

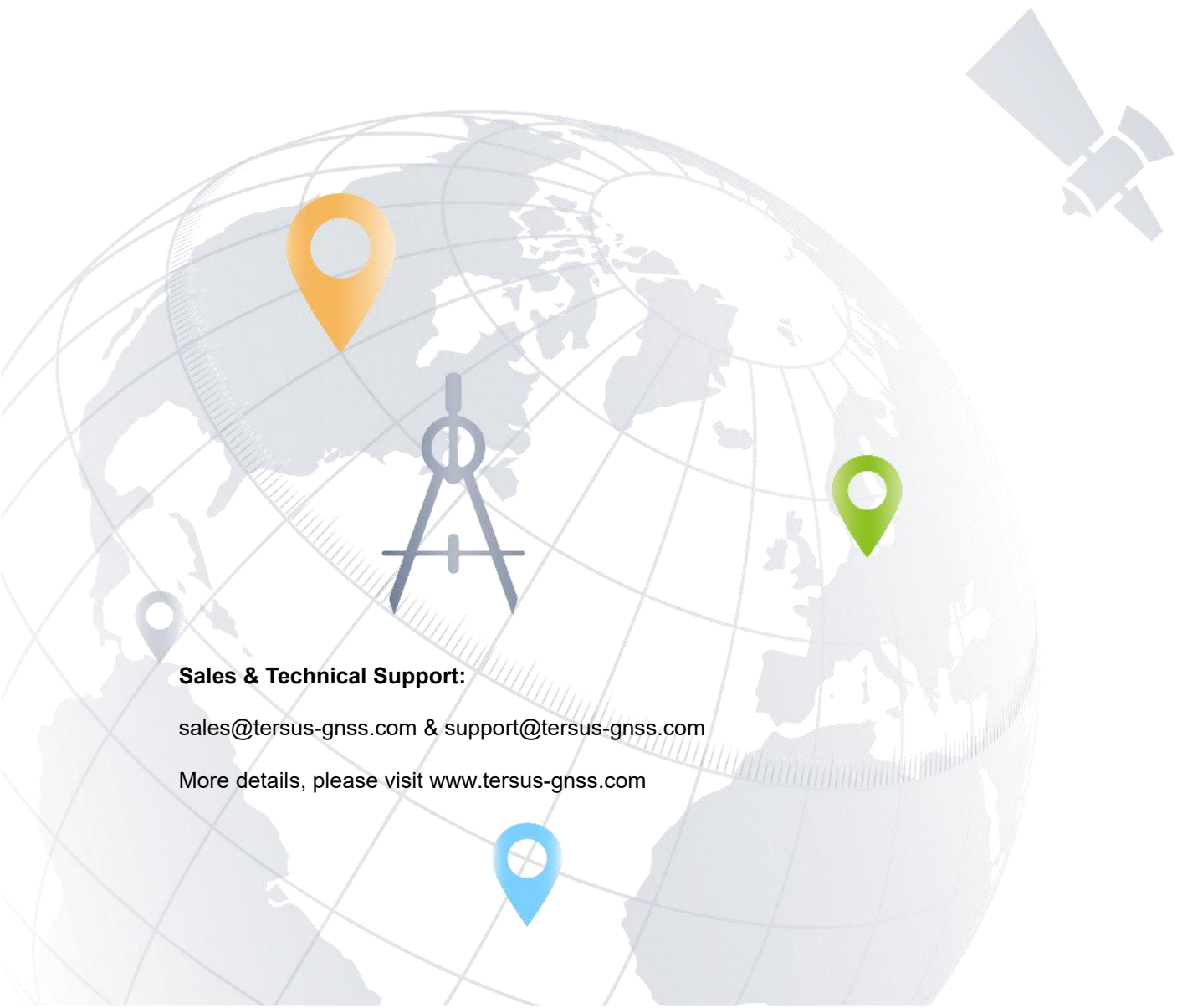
User Manual

Version V1.2-20220217



User Manual For Tersus GeoCaster

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Sales & Technical Support:

sales@tersus-gnss.com & support@tersus-gnss.com

More details, please visit www.tersus-gnss.com

Revision History

Revision	Description	Date	Owner
1.0	Initial Release	2019/1/31	LC
1.1	Added chapter 3 web query and management.	2020/11/23	LC
1.2	Added SaveFile Config	2022/2/17	ZCG

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1. Introduction

This chapter introduces the brief introduction, system requirements, installation, activation, and main interface.

1.1 Brief Introduction

The Tersus GeoCaster is a Networked Transport of RTCM via Internet Protocol (NTRIP) Caster software which allows GNSS correction data such as RTCM corrections to be repeated and sent to different end users via internet. It supports configurable bases online simultaneously and configurable rovers for one base. The end users involve in various areas including surveying, construction engineering, deformation monitoring, automated vehicle, precision agriculture, Unmanned Aerial Vehicle, machine control, robotics, and etc.

1.2 System Requirements

Tersus GeoCaster is to run on a wide range of different computer configurations. The systems requirements are listed as below:

Table 1 System Requirements for GeoCaster

Operating System	Microsoft Windows 7, 8, 10 (32-bit and 64-bit)	
Hardware	Minimum	Recommended
Processor	Intel Core i3	Intel Core i5
RAM	4GB	8GB
Hard disk	10GB	1TB
Graphics card	Direct X9 compatible integrated graphics	Direct X9 compatible 2GB discrete graphics
Internet Connection	Ability to originate both http and https (SSL) connections	

1.3 Installation File

Download the installation file from Tersus website

<https://www.tersus-gnss.com/software> or contact Tersus Technical Support by email support@tersus-gnss.com to obtain the installation file.

1.4 Installation

Right click the installation file (with .exe extension) and choose 'Run as administrator', the installation process starts as below.

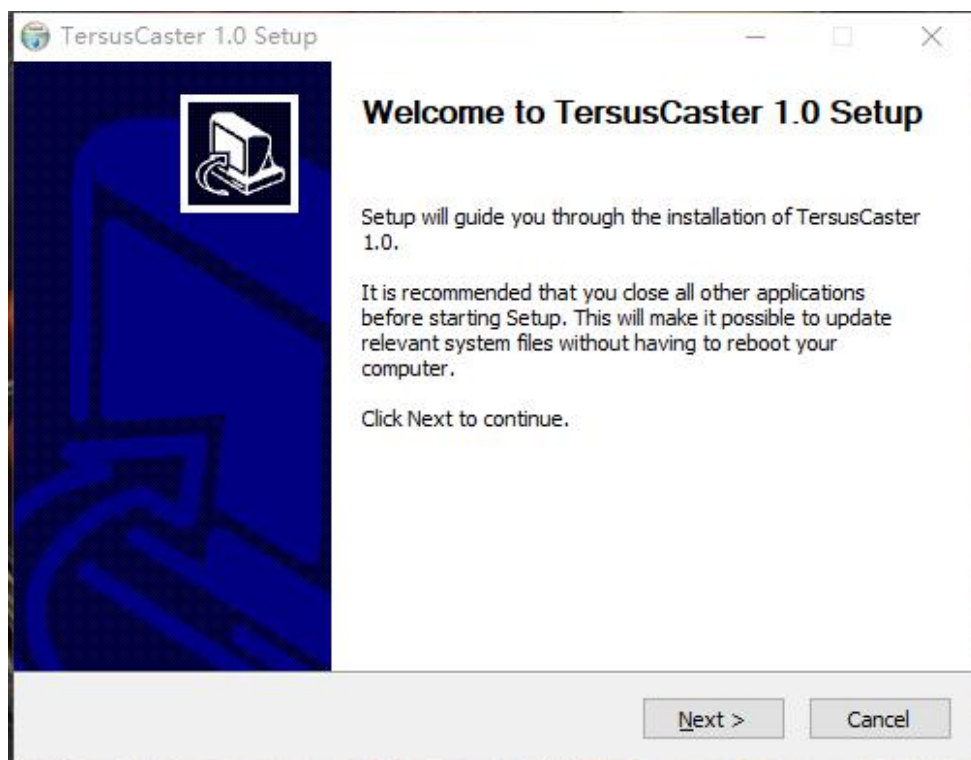


Figure 1.1 Start to install GeoCaster

Click [Next] to move to the next step.

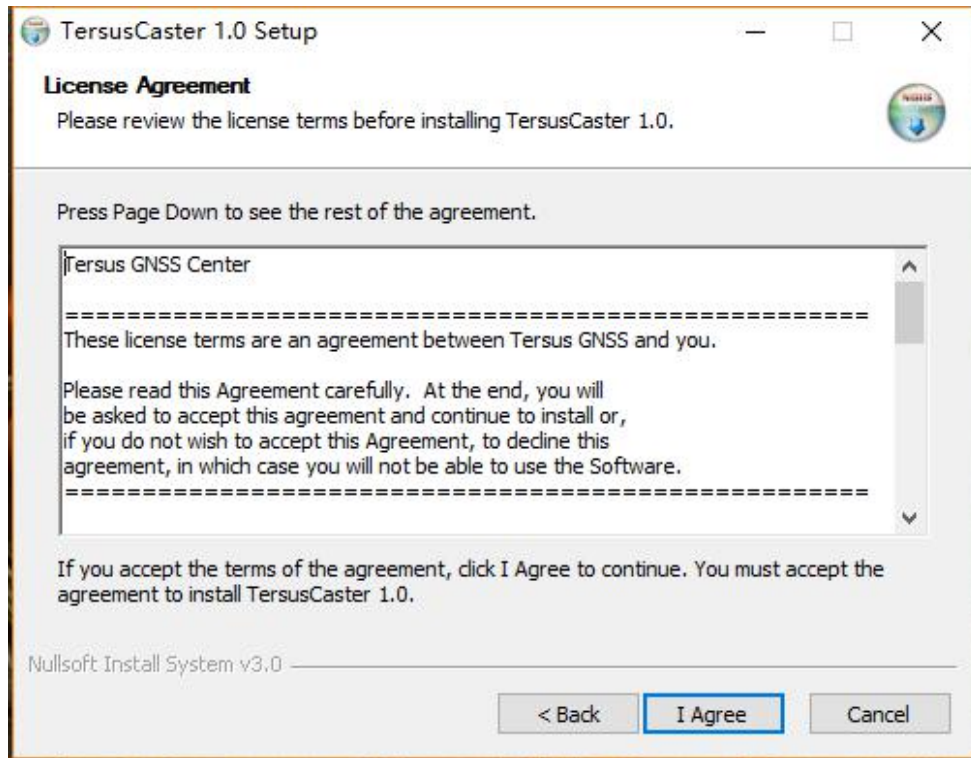


Figure 1.2 Read license agreement

Click [I Agree] to accept the agreement, and move to the next step.

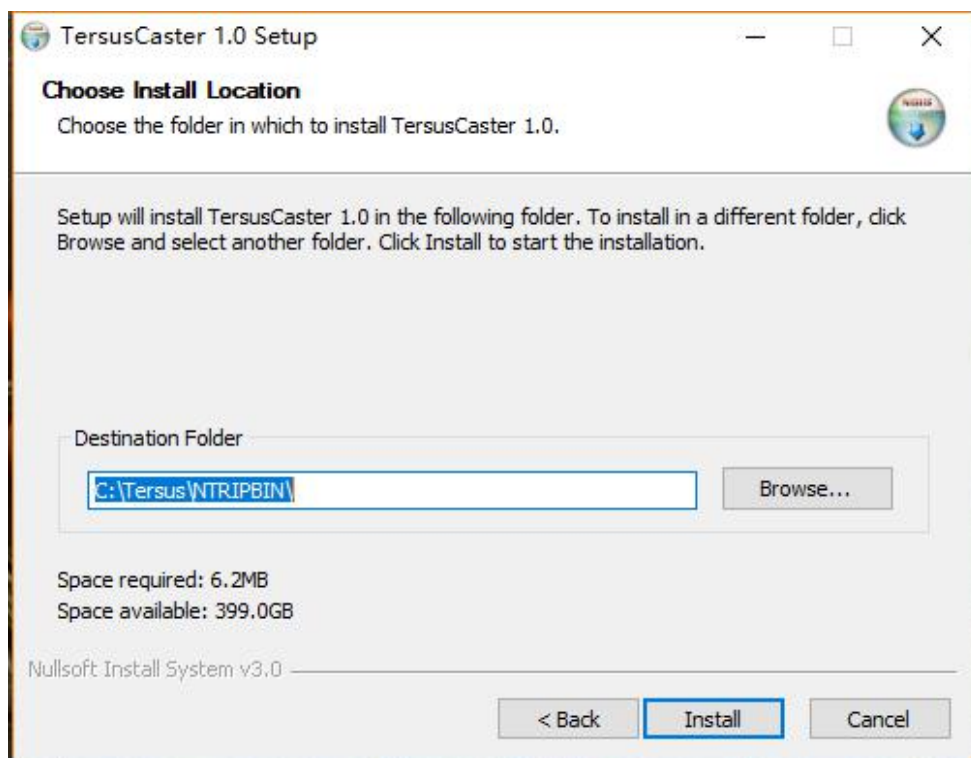


Figure 1.3 Choose install location

Browse the appropriate folder to install the software, click [Install] to start to install.

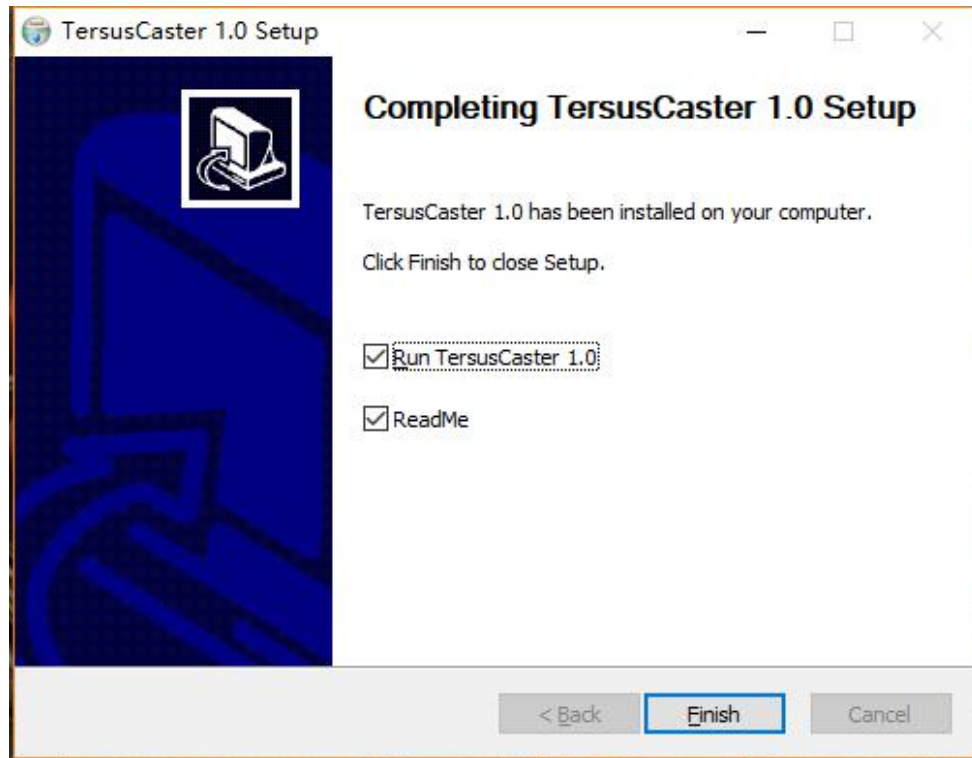


Figure 1.4 Finish the installation

After a few minutes, the installation is completed. Click [Finish] to finish the installation.

1.5 Activation

When first use the GeoCaster software, it should be activated by entering the activation code. To obtain the activation code, please send your machine sequence number to Tersus Technical Support by email

support@tersus-gnss.com and a unique string will be returned for activation.

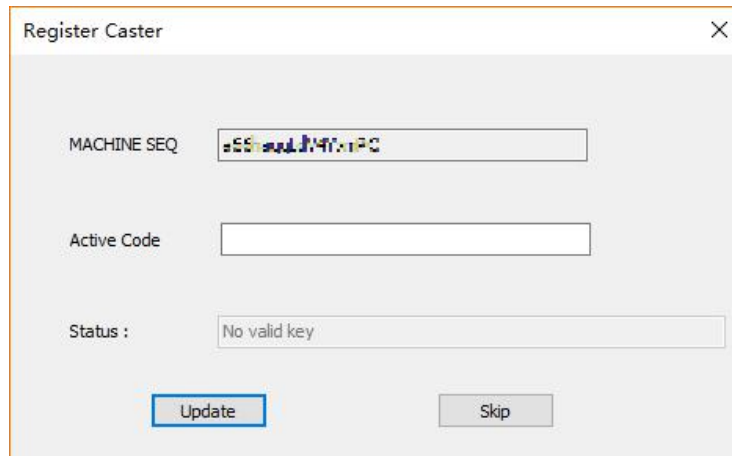


Figure 1.5 Register GeoCaster

If user clicks [Skip] in the above window, the software still cannot be opened and it pops out a warning window indicates that 'Please register software first'.

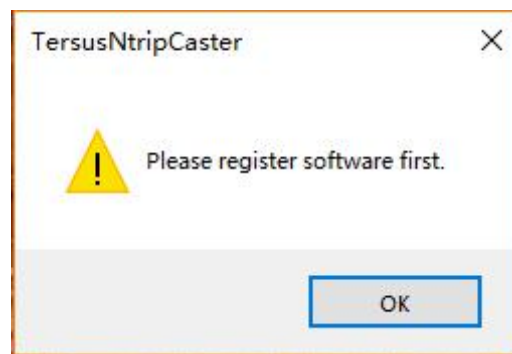



Figure 1.6 Register warning

1.6 Main interface

When the software is properly activated, it enters the watchdog and main interface which is shown below. Or double click the GeoCaster icon  on the desktop to launch the software and enter the watchdog interface and the main interface.

The watchdog interface helps GeoCaster user to monitor caster status and set up SMS notification.

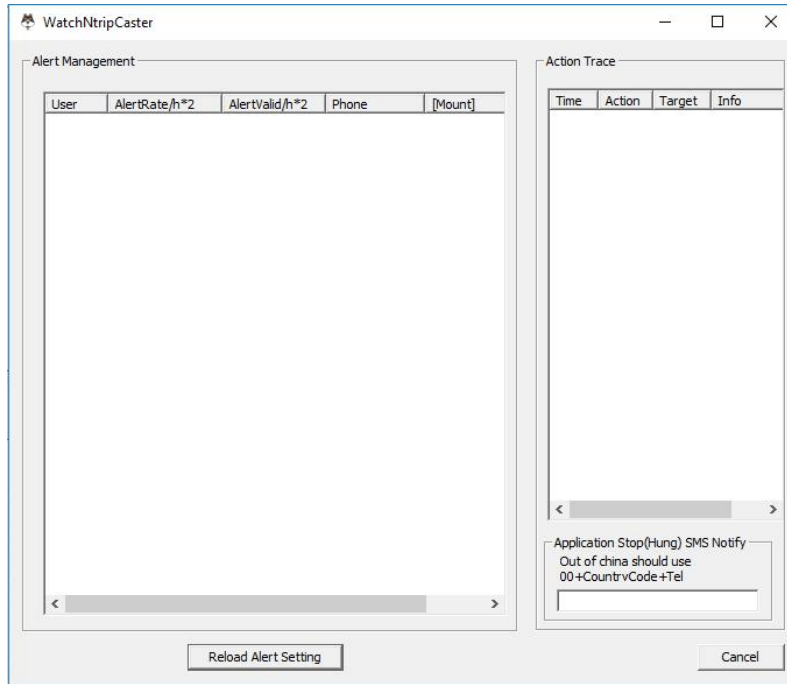


Figure 1.7 Watchdog interface

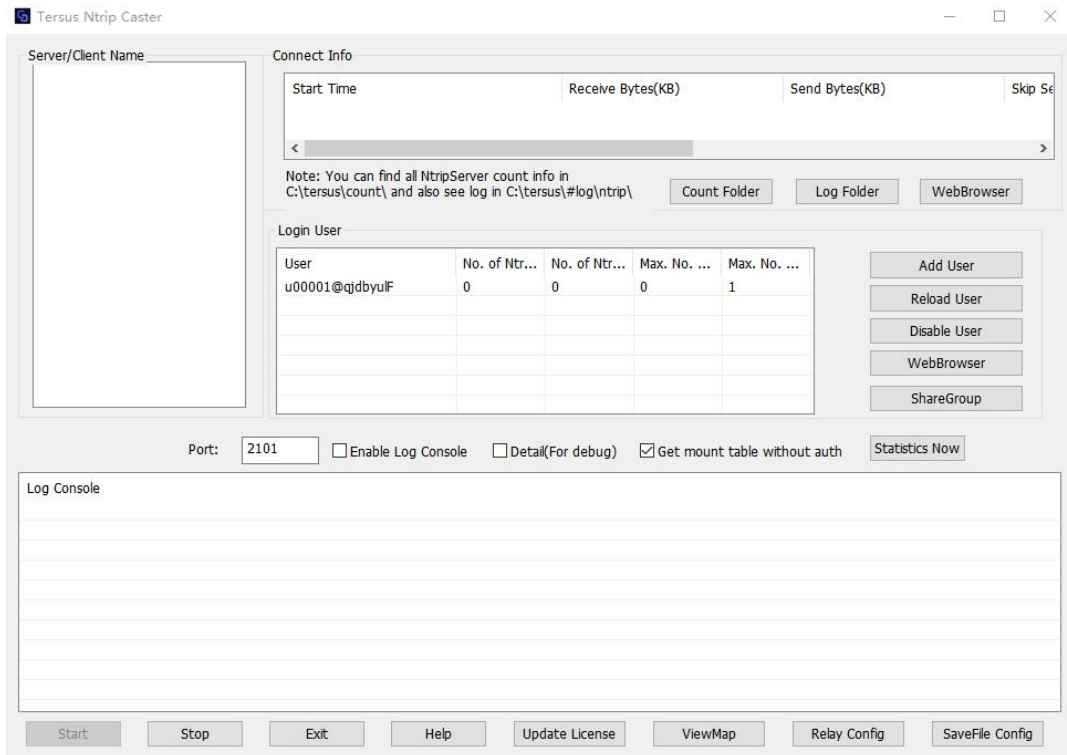


Figure 1.8 GeoCaster main interface

The GeoCaster main interface is shown above, and detailed operation will be described in the next chapter.

2. General Operations

This chapter describes the detailed operations for the watchdog interface and the main interface.

2.1 Watch Ntrip Caster

2.1.1 Introduction

The Watch Ntrip Caster interface provides watch dog function for GeoCaster. The interface contains three parts:

1) Alert Management

This area lists the information of Ntrip users, alert rate, alert valid time, phone number and mount point.

2) Action Trace

This area lists the details of time, action, target and information.

3) SMS Notification

This area sets up the telephone number for the SMS notification. For Chinese mobile, type the mobile number directly. For the users out of China, the notification number should use the format of 00 + country code + mobile number. For example, to notify a Singapore user, type 006512345678.

Generally, the Watch Ntrip Caster interface is for monitoring and notification. It is not recommend closing watchdog when GeoCaster is running.

2.1.2 Operations

The Watch Ntrip Caster is operating as shown below when there are a number of Ntrip users for management and monitoring.

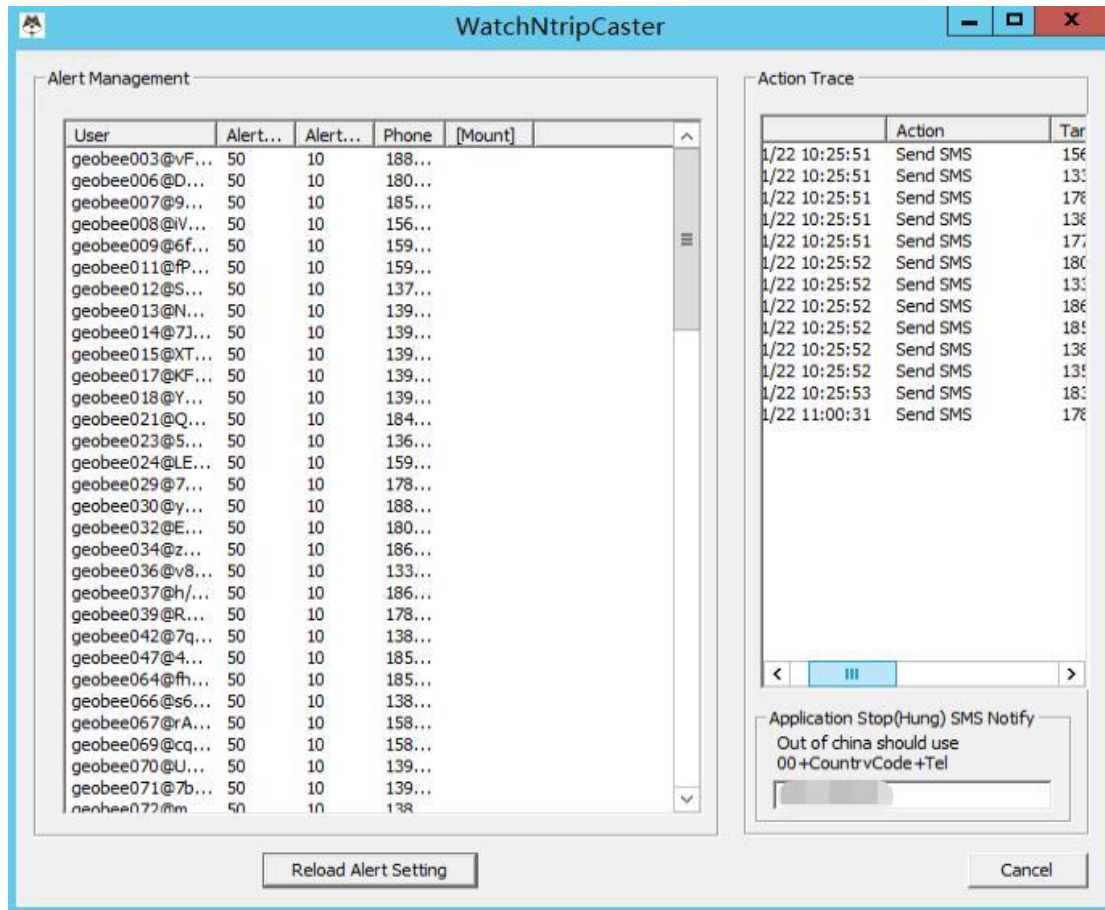


Figure 2.1 WatchNtripCaster in operation

If GeoCaster is closed accidentally, WatchNtripCaster will launch GeoCaster automatically and it has a record in the Action Trace area.

Contact Tersus Technical Support by email support@tersus-gnss.com for more information about the watchdog.

2.2 GeoCaster Main Interface

2.2.1 Introduction

The GeoCaster main interface contains four major information output areas which are shown as below.

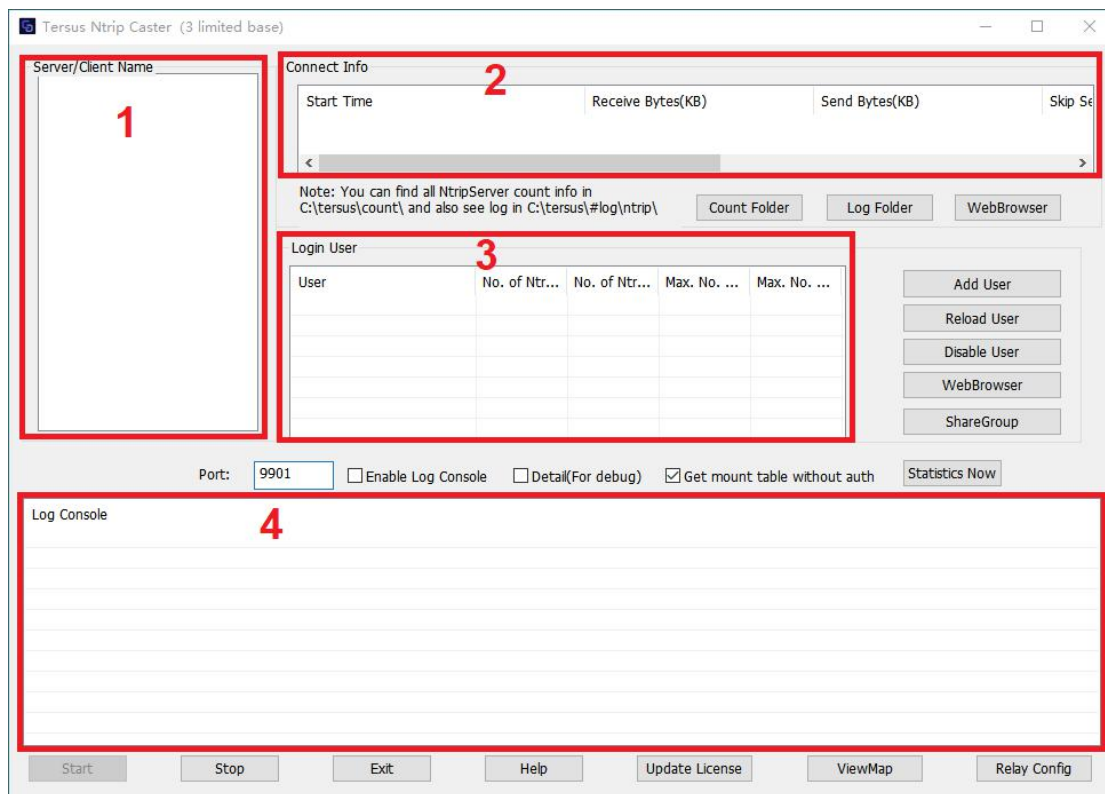


Figure 2.2 Information output area in GeoCaster

1) Server/Client Name

This area lists the servers which are sending RTCM stream to the NTRIP caster and the clients which are receiving RTCM stream from the NTRIP caster. The name consists of mount point, password, and user name.

2) Connect Info

This area presents the connect information of the server or client selected. The connect information includes: Start Time, Receive Bytes (KB), Send Bytes (KB), Skip Send, RTCM Type, GGA Info, Error / Valid Package (Total) and Latitude / Longitude / Height.

3) Login User

This area lists the information of logged in users which include user (user name and password), number of Ntrip Client, number of Ntrip Server, max number of Ntrip Client, and max number of Ntrip Server.

4) Log Console

This area presents the logs and information for every operation step, such as client is connected, client is aborted, responses, and etc.

2.2.2 Operations

The GeoCaster is operating as shown below when there are a number of Ntrip users are sending RTCM stream to this Ntrip Caster.

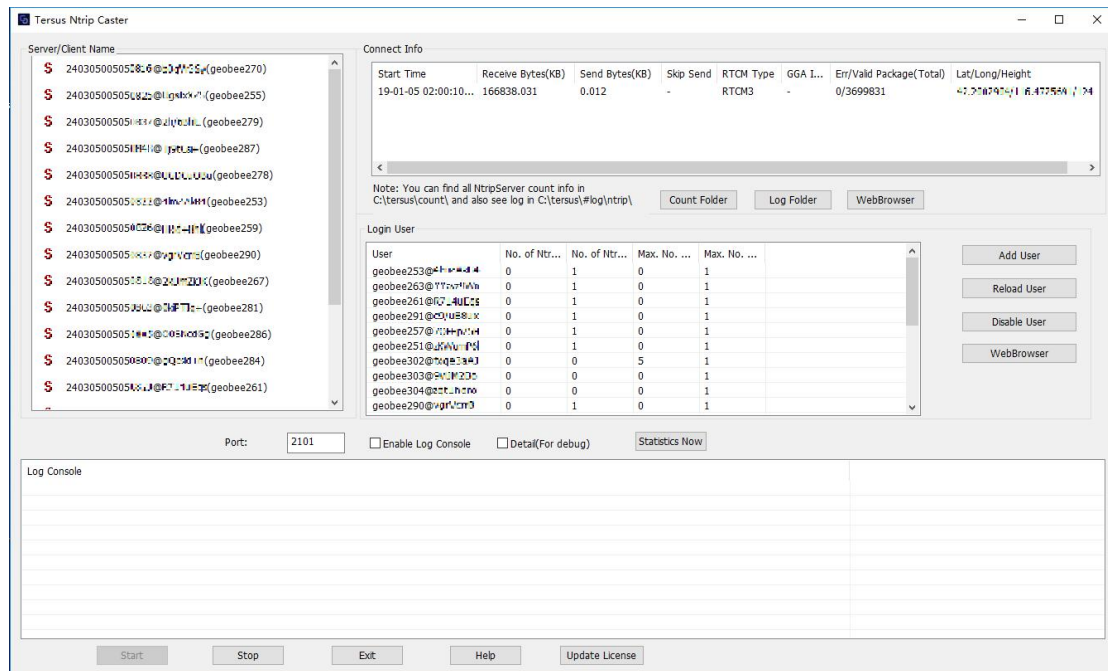
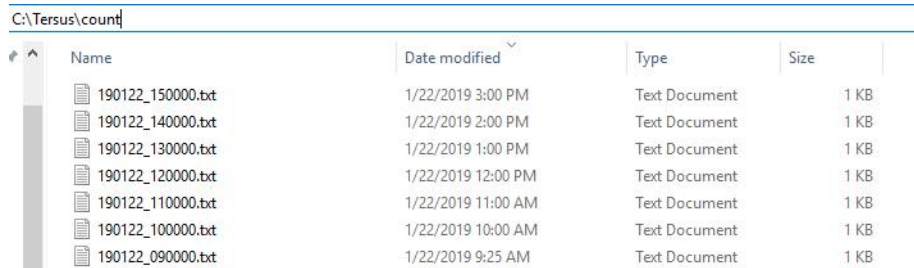


Figure 2.3 GeoCaster in operation

Under the connect info area, there are three functional buttons:

1) Count Folder

Click this button and the count folder will pop out as below. The count information is saved in a text file very hour.

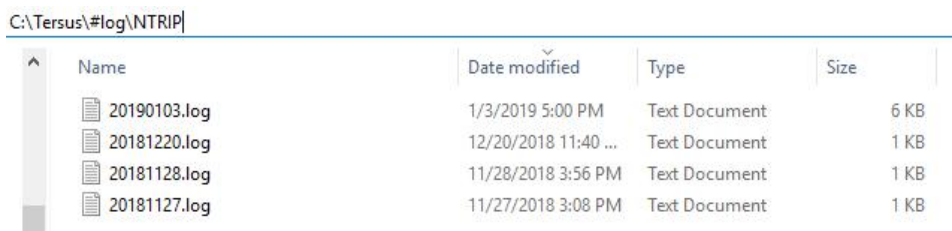


Name	Date modified	Type	Size
190122_150000.txt	1/22/2019 3:00 PM	Text Document	1 KB
190122_140000.txt	1/22/2019 2:00 PM	Text Document	1 KB
190122_130000.txt	1/22/2019 1:00 PM	Text Document	1 KB
190122_120000.txt	1/22/2019 12:00 PM	Text Document	1 KB
190122_110000.txt	1/22/2019 11:00 AM	Text Document	1 KB
190122_100000.txt	1/22/2019 10:00 AM	Text Document	1 KB
190122_090000.txt	1/22/2019 9:25 AM	Text Document	1 KB

Figure 2.4 Count Folder

2) Log Folder

Click this button and the log folder will pop out as below. The log information is saved in a .log file which can be opened with notepad.



Name	Date modified	Type	Size
20190103.log	1/3/2019 5:00 PM	Text Document	6 KB
20181220.log	12/20/2018 11:40 ...	Text Document	1 KB
20181128.log	11/28/2018 3:56 PM	Text Document	1 KB
20181127.log	11/27/2018 3:08 PM	Text Document	1 KB

Figure 2.5 Log Folder

3) WebBrowser

Click this button and the default browser with link status for the selected mount point will pop out as below.

Current Time:18-12-07 17:35:01(+0800)

Server/Client Current Status

S/C	From IP	MountPoint	StartTime	Data Bytes(KB)	Data Type	lat/long/height
Server	111.84.173.253	Test001	18-12-07 15:49:38(+0800)	2772.835	RTCM3	31.1904012/121.1904012/121.1904012

Statistics

MountPoint	First Start Time	PAS Count/ideal	total online rate(%)	Error/Valid Package	lat/long
Test001	18-12-07 10:02:30(+0800)	14/15	98.59	0/106887	31.1904012/121.1904012

Test001 Hourly online rate from 12/05 to 12/07(+0800)

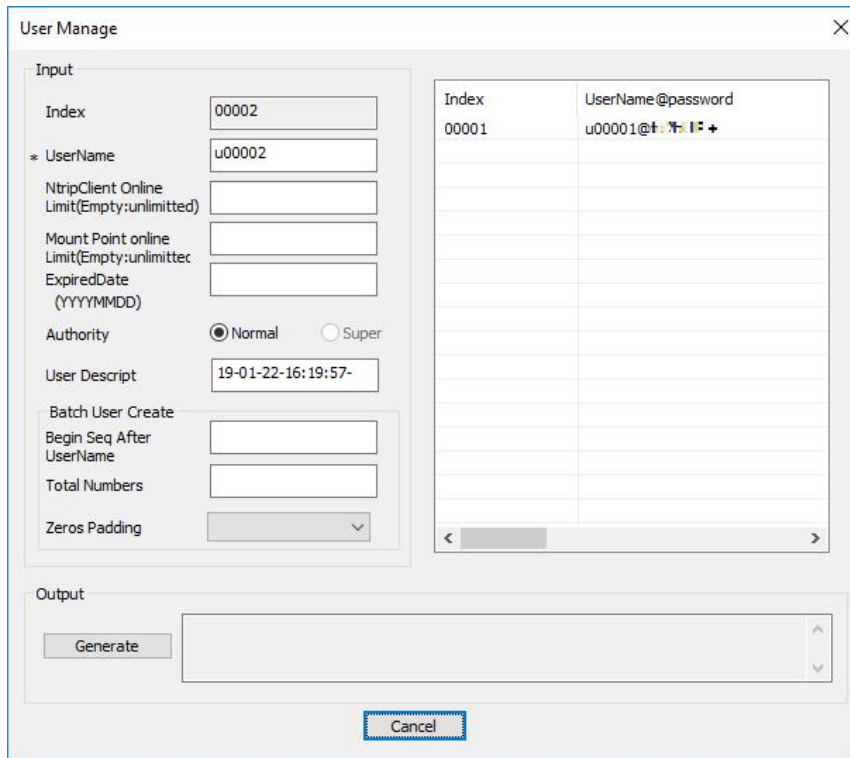
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
12/05	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/06	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/07	0	0	0	0	0	0	0	0	0	0	0	0	88	97	100	100	100	99	100	58				

Figure 2.6 Link status in web browser

On the right side of login user area, there are four functional buttons:

1) Add User

Click this button, it pops out the user manage window which is shown below.



The 'User Manage' window is divided into three main sections:

- Input:** Contains fields for 'Index' (00002), 'UserName' (u00002), 'NtripClient Online Limit', 'Mount Point online Limit', 'ExpiredDate', 'Authority' (Normal selected), 'User Descript' (19-01-22-16:19:57-), and a 'Batch User Create' section with 'Begin Seq After UserName', 'Total Numbers', and 'Zeros Padding'.
- Table:** A table with columns 'Index' and 'UserName@password'. The first row shows '00001' and 'u00001@+ : * | F +'. Below the table is a scrollbar.
- Output:** A 'Generate' button next to a text area, and a 'Cancel' button at the bottom.

Figure 2.7 User Manage interface

The option with a star * is compulsory. Fill the configuration for a new user, click [Generate] to output the password for the newly created user.

2) Reload User

This button is used to share the registered user information. If customer wants to share the user info to another machine, copy lic.dat/licdisablelist.dat to destination directory, then click [Reload User] to update information.

3) Disable User

Select a user in the login user area if customer wants to disable it, and click [Disable User] to disable this user. Deleting user is not recommended.

4) WebBrowser

Click this button and the default browser with link status for the selected user in the left login user area will pop out as below.

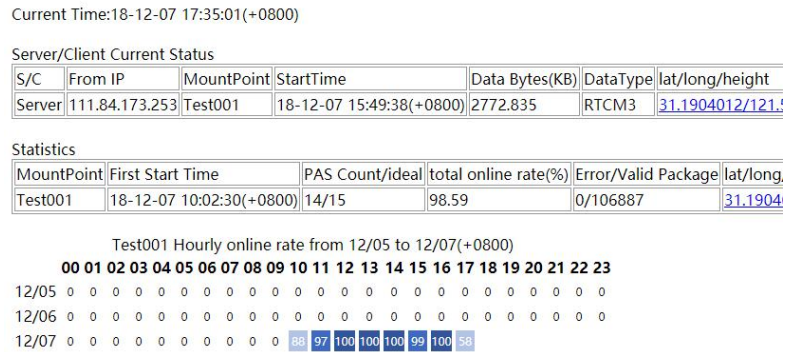


Figure 2.8 Link status in web browser

5) ShareGroup

Click this button and the default browser listing all share groups will pop out. The details refers to section 3.2.

Under the login user are, there are three options and one button:

1) Port

The port number can be edited in this box.

2) Enable Log Console

Check the box on the left of [Enable Log Console] can enable the output of log console window.

3) Detail (For debug)

Check the box on the left of [Detail (For debug)] to view more details specifically for debug purpose.

4) Get mount table without auth

By default, this box is not checked which means verification of user name and password are required when obtaining MountPoint from Tersus Caster. However, some software on the market do not require user name and password to acquire source table, and you may encounter that source table cannot be obtained. At this time, check the box to solve this problem.

5) Statistics Now

Click the button [Statistics Now] to create current count file, additionally from the auto created count file every hour.

On the bottom of the GeoCaster interface, there are five buttons:

1) Start

Generally this button is shaded when the GeoCaster is launched. If the software is turned off, click [Start] to turn on the GeoCaster service.

2) Stop

Click [Stop] to turn off the GeoCaster service.

3) Exit

Click [Exit] to close the GeoCaster software, however the WatchNtripCaster should be closed first.

4) Help

Click [Help] to pop out the text file of readme.txt which includes questions and answers that customer may encountered.

5) Update License

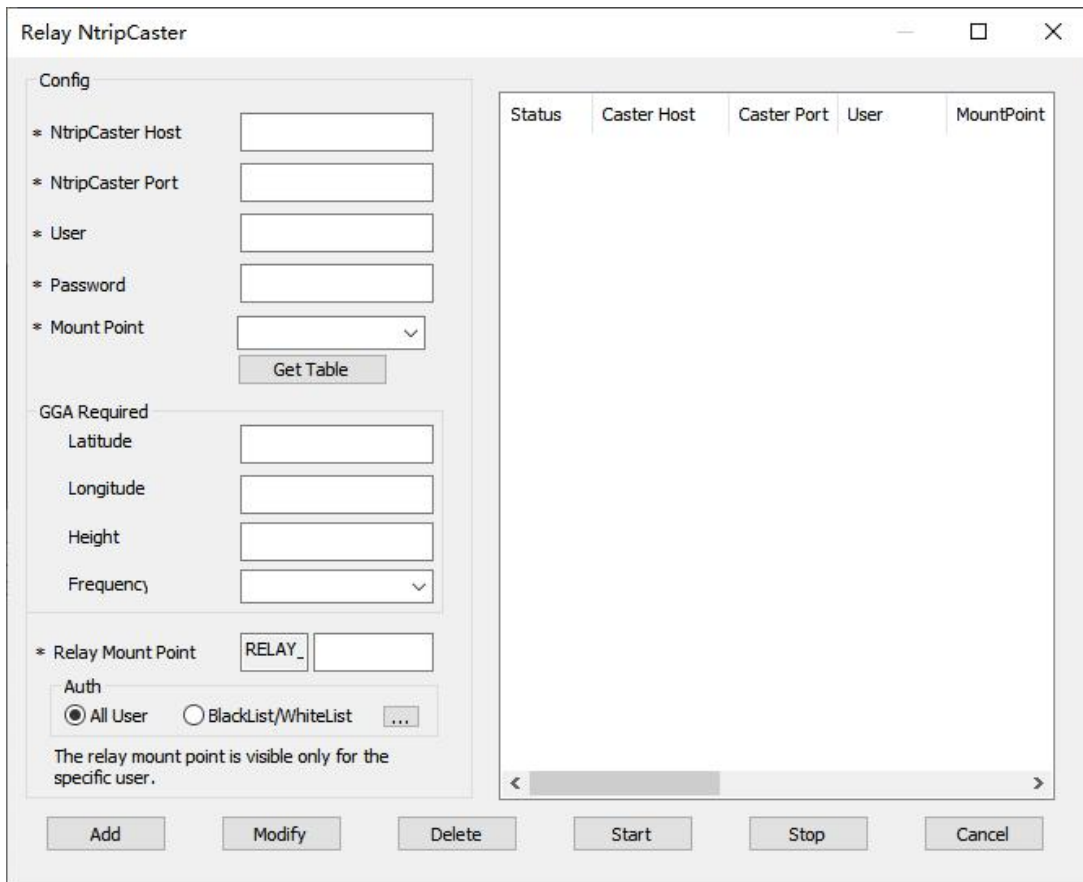
Click [Update License] to register GeoCaster for longer duration, contact Tersus Technical Support by email support@tersus-gnss.com for activation code.

6) ViewMap

Click [ViewMap] to pop out the map indicating the location of the base station.

7) Relay Config

Click [Relay Config] to pop out the relay function configuration interface shown as below. This is a data forwarding function, which can access data from other caster, and then run to Tersus Caster with the mount point of RELAY_xxx, for Client users to connect and receive data.



Status	Caster Host	Caster Port	User	MountPoint
--------	-------------	-------------	------	------------

Figure 2.9 Relay config interface

8) SaveFile Config

Click [SaveFile Config] to save files for base streams, which means TersusCaster will storage the RTCM data streams from the base stations connecting to the Caster as several files, and convert to Rinex files automatically for post processing or sharing to others. The steps to configure the SaveFile function are as following:

(1) Click the SaveFile Config button to configure the function.

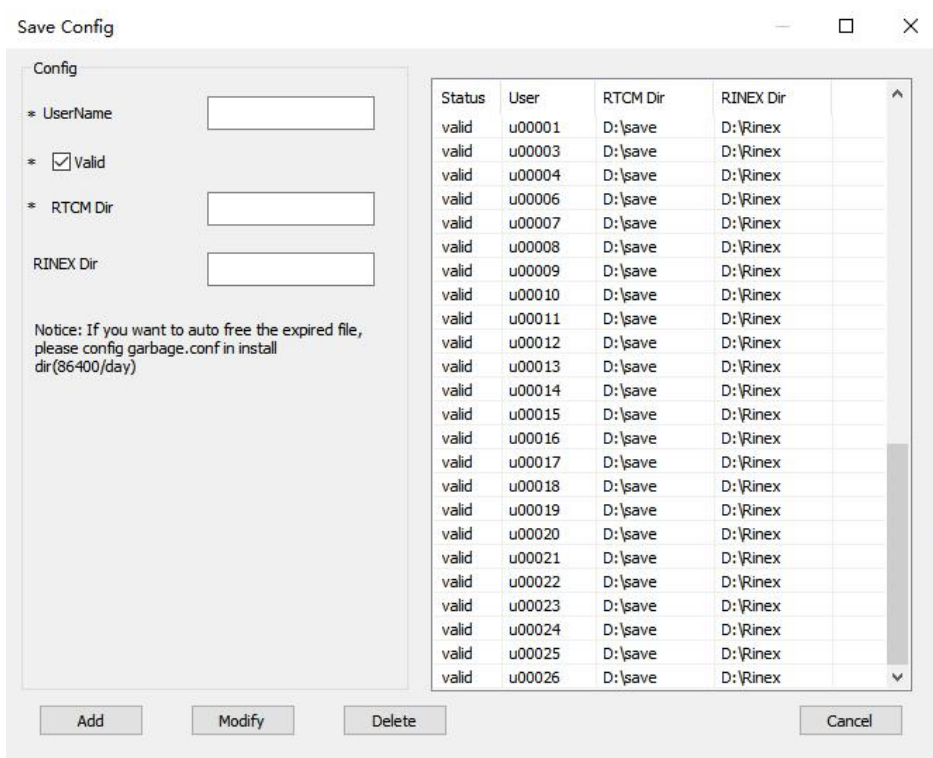


Figure 2.10 SaveFile config interface

(2) Enter the correct parameters in the Save Config dialog box, and then click Add to add one base stream file saving record.

Username of Ntrip Server(Geobee) when configuring Ntrip
 [UserName]: Server(Geobee) to connect to Caster and push RTCM streams.

Check the checkbox to ensure that the saving record is
 [Valid]: valid.

[RTCM Dir]: Path of the folder where the base RTCM stream files are

saved

[RINEX Dir]: Path of the folder where the Rinex files converted from RTCM files are saved.

Click Modify or Delete to modify or delete the record after selection one of them.

Note: Since the GPS time is required in the conversion from RTCM to Rinex, please configure the base station(Geobee) to output RTCM ephemeris data when you configure it, otherwise the Rinex conversion may not be successful.

(3) Check the RTCM files(.txt) under the RTCM Dir path username and mount point folder. Check the Rinex files under the RINEX Dir path username and mount point folder. The RTCM files and the Rinex files are both named by YYMMDD_HH, and files are saved per hour. The Rinex conversion program will start automatically to convert the RTCM files in the last hour.

211222_17.txt	2021/12/22 18:05	211223_09.21c	2021/12/23 10:05
211222_18.txt	2021/12/22 19:05	211223_09.21l	2021/12/23 10:05
211222_19.txt	2021/12/22 20:05	211223_09.21n	2021/12/23 10:05
211222_20.txt	2021/12/22 21:05	211223_09.21o	2021/12/23 10:05
211222_21.txt	2021/12/22 22:05	211223_09.21p	2021/12/23 10:05
211222_22.txt	2021/12/22 23:05	211223_09.21q	2021/12/23 10:05
211222_23.txt	2021/12/23 0:05	211223_10.21c	2021/12/23 11:05
211223_00.txt	2021/12/23 1:05	211223_10.21l	2021/12/23 11:05
211223_01.txt	2021/12/23 2:05	211223_10.21n	2021/12/23 11:05
211223_02.txt	2021/12/23 3:05	211223_10.21o	2021/12/23 11:05
211223_03.txt	2021/12/23 4:05	211223_10.21p	2021/12/23 11:05
211223_04.txt	2021/12/23 5:05	211223_10.21q	2021/12/23 11:05
211223_05.txt	2021/12/23 6:05	211223_11.21c	2021/12/23 12:05
211223_06.txt	2021/12/23 7:05	211223_11.21l	2021/12/23 12:05
211223_07.txt	2021/12/23 8:05	211223_11.21n	2021/12/23 12:05
211223_08.txt	2021/12/23 9:05	211223_11.21o	2021/12/23 12:05
211223_09.txt	2021/12/23 10:05	211223_11.21p	2021/12/23 12:05
211223_10.txt	2021/12/23 11:05	211223_11.21q	2021/12/23 12:05
211223_11.txt	2021/12/23 12:05	211223_12.21c	2021/12/23 13:05
211223_12.txt	2021/12/23 13:05	211223_12.21n	2021/12/23 13:05
211223_13.txt	2021/12/23 14:05	211223_12.21o	2021/12/23 13:05

Figure 2.11 RTCM and Rinex Files saved

(4) If you need to share Rinex files, configure the Rinex folder as the shared folder. And other users can access the path through shared folder and download the Rinex files.

\\laptop-jksom8q2\Rinex\ 的索引

[上级目录]

名称	大小	修改日期
test/		2021/12/23 下午3:07:12
u00001/		2021/12/23 下午3:14:09

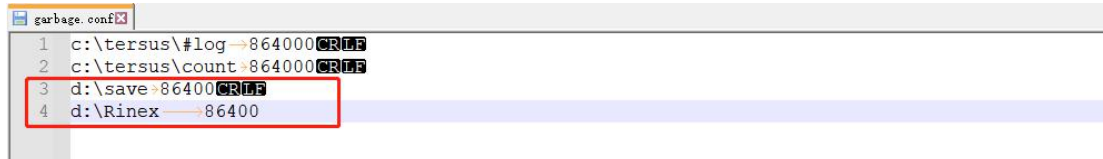
\\laptop-jksom8q2\Rinex\u00001\ 的索引

[上级目录]

名称	大小	修改日期
211223_09.21c	15.5 kB	2021/12/23 上午10:05:02
211223_09.21f	30.1 kB	2021/12/23 上午10:05:03
211223_09.21n	10.0 kB	2021/12/23 上午10:05:02
211223_09.21o	37.8 MB	2021/12/23 上午10:05:03
211223_09.21p	58.1 kB	2021/12/23 上午10:05:03
211223_09.21q	2.9 kB	2021/12/23 上午10:05:00
211223_10.21c	14.9 kB	2021/12/23 上午11:05:03
211223_10.21f	26.6 kB	2021/12/23 上午11:05:04
211223_10.21n	11.2 kB	2021/12/23 上午11:05:04
211223_10.21o	35.2 MB	2021/12/23 上午11:05:04
211223_10.21p	55.2 kB	2021/12/23 上午11:05:04
211223_10.21q	2.9 kB	2021/12/23 上午11:05:01
211223_11.21c	14.3 kB	2021/12/23 下午12:05:01
211223_11.21f	23.1 kB	2021/12/23 下午12:05:03
211223_11.21n	10.0 kB	2021/12/23 下午12:05:03

Figure 2.12 RTCM and Rinex Files shared on FTP

(5) You can configure a function to delete old files automatically through garbage.conf under the installation path to save storage space.



```

1 c:\tersus\#log→864000 CRTM
2 c:\tersus\count→864000 CRTM
3 d:\save→86400 CRTM
4 d:\Rinex→86400
    
```

Figure 2.13 Add records in garbage.conf

As shown above, add records in garbage.conf. Configure the path of RTCM files and Rinex files, and **NO SPACE** is allowed in the path. Configure the judgment time for old files in seconds, which needs to be a multiple of 86400, and 86400 seconds means one day. The function will delete old files days ago automatically.

3. Web query and management

3.1 Base station data stream query

Type your IP and port separating with a colon in your web browser, input the account and password of the base station, then you can view whether the base station data is uploading to the server, and the online status of recent three days. If there is a client is connected to this base station, it can be viewed on this web page.

3.2 Group User Management

The Group User function is mainly used for regional agent to manage and configure Client end-users with different privileges after using GeoBee builds a certain number of base stations in a region.

Specifically, under previous versions of Caster software, after the regional agent sends data from the GeoBee base station (NtripServer) in the region to the Caster software (NtripCaster) using the username and password distributed by Tersus, the end-user (NtripClient) in the region can only get the differential correction data using corresponding user name and password with the GeoBee base station, and the regional agent can not realize the configuration of the end-user's duration, limit days, available base station and other permissions. The new version of Caster software's Group User management function will make up for this weakness. The operation is as follows.

- 1) Log in to the specified web page and use the designated password to log in to the Group User management function.



Figure 3.1 Login interface for group user

- 2) After logging into Group User, enter the Group User interface, Group means the area where the regional agent is located. The next step is to pull the GeoBee base stations in the area into Group, by entering the user name and password of the GeoBee base stations distributed by Tersus and clicking Add.

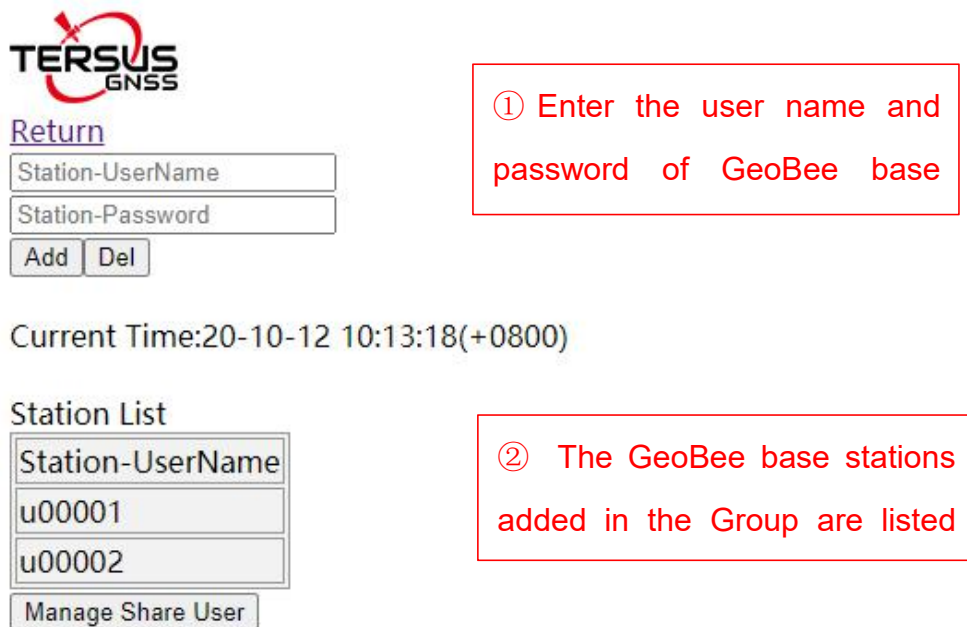


Figure 3.2 Base station list

If you want to remove a GeoBee base station that has been added to the Group, you need to enter the corresponding username and password and click the Del button. We need to make sure that the username and password are correct to prevent the base station from being accidentally

removed.

- 3) Start to configure the client end-users in the regional group. Click the Manage Share User button, and enter the ShareUser configuration interface.



TERSUS
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[Return](#)

Station-UserName

Station-Password

Add Del

Current Time:20-10-12 10:17:23(+0800)


Station List

Station-UserName	Station-Password
u00001	
u00002	

Manage Share User

Figure 3.3 Manage share user

- 4) The regional agent inputs the username, password, expired date, limit days and limit numbers of the Client end-user to be configured. Please try to set a complex username and password according to the recommended rules to avoid the cases that different regional agents set the same username and password to cause end-users to connect to different regional base stations. The password is recommended to set a string consisting of letters or numbers.



[Return](#)

Current Time:20-10-21 15:10:30(+0800)

Share User List

Username	Password	ExpiredDate	LimitDays	UsedDays	LimitNums	Current Nums
test1	test1	20501231	500D	0D - 00:00:00	2	0
test2	test2		10D	0D - 00:00:00	1	1

Figure 3.4 Share user list

After setting the expired date of an end-user, once the end-user expires, the end-user will not be able to connect to Caster software to get the differential correction data. If not setting expired date, the Caster system will have no limit for the user's expired date.

After setting the limit days of end-user, the used days of end-user will be refreshed every time the end-user disconnects. When the used days reaches the limit days, the end-user will not be able to connect to Caster software to get the differential correction data. If more than one NtripClient uses the same user name and password to get the differential correction data at the same time, the used days of this user will be accumulated. If the limit days is not set, the Caster system will have no limit for the user's limit days.

After setting the limit number of concurrent online users, when every end-user connects to the Caster system with this username and password, the current connection number will increase by 1. When the current number of connection reaches the limit number of concurrent online users

allowed, the system will not be able to connect using this username and password. If the limit number of concurrent online users is not set, the Caster system will have no limit for the concurrent online user using this username and password.

It should be noted that after this update of Caster software, Client end-users are still allowed to use the username and password of GeoBee base station to connect and get differential correction data, and the username and password has no limitation of expiration date, allowable days or concurrently online users. In other words, if the regional agent does not use the new Group User management function, the end-users in the region can keep the previous login method unchanged.

After the Client end-users have logged in, more information will be displayed.

Current Time:21-12-24 17:19:20(+0800)

Share User List

Username	Password	ExpiredDate	LimitDays	UsedDays	LimitNums	Current Nums	Recent Mount	Recent Login	Recent Logout
22	33	20211224	1D	0D - 00:14:03	1	0	test	2021-12-23 15:48:46(+0800)	2021-12-23 16:00:44(+0800)

Figure 3.5 Share user information

If the value of LimitNums of the user account is 1, and when Current Nums is 1, it means that the end-user is currently online. Used Days shows the cumulative usage time. Recent Mount shows the base station(mount point) that the user currently connects to. Recent Login shows the logging in time.

If the value of LimitNums of the user account is 1, and when Current Nums is 0, it means that the end-user is currently offline. Recent Mount shows the base station that the user connected to last time. Recent Logout shows the logging out time last time.

If the value of LimitNums of the user account is 2 or more, the value of Recent Mount, Recent Login, Recent Logout will show the last base station, the last logging in time and the last logging out time of one of the users.

3.3 Nearest Base Station

This version of Caster software adds the Nearest Base Station function which will automatically select the nearest base station among all the base stations that is allowed to connect to according to the GGA uploaded by the NtripClient end-user and establish the connection.

The Nearest Base Station operation is very simple, NtripClient end-user can select NearBy mount point when obtaining the Mountpoint. The distance calculation and selection of Nearest Base Station will be done inside Caster software.

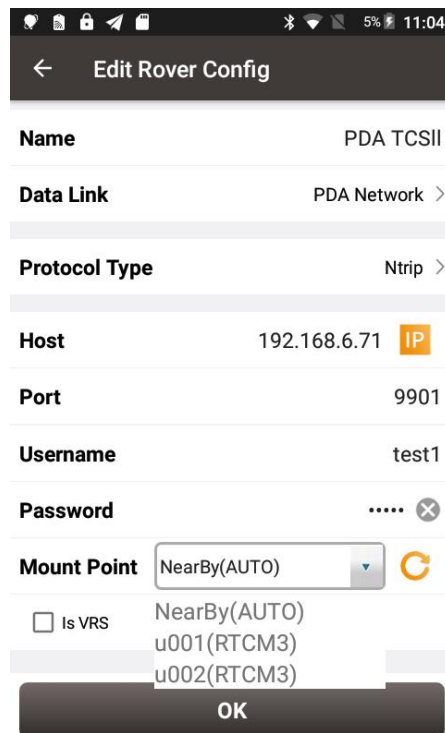


Figure 3.6 Select nearby mount point

4. Terminology

GNSS	Global Navigation Satellite System
NTRIP	Networked Transport of RTCM via Internet Protocol
PC	Personal Computer
RAM	Random Access Memory
RTCM	Radio Technical Commission for Maritime Services
SMS	Short Message Service

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