

# LandStar8 FAQ Series

## APIS: Connecting Base -> Rover with a cellular connection

More FAQ's like this one are available here: [ [LandStar8 FAQ](#) ]

Date: 4/16/2024

Filename:LS8\_FAQ\_APIS\_BaseRoverCell\_r002.docx

### Thesis

All CHC equipment with internal LTE Modems has a built-in feature called APIS.

APIS allows a single Base and one or more Rovers to connect through the internet cloud without the need for a Static Public IP address. It is very easy to configure and is free.

In addition to supporting CHC rovers and LandStar8, APIS supports foreign device and field software connections by allowing standard NTRIP connections to the Base through the cloud relay.

This FAQ lists the step-by-step process for configuring a Base and Rover using LandStar 8 field software.

### Prerequisites

iGage strongly recommends simbase.com for connectivity. See [ [SIM Cards](#) ] for detailed information and links.

The **Base** must have an internal SIM card installed. The Base does not need a fixed static IP address, thus a standard SIM card with CGNAT (Carrier Grade NAT) is fine.

Either the **Rover** or the **Data Collector** needs to have internet access. This could be provided by:


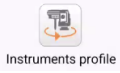

- activated SIM card in the Rover

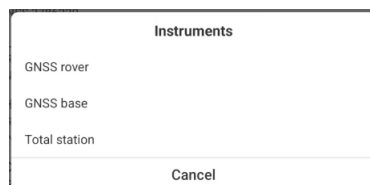
- activated SIM card in the Data Collector

- Data Collector is a phone with cellular activation

- Wi-Fi Hotspot connected to the Data Collector (not feasible with Visual Receivers)

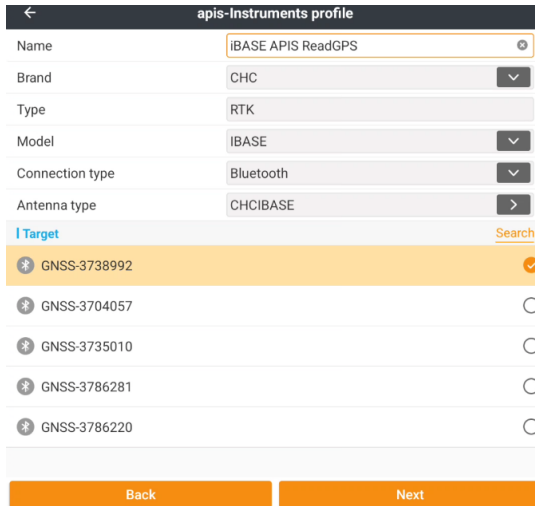
### Configure the Base receiver

On the **Config** (tab) , click the **Instruments profile**  button, click the **New**  button to make a new profile:



Click on **GNSS base**.

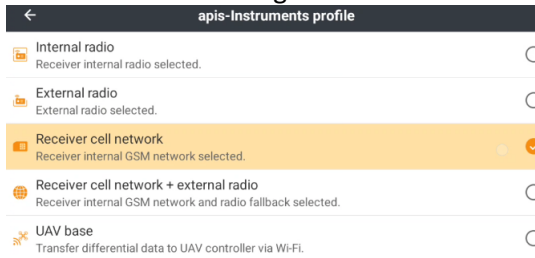
Define the connection method to the instrument:



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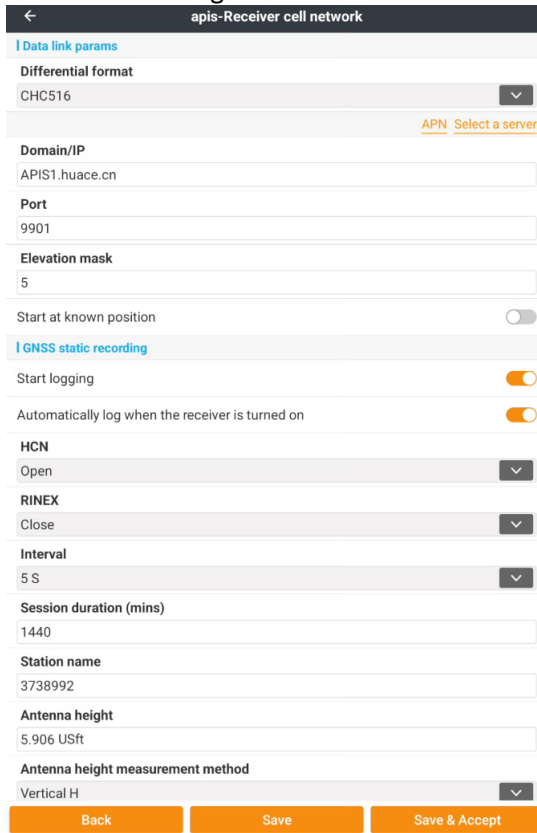
Enter a descriptive **Name** , select the **Brand**, set **Type** to **RTK**, choose the correct receiver for the **Model**, double check the **Antenna type**. **Connection type** = **Bluetooth** may simplify the process. Click **Next**.

The connection selection dialog is shown:



select **Receiver cell network**. Click **Next**.

Configure the Base settings:

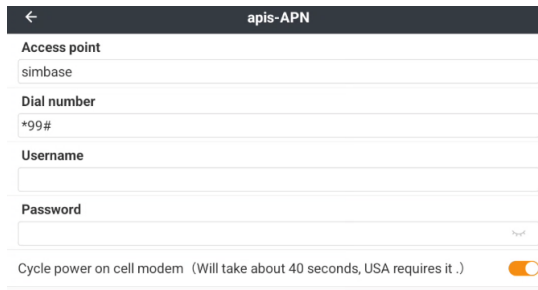


**Differential format:** If all Rover receivers support **CHC516** format, choose CHC516 as it is compressed and will reduce data transfer. **CHC516** capable receivers include i93, i89, i73, i73+, iBASE, and i83. If a non-compatible Rover will be used, select **RTCM3.2**:

- AUTO
- RTCM2.3
- CHC516
- RTCM3.x
- RTCM3.2
- CMR
- CMR+
- sCMRx
- RTD

If the **Domain/IP** is not **APIS1.huace.cn**, you can click **Select a server** and pick it from the list. The Port can be any integer from 9901 through 9909, however there is no reason to change it from **9901**.

Click the **APN** **APN** button:



the **Access point** must exactly match the **APN** required for your SIM card. For simbase cards, the APN is simbase as shown above.

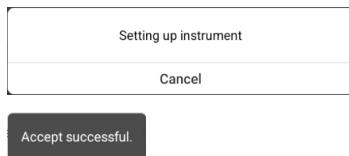
The **Dial number** is typically **\*99#**. For most SIM cards issued in the USA, the **Username** and **Password** will be blank.

Very Important: If you change the **APN**, the cell modem must be power cycled to reset your local cell tower. Enabling the **Cycle power on cell modem** option will automatically perform the modem reboot, it also will fix most other cell connectivity issues: it is worth the 40-second wait.

Click **Set** to push the **APN** to the modem and return to the previous dialog.

For the rest of the settings on the **Base settings** form, configure as you would a UHF base.

Clicking **Save & Accept** will save and immediately begin the Base setup:



If the APIS connection is successful you may hear LandStar voice “NTRIP login successful”.

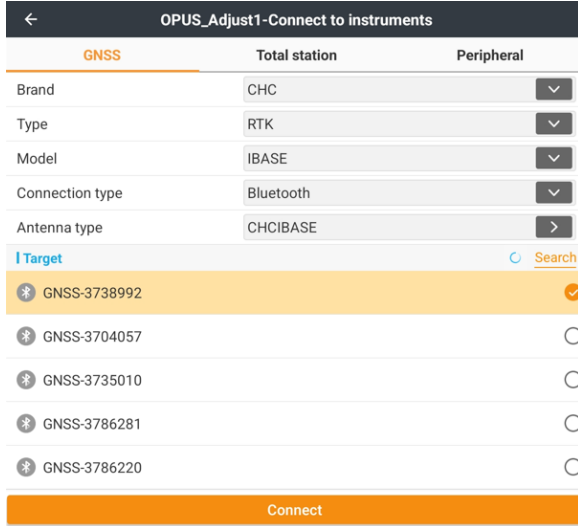
After a few moments, the correction LED’s (usually Up and Down LED’s) should start flashing once per second.

### Debugging the Base connection

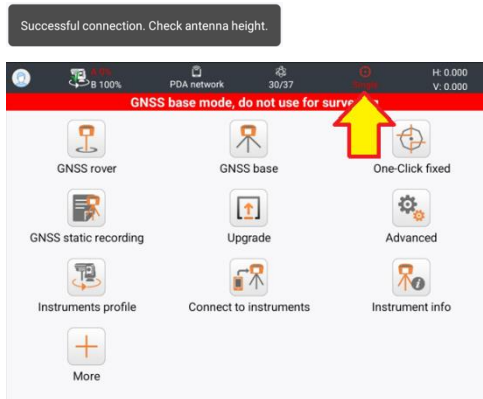
It is easy to verify that the Base connection is active.

After the Base Instrument Profile is complete, LandStar 8 disconnects from the Base receiver to reduce the chance that you measure points while inadvertently connected to the Base.

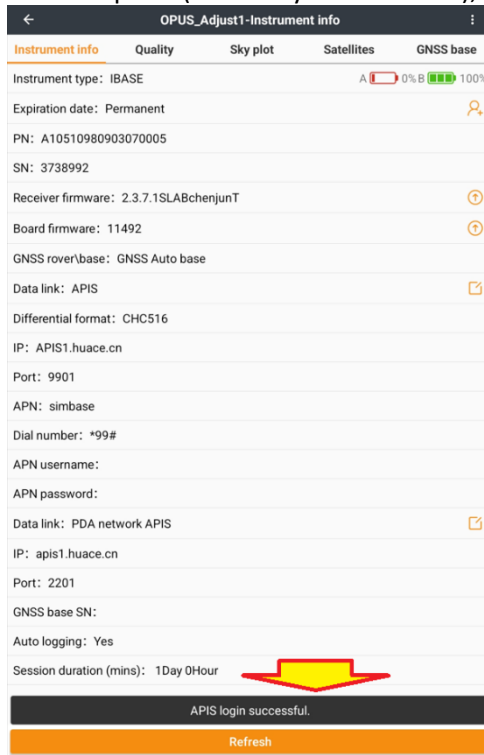
To get On the **Config** (tab) , click the **Connect to instruments**  button:



Select the Base, then click **Connect**.

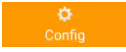
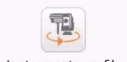


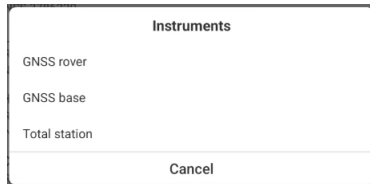
Click the black top bar (shown by arrow above), then select the Instrument info tab:



The APIS login status will be shown at the bottom of the screen.

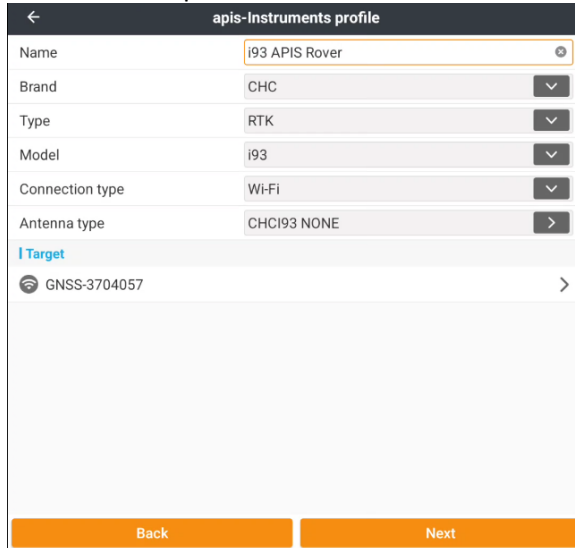
### Configure the Rover receiver

On the **Config** (tab) , click the **Instruments profile**  button, click the **New** button to make a new profile:



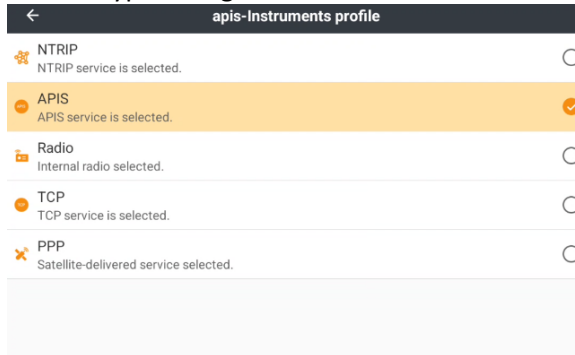
Click on **GNSS rover**.

Define the connection parameters:



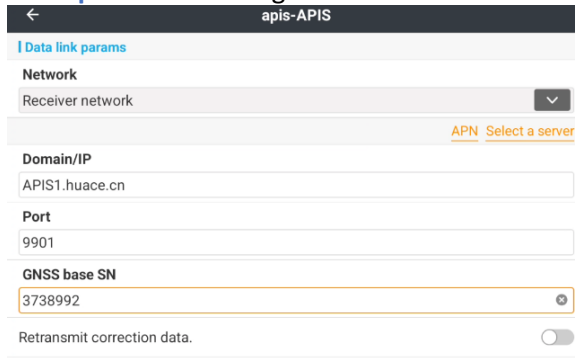
If the Rover is a visual receiver, you will need to select **Connection type = Wi-Fi**. After configuring, click on **Next**.

The connection type dialog will be shown:



Select **APIS**, then click on **Next**.

The **Data link parameter** dialog will be shown:



If the SIM card is in the receiver, choose **Receiver network**. If the data connection is in the data collector, choose **PDA network**.

If you choose Receiver network, click on the **APN** **APN** button:

the **Access point** must exactly match the **APN** required for your SIM card. The **Dial number** is typically **\*99#**. For most SIM cards issued in the USA, the **Username** and **Password** will be blank. If you change the **APN**, the power on the cell modem must be cycled. Enabling the **Cycle power on cell modem** option will automatically perform the modem reboot.

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Click **Set** to push the **APN** to the modem and return to the **Data link parameter** menu:

The **Domain/IP** and **Port** must match the value specified on the Base. The **GNSS base SN** must match the serial number of the Base.

Leave **Retransmit correction data** disabled.

Click **Next** to move to the Rover parameters dialog:

Set a reasonable Elevation mask. Choose **5Hz** for the **Position output frequency**. Click **Save & Accept** to apply the settings and connect the Rover to the APIS server.

Accept successful.

If the Base successfully connected to the APIS server, after a few moments the Rover will begin to receive corrections and should **FIX**:



## Connecting foreign (non-CHC/iGage) receivers to APIS

The APIS cloud component also has a standard NTRIP output server. So, it is possible to use the normal NTRIP client found in every other modern field software to receive corrections from an APIS base.

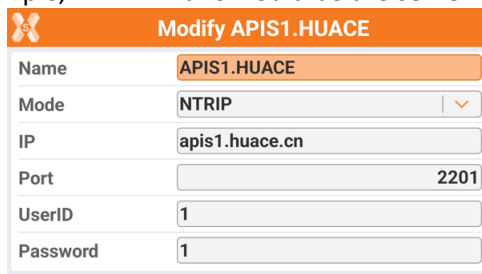
First make sure the APIS base is configured to broadcast **RTCM3.2**, not **CHC516** format.

The connection information for an NTRIP client is:

IP:	apis1.huace.cn	
Port:	2201	(subtract 7700 from the APIS port the Base uses)
UserID:	1	
Password:	1	



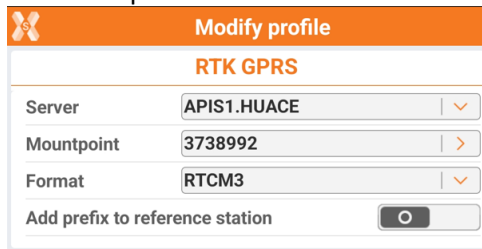
For example, in X-PAD this would be the server:



The screenshot shows a form titled "Modify APIS1.HUACE" with the following fields:

Name	APIS1.HUACE
Mode	NTRIP
IP	apis1.huace.cn
Port	2201
UserID	1
Password	1

This would be the profile:



The screenshot shows a form titled "Modify profile" with the following fields:

Server	APIS1.HUACE
Mountpoint	3738992
Format	RTCM3
Add prefix to reference station	<input type="checkbox"/>

Where the Mountpoint is typed in as it is not possible to download a mount table from APIS.