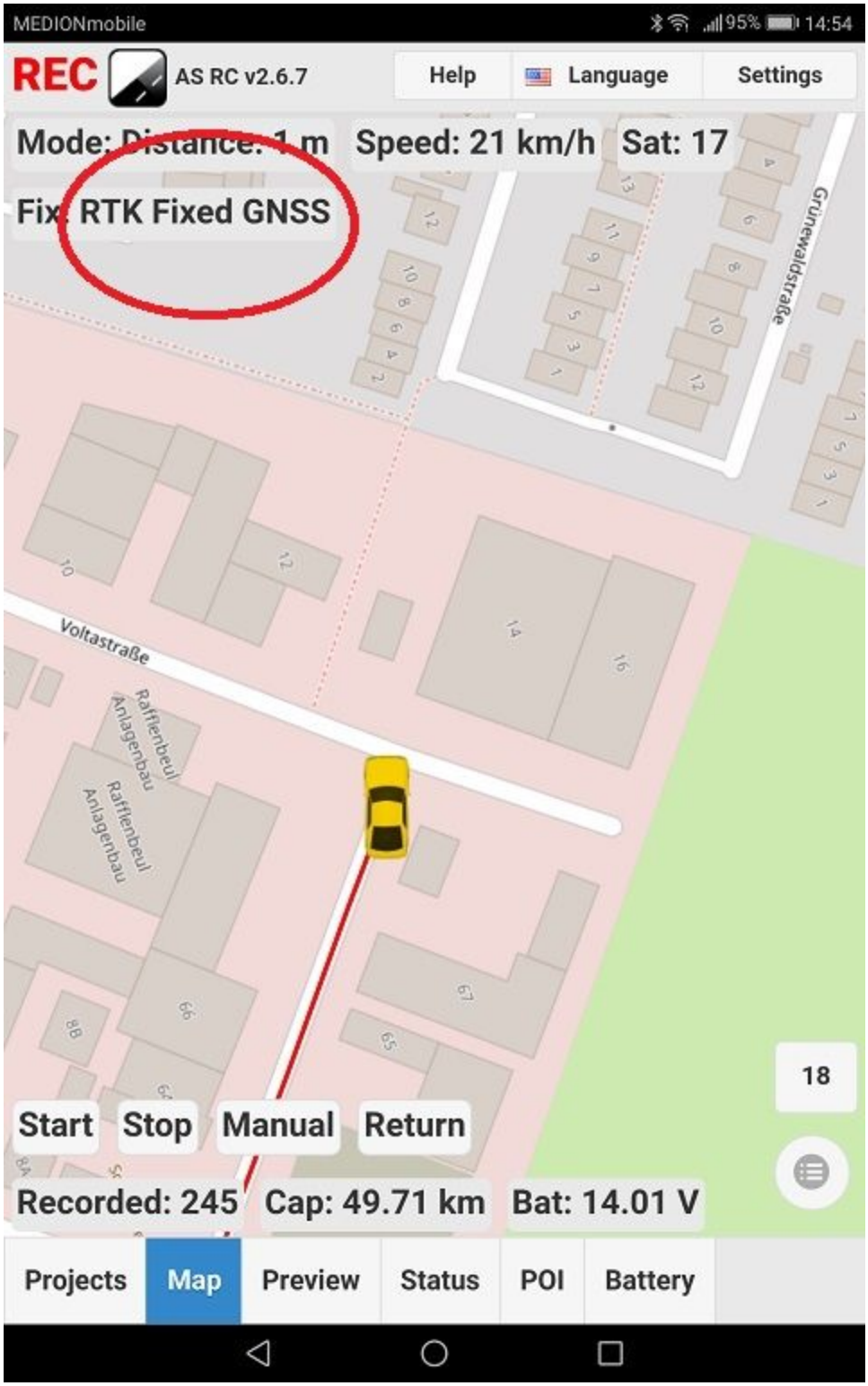
Remote Control

Status tab



Map tab

For a customized overlay to show RTK data: **Settings -> Custom fields**



Processing

There is no change in processing.
Processing footage recorded with the Spatial and RTK works exactly the same way as without RTK.

Reference

Is your Spatial RTK capable?

A Spatial with Hardware Version **7.0** is needed.

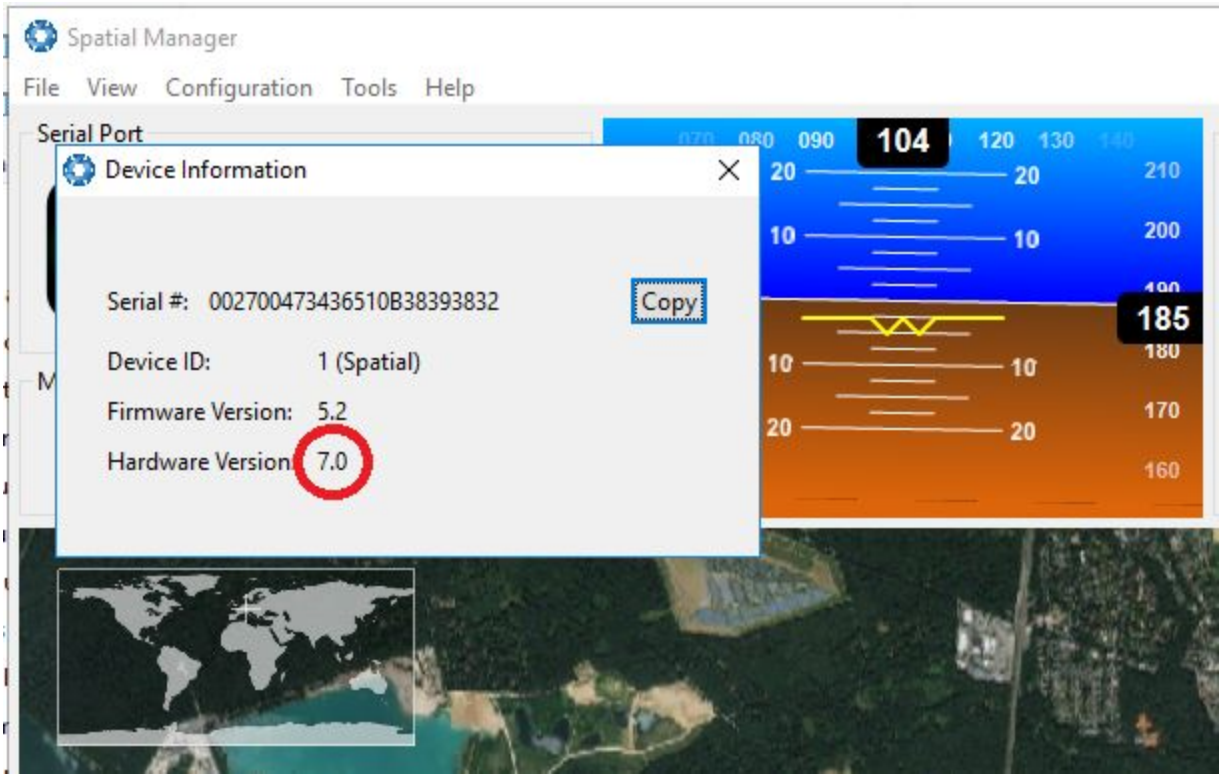
1) Check the label

In case there is no label, Install the Spatial Manager 4.5 program to your Windows 10 PC. It is a Java program. You might have to install Java first.

Connect the Spatial to your PC using the **USB-to-Spatial** cable you have received with the Spatial:

Connect with one of the COM ports listen. Try them one-by-one if more than one COM ports are listed.

When connected open **View -> Device Information**.

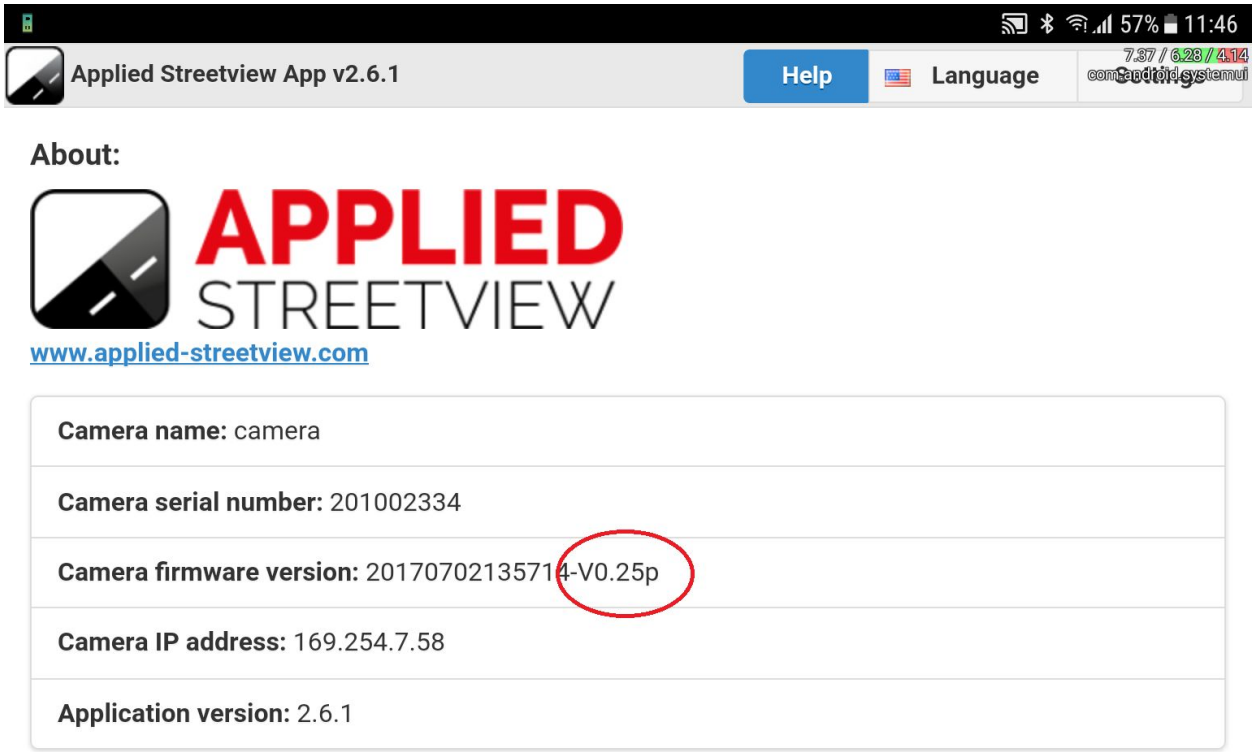


If the Hardware Version is **7.0** your Spatial is RTK capable.

Camera Firmware update

Ensure the camera and the tablet are fully charged.

On the **Help** screen of the Remote Control you can see which version of the firmware your camera has:



If your camera has 0.25 firmware, upgrade it to Firmware V0.25p, if necessary.
If your camera has 0.26 firmware, upgrade it to Firmware V0.26k, if necessary.
DO NOT try to upgrade from 0.25 to 0.26 firmware! It will NOT work.
These are two slightly different versions to cover for minor hardware differences only.

If necessary download and then copy the new firmware onto the Android tablet.

In **Settings -> Firmware update** update your camera with the Remote Control Android App.
Follow the on-screen instructions.

After rebooting of the camera, check the new version of the camera's firmware on the Remote Controls **Help** tab to confirm that the update has worked.Remote Control update

Remote control update

After the cameras firmware has been updated, update the Remote Control to at least release:

Download: AS-2.6.9.apk

Or check this page for the newest Remote Control release:
http://www.applied-streetview.com/programs/remote-control/

Tablet upgrade

Right now we ship the **Huawei Mediapad M3** with the camera.
Before that we shipped the Samsung Galaxy Tab S3. It works fine.
If you still use the ASUS tablet provided years ago, please update.

For all-day recording make sure to provide an additional power supply.
Either by a USB adapter to the cars cigarette lighter. Or use a 20.000 mAh USB power bank.

Specifications

According to the Spatial manufacturer:

Horizontal Position Accuracy, with RTK	0.02 m
Vertical Position Accuracy, with RTK	0.03 m
Horizontal Position Accuracy, GNSS only	2.5 m
Vertical Position Accuracy, GNSS only	3.0 m
Supported Satellite Systems	GPS, GLONASS, BeiDou
Update Rate	10 Hz
Cold Start Sensitivity	-148 dBm
Tracking Sensitivity	-160 dBm
Hot Start First Fix	1 s
Cold Start First Fix	26 s
Operating Temperature	-40 °C to 85 °C

Support

Support is available in **English language** only.

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