Guide of How to Set a Single Base by CORS via Network

The basic process of setting a single base by CORS via Network is as follows:
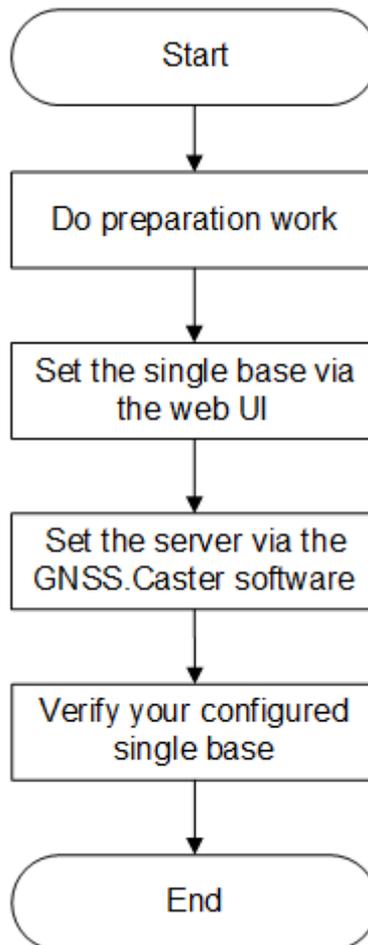
1   Do Preparation Work

To do preparation work, do the following:

1. Prepare the following:
   - A server: a computer or a cloud sever with proper bandwidth and public static IP.
     It is suggested to use the cloud server.
       - CPU: 2 cores (suggested)
       - Memory: 4 GB (suggested)
       - System: Windows 10 or Windows server 2016
       - Bandwidth: 2 Mbps at least (suggested). Please select it based on the number of online users at the same time.
       - Public static IP: please contact your local internet service provider.
   - One eSurvey CORS receiver with the latest host firmware and mainboard firmware: NET10, NET20 Plus or M1G2

     > **⚠ CAUTION:** Please update the host firmware and mainboard firmware to the latest version firstly. You can download the latest version from our official website.

   - One eSurvey GNSS antenna: UA35, UA91 or UA92
   - One Android device to install the land survey software
   - One eSurvey GNSS receiver (E100, E200, E300, E500, or E800) or any GNSS receivers supporting connection to CORS.
2. Connect the eSurvey GNSS antenna to the eSurvey CORS receiver, and insert the network cable into eSurvey CORS receiver:

2   Set the Single Base via the Web UI

The receiver Wi-Fi can be used as a hotspot, and you can connect to the hotspot with your PC, smart phone or tablet.

After connecting to the hotspot, you can manage working status, change working mode, configure basic settings, download raw data, update firmware and register device, etc.

Here takes the interface of your PC as an example.

2.1   Enter the Web UI

To enter the Web UI, do the following:

1. Power on the eSurvey CORS receiver.
2. Find the receiver Wi-Fi hotspot with your computer.
   Hotspot name: the receiver serial number
3. Open the web browser, and input IP address **192.168.10.1**. The following interface shows:
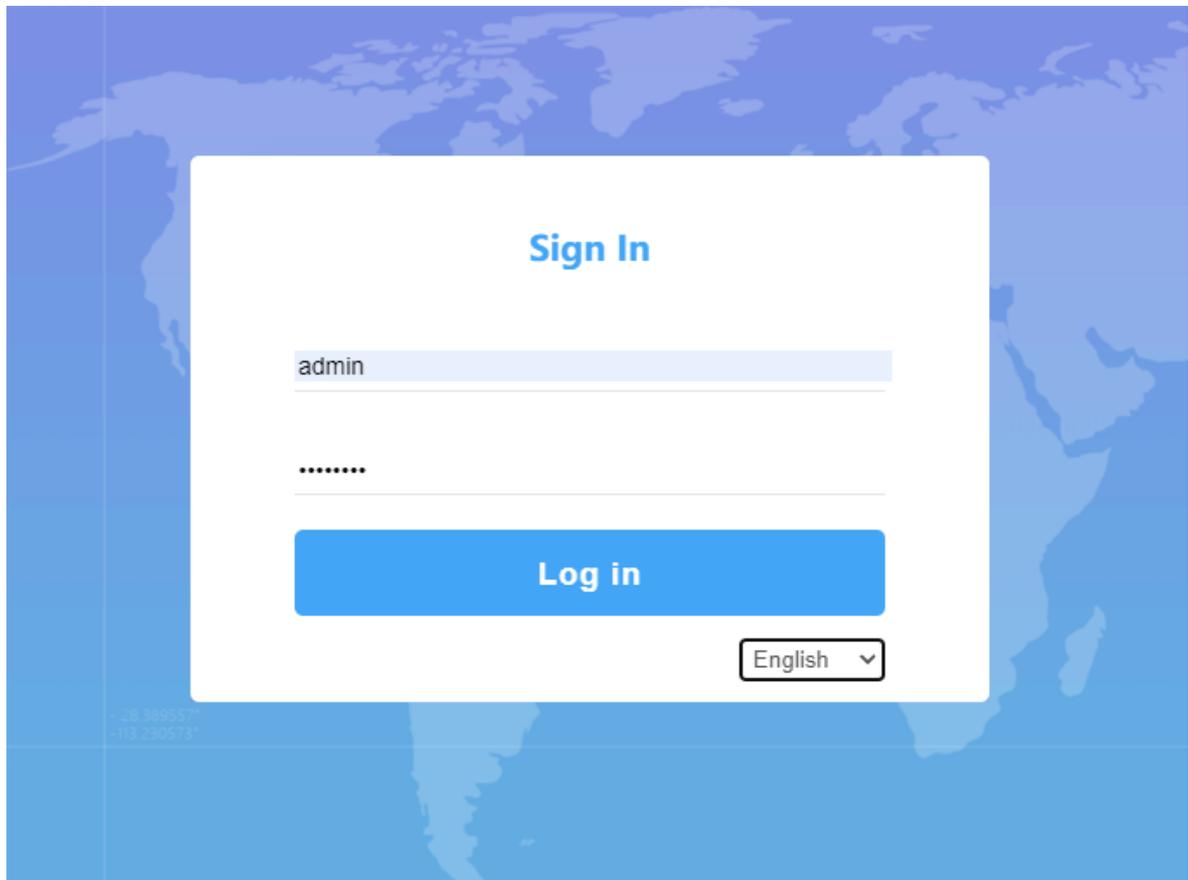
4. Input the name and password:
   - Name: admin
   - Password: password
5. **Optional:** Select the target language.
   At present, simplified Chinese and traditional Chinese, English, Japanese and Russian are supported.
6. Click **Log in**.

2.2 Set the Reference Station

To set the reference station, do the following:

1. Click **Reference Station** → **Reference station**:

2. Do the following:
   o Select an antenna type according to the actual situation, or select **Custom** and set your antenna type if your antenna type does not in the list.
   o **Optional:** Input the antenna parameters (R, H, HL1 and HL2).
   Generally, the antenna parameters will be automatically filled in after you select an antenna type. This operation is required only when a customized antenna type is used. At this time, please contact your antenna supplier.
   o Select the working mode as **Base**.
   Please skip this operation if you use a NET20 Plus.
   o Select the base position as **Repeat Position**.
   o To set the base longitude and base latitude, directly input the coordinates of control points on the ground directly below the antenna center.
   If you do not know the coordinates, do one of the following:
      ▪ If high precision is required, please contact your local surveying and mapping service provider.
      ▪ If only meter level precision (error: 1 - 3 m) is required, click **Load Current Position** to collect the point one time or **Load Smooth Position** to collect the point ten times and get the average.
      It is not recommended.
   o Set the height of the point on the ground.
   The elevation of control point on the ground directly below the antenna center.
   o Set the antenna height.
   The height from control points on the ground directly below the antenna center to the phase center or the antenna bottom.
   o Select a measurement mode.
   The way of how to measure the antenna height.
3. Click **Submit**.

2.3 Set the Ntrip Server

To set the Ntrip server, do the following:

1. Click **Ntrip Server**:

M1G2 Reference Station

Name	Server Address	Mountpoint	Data Type	Interval	Status	Start Time	Data Size	Operation
01	119.45.59.192:2102	g2rtcm30	RTCM3	1000	transmitting	2021-11-12 10:34:08	0 B	Edit / Start / Stop
02	119.45.59.192:2102	g2rtcm32	RTCM32	1000	error: no free endpoint		0 B	Edit / Start / Stop
03	119.45.59.192:2102	g2rtcm23	RTCM2	1000	error: no free endpoint		0 B	Edit / Start / Stop
04	119.45.59.192:2102	g2cmr	CMR	1000	error: no free endpoint		0 B	Edit / Start / Stop

Sidebar menu:
- Summary
- System Information
- Reference Station
- Ntrip Server
- Recording
- Port Configuration
- I/O Configuration
- Network
- Administration
- Download
- Language English
- Logout

Ntrip Server 1

Name	01
Server Address	119.45.59.192
Server Port	2102
Version	V1.0
Password	•••
Mountpoint	g2rtcm30
Data Type	● RTCM3.0 ○ RTCM2.3 ○ CMR ○ CMR+ ○ RTCM3.2 ○ DGPS ○ RAW
Interval	1HZ
Auto Connect	● Enable ○ Disable

Submit   Delete   Reload

2. Input the following:
   - o Name
   - o Caster Address: please contact your local internet service provider and input the public static IP of the server.
     If you cannot obtain the public static IP but you would like to test your CORS functions, to obtain the IP address, make sure your CORS receiver, server and Android device are connected to the same router, and do the following:
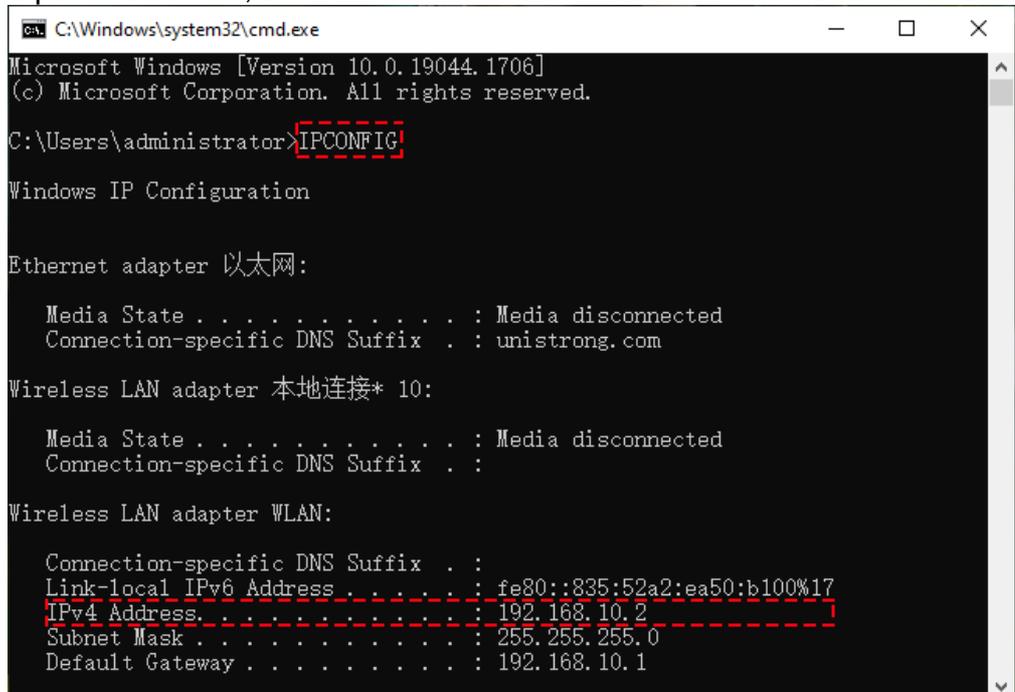
   > **CAUTION:** It is not suggested, for your use of single base will be limited by distance under this way.

     i. Press ⊞ and **R**.
     ii. Input **CMD**:
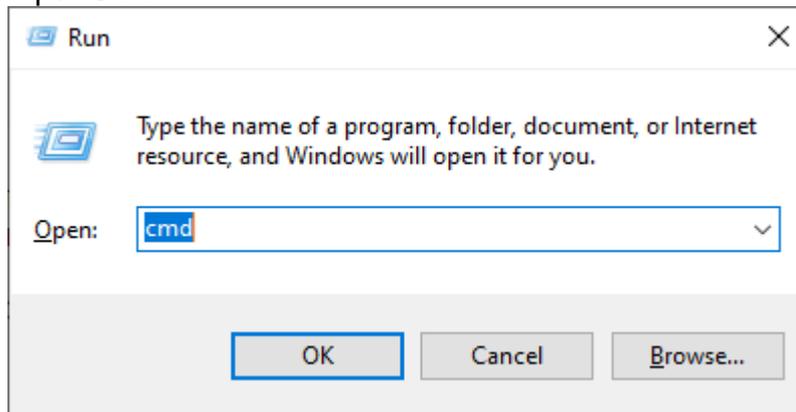
     iii. Click **OK**.
     iv. Input **IPCONFIG**, and click **Enter**. Your IP address shows as follows:

   - o Caster Port: the caster port of GNSSCaster software.
     Alternatively, you can set it in GNSSCaster software. But please make sure its setting in the Web UI is the same with that in GNSSCaster software.

- o Password: default password is **123456**.
  Alternatively, you can set it in the GNSSCaster software. But please make sure its setting in the Web UI is the same with that in GNSSCaster software.
  - o Mountpoint: the name of the mount point. After your single base is successfully configured, the name will show in the GNSSCaster software.
  3. Click **Submit**.

After setting the Ntrip server, to check if the setting is successful, do the following:

1. Install the GNSSCaster Software
2. Configure the GNSSCaster Software
3. Return to **Ntrip Server** interface of web UI, and check if **Status** column shows **transmitting**:
   - o If it shows **transmitting**, the setting is successful.
   - o If not, click **Start** and wait several seconds to refresh the web UI and check the status.

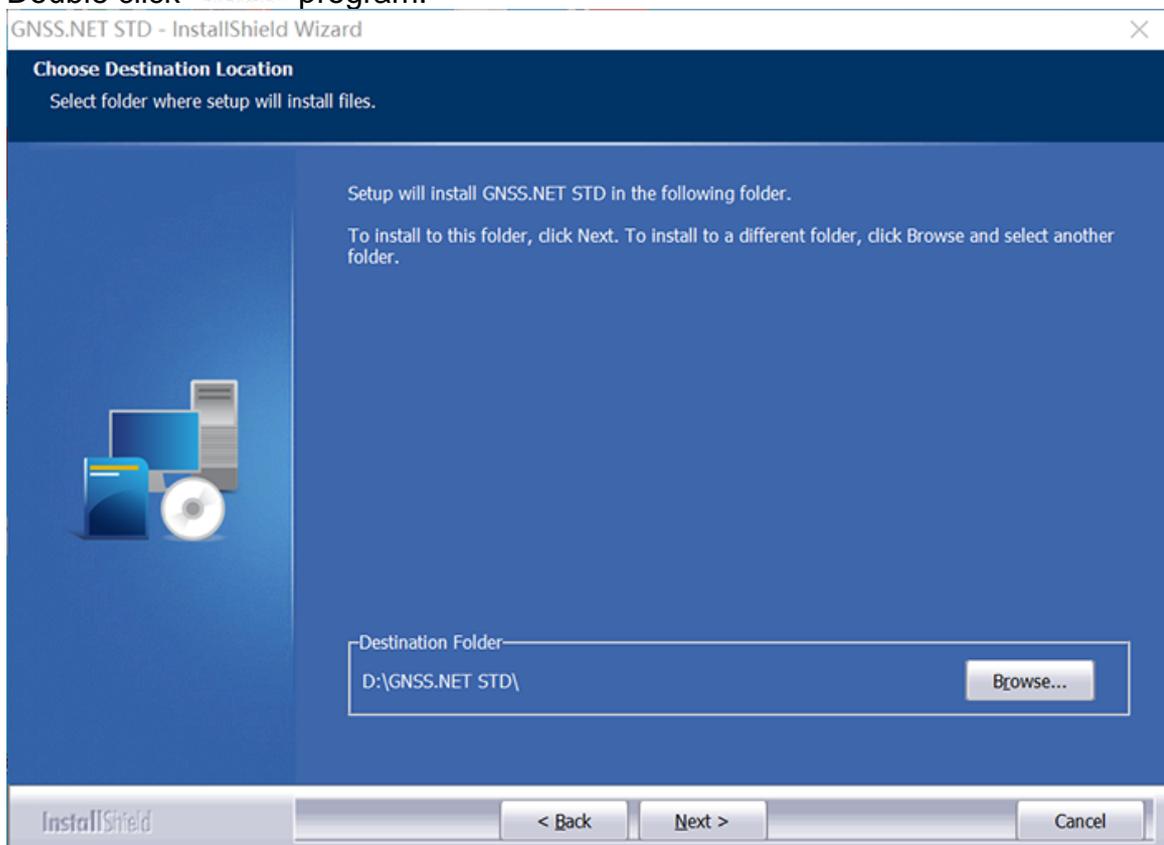# 3   Set the Server via the GNSSCaster Software

3.1   Install the GNSSCaster Software

The GNSSCaster software is built in the GNSS.NET software. After the GNSS.NET software is installed, the GNSSCaster software is automatically installed.
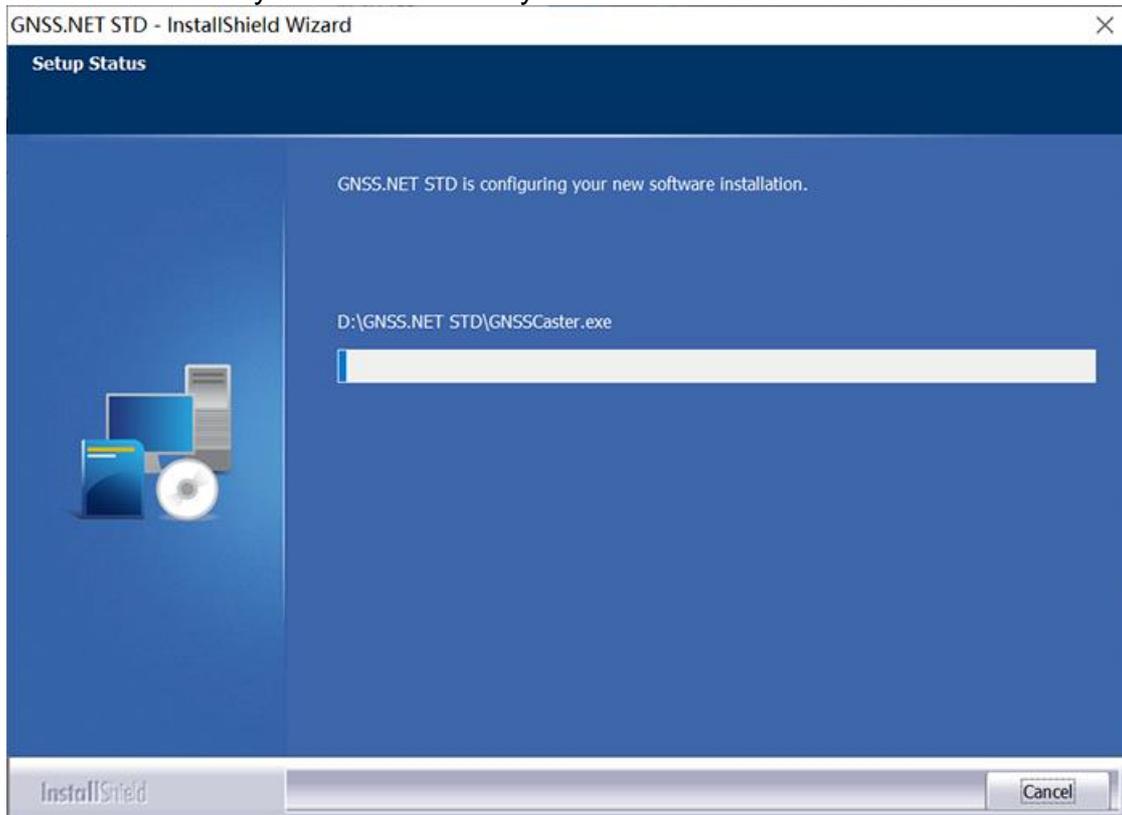
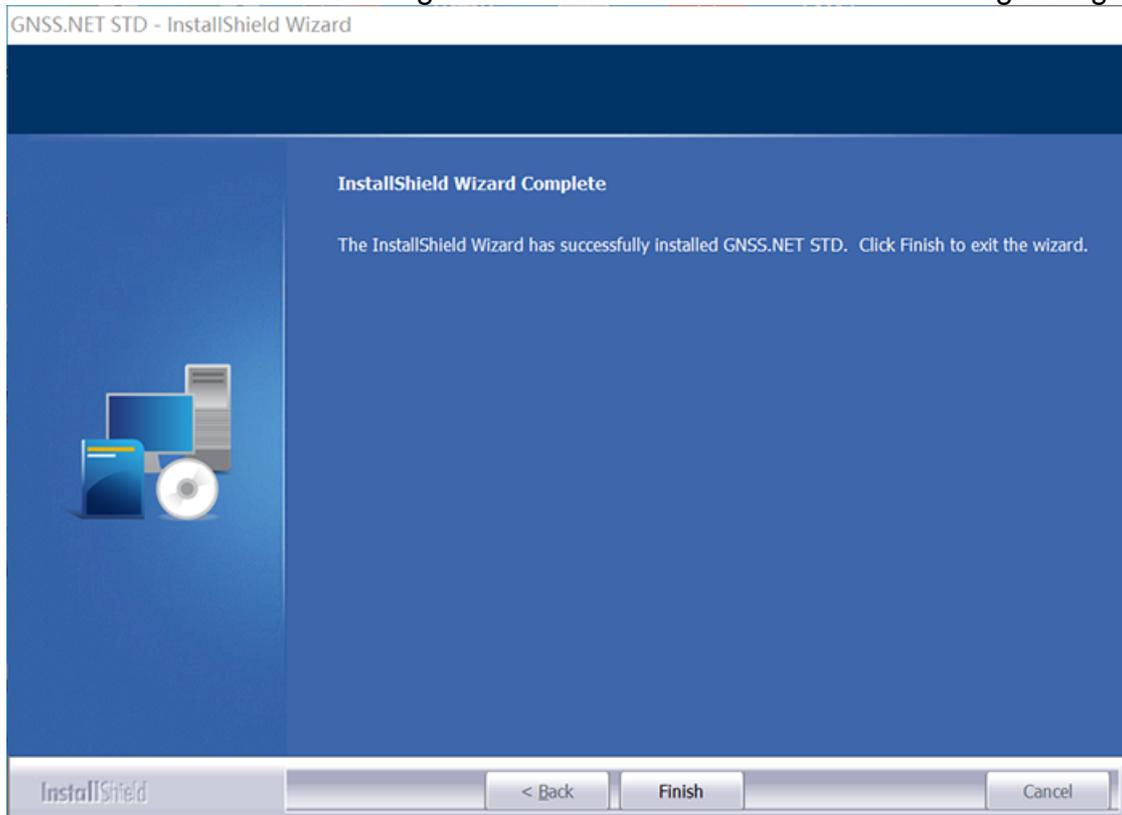To install the GNSSCaster software, do the following:

1. Double click GNSS.NET STD.exe program:

2. Click **Browse**, and select the target installation path.
   It is suggested to use the default path.
3. Click **Next**. The system automatically starts to install the GNSS.NET software:

4. Click **Finish** to finish installing the GNSS.NET software in the following dialog box:
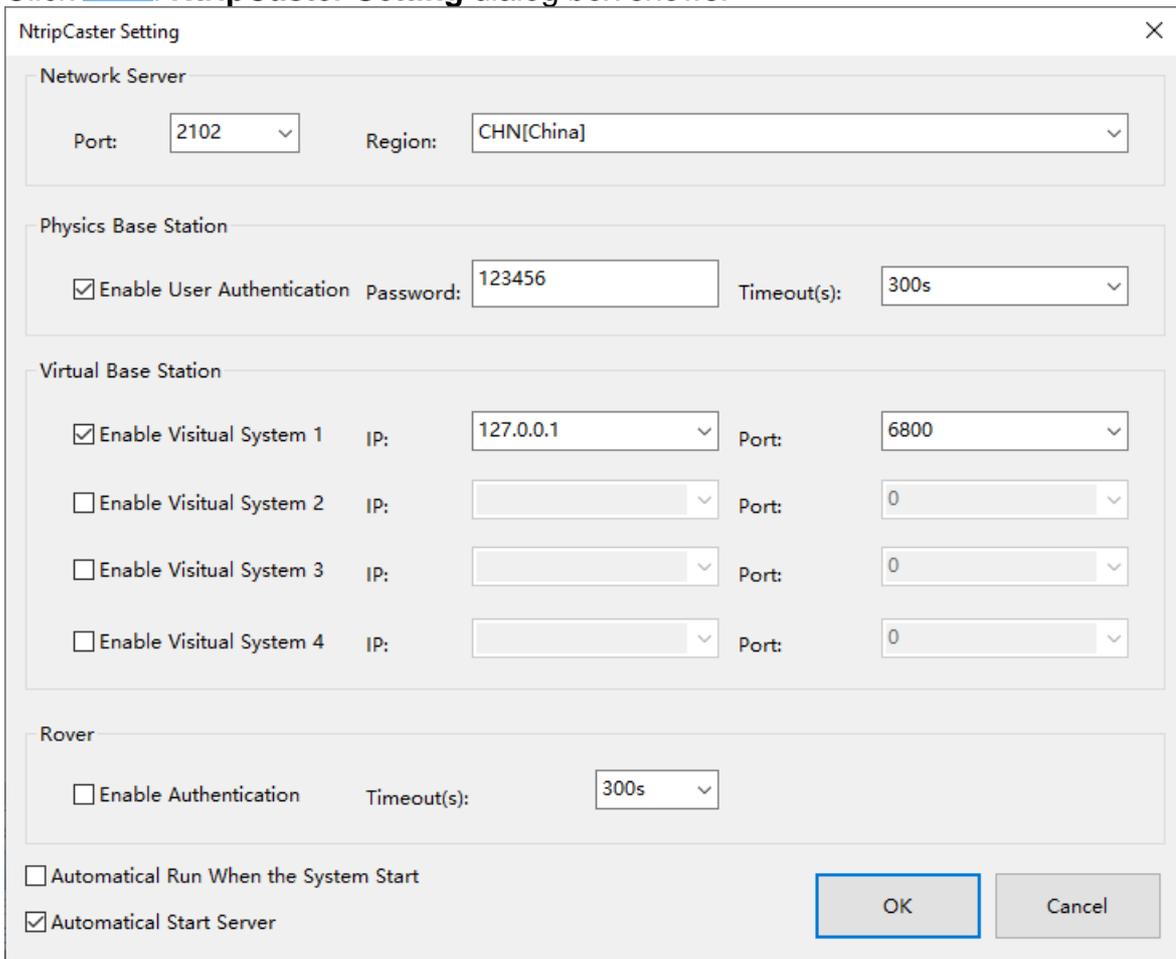
After installing the GNSS.NET software, the icon of program GNSSCaster shows in the desktop.

3.2   Configure the GNSSCaster Software

To configure the GNSSCaster, do the following:

1. To stop running, press [pause icon].

2. Click [gear icon]. **NtripCaster Setting** dialog box shows:

3. Select the target port.
    It should be the same with the setting in the web UI.
4. Set the password.
    It should be the same with the setting in the web UI.
5. Check **Enable Authorization**.
6. Click **OK**.

3.3   Set the User Account

To set the user account, do the following:

1. To stop running, click .

2. Click . **User Manage** dialog box pops up:

3. To add a user account, click **Add**. **Add User** dialog box pops up:
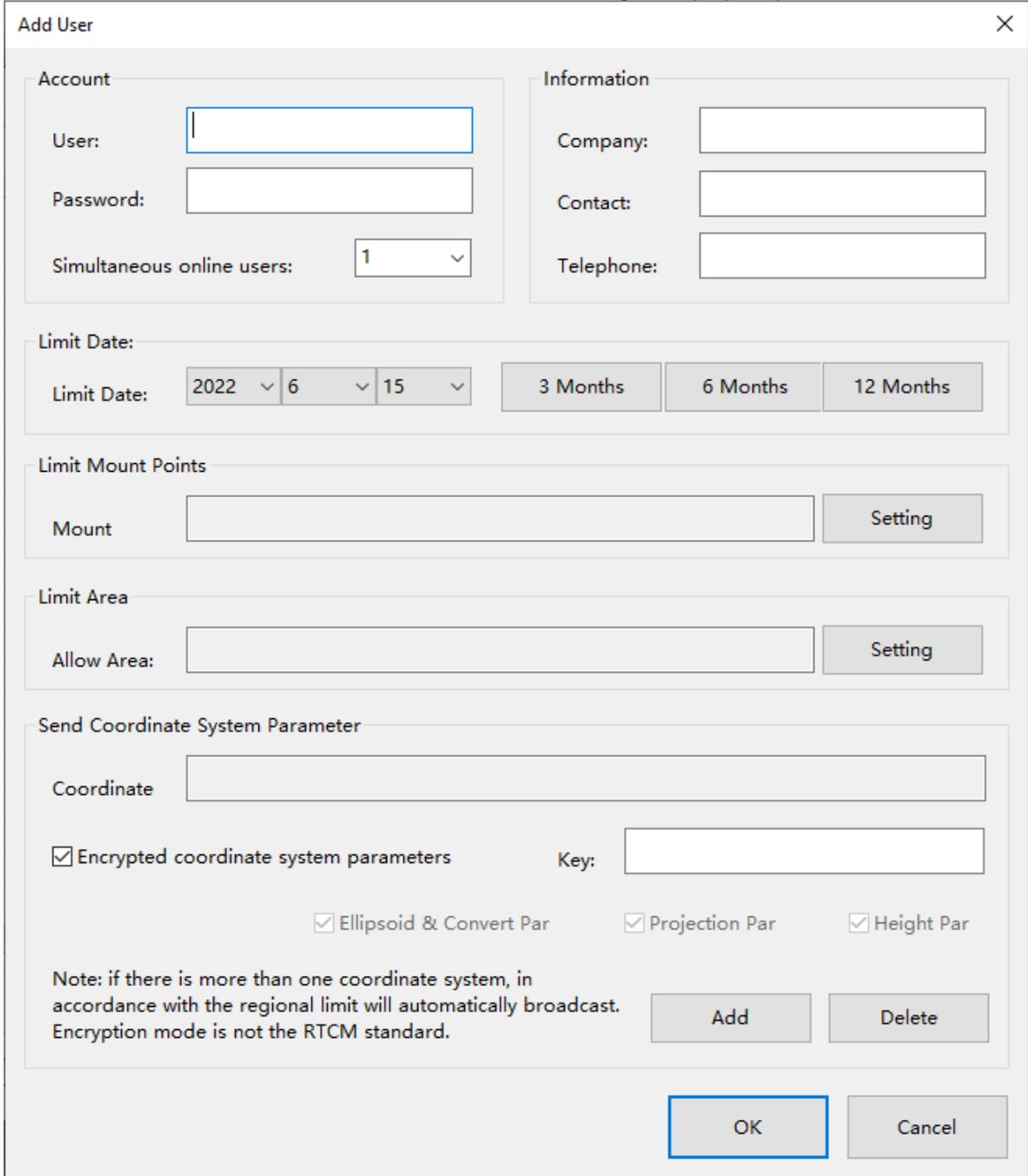
4. Set the following user information:
   o Set the user name.
   o Set the password.
   o Select the limited data.
   o Uncheck **Encrypted coordinate system parameters**.

5. Click to start running.

3.4   Check the Result

To check the result, wait for 20 seconds to see if the following interface shows:

4   Verify Your Configured Single Base

It is used to check if your single base is configured successfully by setting the rover.

Taking an eSurvey GNSS receiver and eSurvey Surpad software as an example, to verify your configured single base, do the following:

1. Run app SurPad, and connect SurPad to the Internet.
2. Connect SurPad and the eSurvey GNSS receiver via Bluetooth.
3. To set the rover, do the following:
   a. To enter **Rover mode settings** interface, press main menu **Device → Rover**:
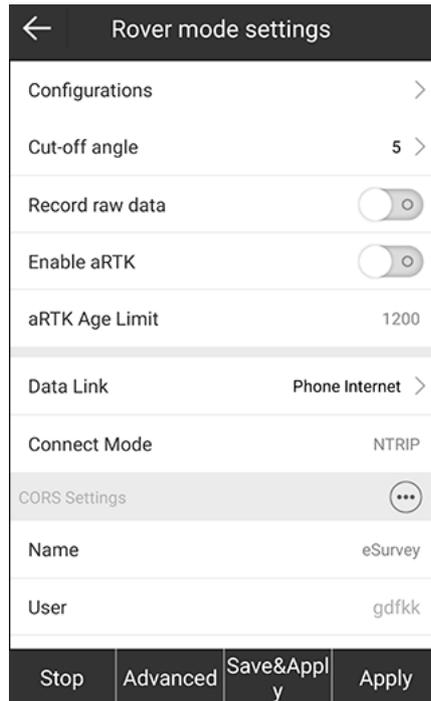
   b. Set a saved configuration, cut-off angle and aRTK age limit, and select whether to record raw data and enable aRTK.
   c. Select a data link and connection mode.
   d. In **CORS Settings** area, select the name, input the user and password.
   e. Select a mount point and press **Get Access Point**.
   f. Press **Apply**.

4. Return to the interface of GNSSCaster software. Rover information automatically shows as follows which indicates that the rover gets fixed and your single base is successfully configured:

e-survey

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