



3Dsurvey
by surveyors for surveyors

RTK Videogrammetry setup instructions

Installing and setting up NTRIP app, 3Dsurvey SiteScan app and external RTK smartphone antenna

1. Set up your phone

Enable **developer options** and **allow unknown sources** to install apps.

Since this is an advanced setup we will need to enable a few things on our phone. First enable the installation of apps from unknown sources. This setting is a bit different for various android devices, but generally it is found under: **settings/apps/special app access**. Some devices will simply warn you that the app you're installing comes from an unknown source. In this case just allow installation.

To enable your phone to mock location from external device, you need to turn the **developer options** on. By default these options are hidden. Procedure may vary depending on your device. For most android devices follow these steps:

- 1 Go to "Settings"
- 2 Tap "About device" or "About phone"
- 3 Tap "Software information"
- 4 Tap "Build number" seven times. ...
- 5 Enter your pattern, PIN or password to enable the Developer options menu.
- 6 The "Developer options" menu will now appear in your Settings menu.

2. Install required apps:

2.1. Download and install NTRIP app:
[Lefebure NTRIP Client](#)

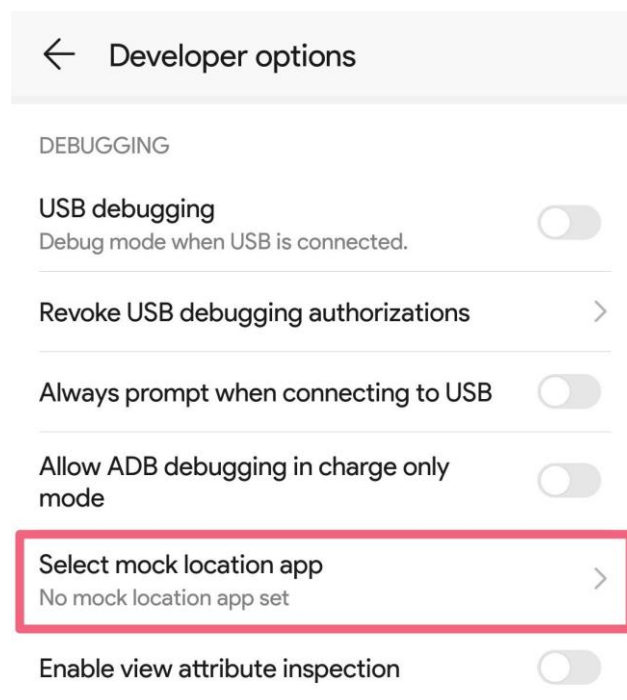


2.2. Download and install 3Dsurvey SiteScan app:
https://download.3dsurvey.si/software/3Dsurvey_SiteScan-1.7.1.apk



3. Select mock location app on your phone

Go to developer options that you enabled in the first step, search for the **Select mock location** app option. Tap the option and select **Lefebure NTRIP Client**.



Mock location will enable your phone to get location data from an external device.

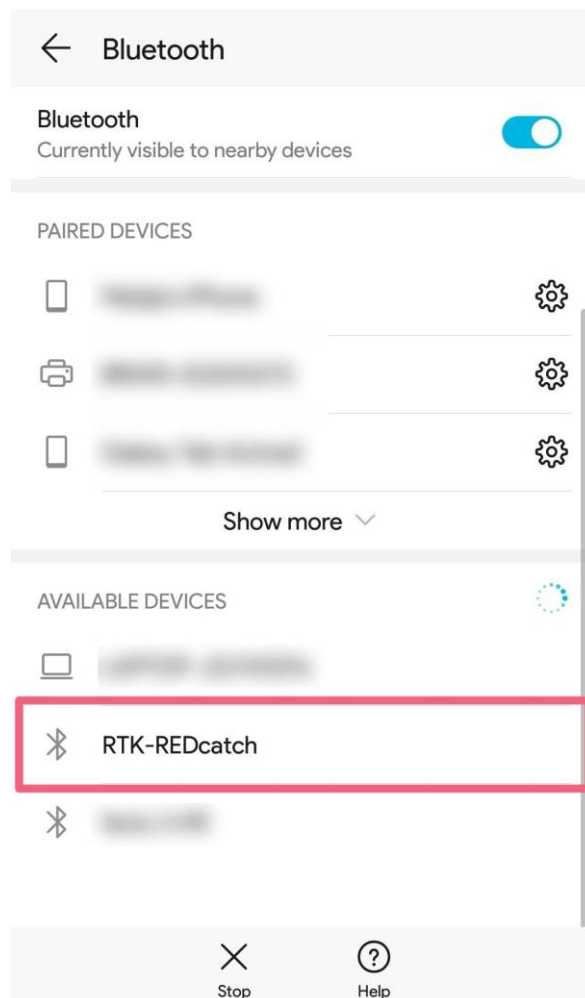
4. Connect RTK GNSS device to your phone via bluetooth

2.1 First connect the usb cable of your RTK GNSS device to its power supply to activate it.

2.2 Enable bluetooth on your phone and search for new bluetooth devices (long press on the bluetooth symbol)

2.3 Your phone should be able to find the **RTK GNSS device** device, tap to start pairing.

2.4 Enter PIN: 1234, device is paired, no further steps needed.

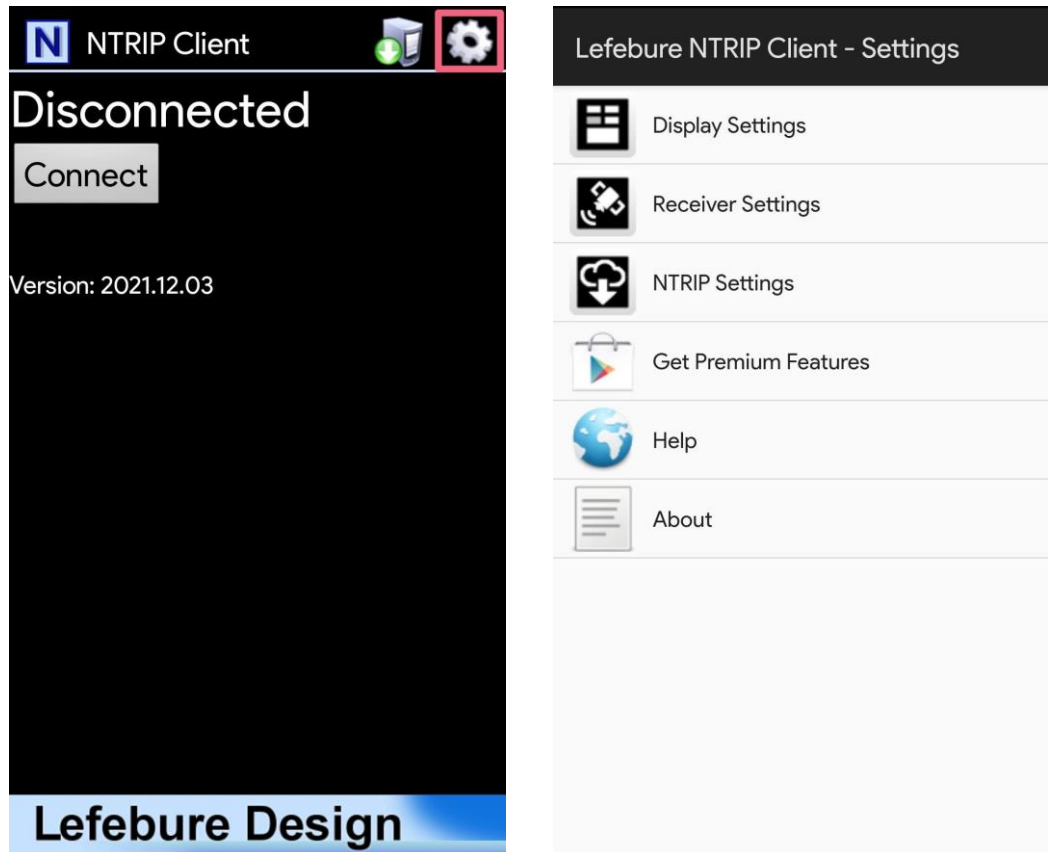


REDcatch is paired with your phone just like any other bluetooth device.

5. Setup NTRIP app

5.1. Setting up the app:

When you start the app, tap the cogwheel in the top right corner. Settings screen (on the right) will open up.



Left: NTRIP app welcome screen. Right: settings menu.

5.2. **Receiver settings:** first we will set up receiver settings, set the parameters listed below as described, leave others as default:



- Receiver Connection: External via Bluetooth
- Bluetooth Device: RTK-REDcatch
- Save GPS Data to File:
- GPS Mock Locations:

| Receiver Settings | |
|--|-------------------------------------|
| Receiver Connection External via Bluetooth | |
| Bluetooth Device RTK-REDcatch | |
| Bluetooth Connection Method Insecure (Default) | |
| Auto-Enable Bluetooth Automatically switch bluetooth on/off | <input type="checkbox"/> |
| Auto-Configure Receiver No Auto-Config | |
| Antenna Height No Offset | |
| Save GPS Data to File NMEA-YYYY-MM-DD.txt | <input checked="" type="checkbox"/> |
| Save NTRIP Data to File | <input type="checkbox"/> |
| GPS Mock Locations Allow external GPS data to be used by other Android Apps. | <input checked="" type="checkbox"/> |
| Mock Location Elevation Ellipsoidal Height (Android Default) | |

Screenshot of correct receiver settings.


- 5.3. **NTRIP settings:** are regionally dependent. They are provided by your local correction network. These parameters are the same you use for GPS units. These fields are case sensitive! Make sure you enter the data exactly as provided.



- Network Protocol: set this to NTRIP Rev 1

Get the following settings from your local corrections provider

- Caster IP
- Caster Port
- Username
- Password

| NTRIP Settings | |
|---|----------------------------|
| Network Protocol | NTRIP Rev 1 |
| Caster IP | 178.172.26.131 |
| Caster Port | 8080 |
| Username | |
| Password | |
| Data Stream | Refresh Stream List |
| Reported Location | Get from External Receiver |
|  | Saved Profiles |

An example of Slovenian settings

- Data Stream: Leave this one as default (Refresh Stream List). You will select it from the drop-down menu when you connect.

5.4. **Display settings:** Here we will set the info boxes for best experience.



- - Info Box 2: 3D RMS [GST or LLQ]
- - Show info boxes 3 and 4:
- - Info Box 3: Elevation (meters) [GGA]
- - Info Box 4: GPS Time [GGA]

| Display Settings | |
|-------------------------|-------------------------------------|
| Background Color | Black |
| Info Box 1 | Correction Age [GGA] |
| Info Box 2 | 3D RMS [GST or LLQ] |
| Show info boxes 3 and 4 | <input checked="" type="checkbox"/> |
| Info Box 3 | Elevation (Meters) [GGA] |
| Info Box 4 | GPS Time [GGA] |

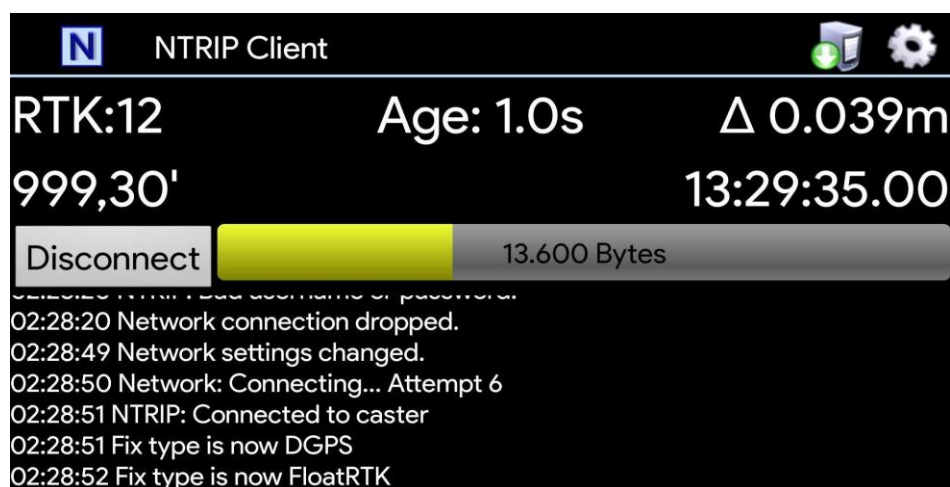
Recommended display settings.

6. Connect the NTRIP app

This device was designed for external use, in order to get satellites, position yourself outside, on the open field.

Return to NTRIP home screen and tap **connect**. The app will now ask you to choose your Data stream. Again, this information should be given to by your corrections network provider. *For our Slovene example we chose VRSSLO3_1.*

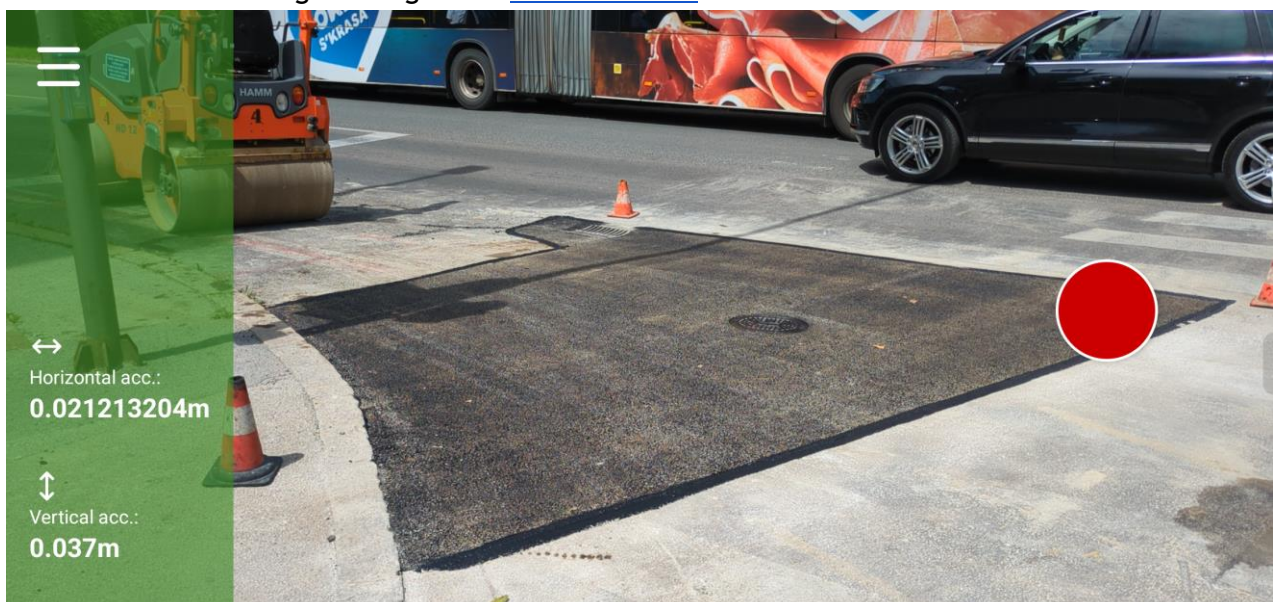
Once you are connected to enough satellites (12), the error number (3D RMS - top right corner) will drop to a cm level. When you feel you've reached a sufficient accuracy level, minimize the NTRIP app (keep it running in the background) and start the 3Dsurvey scan app.



NTRIP app connected and running.

7. 3Dsurvey SiteScan app

For best results go through the [“How to record”](#) instructions.

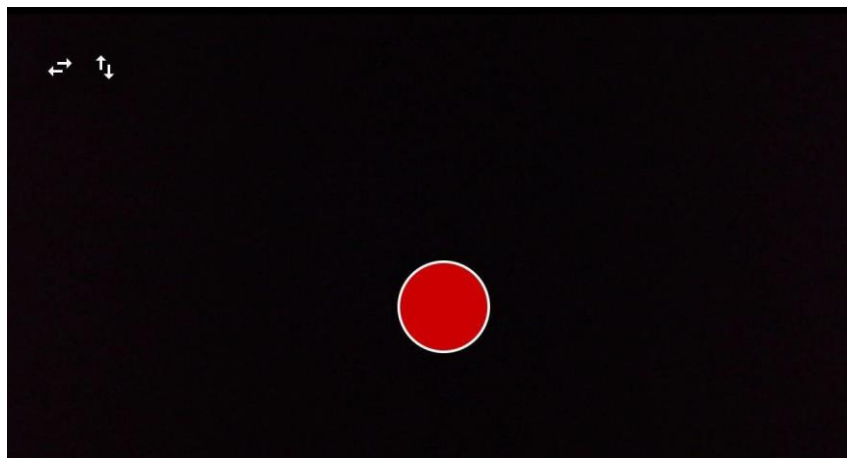


Screenshot of the app recording

Experiencing problems?

If you are having difficulty, first consider the following:

- Double check your NTRIP settings. If you have enough satellites and bad accuracy, you are not getting corrections. Double check the fields, they are case sensitive.
- Make sure that you have enabled mobile data.
- Turn on location.
- Turn off Wifi: If you are recording near a known wifi network, your phone may be getting weak signal strength.
- When you start the app your screen is just black, no image and no accuracy numbers next to arrows (like image below). In this case the app does not have permission for camera and location. Just go to settings > apps > permissions and allow the app to use camera and location.



App does not have permission to use camera and location