Hcconfig User Guide

(V1.0.1.608)

CONTENTS

1 Preface 1

2 Uses 2

2.1 Function Overview 2

2.2 Directions of Partial Functions 2

2.3 Optimized Functions 5

2.4 Capability 5

3 Operating Environment 6

3.1 Hardware Devices 6

3.2 Software Supported 6

4 Manual Conventions 7

5 Function Declarations 8

5.1 Main Interface 8

5.2 Connection 8

5.2.1 Port 9

5.2.2 CHC BT 10

5.2.3 Sys. BT 10

5.3 Main Menu after Connected 11

5.4 Device Info. 12

5.5 Registration 13

5.6 Internal Recording 14

5.6.1 Internal Recording Configuration 14

5.6.2 Control of Internal Recording 15

5.7 RTK 16

5.8 Internal UHF 18

5.8.1 SATEL 18

5.8.2 Not SATEL 20

5.9 GPRS 22

5.9.1 CORS 23

5.9.2 APIS 25

5.9.3 TCP Direct 27

5.10 APN Settings 28

5.11 NMEA Output 29

5.12 Radio Channel 30

5.13 Server Settings 31

5.13.1 New Server Settings 32

5.13.2 New APIS Server Settings 33

5.13.3 New CORS Server Settings 34

5.13.4 New TCP Direct Server Settings 35

5.14 Exit 36

1 Preface

Welcome to use the user guide of CHC Navigation's configuration management software Hcconfig V1.0.1.608.

This user guide helps the quick start about the product's functions and use methods. To learn more about this user guide and information about the product, please browse the CHC's official website (http://www.chcnav.com/) or contact the local dealers. Your feedback about the product will help us to improve it in future. Please offer your comments or suggestions to support@chcnav.com.

2 Uses

Hcconfig is the new receiver configuration management software developed according to customers' requirements. The software helps users with the configuration of common working parameters for CHC GNSS receivers. Both PC and Mobile version are provided.

2.1 Function Overview

Comparing with previous configuration tools, Hcconfig not only provides with regular configuration functions, like reading receiver information, registering receiver, resetting OEM board, configuring static, RTK, radio and network parameters, but also provides some new functions which has taken user feedback and new receivers' characteristics into account:

1. Get source table;
2. Save server configurations automatically;
3. Real-time display radio information;
4. Functions aiming at new ARM receivers with V8.11 (or above) firmware:
    a) Configure static parameters and control static collection;
    b) Support SATEL radio functions;
    c) Output NMEA 0183 data;
    d) Configure RTK elevation mask angle.

2.2 Directions of Partial Functions

A part of functions in Hcconfig are closely related to the characteristics of

firmware, such as TCP direct connection, domain name, getting source table, setting transmit power and partial functions of SATEL radio, etc. The directions are as follows:

1. Getting source table, TCP direct connection and domain name:

Function	GPRS Main Version	GPRS Vice Version	Remarks
Getting source table	X = 4	≥"X.69"	Only for ARM
TCP direct connection/ Domain name	X = 2	≥"X.88"	NULL
TCP direct connection/ Domain name	X > 2	≥"X.59"	NULL

2. Transceiver radio:

Function	Conditions	Remarks
Transceiver radio	Frequency Range: 455-463 MHz Minimum step value :25 kHz	1. Only for ARM; 2. Transmit power option: 2w, 1w, 0.5w, 0.1w

3. Step value, protocol and Baudrate of SATEL radio:

Step Value	Protocol	Baudrate (bps)
12.5 kHz	SATEL 3AS	9600
	PacCrest 4-FSK	9600
	PacCrest GMSK	4800
	TrimTalk GMSK	4800
25 kHz	SATEL 3AS	19200
	PacCrest 4-FSK	19200
	PacCrest GMSK	9600
	TrimTalk GMSK	9600
20 kHz	SATEL 3AS	9600
	PacCrest 4-FSK	9600
	PacCrest GMSK	4800
	TrimTalk GMSK	4800

4. FEC function of SATEL radio:

FEC Content	Switch Situation
3AS	ON or OFF, ON by default
PCC4FSK +TT450s+Transparent	Have been integrated into the firmware.

2.3 Optimized Functions

Hcconfig has a good solution to some hidden trouble of the previous configuration tools:

1. In the CORS information, the character length of source, user name and password is limited to 31, and total length of them is limited to 43;

2. In the APN information, the maximum length of APN, service providers' number, user name and password is 29, 13, 32 and 16 digits, respectively. And total length of the user name and password is limited to 48.

3. The problem that some continuously sent commands are not effective has been solved.

2.4 Capability

Hcconfig has been fully tested. It can steadily run under different operating systems, like Windows XP, Windows 7, Windows 8, Windows Mobile 6.5, Windows Mobile 6.1 and Windows Mobile 6.0.

3 Operating Environment

3.1 Hardware Devices

Hardware environment: LT400 series controller, Recon controller, Windows CE, Windows Mobile 5.0, Windows XP and Windows 7.

3.2 Software Supported

Hcconfig can be used together with all kinds of RTK Control Measurement Software, Water Measurement Software and Static Data Processing Software of CHC.

4 Manual Conventions

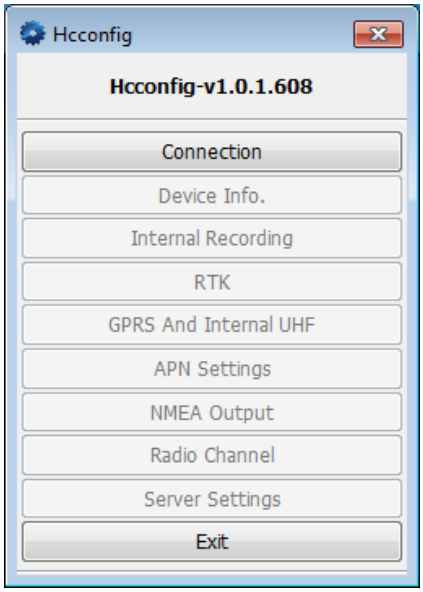
1. Important sections will be stressed by black bold font, like **Notice**;

2. The quoted buttons or labels will be indicated by “”, like “Configuration”;

3. The tool buttons involved will be indicated by [], like [Register].

5 Function Declarations

5.1 Main Interface



5.2 Connection

To connect the receiver with PDA or PC, please input related parameters and then click “Connect”. Make sure to redo the connection if you need to change to another receiver.

Parameter	Description	Remark
Mode	The communication method between software with receiver.	Port/CHC BT/Sys. BT
Manufacture	The manufacturer of equipment.	CHC/SINOV
DeviceType	The type of device.	X20 Series/ GNSS RTK Series

Port	Communication port.	PC: COM 1 - COM 255 PDA: COM 1 - COM 9
Baud	Communication Baudrate.	9600/ 19200/ 38400/ 57600/ 115200 b/s
Auto	Set the auto searching of the appropriate Baudrate.	

5.2.1 Port

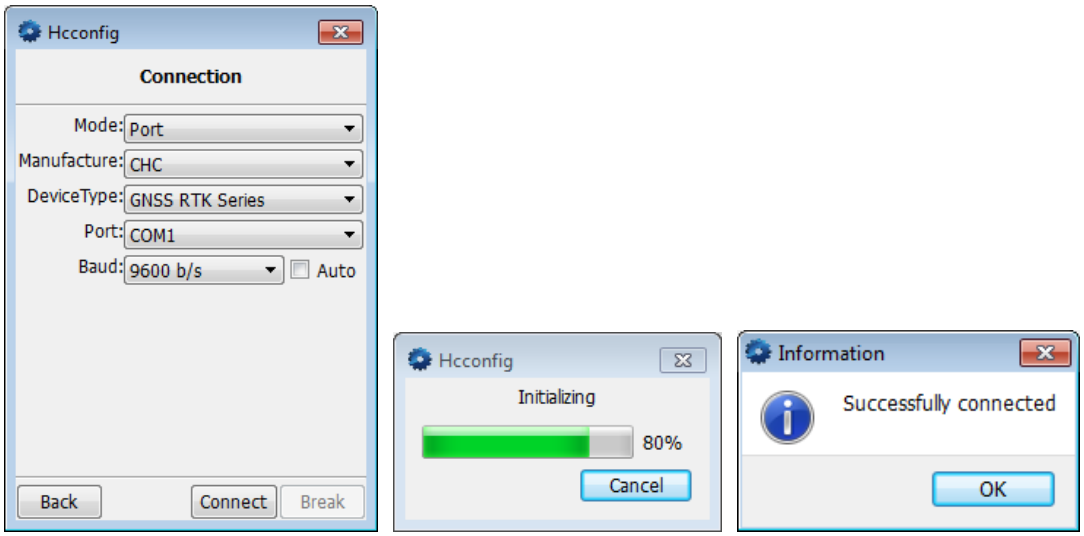
The “Port” option is commonly used to connect receiver with PC through serial cable. And the default port is “COM1”.

Tool Buttons:

[Back] Back to main menu.

[Connect] Connect with the receiver.

[Break] Break the connection with the receiver.



5.2.2 CHC BT

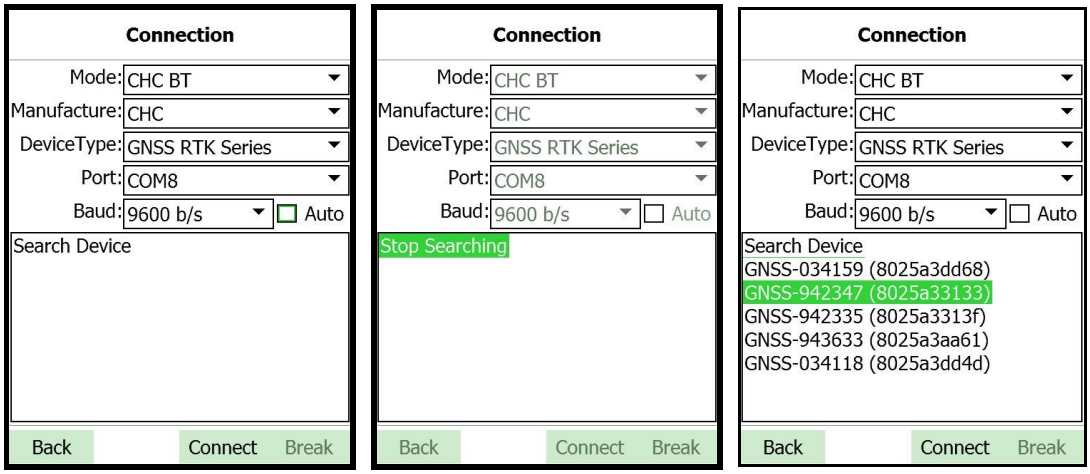
The “CHC BT” option is used to connect the receiver with PDA by calling the system Bluetooth. Select “CHC BT” as Mode first, and then click “Search Device” to search the receivers around. Select the name of the receiver and then click “Connect”.

Tool Buttons:

[Back] Back to main menu.

[Connect] Connect with the receiver.

[Break] Break the connection with the receiver.



5.2.3 Sys. BT

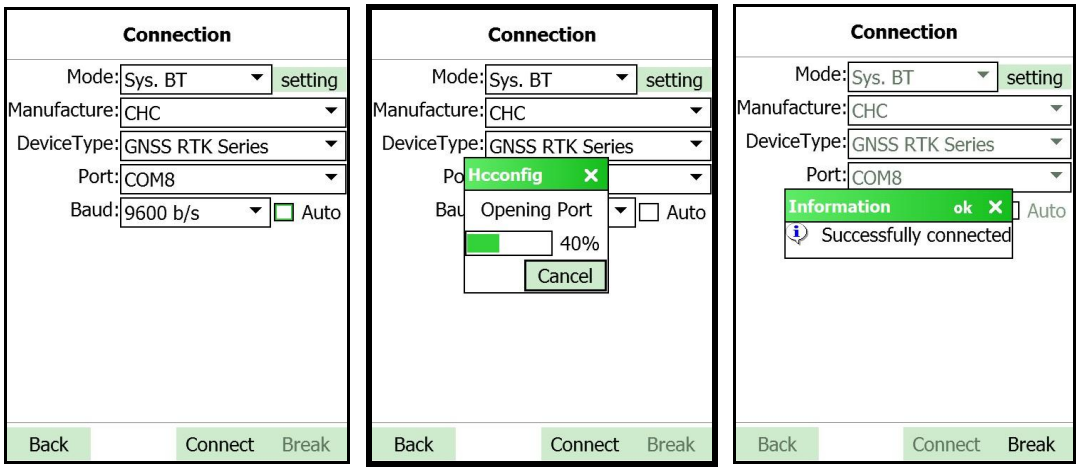
The “Sys. BT” option is used to connect the receiver with PDA by the system Bluetooth. Select “Sys. BT” as Mode first, and then click “setting” button to configure the system Bluetooth with receiver. After the Bluetooth configuration, select the corresponding port, and then click “Connect”.

Tool Buttons:

[Back] Back to main menu.

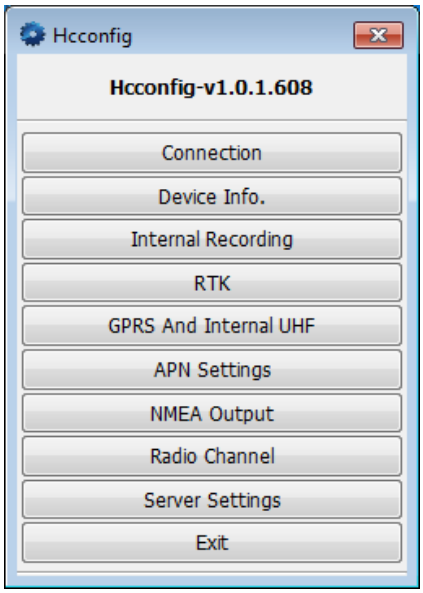
[Connect] Connect with the receiver.

[Break] Break the connection with the receiver.



5.3 Main Menu after Connected

Partial functions are activated after the successful connection with the receiver.



5.4 Device Info.

Parameter	Description	Remark
Model	Model number of receiver.	
Serial Number	SN (Serial Number) of receiver.	Unique identification
Part Number	PN (Part Number) of receiver.	
Production Date	Production date of receiver.	
Register Code	Present register code of receiver.	
Expiration Date	Deadline of present register code.	
F.W. Version	Firmware version.	Related to partial functions.
GPRS Version	GPRS version.	Related to partial network functions.
Battery Power	Surplus battery quantity.	

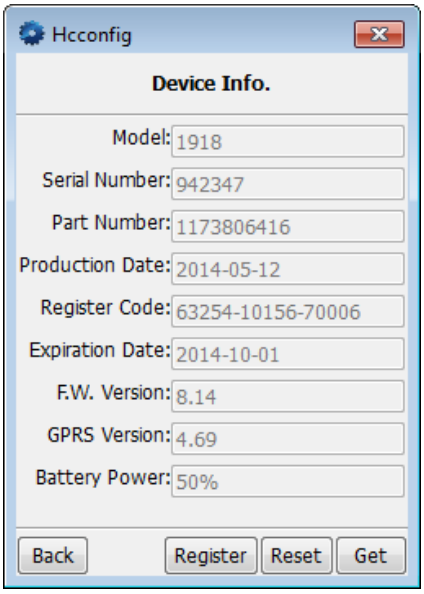
Tool Buttons:

[Back] Back to main menu.

[Register] Start the registration dialog box.

[Reset] Reset the OEM board of receiver.

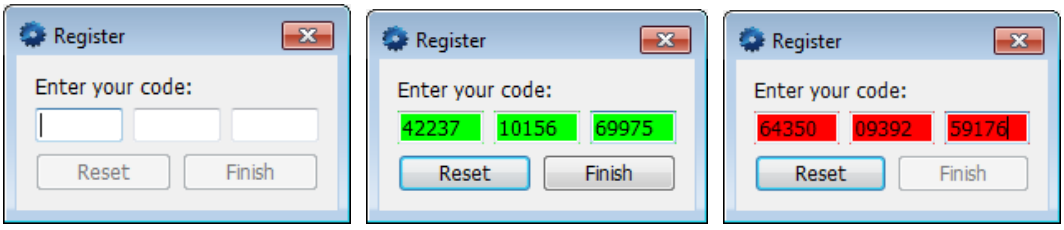
[Get] Get the information of receiver.



5.5 Registration

After the successful connection with the receiver, click “Device Info.” icon in the main menu to enter the “Device Info.” interface, and then click the “Register” button below to register the receiver.

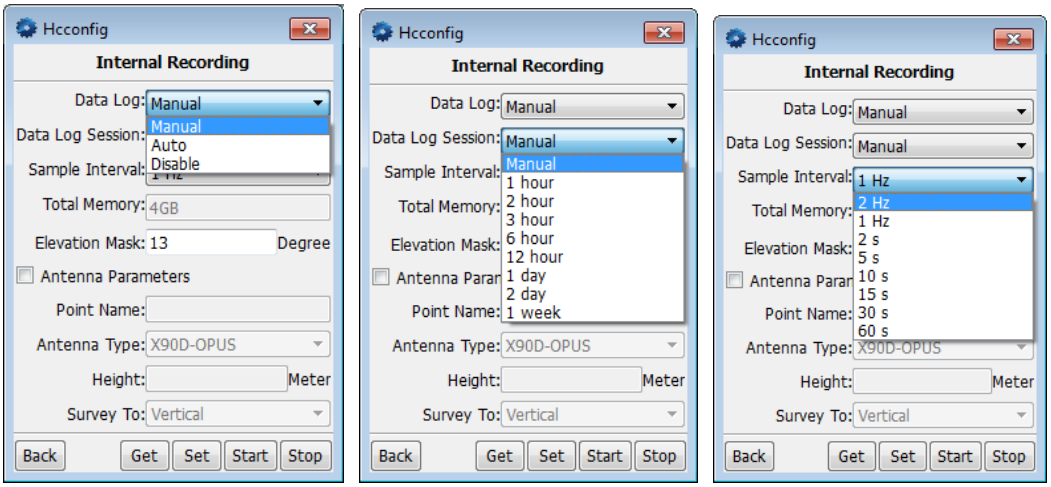
After inputting the 15-digit register code, the software will automatically check validity of the code. If the code is valid, the background of the input frame will turn green, and then click “Finish” button to finish the registration. If the code is invalid, the background of the input frame will turn red, and then click “Reset” button to clear the entered code. The register code can be pasted directly.



5.6 Internal Recording

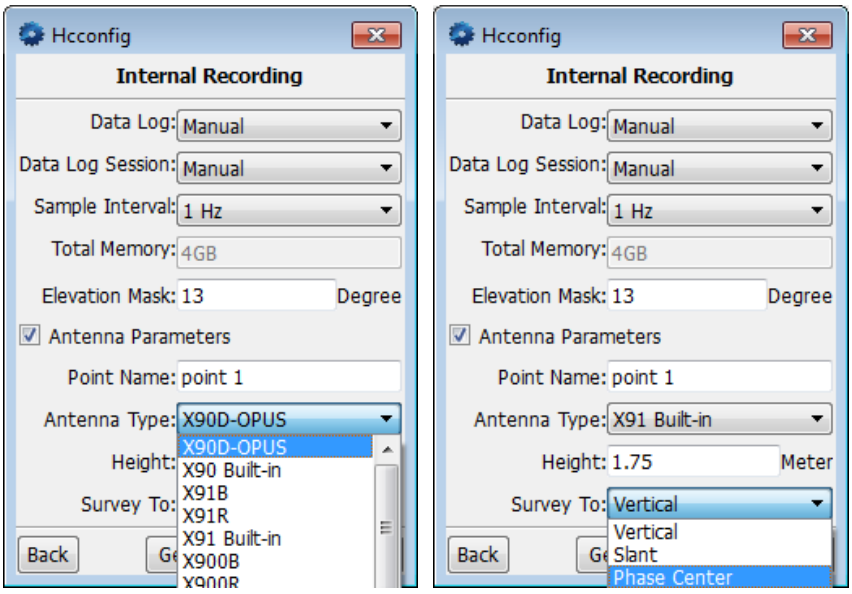
5.6.1 Internal Recording Configuration

Parameter	Description	Remark
Data Log	Record method of internal recording.	Manual/Auto/Disable
Data Log Session	Record duration of internal recording.	Manual /1 hour/2 hour/3 hour/6 hour/12 hour /1 day/2 day/1 week
Sample Interval	Sample interval of internal recording.	2 Hz/1 Hz/2 s/5 s/10 s/15 s/30 s/60 s
Total Memory	Maximum memory of the receiver.	
Elevation Mask	Elevation mask angle.	



5.6.2 Control of Internal Recording

Parameter	Description	Remark
Point Name	Name of internal recording point.	Set only.
Antenna Type	Antenna type of internal recording.	The common antenna types of receivers by various brands of CHC are provided.
Height	Antenna height of internal recording.	
Survey To	Survey method of internal recording.	Vertical/Slant/Phase Center



Tool Buttons:

[Back] Back to main menu.

[Get] Get current internal recording parameters of receiver.

[Set] Set internal recording parameters of receiver.

[Start] Start the internal recording.

[Stop] Stop the internal recording and save the collected data.

Notice:

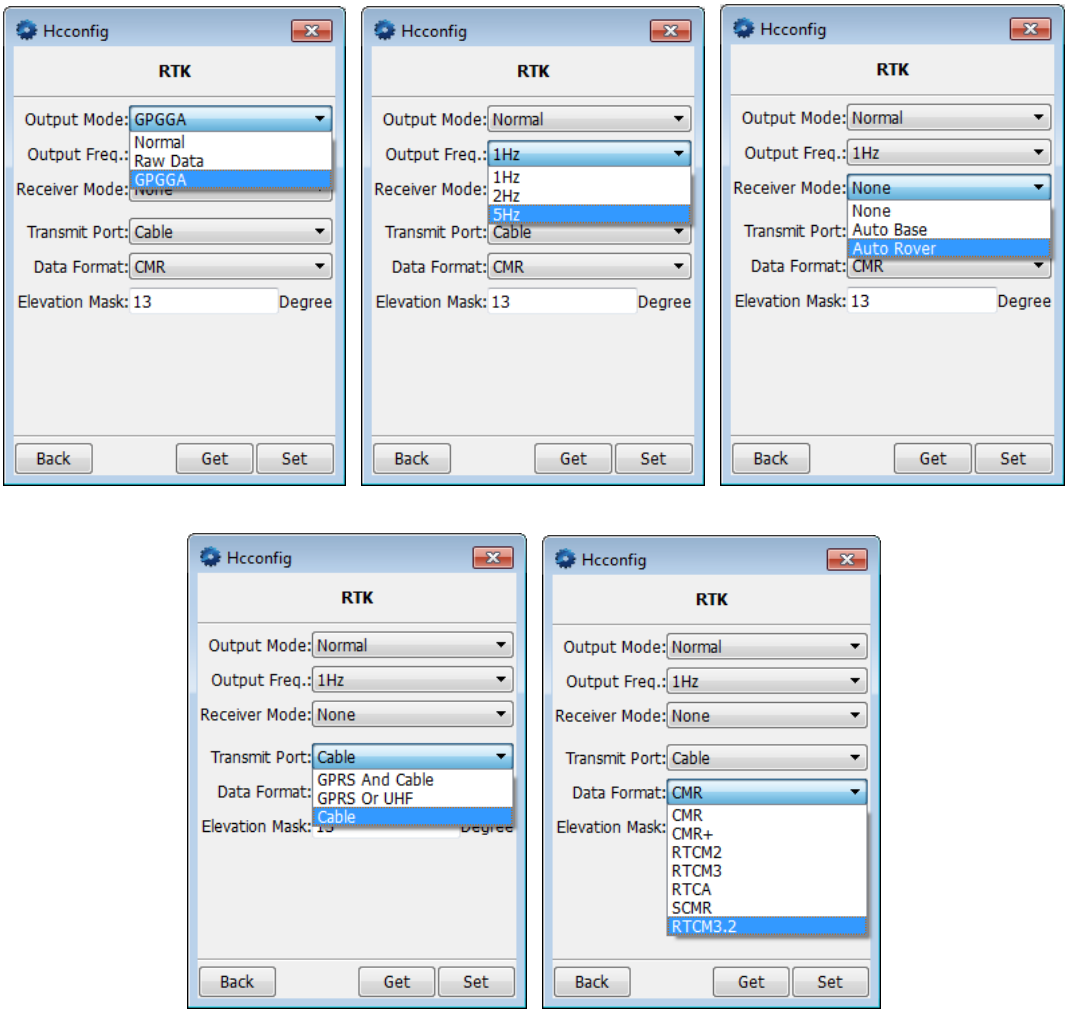
The control of start and stop function in manual data log method are only supported by new ARM receivers with V8.11 (or above) firmware for the moment.

5.7 RTK

Parameter	Description	Remark
Output Mode	Output mode of RTK data.	Normal/Raw Data/GPGGA
Output Freq.	Output frequency of RTK data.	1 Hz/2 Hz/5 Hz
Receiver Mode	RTK work mode of receiver.	None/Auto Base/Auto Rover
Transmit Port	Transmit port of RTK data.	GPRS And Cable/GPRS or UHF/Cable
Data Format	Format of differential data that sending by base station or receiving by rover station.	CMR/CMR+/RTCM2/RTCM3/RTCA/SCMR /RTCM3.2
Elevation Mask	Elevation mask angle in RTK mode.	

The corresponding relation of transmit ports in Hcconfig between different versions are as follows:

Original	Before V1.0.1.608	V1.0.1.608
Port 2	Out Radio	Cable
GPRS/CDMA	In Net/In Radio	GPRS or UHF
Port 2+ GPRS/CDMA	In Net + Out Radio	GPRS And Cable



Tool Buttons:

[Back] Back to main menu.

[Get] Get current RTK parameters of receiver.

[Set] Set RTK parameters of receiver.

Notice:

The setting and read of elevation mask angle is supported by the ARM receivers with V8.11 (or above) firmware for the moment.

5.8 Internal UHF

5.8.1 SATEL

Work Mode: Internal UHF

Parameter	Description	Remark
Range	Radio frequency range supported by the receiver.	Read only.
Protocol	Protocols supported by the build-in radio of the receiver.	1. Related to the firmware of receiver. 2. SATEL protocols: 3AS, PCC4FSK
Spacing	Channel spacing of radio.	12.5 KHz/20 KHz/25 KHz
OTA Baud	The Over the Air (OTA) Baudrate of receiver's build-in radio	4800/9600
Type	Select the span of radio frequency.	High/Middle/Low
Channel + Frequency	1. Different channels correspond to different frequency value; 2. Frequency is the frequency value of receiver' radio.	1. Channel 0 is editable; channel 1-9 is predefined. 2. The frequency value can only be set as a multiple of particular step. During the setting of the frequency value, Hcconfig will match the nearest value accepted by receiver automatically.
Power	Transmit power of the receiver's radio.	1. Only receivers with transmitting radio or transceiver radio support power setting function;

		2. Power options: 0.1 w/0.5 w/1 w
Sensitive	Sensitivity of the receiver's radio.	High/Middle/Low

Tool Buttons:

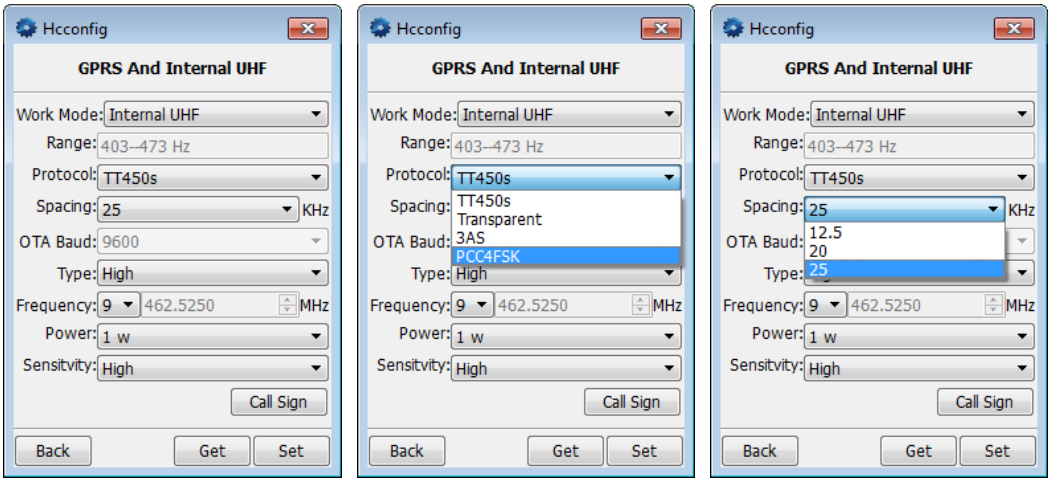
[Back] Back to main menu.

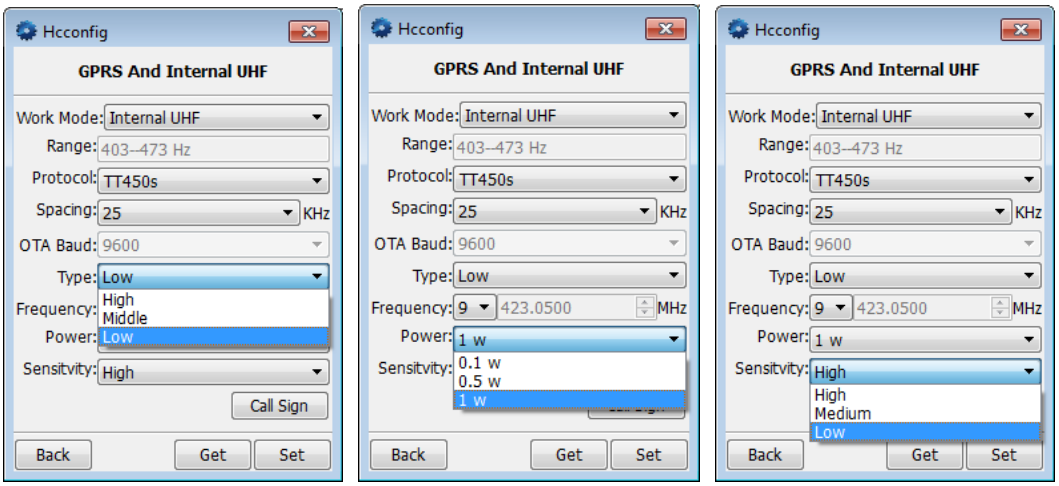
[Get] Get work mode and radio parameters of receiver.

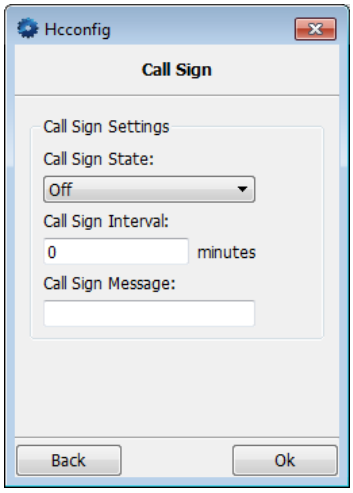
[Set] Set radio parameters of receiver.

[Call Sign] Start Call Sign Settings interface.

Parameter	Description	Remark
Call Sign State	State of Call Sign.	on/off
Call Sign Interval	Interval of sending message.	Unit: minute
Call Sign Message	Message that sent to the SATEL radio.	







5.8.2 Not SATEL

Work Mode: Internal UHF

Parameter	Description	Remark
Range	Radio frequency range supported by the receiver.	Read only.
Protocol	Protocols supported by the build-in radio of the receiver.	Related to the firmware of receiver.
OTA Baud	The Over the Air (OTA) Baudrate of receiver's build-in radio	9600

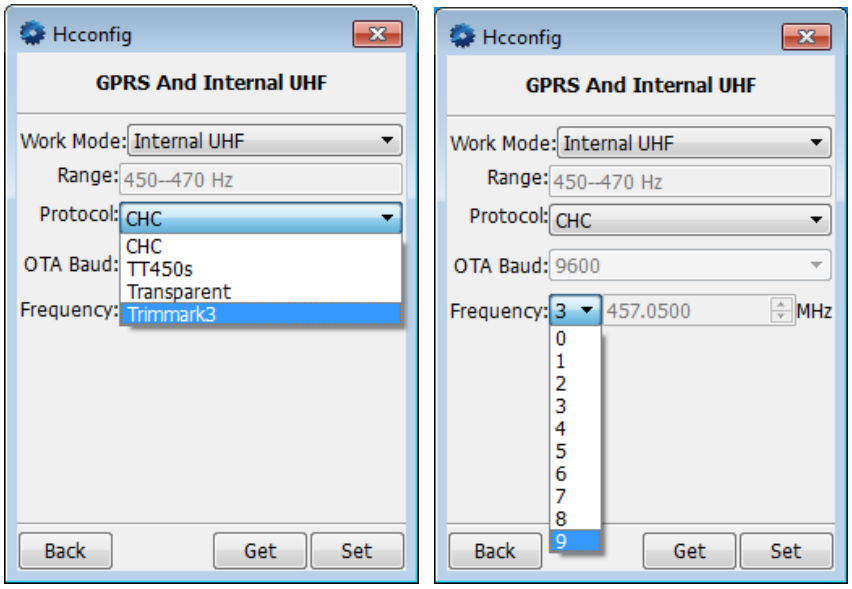
Channel + Frequency	1. Different channels correspond to different frequency value; 2. Frequency is the frequency value of receiver' radio.	1. Channel 0 is editable; channel 1-9 is predefined. 2. The frequency value can only be set as a multiple of particular step. During the setting of the frequency value, Hcconfig will match the nearest value accepted by receiver automatically.

Tool Buttons:

[Back] Back to main menu.

[Get] Get work mode and radio parameters of the receiver.

[Set] Set radio parameters of receiver.



5.9 GPRS

Work mode: GPRS

Parameter or Operation	Description	Remark
Mode	Current mode of receiver.	Base/Rover
Server	The list of servers' name.	1. The configured servers can be selected directly; 2. The information of new server can be configured; 3. The existing configuration can be matched automatically after the read of receiver's parameters.
Protocol	Net protocols supported by the receiver.	1. Related to the firmware of receiver. 2. Options: APIS/Ntrip Client/TCP Direct
Address	Address of the server.	IP and domain name are supported according to the characteristic of the firmware.
Port	Port that used to connect the server.	0~65535
Save	Save current parameters.	Check the "save" option and click "Set" button, parameters will be written into the receiver and the parameters of current server will be recorded into the server list.
Auto Login	Set the auto login of receiver.	

Tool Buttons:

[Back] Back to main menu.

[Get] Get work mode and the related parameters of the receiver.

[Set] Set work mode parameters of receiver.

Notice:

1. **Domain name and TCP Direct Connection are supported if Main Version of GPRS = 2 and Vice Version of GPRS > 87;**
2. **Domain name and TCP Direct Connection are supported if Main Version of GPRS > 2 and Vice Version of GPRS > 58;**
3. **The loading of CORS protocol is determined by the work mode. Rover mode supports the CORS protocol, however, base mode doesn't.**

5.9.1 CORS

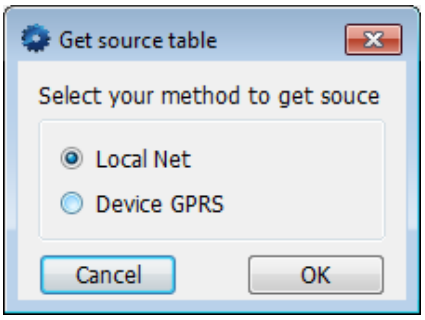
Parameter or Operation	Description	Remark
Mode	Current mode of receiver.	Rover
Server	The list of servers' name.	1. The configured servers can be selected directly; 2. The information of new server can be configured; 3. The existing configuration can be matched automatically after the read of receiver's parameters.
Protocol	Net protocols supported by the receiver's current mode.	CORS protocol: Ntrip Client

Address	Address of the server.	IP and domain name are supported according to the characteristic of the firmware.
Port	Port that used to connect the server.	0~65535
Source	Source table of the CORS server.	Click “Get” button, and then the source table can be obtained through net.
User Name + Password	User name and password of the server.	
Save	Save current parameters.	Check the “save” option and click “Set” button, parameters will be written into the receiver and the parameters of current server will be recorded into the server list.
Auto Login	Set the auto login of receiver.	

Click “Get” button behind “Source” to get source table. If the build-in network of the receiver supports the function of getting source table, and then the “Get source table” window will pop up.

“Local Net” means getting source table through PC or Mobile network.

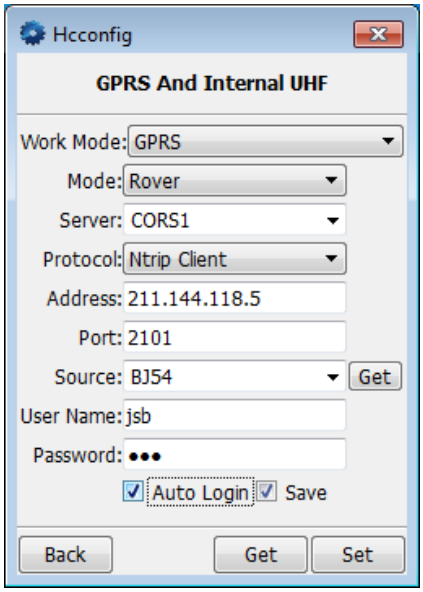
“Device GPRS” means getting source table through the build-in GPRS network of receiver (The inserted SIM card should support the network function).



Notice:

1. All kinds of receivers support the "Local Net" method to get source table;

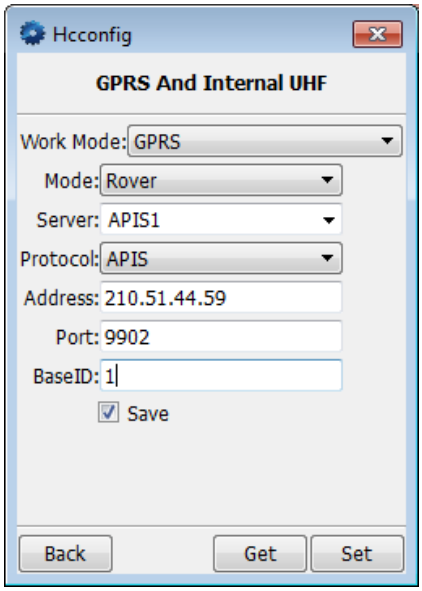
2. Only ARM receivers support the "Device GPRS" method to get source table.



5.9.2 APIS

Parameter or Operation	Description	Remark
Mode	Current mode of receiver.	Base/Rover
Server	The list of servers'	1. The configured servers can be selected directly;

	name.	2. The information of new server can be configured; 3. The existing configuration can be matched automatically after the read of receiver's parameters.
Protocol	Net protocols supported by the receiver's current mode.	APIS
Address	Address of the server.	IP and domain name are supported according to the characteristic of the firmware.
Port	Port that used to connect the server.	0~65535
Base ID	ID of the Base station which will be bound.	Only shows when the receiver mode is Rover.
Save	Save current parameters.	Check the "save" option and click "Set" button, parameters will be written into the receiver and the parameters of current server will be recorded into the server list.
Auto Login	Set the auto login of receiver.	

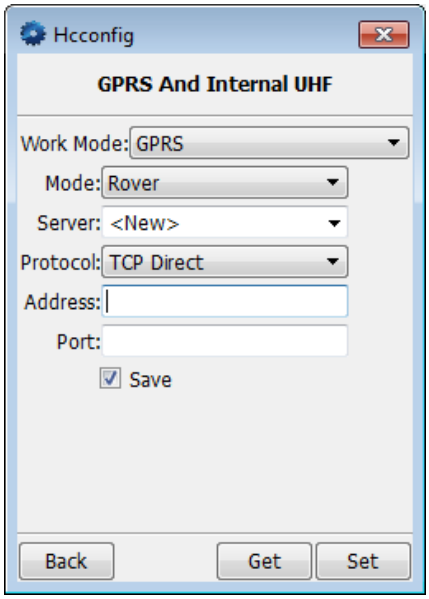


5.9.3 TCP Direct

TCP Direct is similar to CORS. The differences between the two of them are as follows:

1. Protocol is TCP Direct;

2. Only Address and Port are required in TCP Direct.



5.10 APN Settings

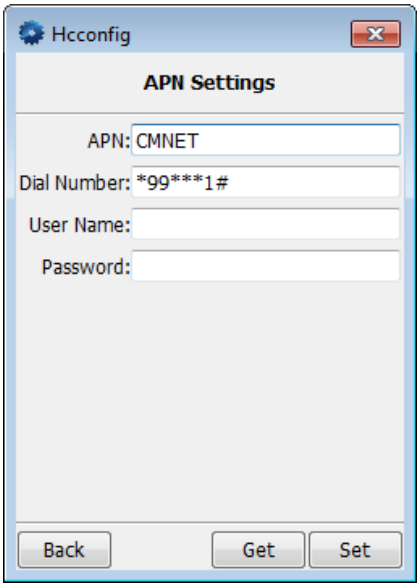
Parameter	Description	Remark
APN	Access Point Name.	CMNET by default.
Dial Number	Dialed Number of APN.	*99***1# by default.
User Name + Password	User name and password used for dial-up networking.	User name and password can be left blank in normal GPRS network.

Tool Buttons:

[Back] Back to main menu.

[Get] Get APN information of receiver.

[Set] Set APN information of receiver.



5.11 NMEA Output

Parameter	Description	Remark
OTA Baud	Over-The-Air Baudrate.	9600/ 19200/ 38400/ 57600/ 115200 b/s
OTA Method	Over-The-Air Method.	Blue Tooth/ Cable/ Both
Data Format	Data format of NMEA data.	GPGGA/GPGSV/GPGSA/GPGST/GPRMC/GPGLL/GPVTG/GPZDA/GPGRS/PTNL,PJK/PTNL,PJT
Frequency	Output frequency of each data format.	10S/5S/2S/1HZ/2HZ/5HZ/10HZ/20HZ

Tool Buttons:

[Back] Back to main menu.

[AllPick] Select all the data formats.

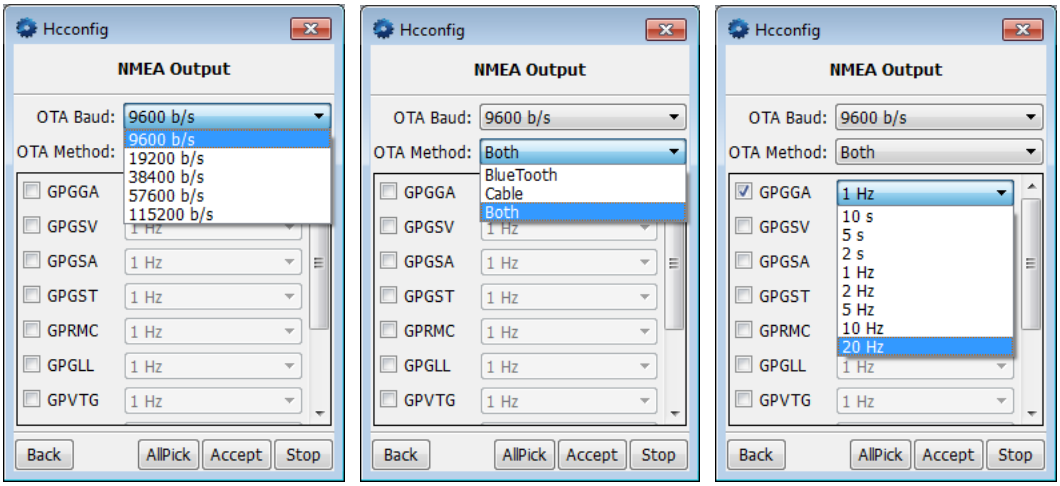
[Accept] Send command to receiver to output NMEA data with defined OTA Baudrate and defined frequency for each selected data formats after reboot.

[Stop] Cancel the output NMEA data command.

Notice:

1. OTA Baudrate setting is only supported in PC version;

2. NMEA Output function is only supported by the new ARM receivers with V8.11 (or above) firmware.



5.12 Radio Channel

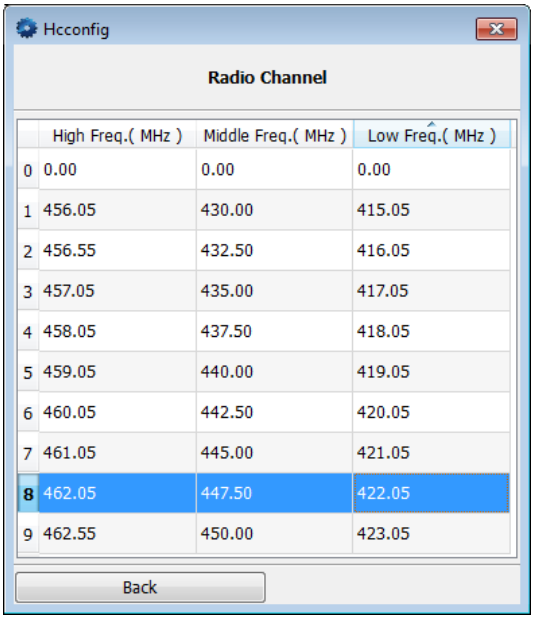
The radio channels information of the receiver is displayed in this section. The radio channels are divided into 3 parts, High Frequency (from 450 to 470 MHz), Middle Frequency (from 430 to 450 MHz) and Low Frequency (from 410 to 430 MHz). Usually, in each part, the frequency value of Channel 0 is customizable; however, the frequency values of Channel 1 to 9 are predefined, which can be changed by special tool.

Tool Button:

[Back] Back to main menu.

Notice:

The radio channels will be loaded automatically according to the frequency band of receiver.



5.13 Server Settings

The information of network servers which have been established and saved will be listed in the server settings interface.

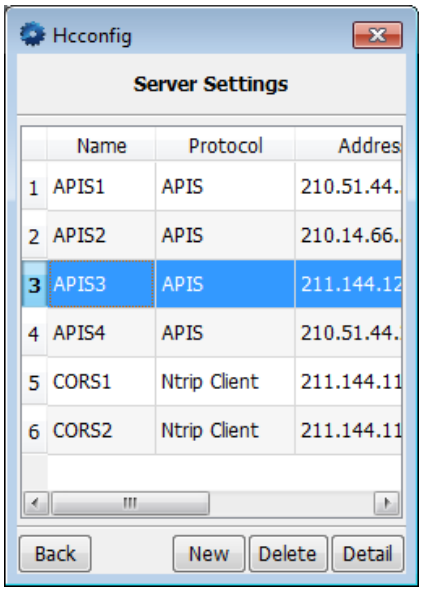
Tool Buttons:

[Back] Back to main menu.

[New] Start the configuration of new network server.

[Delete] Permanently delete the information of the selected network server. **Please be cautious of using this button.**

[Detail] View the details of the selected network server.



5.13.1 New Server Settings

Parameter	Description	Remark
Name	Server name.	Unique.
Protocol	The protocol of the server.	APIS/Ntrip Client/TCP Direct
Address	Address of the server.	IP and domain name are supported according to the characteristic of the firmware.
Port	Port that used to connect the server.	0~65535

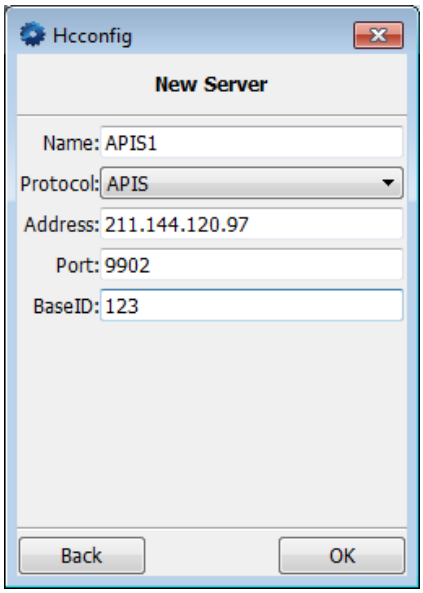
Tool Buttons:

[Back] Back to server settings interface without saving the parameters.

[OK] Save the parameters of the new server and then return to server settings interface.

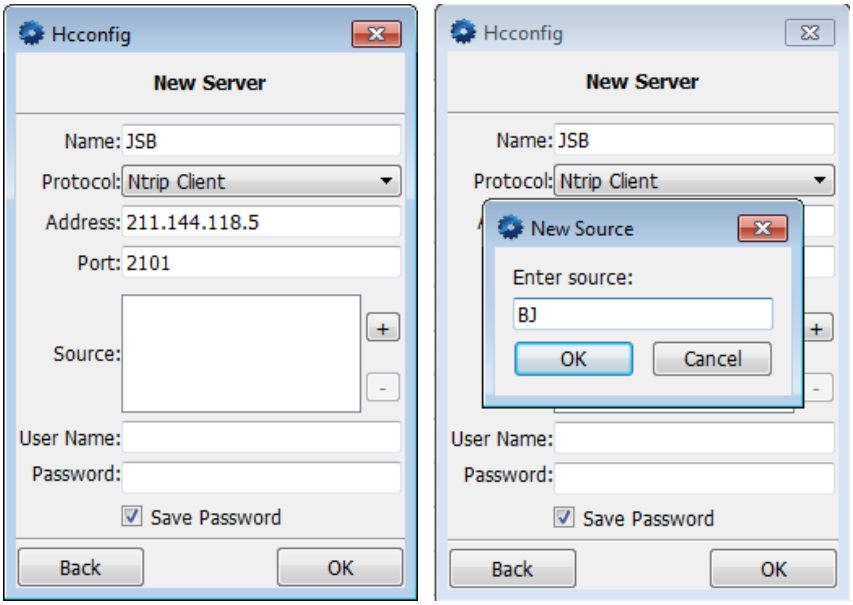
5.13.2 New APIS Server Settings

Parameter	Description	Remark
Name	Server name.	Unique.
Protocol	The protocol of the server.	APIS
Address	Address of the server.	IP and domain name are supported according to the characteristic of the firmware.
Port	Port that used to connect the server.	0~65535
Base ID	ID of the Base station which will be bound.	Only shows when the receiver mode is Rover.



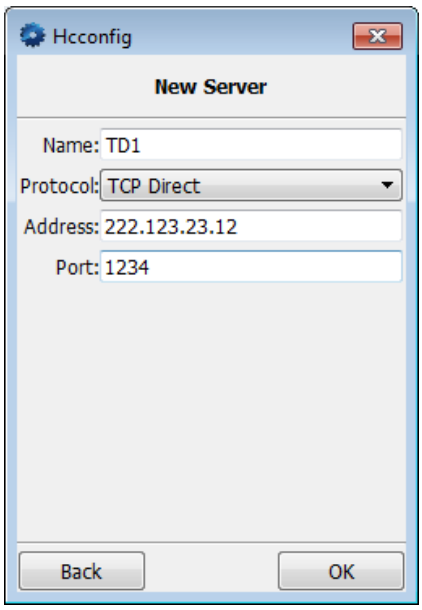
5.13.3 New CORS Server Settings

Parameter	Description	Remark
Name	Server name.	Unique.
Protocol	The protocol of the server.	Ntrip Client.
Address	Address of the server.	IP and domain name are supported according to the characteristic of the firmware.
Port	Port that used to connect the server.	0~65535
Source	Source table of the CORS server.	
+	Add new source.	
-	Delete selected source.	
User Name + Password	User name and password of the server.	
Save Password	Save the current password.	



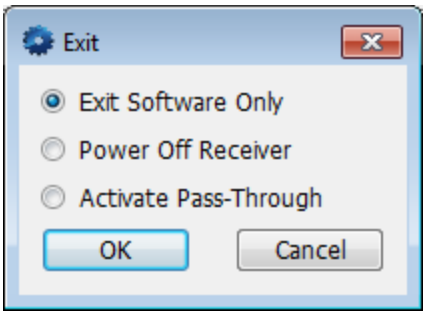
5.13.4 New TCP Direct Server Settings

Parameter	Description	Remark
Name	Server name.	Unique.
Protocol	The protocol of the server.	TCP Direct.
Address	Address of the server.	IP and domain name are supported according to the characteristic of the firmware.
Port	Port that used to connect the server.	0~65535



5.14 Exit

If the software has not been connected to receiver, it will exit directly. Otherwise, the exit dialog box will pop up to choose the exit method.



Exit Options:

“Exit Software Only”: Exit the software only.

“Power Off Receiver”: Exit the software and power off the receiver.

“Activate Pass-Through”: Issue the pass-through command to the GPS board and then exit the software.