Setup Ntrip Caster

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1. Introduction to Ntrip

Network Transport of RTCM via Internet Protocol (Ntrip) is a protocol for streaming differential data over internet. It includes:

- Ntrip Source: Provide differential data and send to Ntrip Server
- Ntrip Server: Send data to Ntrip Caster
- Ntrip Caster: Data management center, receive and send data
- Ntrip Client: Download data from Ntrip Caster



Normally the Ntrip Source and Ntrip Server are integrated into the GNSS receiver, basically we call it [Base/Reference Station]. Ntrip Caster is normally a software running on the computer. And Ntrip Client is normally called [Rover].

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2. Setup Ntrip Caster

2.1 Prepare Router

- Better to have static IP for the router. Otherwise, the IP may change after restart router.
- Need to access the router and make port forwarding rule (Add TCP Protocol).

LIN	(SYS [®] Smart Wi-Fi			App Cente	er Help	Linksys25501	Sign Out 👻
<							
1	Security View and change router settings						53
■ ▲ 83	Firewall DMZ Apps DDNS Single Port Forwarding	and Gaming Port Range Forwarding	Port Range Trigg	ering			
0	Application name Demo	External Port 60011	Internal Port 60011	Protocol Both	Device IP# 192.168.1.127	Enabled	Edit/
-						Add a new Sing	e Port Forwarding
°0							
۲							all and a second se
(is							the second second
0					Ok	Cancel	Apply

• Access router to give PC reserved IP. Otherwise, the computer IP may change after restart.

2.2 Start Software

- Not suggest to use Windows XP platform. You PC may be attacked and crash the software.
- It is suggested to start the software as administrator.

Reference Station	×	ID	Mountpoint	User Name	Data Type	Data Delay	Send Data
Single Reference Station							
		L					
		<					
		Ø 2020-1	2-09 10:15:25 Listen TC	P service port 2101 succ	essfully		
		2020-1	2-09 10:15:25 Startup N	Itrip server[Port: 2101]!	,-		

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2.3 Software Setting

NtripCaster Setting					×
Network Server					
Port: 2101 ~	Region:	CHN[China]			~
Physics Base Station					
Enable User Authentication	Password:	123456	Timeout(s):	300s	~
Virtual Base Station					
Enable Visitual System 1	IP:	127.0.0.1 🗸	Port:	6800	~
Enable Visitual System 2	IP:	~	Port:	0	~
Enable Visitual System 3	IP:	~	Port:	0	~
Enable Visitual System 4	IP:	~	Port:	0	~
Rover					
☑ Enable Authentication	Timeout(s):	300s 🗸			
Automatical Run When the System St	art	Automatical Start Server		ОК	Cancel

Network Server	Port	The internal port to be used in Ntrip Caster		
	Region	Select the country		
		If enabled, user will need the password to		
	Enable User	base correction data		
	Authentication	If not enabled, user can access with any		
Physical Base Station		password		
	Password	The password is needed when base uploads		
	1 0350010	data ¹		
	Timoout(c)	Software will offline/release the mountpoint		
	Timeout(s)	if no data transmit		
Virtual Base Station		Leave it unchecked		
		If enabled, user will need user name and		
Pover	Enable Authentication	password to connect the server ²		
NUVEI		If not enabled, user can access with any user		
		name and password		

¹ The base correction data is allowed to upload only when the password is input in base Ntrip setting.

 $^{^2}$ Only when rover authentication is enabled, the "user manage" function is activated. And only the authenticated user can access the mountpoint.



	Timeouts(s)	Software will offline/release the mountpoint if no data transmit	
Automatically Run Who	en the System Start	Start software with system	
Automatically Start Ser	ver	Run server when software is started	

2.4 User Manage 🦂

In the previous step, if the rover authentication is enabled, user manage function is activated. We can create user account here.

User Ma	nage					×
ID 1	User Test001	Password 123456	Company	Contact Person	Contact Phone	Limit 2050-
<						>
	Add Edit	Delete	Import Ex	rport		Close

Click [Add] to add user account. For normal operation, user just need to input user, password and limit date information. The other functions will be introduced at the end of the document.



Add User				>
Account		Information		
User:	Test001	Company:		
Password:	123456	Contact:		
Simultaneous o	online users: 1 🗸	Telephone:		
Limit Date:				
Limit Date:	2050 ~ 12 ~ 31 ~	3 Months	6 Months	12 Months
Limit Mount Poir	nts			Setting
Wount				
Limit Area				
Allow Area:				Setting
Send Coordinate	e System Parameter			
Coordinate				
Encrypted c	oordinate system parameters	Key:		
	🗹 Ellipsoid & Conver	t Par 🛛 🗹 Pro	jection Par	🗹 Height Par
Note: if there i accordance wit Encryption mo	s more than one coordinate system th the regional limit will automatical de is not the RTCM standard.	, in ly broadcast.	Add	Delete
		[ОК	Cancel



Start the service. Now the base station can upload mountpoint to the server and rover can connect to the mountpoint.

Meference Station	×	ID	Mountpoint	User Name	Data Type	Data Delay	Send Data
Single Reference Station Station TestMountpoint FactOl(2184) Network Reference Station		2 3636 2184	TestMountpoint TestMountpoint	[3636] Test001[2184]		 ✓ 0 ● 4 	32 154550
		<					
		2020-12 2020-12 2020-12	-09 11:25:54 New base s -09 11:26:01 Send source -09 11:26:04 [20]The ba	tation(TestMountpoint) e table complete, the use se station TestMountpoint	[Test001[2340]] conn connection is disconne	ection was disconnected.	

If the server is uploading the GGA information, the solution status, coordinate and IP address can be viewed on the software.

Send Data	Receive Data	Login Time	Position State	Coordinate System	Current Position	IP Address
32	167432	20-12-09 13:05:03	Base			127.0.0.1
53822	1296	20-12-09 13:05:47	(36)Fixed[1]		031d05m03.8929s, 121d31m49.3721s, 61.7630	192.168.109.195

3. Other Functions

3.1 Track Manage 🧚

Select the user name in [Track Manage] page, all the coordinate from GGA message can be

exported. Please note, if the current file is been using, the data cannot be exported.

Track Manage ×	Option ×
Select User: Test001	Select Path:
File Name Size Text001_076_20201209_112625.GGA 1.94kb Text001_1352_20201209_1131359.GGA	Besteller Besteller
	C:\Users\Frank L\Desktop\
Look Over Select All Delete Export Close	OK Cancel

3.2 Map Function 🚏 🐨 🔍 🤤 🥸 🏦

On the software, we can switch between list view $\stackrel{\frown}{=}$ and map view $\stackrel{\checkmark}{=}$. In map view, we can measure the distance.

😁 Ntrip Caster - [Listen Port: 2101]						- 🗆 X	😁 Ntrip Caster - [Listen Port: 2101]	- 🗆 X
▶ ∎ ଅୃଷ୍ଣ ସେ ରେ ରେ	024	🛢 # 🖉 🧎 🐤 1	2				▶ ■ 3 % % @ @ @ @	· 创 企 合 🚭 严 声 🤾 🐤 🎗
Reference Station X	10 1724 3316	Mountpoint TestMountpoint TestMountpoint	User Name [1724] Test001[3316]	Data Type	Data Delay 0 11	Send Data 32 113177	Reference Station	X Idential \$ 477at
Test001[3316]							L	sruded 2014
								feast/12 feast/12 feast/12
	c					,		-Tradicity Table - Handred Table - Handred Table - Tradicity - Tra
	5 2020-12 5 2020-12 5 2020-12 5 2020-12 5 2020-12	2-09 13:31:48 [20]The l 2-09 13:31:48 [20]As th 2-09 13:31:58 New base 2-09 13:32:03 Rover sta	base station TestHountpoint ie base station mount point i station[TestHountpoint] tion Test001[3316] connect	connection is disconnecte TestMountpoint is disconnector ion single reference station	d acted, the rover station a TestMountpoint.	Test001[3676] con		2020-12-29 (33):40 [00]The base staton TestBourtpoint connection is deconnected. 2020-12-29 (33):40 [00]Khe base staton routpoint connection is deconnected. 2020-12-20 (33):40 [00]Khe base staton routpoint connection is deconnected. 2020-12-20 (33):40 [00]Khe base staton routpoint connection is deconnected. 2020-12-20 (33):40 [00]Khe base staton routpoint connection is deconnected. 2020-12-20 (33):40 [00]Khe base staton routpoint.
Be ready						NUM	Be ready	NUM

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3.3 Coordiante Syetem

The software is able to transmit coordinate system through RTCM3 1021~1027. On field data collection software, end user can choose to use RTCM1021~1027 coordinate system and doesn't need to input manually. The supported parameters are:

- Ellipsoid parameter
- Projection parameter
- Seven parameters
- Geoid parameters

Coordinate System Manage X			< Coordinate System Manage	Coordinate System Manage X	
Coordinate System	Coordinate System	UTM-51N	Name: UTM-5	1N	
	Ellipsoid	W/GS-84	Ellipsoid parameter p	Ellipsoid parameter Project parameter Conversion datum GEOID model	
	Semimaior Avis	6378137.0			
	1/f	208 257223563	Ellipsoid name:	WGS-84 ~	
		250257225505			
	Projection	Transverse Mercator	Lange and an	6378137.0	
	Latitude of natural origin	000d00m00.00000s	Long axis:		
	Longitude of natural origin	123d00m00.00000s	Of the second design	298.257223563	
	Scale factor at natural origin	1.0	Or the countdown:		
	False Easting	50000.0000			
	False Northing	0.0000			
	Convert Mode	None			
	GEOID				
	File Name	C:\Users\Frank Li\Desktop\EGM96Ww 15'.ggf			
	Fitting Mode	Bilinear			
	Use	Use			
OK Cancel			Define(Only GEO form	Define(Only GEO format transfer) OK Cancel	
Note: press the right mouse button pop-up	Note: press the right mouse button pop-up menu to create groups or coordinate system.				

\leftarrow	Create Project	
Projec	t Name	20201209 🕄
Coordi param	nate systems RTCM1021~10 eters type)27 parameters 🗦
Operat	or	
Device		
Notes	Coordinate systems parameters	type
Date (Parameters of last project	O ^{:59:38}
Disk I	Local parameters	○ 20 GB
	RTCM1021~1027 parameters	0
	CORS encrypted parameters	0