

# Wildlife Tracker User Manual (V3.1)



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# **1. Product Introduction**

HQXS wildlife micro-tracker uses satellite positioning technology and dual-mode hybrid positioning technology to obtain information such as latitude and longitude, speed, heading, altitude, etc. At the same time, the device is equipped with a variety of sensors to collect other corresponding data. All collected data is sent to the company's data center via GSM/4G/satellite network, and the data can also be stored inside the tracker. The solar panel outside the device can ensure the long-term power supply of the product, and the built-in lithium battery ensures that the product can run normally when there is no sunlight. This product is independently developed by our company and has completely independent intellectual property rights. It has ultra-small size, ultra-low power consumption, and high-precision positioning characteristics.

# 2. Daily maintenance of products

 $\blacktriangleright$  After purchasing this product, if it has not been used for more than one month, please put it in the sun to charge for three days, and then charge it once a month regularly (charge in the sun for three days).

➤ When installing this product, please contact our company two days in advance. The technicians will set relevant parameters for your product to ensure that the product can be used normally. Before installation, please place this product in an open and sunny place (such as an open yard, roof of a house, etc.)

A magnetic switch controls the power switch mode of the tracker. The device is in shutdown mode when the magnetic strip is attached to the product. When the magnetic stripe is removed, the device will automatically turn on. The factory default is the shutdown state (with the magnetic strip attached). Before releasing the species into the wild, please be sure to remove the magnetic stripe. Otherwise, the device will not work properly.

> To ensure this product's standard and stable operation, the company provides complete management services for each product.

➢ If you fail to implement the above items, it may cause the product not to be used normally, and please be aware.



# 3. The meaning and description of each indicator of the tracker

No.	Index Parameter	Explanation
1	Time	The time when the location point was collected (subject to Beijing time)
2	Longitude	GPS longitude, in degrees, accurate to five decimal places, using the WGS-84 geodetic coordinate system
3	Latitude	GPS latitude, in degrees, accurate to five decimal places, using the WGS-84 geodetic coordinate system
4	Speed	Km/h
5	Course	The angle formed by the clockwise direction with the north direction of $0^{\circ}$
6	Altitude	The altitude with sea level as a reference, this parameter has reference value only when GPS is 3D positioning mode
7	Temperature	The temperature value collected by the device, in degrees Celsius
8	Voltage	Device battery voltage
9	Exercise	The number of activities in a collection period
10	Accuracy	The accuracy of GPS positioning is divided into five grades: A, B, C, D and E. See the table below for details.
11	HDOP	Horizontal precision factor, reflecting the GPS positioning error, the smaller the parameter, the higher the GPS positioning accuracy
12	VDOP	Vertical precision factor
13	Raw X-axis acceleration	Acceleration sensor X-axis raw data
14	Raw Y-axis acceleration	Acceleration sensor Y-axis raw data
15	Raw Z-axis acceleration	Acceleration sensor Z-axis raw data
16	X-axis acceleration	Acceleration of gravity in the x-axis
17	Y-axis acceleration	Acceleration of gravity in the y-axis
18	Z-axis acceleration	Acceleration of gravity in the z-axis
19	Dynamic global	ODBA (Overall Dynamic Body Acceleration) is the overall dynamic acceleration of an animal, an indicator derived by processing and calculating information about the change in acceleration of an object in three axes at different points in time.

# 3.1 The meaning of the indicators of the tracker



# **3.2 Description of positioning accuracy**

# (1) Overview of positioning accuracy

Positioning accuracy is the closeness between a spatial entity's location information (usually coordinates) and its true location. Our company's products provide the original GPS positioning accuracy factor data, and the equipment positioning accuracy adopts the linear regression analysis method: Error=2.679243\*HDOP+0.59144.

# (2) Accuracy class and deviation

The Hunan Provincial Institute approves the HQXS satellite tracker of Quality Supervision and Inspection of Products. The specific accuracy grades and deviations are as follows:

A	B	C	D	E
5 meters	10 me	ters 20 meter	s 100 meters	2000 meters

# (3) Reliability of positioning accuracy

The positioning accuracy of the satellite tracker is 95% reliable.



# 4. Parameters and Specifications

Model	HQNT	HQBV10016	HQBV1002	HQBV0702	HQBG0603
Category	Backpack	Backpack	Backpack	Backpack	Backpack
Weight	0.6 <b>~ 20</b> g	1.9 g	2.2 g	2.2 g	3 g
Height	Customization	11 mm	12 mm	18 mm	7.5 mm
Width	Customization	10 mm	10 mm	12 mm	17 mm
Length	Customization	23 mm	23 mm	7 mm	21 mm
Inner Diameter	-	-	-	-	-
Default Frequency	1-60 s	1-4 h	1-4 h	1-4 h	1 h
Dense Tracking	-	1 min	1 min	1 min	1 min
ACC data period	-	10 min	10 min	-	-
ODBA	-	Support	Support	-	Support
Data Storage	_	260000 points	260000 points	5000 points	260000 points
Capacity	-	200000 points	200000 points	5000 points	200000 points
International	_	_	_	_	Support
Roaming	-	_	_	_	Support
No Signal Processing	-	Local storage	Local storage	Local storage	Local storage
Positioning Method	TDOA	BDS/GPS/ GLONASS	BDS/GPS/ GLONASS	BDS/GPS/ GLONASS	BDS/GPS/ GLONASS
Positioning Accuracy	-	5 m	5 m	5 m	5 m
Signal Transmission	VHF/LORA	VHF	VHF	VHF	CAT1/GSM
Antenna	External	External	External	External	External
Duration without Light (built-in lithium battery)	7-900 days	7 days	15 days	7 days	7 days
Lifetime in the Wild ge sunshine 2 hours)	-	>5 years	>5 years	>5 years	-
Waterproof Level	IP68	IP68	IP68	IP68	IP68
Waterproof Depth	10 m	10 m	10 m	10 m	10 m
Operating Temperature	-40~70°C	-40~70℃	-40∼70°C	-40~70°C	-40~70℃
Working Altitude	<10000 m	<10000 m	<10000 m	<10000 m	<10000 m
Low Battery Protection	Support	Support	Support	Support	Support
Death Warning	Support	Support	Support	Support	Support
Client Software	-	Windows Android IOS	Windows Android IOS	Windows Android IOS	Windows Android IOS



Model	HQBG1202	HQBG1203	HQBG1204	HQBG1205	HQBG1206
Category	Backpack	Backpack	Backpack	Backpack	Backpack
Weight	2.9 g	3.5 g	5.1 g	5.7 g	6.5 g
Height	12 mm	13 mm	12 mm	12 mm	12 mm
Width	13 mm	13 mm	18.5 mm	18.5 mm	20 mm
Length	24 mm	24 mm	30 mm	30 mm	33 mm
Inner Diameter	-	-	-	-	-
Dense Tracking	1 min				
Default Frequency	1 h	1 h	1 h	1 h	1 h
ACC data period	10 min				
ODBA	Support	Support	Support	Support	Support
Data Storage Capacity	260000 points				
International Roaming	Support	Support	Support	Support	Support
No Signal Processing	Local storage				
Positioning Method	BDS/GPS/ GLONASS	BDS/GPS/ GLONASS	BDS/GPS/ GLONASS	BDS/GPS/ GLONASS	BDS/GPS/ GLONASS
Positioning Accuracy	5 m	5 m	5 m	5 m	5 m
Signal Transmission	Cat-M1/ Cat-NB2	Cat-M1/ Cat-NB2	CAT1/GSM	CAT1/GSM	CAT1/GSM
Antenna	External	External	External	External	External
Duration without Light (built-in lithium battery)	15 days	20 days	7 days	7 days	7 days
Lifetime in the Wild rage sunshine 2 hours)	>5 years				
Waterproof Level	IP68	IP68	IP68	IP68	IP68
Waterproof Depth	10 m				
Operating Temperature	-40~70°C	-40~70℃	-40~70°C	-40~70℃	-40~70℃
Working Altitude	<10000 m				
Low Battery Protection	Support	Support	Support	Support	Support
Death Warning	Support	Support	Support	Support	Support
Client Software	Windows Android IOS	Windows Android IOS	Windows Android IOS	Windows Android IOS	Windows Android IOS



Model	HQBG1507	HQBG2009P	HQBG1310	HQBG2210	HQBG1512S
Category	Backpack	Backpack	Backpack	Backpack	Backpack
Weight	7.1 g	9 g	10 g	10 g	13 g
Length	35 mm	35 mm	36 mm	47 mm	48 mm
Width	18.5 mm	21 mm	19 mm	21 mm	21 mm
Height	12.5 mm	16 mm	13 mm	22 mm	15 mm
Inner Diameter	-	-	-	-	-
Dense Tracking	1 min				
Default Frequency	1 h	1 h	1 h	1 h	1 h
ACC data period	10 min				
ODBA	Support	Support	Support	Support	Support
Data Storage Capacity	260000 points				
International Roaming	Support	Support	Support	Support	Support
No Signal Processing	Local storage				
Positioning Method	BDS/GPS/ GLONASS	BDS/GPS/ GLONASS	BDS/GPS/ GLONASS	BDS/GPS/ GLONASS	BDS/GPS/ GLONASS
Positioning Accuracy	5 m	5 m	5 m	5 m	5 m
Signal Transmission	CAT1/GSM	CAT1/GSM	CAT1/GSM	CAT1/GSM	CAT1/GSM
Antenna	External	External	External	Internal	External
Duration without Light (built-in lithium battery)	7 days	7 days	7 days	15 days	7 days
Lifetime in the Wild (average sunshine 2 hours)	>5 years				
Waterproof Level	IP68	IP68	IP68	IP68	IP68
Waterproof Depth	10 m				
Operating Temperature	-40~70°C	-40~70°C	-40~70°C	-40~70°C	-40~70°C
Working Altitude	<10000 m				
Low Battery Protection	Support	Support	Support	Support	Support
Death Warning	Support	Support	Support	Support	Support
Client Software	Windows Android IOS	Windows Android IOS	Windows Android IOS	Windows Android IOS	Windows Android IOS



Model	HQBG2512L	HQBG2715S	HQBG2512S	HQBG1815S
Category	Backpack	Backpack	Backpack	Backpack
Weight	13 g	17 g	15 g	18 g
Height	23.5 mm	27 mm	25 mm	18 mm
Width	20 mm	26 mm	24 mm	23 mm
Length	51 mm	55 mm	55.5 mm	63 mm
Inner Diameter	-	-	-	-
Default Frequency	1 h	1 h	1 h	1 h
Dense Tracking	1 min	1 min	1 min	1 min
Data Storage Capacity	260000 points	260000 points	260000 points	260000 points
ACC data period	10 min	10 min	10 min	10 min
ODBA	Support	Support	Support	Support
International Roaming	Support	Support	Support	Support
No Signal Processing	Local storage	Local storage	Local storage	Local storage
Positioning Method	BDS/GPS/ GLONASS	BDS/GPS/ GLONASS	BDS/GPS/ GLONASS	BDS/GPS/ GLONASS
Positioning Accuracy	5 m	5 m	5 m	5 m
Signal Transmission	CAT1/GSM	CAT1/GSM	CAT1/GSM	CAT1/GSM
Antenna	Internal	Internal	Internal	Internal
Duration without Light (built-in lithium battery)	7 days	7 days	7 days	7 days
Lifetime in the Wild verage sunshine 2 hours)	>5 years	>5 years	>5 years	>5 years
Waterproof Level	IP68	IP68	IP68	IP68
Waterproof Depth	10 m	10 m	10 m	10 m
Operating Temperature	-40~70℃	-40~70°C	-40~70°C	-40~70°C
Working Altitude	<10000 m	<10000 m	<10000 m	<10000 m
Low Battery Protection	Support	Support	Support	Support
Death Warning	Support	Support	Support	Support
Client Software	Windows Android IOS	Windows Android IOS	Windows Android IOS	Windows Android IOS



Model	HQBG2715L	HQBG3621L	HQBG3621S	HQBG2830L	HQBG5037L
Category	Backpack	Backpack	Backpack	Backpack	Backpack
Weight	17 g	24 g	23 g	24 g	62 g
Height	24 mm	35 mm	36 mm	28 mm	44 mm
Width	24 mm	24 mm	26 mm	27 mm	39 mm
Length	58 mm	70 mm	55 mm	63 mm	98 mm
Inner Diameter	-	-	-	-	-
Default Frequency	1 h	1 h	1 h	1-6 h	1 h
Dense Tracking	1 min				
ACC data period	10 min				
ODBA	Support	Support	Support	Support	Support
Data Storage Capacity	260000 points				
International Roaming	Support	Support	Support	Support	Support
No Signal Processing	Local storage				
Positioning Method	BDS/GPS/ GLONASS	BDS/GPS/ GLONASS	BDS/GPS/ GLONASS	BDS/GPS/ GLONASS	BDS/GPS/ GLONASS
Positioning Accuracy	5 m	5 m	5 m	5 m	5 m
Signal Transmission	CAT1/GSM	CAT1/GSM	CAT1/GSM	CAT1/GSM	CAT1/GSM
Antenna	Internal	Internal	Internal	Internal	Internal
Duration without Light (built- in lithium battery)	7 days	15 days	15 days	80 days	30 days
Lifetime in the Wild (average sunshine 2 hours)	>5 years				
Waterproof Level	IP68	IP68	IP68	IP68	IP68
Waterproof Depth	10 m				
Operating Temperature	-40~70°C	-40~70°C	-40~70℃	-40~70°C	-40~70°C
Working Altitude	<10000 m				
Low Battery Protection	Support	Support	Support	Support	Support
Death Warning	Support	Support	Support	Support	Support
Client Software	Windows Android IOS	Windows Android IOS	Windows Android IOS	Windows Android IOS	Windows Android IOS



Model	HQLG4037S	HQNG4625	HQAN40L	HQAN40M
Category	Leg ring	Neck ring	Collar	Collar
Weight	37~44 g	34~75 g	500~800 g	300~600 g
Height	51mm	40~80 mm	-	-
Width	-	32 mm	50 mm	32 mm
Length	-	-	-	-
Inner Diameter	14~24 mm	30~60 mm	Customize	Customize
Default Frequency	1 h	1 h	1 h	1 h
Dense Tracking	1 min	1 min	1 min	1 min
ACC data period	10 min	10 min	10 min	10 min
ODBA	Support	Support	Support	Support
Data Storage Capacity	260000 points	260000 points	260000 points	260000 points
International Roaming	Support	Support	Support	Support
No Signal Processing	Local storage	Local storage	Local storage	Local storage
Positioning Method	BDS/GPS/ GLONASS	BDS/GPS/ GLONASS	BDS/GPS/ GLONASS	BDS/GPS/ GLONASS
Positioning Accuracy	5 m	5 m	5 m	5 m
Signal Transmission	CAT1/GSM	CAT1/GSM	CAT1/GSM	CAT1/GSM
Antenna	Internal	Internal	External	External
Duration without Light (built-in lithium battery)	7 days	15 days	1000 days	800 days
Lifetime in the Wild verage sunshine 2 hours)	>5 years	>5 years	>5 years	>5 years
Waterproof Level	IP68	IP68	IP68	IP68
Waterproof Depth	10 m	10 m	10 m	10 m
<b>Operating Temperature</b>	-40~70°C	-40~70℃	-40~70℃	-40~70°C
Working Altitude	<10000 m	<10000 m	<10000 m	<10000 m
Low Battery Protection	Support	Support	Support	Support
Death Warning	Support	Support	Support	Support
Client Software	Windows Android IOS	Windows Android IOS	Windows Android IOS	Windows Android IOS

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Model	HQAN40S	HQAI-L	HQAI-M	HQAI-S
Category	Collar	Collar	Collar	Collar
Weight	120~200 g	800~1600 g	350~700 g	160~250 g
Height	-	-	-	-
Width	22 mm	50 mm	44 mm	22 mm
Length	-	-	-	-
Inner Diameter	Customize	Customize	Customize	Customize
Default Frequency	1 h	1 h	1 h	1 h
Dense Tracking	1 min	1 min	1 min	1 min
ACC data period	10 min	10 min	10 min	10 min
ODBA	Support	Support	Support	Support
Data Storage Capacity	260000 points	260000 points	260000 points	260000 points
International Roaming	Support	Support	Support	Support
No Signal Processing	Local storage	Local storage	Local storage	Local storage
	BDS/GPS/	BDS/GPS/	BDS/GPS/	BDS/GPS/
Positioning Method	GLONASS	GLONASS	GLONASS	GLONASS
Positioning Accuracy	5 m	5 m	5 m	5 m
Signal Transmission	CAT1/GSM	CAT1/GSM/iridium	CAT1/GSM/iridium	CAT1/GSM/iridium
Antenna	External	External	External	External
Duration without Light (built-in lithium battery)	365 days	900 days	700 days	90 days
Lifetime in the Wild verage sunshine 2 hours)	>5 years	>5 years	>5 years	>5 years
Waterproof Level	IP68	IP68	IP68	IP68
Waterproof Depth	10 m	10 m	10 m	10 m
Operating Temperature	-40~70℃	-40~70℃	-40~70°C	-40~70°C
Working Altitude	<10000 m	<10000 m	<10000 m	<10000 m
Low Battery Protection	Support	Support	Support	Support
Death Warning	Support	Support	Support	Support
Client Software	Windows Android IOS	Windows Android IOS	Windows Android IOS	Windows Android IOS

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Model	HQAB-L	HQAB-M	HQAN40MC	HQZN
Category	Collar	Collar	Collar	Customize
Weight	1000~1600 g	500~1000 g	500~1000 g	Customize
	1000 1000 g	500 1000 g	-	Customize
Height	-	-		
Width	50 mm	44 mm	44 mm	Customize
Length	-	-	-	Customize
Inner Diameter	Customize	Customize	Customize	Customize
Default Frequency	1 h	1 h	1 h	> 1 s
Dense Tracking	1 min	1 min	1 min	Customize
ACC data period	-	-	10 min	10 min
ODBA	Support	Support	Support	Support
Data Storage Capacity	260000 points	260000 points	260000 points	Customize
International Roaming	Support	Support	Support	Support
No Signal Processing	Local storage	Local storage	Local storage	Local storage
Positioning Method	BDS/GPS/ GLONASS	BDS/GPS/ GLONASS	BDS/GPS/ GLONASS	BDS/GPS/ GLONASS
Positioning Accuracy	5 m	5 m	5 m	5 m
Signal Transmission	CAT1/GSM/ Beidou short message	CAT1/GSM/ Beidou short message	4G/Iridium	CAT1/GSM/Beidou short message/Iridium
Antenna	External	External	External	Customize
Duration without Light (built-in lithium battery)	800 days	600 days	800 days	Customize
Lifetime in the Wild (average sunshine 2 hours)	>5 years	>5 years	>5 years	>5 years
Waterproof Level	IP68	IP68	IP68	IP68
Waterproof Depth	10 m	10 m	10 m	10 m
Operating Temperature	-40~70℃	-40~70℃	-40~70℃	-40~70℃
Working Altitude	<10000 m	<10000 m	<10000 m	<10000 m
Low Battery Protection	Support	Support	Support	Support
Death Warning	Support	Support	Support	Support
Client Software	Windows Android IOS	Windows Android IOS	Windows Android IOS	Windows Android IOS



# Start-up Test and Debugging

# Unpacking inspection

After receiving the product, please check whether the appearance is in good condition and whether the installation accessories are complete (see the list of accessories). If you have any questions, please contact our company in time.

# Installation

# (1) Start the Product

When installing this product, please contact our company two days in advance, and the technicians will set relevant parameters for your product to ensure that the product can be used normally.

# (2) Product Registration

Please note the product number and study species number when installing the product. After installing the product, please contact our company in time, and submit the installation information to the engineer so that the technician can bind the product and the species for you in the background and provide better service.

# Product Management

When the product is turned on, if it is not used for a short period, please notify the company to turn it off in time to maintain the power of the product and avoid extra communication charges.



# **5. Software Operation Process and Use Method**

# **1.1.** Software Installation

- (1) Quickly Understand
- > The operating systems are WindowsXP, Windows7 (32-bit/64-bit), and Windows8.
- > Operating environment: .NET Framework 4.5.2.
- Installation time: If your computer has .net Framework 4.5.2 installed, it only takes 30 seconds to complete the installation.
- (2) Installation steps

Step 1: Open the installation folder, run Setup.exe, and start the program installation. Figure 1:



Step 2: If the computer does not have the .net Framework 4.5.2 environment installed, it will automatically start to install the .net Framework 4.5.2, as shown in Figure 2. (If the computer has already installed .net Framework 4.5.2 or above, go directly to the fourth step, as shown in Figure 4.)

QXS Trac	ker Client - InstallShield Wizard
	QXS Tracker Client requires the following items to be installed on your computer. Click istall to begin installing these requirements.
Status	Requirement
Pending	Microsoft .NET Framework 4.5.2 Full
	Install Cancel



Step 3: Select "Install" to start the automatic installation of .net Framework 4.5.2, about 2-3 minutes, as shown in Figure 3.



<b>安装进度</b> 正在安装 .NET Framework,请稍候。	Micro NI
文件安全验证:	
已成功验证所有文件。	
安装进度	0
安装进度: 	^

Figure 3

Step 4: After the installation of .net Framework 4.5.2 is completed, enter the "InstallShield Wizard for HQXS Tracker Information Service Platform", as shown in Figure 4.



Figure 4

Step 5: Select "Next" to start the installation, as shown in Figure 5.



	g HQXS Tracker Client 只为訳 ogram features you selected are being いがい	随生命的脚步
P	Please wait while the InstallShield Wizard Tracker Client. This may take several minut Status: Registering product	



Step 6: Click "Finish" to complete the installation, as shown in Figure 6.

Step 7: The desktop will generate a shortcut icon of "Global Messenger", as shown in Figure 7.

HQXS Tracker Client -	InstallShield Wizard	
HQXS 环球信士	The InstallShield Wirard has successfully installed MQXS Tracker Client. Click Finish to exit the wirard.	
	<eack cancel<="" finish="" td=""><td></td></eack>	
		Messeng

Figure 6

Figure 7



# **Global Messenger Tracker Information Service Platform**

# User Manual (V3.04)

# **1.** Platform Introduction

The Global Messenger Satellite Tracking Data Service Platform V3.04 is a specialized software for the management and data services of Hunan Global Messenger Technology Co., Ltd.'s wildlife satellite tracker products. The system is developed based on GIS technology and incorporates knowledge related to movement ecology. It has functions such as equipment management and remote control, track data management, extended sensor data management, animal ecology analysis, map services, data visualization, and data interaction. The system interface is shown in the following figure:

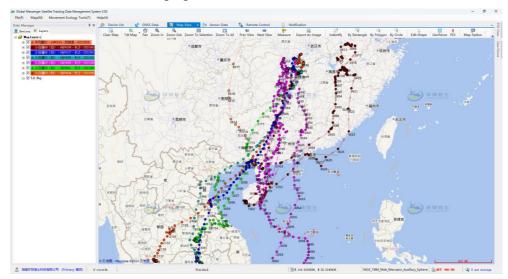


Figure 1.1 system interface

# 2.Account And Permission

The current version of the account is provided by Hunan Global Messenger Technology Co., Ltd. (hereinafter referred to as the "Company"). The 3.05 version will enable users to freely register accounts. Additionally, it supports guest login without an account, as illustrated in the figure below.



- 16 -

# Hunan Global Messenger Technology Co., Ltd



# 2.1.Account registration

After clicking User Registration on the login interface, enter the account, password and email address to be registered, and then click Next, and then you will receive a verification code for the email address you fill in, and enter the received **verification code** into the pop-up window to complete the account creation.

le Create Account			×			
Account				S Create Account		×
Password			ø	Create Account		^
Email				Verification Code	Vali	d for 5 minutes.
	Contitue	Cancel	]		Create	Cancel

Figure 2.2 account registration

#### 2.2.Language And Site Settings

It supports two language versions: Chinese and English, and provides three access sites in Asia, Europe, and North America, as shown in the figure below.

Tracking determone gement eveter	× Settings × at system
GLOBAL MESSENGER Cuest Chinase (Simplified) English	GLOB L MESSENGER O Asia O Europe O Horth America
All rights reserved by ©202 OK Cancel	OK Cancel All rights reserved by ©2024 Human Global Messenger Technology Co, Ltd.

Figure 2.3 settings interface

#### **2.3.Account Information Maintenance**

The [Account Information] interface allows you to modify your profile picture, region, phone number, password, and email address. This is shown in the figure below.

test01 Institution/Organization	🔌
Institution/Organization	
胡南环球信士科技有限公司	
Name * SESTER: Code	
+86, China V	Phone number 1378674978

Figure 2.4 account information

[Update Email] Enter a new email address and enter the verification code received by the email address to change the email address, as shown in the following figure.



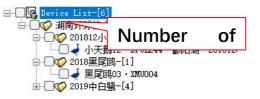
		😡 Update Email		
Reset password	×	New Email		
Old password			Send veri	fication code
New password		Verification Code		
New password				
Change (	Cancel		OK	Cancel

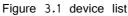
Figure 2.5 change your password and email address

# **3.Device Management**

# **3.1.Device** List

The list adopts a multi-level hierarchical structure, and users can create any folder as needed. The device directory can be managed by dragging and dropping with the mouse. As shown in the following figure.





(1) Experience Devices: All users can get the full data permission of 2 devices, which can be used to experience the functions and data management mode of the tracking product. You can right-click [Device List] to open the experience area, and you can also close the experience directly when you don't need it.

Devices 👔 L	Jayers	Show all			T Show
selected.		Clear selection	ected		<u>Clear selec</u>
	List-[17] Last Fix Experience on			e List-[17] perience devices-[2 All Fixes F Last Fix	
	New Folder(N)			Experience off	
•	Expand All Collapse All		5	Rename F New Folder(N)	2
	Refresh(R)		×	Delete(D)	

Figure 3.2 Turn the experience device on and off

(2) Device Search: Enter the device name, IMEI, species name, device type, sensor type, battery, shareable,

duration, and last active time in the search box to quickly find the device. Fuzzy query is supported, as shown in the following figure.



Data Manager 🖳 Devices 膨 Layers	<b> </b>	🖳 Devices 🖹 Layers	
Selected.     Selected.     Device List-[6]     の 湖南环球信士科社     の ジ湖南环球信士科社     の ジロ1812小天鹅12     の ジロ18黒尾鴎-     の ジロ18黒尾鴎-     の ジロ18黒尾鴎-     の ジロ19中白盛-	3-[1] • BFVI_244 • 鄱阳湖 • 201812) [1] • XMV004	Filtering conditions     Sensor type     Device type     Downloadable     Sensor tope     Bownloadable     Shareable     Battery     Duration     Last active time	] [6] 筆四日 ○

Figure 3.3 device search

(3) Query Latest Location: Select "Last Fix" from the right-click menu of folder nodes and device nodes to display the latest location distribution of devices on the map, as shown in the following figure.

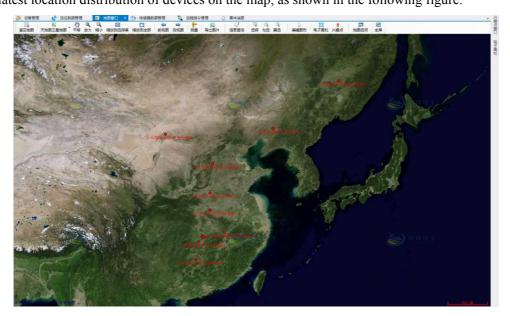


Figure 3.4 last position of the device

# **3.2.Directory Management**

(1) Create A New Folder: The main account can create new folder nodes, modify folder names, and manage

the dependency relationship between folders and devices by dragging the mouse.

(2) Remove Folders: The main account can delete folder nodes that do not contain devices.

# **3.3.Device Management**

(1) Device Renaming: Accounts with renaming permission can modify device names.

(2) **Device Location Change:** The main account can drag the device with the mouse to change its location to a different folder.

(3) Remote Control: In the device list, select a single device and choose "Change Collection Schedule" or "Change Transmission Schedule" from the context menu. The collection time can be set to hourly or customized, and you can view the device's remaining battery life and last working time. The data return time can be adjusted based on the number of collection points. Changes can be monitored in the Remote Control window, as illustrated below.



<ul> <li>□●[1] Device List-[232]</li> <li>□●○○○ 2021环球信士安装-[7]</li> <li>□●○○○ 湖南环球信士 (2021) -[61]</li> <li>□●○○○ 湖南环球信士 (2022) -[7]</li> <li>□●○○○ 2022半貨邊-[6]</li> </ul>		
⊞		ange collection schedule
<ul> <li>□</li> <li>□</li> <li>○</li> <li>○</li></ul>	🛃 Cha	ange transmission schedule
由────── 湖南环球信士(测试)−[39] 由───── 湖南环球信士科技有限公司−[84]		

Figure 3.5 remote control

Change data collection schedule X	b Change data transmission schedule
Terminal details Animal ID 2022牛背驢@牛背驢02.GIZ002.长沙.20220530	Terminal details
Battery level (	Animal ID 2022牛背鹭@牛背鹭02 · GIZ002 · 长沙 · 20220530
Last transmission time 2023-10-19 15:00:21 Old collection schedule	Battery level ( 4.04 V
UTC +08:00 [00:00, 03:00, 06:00, 09:00, 12:00, 15:00, 18:00, 21:00]	Last transmission time 2023-10-19 15:00:21
New collection schedule	Data Transmission Transmission every 5 fixes
Time Zone         UTC +08:00         Obtaining the local Time Zone           00:00         04:00         08:00         12:00         16:00         20:00	New transmission schedule
01:00         05:00         09:00         13:00         17:00         21:00           02:00         06:00         10:00         14:00         18:00         22:00           03:00         07:00         11:00         15:00         19:00         23:00	Schedule
All Daytime Night Odd Even Clear	Send time
Send time	● Immediately ○ Specified Time 2024-05-22 16:0C ∨
O Immediately ○ Specified Time 2024-05-22 16:00 ■▼	Note: 2 changes per day only. Send Cancel

Figure 3.6 change collection and transmission schedule

(4) Device Details :Right click on the device and click on [property(Q)], or double-click on the device node to view the information of the device, including IMEI, name, caption, owner, model, status, battery, transmission, expiry date, description, sensors, subscribe, and other information. Click on "Species Information" in the bottom left corner of the device details interface to display the detailed information of the species, as shown in the following figure.

<ul> <li>Tracker Property</li> </ul>	Species information- [No edit permission]
Device information	Species type O Bird O Massal O Others
IMEI 035760067	Species Info
Name 牛背腦02、GIZ002、长沙、20220530	Species 牛背號 * Scientific name
	$Sex  Unknow \qquad \checkmark \qquad \lambda_{ge}  Unknow  \lor \qquad \forall + i  ght  (g)  0,  00$
Caption	Physical Characteristics (cm)
Owner 湖南环球信士(2022)	Mend 0.00 Bill 0.00 Bill width 0.00
Model HQBG1206H Status Active	Bill height 0.00 Ving 0.00 Vingspan 0.00
Battery (10) 4.04 V	Tarrus 0.00 Tail 0.00 Body 0.00
Transmission 2023-10-19 15:00:21 Expiry Date Overdue 357 days Description	Menut Info Cupture Targing 2022-65-00 14:00:00 Rolesce Rolesce int Rolesce lat Rolesce site
Sensors	
Video Imperature Video Imperature Video	th
👌 🛛 Red & Infrare Light 🌞 Light Intensity 🔗 🗋 Humidity	Additional Info Field Value
Subscribe	
🥑 GeoFence Trigger 🛛 🥑 Instruction Feedback 🗌 Position Update	
Species information	
OK Cance	al Save Cance

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Figure 3.7 tracker property and species information

(5)Device List:Select [Device List] from the navigation bar at the top of the interface to display all device details under the current account, which can be exported to an Excel spreadsheet, as shown in the following figure.

Device L	ist									Nemote	control details		
Folder	Device	IMEI	Model	Sensors 🥑	Status	Collection 👻	Transmission	Remote Control	Download data	Edit fix	Edit	Share	Battery
牛背蹠	FINE205	046113442	HQBG1206	🗞 GRES	stive	UTC +08:00 [00:00, 0	Every 5 fixes	No permission	4	1	No permission	al.	( <b>5</b> 5) 3.86 V
牛背號	牛背號01 · FD	V28092334	HQBG1206	Acceleration	rtual	Customized	Every 5 fixes	No permission	d	1	No permission	4	(100) 4.22 V
牛背鰭	牛背驢02・FD	039342896	HQBG1206	💧 Temperature	tive	VTC +08:00 [01:00, 0	Every 5 fixes	No permission	d	1	No permission	4	4.07 V
牛背驢	牛背驢03・FD	041759021	NQBG1206	@ Pressure	tive	VTC +08:00 [01:00, 0	Every 5 fixes	No permission	4	1	No permission	1	(1901 4.15 V
牛背腦	牛背辙04 · FD	V23085650	MQBG1206	Picture Video	rtual	Customized	Every 5 fixes	No permission	1	4	No permission	1	(190 4.12 V
牛背號	牛背皺05・70	¥12102232	HQBG1206	Audio	rtual	Customized	Every 5 fixes	No permission	4	4	No permission	4	(IBD 4.01 V
牛背號	牛背皺06・70	041739502	HQBG1206	🛃 Water Depth	stive	UTC +08:00 [01:00, 0	Every 5 fixes	No permission	4	4	No permission	Å	(1951 4.13 V
牛背驢	牛背驢07・FD	041739494	HQBG1206	👌 Red & Infrare Ligh	t tive	VTC +08:00 [01:00, 0	Every 5 fixes	No permission	4	4	No permission	4	(1961 4.14 V
牛背鹭	牛背驢08 · FD	V09105234	HQBG1206	🔅 Light Intensity	rtual	Customized	Every 5 fixes	No permission	4	4	No permission	1	(100 3.96 V
牛背驢	牛背脑09 · FD	039341633	HQBG1206	🙆 Hunidity	tive	UTC +08:00 [00:00, 1	Every 5 fixes	No permission	4	1	No permission	4	(10 3.68 V
牛背號	牛背號10·70	V17133615	HQBG1206	64	Virtual	Customized	Every 5 fixes	No permission	4	4	No permission	A	(ISO 4.12 V
牛背號	牛背鎚11・70	041722961	HQBG1206	64	Active	VTC +08:00 (00:00, 0	Every 5 fixes	No permission	4	4	No permission	4	(1951 4.17 V
牛背鳍	牛背驢12 · FD	041739544	HQBG1206	62	Active	VTC +08:00 [00:00, 0	Every 5 fixes	No permission	4	4	No permission	d	(10 V
牛背鹭	牛背驢13 · FD	041739411	MQBG1206	6.8	Active	UTC +08:00 [00:00, 0	Every 5 fixes	No permission	1	4	No permission	A	(100 4.07 V
牛背號	牛背辙01・GD	046085059	HQAN40U10	64	Active	UTC +08:00 [00:00, 0	Every 5 fixes	No permission	4	4	No permission	1	(15 3.73 V
2022牛背號	牛背皺02・GI	035760067	HQBG1206H	64	Active	UTC +08:00 [00:00, 0	Every 5 fixes	1	4	4	No permission	4	(188 4.04 V
2022牛背鳞	牛背驢03・GI	035760075	NQBG1206H	6.4	Active	VTC +08:00 [03:00, 0	Every 5 fixes	4	4	4	No permission	4	(1951 4.14 V
2022牛背鹭	牛背驢04・HQ	046065317	HQBG1206	6.	Suspended	UTC +08:00 [00:00, 1	Every 5 fixes	4	4	4	No permission	4	440 3.80 V
2022牛背鹭	牛背驢05・10	046122864	HQBG1206	62	Active	UTC +08:00 [00:00, 1	Every 5 fixes	1	.1	4	No permission	1	(ISC) 4.10 V
2022牛背號	牛背驢06 · 昫	035746660	HQBG1206H	64	Active	UTC +08:00 [00:00, 0	Every 5 fixes	No permission	4	4	4	4	( <b>15</b> 3.95 V
2022牛背號	牛背號07·HQ	035706391	NQBG1206H	6	Active	UTC +08:00 [03:00, 0	Every 5 fixes	1	4	4	No permission	4	(188 4.05 V

Figure 3.8 device list

# 4.Track Data Query 4.1 Quick Query Track

In the device list, select a single device and select "All Fixes" from the right-click menu to query all tracks and fixes of the device, which will be displayed on the map, as shown in the following figure.

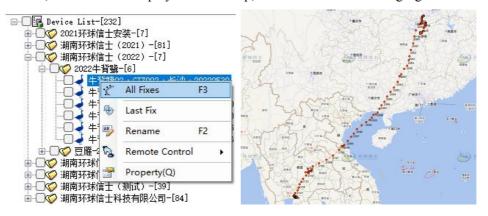


Figure 4.1 view all tracks and fixes of a single device

# 4.2. Query Track By Criteria

After checking the devices to be queried in the device list, enter the location data management window. You can query the track of multiple devices according to three time methods: [last] days, [by year] and [time range], or add more query conditions, such as speed, course, altitude and temperature, as shown in the figure below.



Lavers				1.0										-							
T Show all	○ Last 1	layu 🛛 🔾	By year 2022 🗸		Time Range:	200	24+05+20 00:0	00:00	- 20	4-06-20 23	1:59:69 []]~		Mer e	3 🔍	Query			Data standar	ds .		
Clear selection	Davice	INTI	Time	EW	Longi tude	RS	Latitude	Speed	Course	Altitude	Temperature	Voltage	Activity	Satellites	HIOP	YDOP	Frecisionfirade	Validity X	Y	Z	Transmission Time
List-[232]	牛脊髓02、GIZ002、长	035760067	2022-12-31 21:00:37	T I	08.8143200	8	19.3243000	0.0	154	56.0	24.6	4.161	339	10	0.9	0.8	٨	Yes			2023-01-01 06:04:16
:1环球信士安装-[7] 南环球信士(2021)-[81]	牛背箍02 · GIZ002 · 长	035760067	2022-12-31 18:00:19	1 1	108.8145900	8	19.3240800	0.0	173	0.0	25.0	4.182	2167	10	0.8	0.8	٨	Yes			2023-01-01 06:04:10
朝轩録信士(2022)-[7] 2022年留職-[6]	牛背箍02 · GIZ002 · 长	035760067	2022-12-31 15:00:26	: I :	08.8371300	s	19.3321000	0.0	342	9.0	40.0	4.182	1467	8	0.8	0.8	٨	Yes			2022-12-31 15:03:5
▲ 牛育猫02 · GIZ002 · 长沙 · 20220530	牛背篷02 · GIZ002 · 长	035760067	2022-12-31 12:00:25	E E	08.8300400	s	19.3103700	0.0	299	69.0	40.2	4.179	687	8	0.9	0.7	٨	Yes			2022-12-31 15:03:5
↓ 牛背猿03・GLZ006・长沙・20220530 ↓ 牛背猿04・HQP2093・长沙・20220530	牛脊髓02 · GIZ002 · 长	035760067	2022-12-31 09:00:18	E E	08.8235800	s	19.3203800	0.0	260	55.0	27.3	4.128	636	9	0.8	0.8	A	Yes			2022-12-31 15:03:5
→ 牛背猿05、HQP4205、长沙、20220630 牛背猿06、HQP5367、长沙、20220616	牛脊髓02、GT2002、长						More	Conditio	05			X <sup>H</sup>									
🚽 牛背鹱07、H0P6368、长沙、20220616	牛脊髓02 · GIZ002 · 长	035760067	2022-12-31 03:00:21	E :	108.8144100	3	1			-		2	48	9	0.8	0.8	Å	Yex			2022-12-31 15:03:5
豆屋-2022.冬季南洞庭-[1] 朝开芽信士(2023)-[11]	牛育號02 · GIZ002 · 长	035760067	2022-12-31 00:00:42	: :	108.8144500	3	1	Field Spe	-1	Operate >=	Value	13	110	13	0.7	0.7	Å	Yes			2022-12-31 00:04:13
朝环球信士(2023翻日前)-[3]	牛育猿02 · GIZ002 · 长	035760067	2022-12-30 21:00:30	E :	108.8143400	3		Com		>=		58	256	4	1.4	1.0	A	Yez			2022-12-31 00:04:1
専环球信士(順试)−[39] 専环球信士科技向限公問−[84]	牛育猿02 · GIZ002 · 长	035760067	2022-12-30 18:00:45	1	108.8192600	3	1 O	Alti	tode	>=		31	1065	15	0.6	0.7	Å	Yez			2022-12-31 00:04:1
	牛背猿02 · GIZ002 · 长	035760067	2022-12-30 15:00:19	1	108.8340100	3	1 D	Tenper	ature	>=		91	2433	6	1.1	0.9	Å	Yex			2022-12-31 00:04:1
	牛背猿02 · GIZ002 · 长	035760067	2022-12-30 12:00:42	: I :	108.8349700	3	1 🗆	Velt	age	>=		34	3043	6	1.0	0.9	Å	Yez			2022-12-31 00:04:1
	牛背號02 · GIZ002 · 长	035760067	2022-12-30 09:00:42	2	108.8929800	3	: 0	Acti		>=		25	1638	12	0.7	0.7	Å	Yex			2022-12-30 09:04:1
	牛背猿02 · GIZ002 · 长	035760067	2022-12-30 06:00:19	z	108.9539400	8	1 O	Presisi	on/Ar a de		A. R. C. R. E. S	37	71	9	0.9	0.8	Å	Yes			2022-12-30 09:04:1
	牛背猿02 · GIZ002 · 长	035760067	2022-12-30 03:00:19	z	108.9541700	8					S: Inval		94	12	0.7	0.8	Å	Yex			2022-12-30 09:04:1
	牛背猿02 · GIZ002 · 长	035760067	2022-12-30 00:00:42	: I :	108.9539600	8					05:00		57	15	0.6	0.8	Å	Yes			2022-12-30 09:04:1
	牛背猿02 · GIZ002 · 长	035760067	2022-12-29 21:00:26	2	108.9547400	3	8-			-	11:00	16	339	9	0.8	0.8	A	Yes			2022-12-30 09:04:1
	牛背猿02 · GIZ002 · 长	035760067	2022-12-29 18:00:42	1	108.9539900	8					23:00		971	14	0.7	0.8	A	Yes			2022-12-29 18:04:1
	牛背據02 · GIZ002 · 长	035760067	2022-12-29 15:00:21	E	108.8794100	8	1 Deneler			00	Cape	35	1728	8	0.8	1.8	Å	Yes			2022-12-29 18:04:1
	牛背猿02、GIZ002、长	035760067	2022-12-29 12:00:42	: I :	108.8898600	8	IL.		_		Ciaso	. 61	3391	13	0.9	0.8	A	Tes			2022-12-29 18:04:1
	牛背猿02、GIZ002、长	035760067	2022-12-29 09:00:28	I I I	08.8894600	8	19.3149400	0.0	123	91.0	24.1	4.125	2109	5	1.9	0.8	В	Yes			2022-12-29 10:04:1
	牛背據02、GIZ002、长	035760067	2022-12-29 06:00:32	: 1	108.8778300	8	19.2000200	0.0	85	42.0	26.4	4.119	13	10	0.8	0.8	A	Tes			2022-12-29 18:04:1
	牛背據02 · GIZ002 · 长	035760067	2022-12-29 03:00:42	I I	108.8778800	8	19.2879400	0.0	282	44.0	27.2	4.152	4	9	0.8	0.8	٨	Tes			2022-12-29 03:04:1
	牛背蠻02、GIZ002、长	035760057	2022-12-29 00:00:21	I I	108.8760700	8	19.2876300	0.0	197	59.0	27.3	4.170	24	8	0.8	0.8	٨	Tes			2022-12-29 03:04:1
	牛背蠻02 · GIZ002 · 长	035760067	2022-12-28 21:00:21	I I	108.8778900	8	19.2876900	0.0	83	9.0	28.1	4.173	573	7	0.9	0.9	٨	Yes			2022-12-29 03:04:1
	牛脊髓02、GIZ002、长	035760067	2022-12-28 18:00:19	1	108.8762700	8	19.2881400	0.0	334	63.0	21.8	4.179	3476	11	0.7	0.8	٨	Yes			2022-12-29 03:04:1
	牛脊髓02、GIZ002、长	035760067	2022-12-28 15:00:18	I I I	108.8371700	8	19.3333200	0.0	59	89.0	36.4	4.191	661	8	0.9	0.9	٨	Yes			2022-12-29 03:04:1
	牛背猿02・GIZ002・长	035760067	2022-12-28 12:00:20	I	108.8480300	8	19.3335200	0.0	349	41.0	47.8	4.188	3761	15	0.9	0.7	٨	Yes			2022-12-28 12:03:4
	牛背猿02・GIZ002・长	035760067	2022-12-28 09:00:42	I	0008528.800	8	19.3254700	0.0	286	39.0	30.7	4.119	1299	13	0.6	0.7	٨	Yes			2022-12-28 12:03:4
	牛背箍02・GIZ002・长	035760067	2022-12-28 06:00:34	1	108.8144500	8	19.3243000	0.0	186	62.0	26.4	4.107	5	8	1.1	0.8	٨	Yes			2022-12-28 12:03:4
	牛背箍02・GIZ002・长	035760067	2022-12-28 03:00:42	2	108.8144800	s	19.3241800	0.0	14	62.0	26.5	4.113	1	10	0.9	0.8	٨	Yes			2022-12-28 12:03:4
	牛脊髓02 · GIZ002 · 长	035760067	2022-12-28 00:00:42	1 1	108.8145500	s	19.3241800	0.0	214	94.0	26.8	4.122	35	9	0.9	0.8	Å	Yes			2022-12-28 12:03:4

Figure 4.2 query the track by condition

#### 4.3 Invalid Data Processing

When some loci need to be masked, you can choose to "Convert to invalid data", which will be filtered out when create tracks or statistic (note: this operation is irreversible, Please be cautious).

O Last 1000 ∨ d	ays   O	By year 2024 🗸		) Time Range:	203	24-05-2	3 00:00:	00 🛄	- 20	24-05-23 23	:59:59		More	× ×	Query	<u>r</u>		🛛 Data st	andards.
Device	IMEI	Tine	E¥	Longi tude	NS	Latit	ude	Speed	Course	Altitude	Temperature	Voltage	Activity	Satellites	HDOP	VDOP	PrecisionGrade	Vali di ty	Transmission Time
牛背驥02・GIZ002・长						10.00			000	7.0	35.5								
牛背鹭02・GIZ002・长	035760067	2023-10-19 12:00:21	E	108.7981700	N	Y	Create	Track(	F)		32.0	3.993	551	7	1.0	0.9	A	Yes	2023-10-26 12:04:1
牛背鸀02・GIZ002・长	035760067	2023-10-19 09:00:37	E	108.7879900	N	•	Convert	t to Inv	alid Da	ta(T)	32.3	3.885	2317	8	0.9	0.8	A	Yes	2023-10-26 12:04:1
牛背號02・GIZ002・长	035760067	2023-10-19 06:00:41	E	108.7985100	N		Export	Excel F	ile(E)		30.6	3.861	154	11	0.7	0.7	A	Yes	2023-10-26 12:04:1
牛背蠻02・GIZ002・长	035760067	2023-10-19 03:00:25	E	108.7983700	N	×	Export	Shapet	file(S)		29.5	3.918	141	6	1.2	0.8	A	Yes	2023-10-26 12:04:1
牛背驢02・GIZ002・长	035760067	2023-10-19 00:00:42	E	108.7984800	N		Export	Kml Fil	e(K)		29.0	3.885	131	10	0.8	0.8	A	Yes	2023-10-19 15:04:2
牛背鸀02・GIZ002・长	035760067	2023-10-18 21:00:42	E	108.7964800	N	12	Statistic	s(S)			28.1	3.879	244	12	0.8	0.8	A	Yes	2023-10-19 15:04:2
牛背號02・GIZ002・长	035760067	2023-10-18 18:01:04	E	108.8168500	N		Selectio				25.8	3.804	141	5	2.1	0.9	В	Yes	2023-10-19 15:04:2
牛背驢02・GIZ002・长	035760067	2023-10-18 15:00:26	E	108.8214500	N	1		on 		· · · ·	32.2	4.014	2467	6	1.4	0.9	A	Yes	2023-10-19 15:04:2
牛背驢02・GIZ002・长	035760067	2023-10-18 12:00:22	E	108.8224800	N	19.243	32300	0.0	193	31.0	37.6	4.065	1468	9	0.8	0.8	A	Yes	2023-10-19 15:04:2
牛背號02・GIZ002・长	035760067	2023-10-18 09:00:22	E	108.8288800	N	19.250	05100	0.0	9	39.0	32.5	4.008	1753	7	1.2	0.8	A	Yes	2023-10-19 15:04:2
牛背蠻02・GIZ002・长	035760067	2023-10-18 06:00:20	E	108.7977700	N	19.208	83400	0.0	34	119.0	27.3	3.954	73	10	0.8	0.8	A	Yes	2023-10-19 15:04:2
牛背驢02・GIZ002・长	035760067	2023-10-18 03:00:22	E	108.7985000	N	19.208	80200	0.0	62	22.0	28.5	3.969	89	7	1.6	0.8	A	Yes	2023-10-19 15:04:2
牛背翳02・GIZ002・长	035760067	2023-10-18 00:00:19	E	108.7981200	N	19.208	31300	0.0	271	133.0	28.3	3,993	89	10	0.8	0.8	A	Yes	2023-10-19 15:04:2

Figure 4.3 convert to invalid data

# **5.Track Graphics Generation**

### 5.1. Create Track

In the location data management window, select "Create Track" in the right-click menu to generate all row data, or right-click a line, click 'selection', and then click generate track to generate the corresponding track diagram of the line, as shown in the figure below.

○ Last 1 ~ d	ays O	By year 2022 🗸	10	) Time Range:		4-05-20 00:0	0:00	J - 20	24-05-20 23	3:59:59		🛃 More [		Query	r		Data sta	andards			
Device	IMEI	Time	Ξ¥	Longi tude	<b>B</b> S	Latitude	Spee	d Course	Altitude	Temperature	Voltage	Activity	Satellites	HDOP	VIOP	PrecisionGrade	Vali di ty	I	¥	z	Transmission Tim
牛背驢02・GIZ002・长	035760067	2022-12-31 21:00:37	Ε	108.8143200	H	19.3243000	0.0	154	56.0	24.6	4.161	339	10	0.9	0.8	A	Yes				2023-01-01 06:04:1
牛背薖02 · GIZ002 · 长	035760067	2022-12-31 18:00:19	Ε	108.8145900	Ħ	19.3240800	0	Create Tra	ck(E)		4.182	2167	10	0.8	0.8	A	Yes				2023-01-01 06:04:1
牛背皺02・GIZ002・长	035760067	2022-12-31 15:00:26	Ε	108.8371300	H	19.3321000					4.182	1467	8	0.8	0.8	A	Tes				2022-12-31 15:03:5
牛背驢02・GIZ002・长	035760067	2022-12-31 12:00:25	Ε	108.8300400	H	19.3103700	<u>,</u>	Convert to	Invalid Da	sta(T)	4.179	657	8	0.9	0.7	A	Tes				2022-12-31 15:03:5
牛背薖02・GIZ002・长	035760067	2022-12-31 09:00:18	Ε	108.8235800	N	19.3203800		Export Exc	el File(E)	1	4.128	636	9	0.8	0.8	A	Yes				2022-12-31 15:03:5
牛背號02 · GIZ002 · 长	035760067	2022-12-31 06:00:42	Ε	108.8144500	N	19.3242300	Č	Export Sha	apefile(S)		4.104	30	13	0.7	0.7	A	Tes				2022-12-31 15:03:5
牛背驢02・GIZ002・长	035760067	2022-12-31 03:00:21	Ε	108.8144100	H	19.3243200	9	Export Km	l File(K)		4.122	48	9	0.8	0.8	A	Yes				2022-12-31 15:03:5
牛背薖02 · GIZ002 · 长	035760067	2022-12-31 00:00:42	E	108.8144500	N	19.3242400	3	Statistics(S	)		4.143	110	13	0.7	0.7	A	Yes				2022-12-31 00:04:1
牛背驢02・GIZ002・长	035760067	2022-12-30 21:00:30	Ε	108.8143400	N	19.3242900	88) -	Selection			4.158	256	4	1.4	1.0	A	Tes				2022-12-31 00:04:1
牛背驢02・GIZ002・长	035760067	2022-12-30 18:00:45	Ε	108.8192600	H	19.3284100	0.0		30.0	27.6	4.161	1065	16	0.6	0.7	A	Yes				2022-12-31 00:04:1
牛背骥02 · GIZ002 · 长	035760067	2022-12-30 15:00:19	E	108.8340100	N	19.3153800	0.0	49	47.0	31.4	4.191	2433	6	1.1	0.9	A	Yes				2022-12-31 00:04:1
牛背驢02・GIZ002・长	035760067	2022-12-30 12:00:42	Ε	108.8349700	H	19.3139700	4.4	23	37.0	33.0	4.164	3043	6	1.0	0.9	Ä	Tes			-	2022-12-31 00:04:1
牛背驢02・GIZ002・长	035760067	2022-12-30 09:00:42	Ε	108.8929800	H	19.3108800	0.0	4	109.0	25.0	4.125	1638	12	0.7	0.7	A	Yes				2022-12-30 09:04:1
牛背薖02・GIZ002・长	035760067	2022-12-30 06:00:19	E	108.9539400	N	19.3256100	0.0	242	84.0	24.0	4.137	71	9	0.9	0.8	A	Tes				2022-12-30 09:04:1
牛背號02 · GIZ002 · 长	035760067	2022-12-30 03:00:19	Ε	108.9541700	H	19.3256500	0.0	101	138.0	24.1	4.140	94	12	0.7	0.8	A	Tes			-	2022-12-30 09:04:1
牛皆職02・GIZ002・长	035760067	2022-12-30 00:00:42	E	108.9539600	н	19.3258200	0.0	111	91.0	26.7	4.131	57	16	0.6	0.8	A	Yes				2022-12-30 09:04:1

### Hunan Global Messenger Technology Co., Ltd

Room 1004, Building B2, Huanchuang Enterprise Plaza, 2450 Yuelu West Avenue, High-tech Zone, Changsha City, China Tel: +86-731-85568037 E-mail:market@hqxs.net Web:www.gm-tracking.com



Figure 5.1 create track

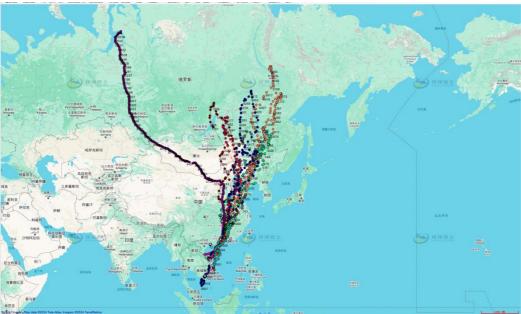


Figure 5.2 track map interface

# **5.2.Export Track Data**

In the location data management window, select "Export Excel File", "Export Shp File" and "Export Kml File" in the right-click menu, to export all row data as Excel / csv, Shape file, Kml format files, the coordinate system of the exported data is Wgs 84 geographic coordinates, or select a row to right-click the select row to export the data of the row.

○ Last 1000 ~ d	ays 0	By year 2024 $\sim$		) Time Range:	20	24-05-23 00:0	0:00	- 20	24-05-23 23	3:59:59		More	g 🔍	Query	r		Data st	andards
Device	IMEI	Time	EW	Longi tude	MS	Latitude	Speed	Course	Altitude	Temperature	Voltage	Activity	Satellites	HDOP	VIOP	PrecisionGrade	Validity	Transmission Time
牛背驢02・GIZ002・长	035760067	2023-10-19 15:00:21	E	108.7975500	N	19.2318100	0.0	266	7.0	35.5	4.044	2860	15	0.8	0.7	A	Yes	2023-10-26 12:04:1
牛背蠻02・GIZ002・长	035760067	2023-10-19 12:00:21	Ε	108.7981700	N	19.2313300	0.0	337	19.0	32.0	3.993	551	7	1.0	0.9	A	Yes	2023-10-26 12:04:1
牛背蠻02・GIZ002・长	035760067	2023-10-19 09:00:37	E	108.7879900	N	19.2335500	0.0	325	14.0	32. 3	3.885	2317	8	0.9	0.8	A	Yes	2023-10-26 12:04:1
牛背驢02・GIZ002・长	035760067	2023-10-19 06:00:41	Ε	108. 7985100	N	19.2078400	0.0	306	30.0	30.6	3.861	154	11	0.7	0.7	A	Yes	2023-10-26 12:04:1
牛背驢02・GIZ002・长	035760067	2023-10-19 03:00:25	E	108.7983700	н	19.2078600	0.0	310	35.0	29.5	3,918	141	6	1.2	0.8	A	Tes	2023-10-26 12:04:1
牛背驢02・GIZ002・长	035760067	2023-10-19 00:00:42	Ε	108. 798480 💡		Create Track	(F)		10.0	29.0	3.885	131	10	0.8	0.8	A	Yes	2023-10-19 15:04:2
牛背驢02・GIZ002・长	035760067	2023-10-18 21:00:42	Ε	108. 798480	5	Convert to In	valid Da	ta(T)	49.0	28.1	3.879	244	12	0.8	0.8	A	Yes	2023-10-19 15:04:2
牛背蠻02.GIZ002.长	035760067	2023-10-18 18:01:04	E	108.816850	1	Export Excel I	ril_(E)		01.0	25.8	3.804	141	5	2.1	0.9	В	Yes	2023-10-19 15:04:2
牛背驢02・GIZ002・长	035760067	2023-10-18 15:00:26	Ε	108.821450	2 e	Export Shape	diam'r		26.0	32.2	4.014	2467	6	1.4	0.9	A	Yes	2023-10-19 15:04:2
牛背蠻02・GIZ002・长	035760067	2023-10-18 12:00:22	Ε	108. 822480		Export Snape			31.0	37.6	4.065	1468	9	0.8	0.8	Å	Yes	2023-10-19 15:04:2
牛背驢02・GIZ002・长	035760067	2023-10-18 09:00:22	Ε	108.828880			Ie(N)		<b>39.0</b>	32.5	4.008	1753	7	1.2	0.8	A	Yes	2023-10-19 15:04:2
牛背蠻02・GIZ002・长	035760067	2023-10-18 06:00:20	E	108. 797770		Statistics(S)			19.0	27.3	3.954	73	10	0.8	0.8	A	Yes	2023-10-19 15:04:2
牛背鸇02.GIZ002.长	035760067	2023-10-18 03:00:22	Ε	108. 798500		Selection			• 22.0	28.5	3.969	89	7	1.6	0.8	A	Yes	2023-10-19 15:04:2
牛背蠻02・GIZ002・长	035760067	2023-10-18 00:00:19	E	108.7981200	H	19.2081300	0.0	271	133.0	28.3	3.993	89	10	0.8	0.8	A	Yes	2023-10-19 15:04:2
牛背鹭02.GIZ002.长	035760067	2023-10-17 21:00:18	Ε	108.7983700	N	19.2078800	0.0	60	52.0	31.9	4.008	239	6	1.1	0.8	A	Yes	2023-10-19 15:04:2
牛背蠻02・GIZ002・长	035760067	2023-10-17 18:00:42	E	108.8007600	N	19.2261600	0.0	8	22.0	31.4	3.948	951	6	1.2	0.8	A	Yes	2023-10-19 15:04:1
牛背職02・GIZ002・长	035760067	2023-10-17 15:00:20	E	108.8168400	N	19.2463400	46.2	323	39.0	28.0	4.020	1965	6	1.0	0.8	A	Yes	2023-10-19 15:04:1

Figure 5.3 data export

# 6.Map Operation

# 6.1. Online Map Selection

The platform supports three online maps: Tianditu, ESRI map and Google map, with vector map, satellite map, hybrid map, terrain map and other modes. The map coordinate system is Web Mercotor projection coordinates.

#### 6.2. Clear The Map

You can directly click the 'clear map' button to empty all the data on the map layer.



### 6.3. Map Browsing

(1) Pan: Press the left mouse button and then move the map.

- (2) Zoom in: Box the map on the map.
- (3) Zoom out: Box it down on the map to shrink the map.
- (4) Zoom to all: Zoom the map to the geometric range of all the objects.
- (5) Zoom to selection: Zoom the map to the geometric range of the selected object.
- (6) Prev view: Switch the map view to the previous view.
- (7) Next view: Switch the map view to the next view.

#### 6.4. Selection Function

(1) By rectangle: Draw a rectangle on a map to select geometric objects.

- (2) By polygon: Draw a polygon on a map to select geometric objects.
- (3) By circle: Draw a circle to select geometric objects on a map.

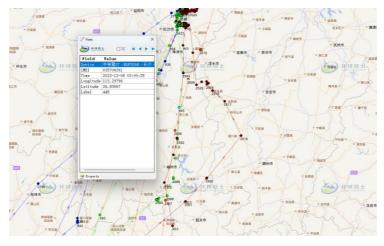
(4) Layer save: Select any site or line, and the right key can be saved as a layer, as shown in the figure below.



Figure 6.1 select the data to save as a layer

#### 6.5. Indentify

The [Indentify] tool can query the attribute information of graphic objects in the map window. Click the "Previous" and "Next" buttons in the information box to browse the adjacent objects in the same layer in turn, and can choose whether to display the selected objects in center; click on any location on the map to query information about that location. As shown in the figure below.



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×

#### Figure 6.2 graphic information query

Address information can be queried on the Web map. This function needs to right-click the map layer, click "selectable", and then click on any location on the map to query information about that location.

2 Unidentifed

		Field	¥alue
Manager	ų ×	Country	美国
Devices 💄	Layers	Province	
🛃 Map Laye	ers	City	
- 🔽 Tdt	Тар	District	
and the second second	🕄 Zoom To Layer(Z)	Address	阿拉斯加州
	Move Bottom(B)	Direction	东北
	*	Distance	4383 m
	Selectable(S)	Source	map. tianditu. gov. cn
	Property(Q)		

Figure 6.3 the address query function

#### **6.6 Measure Tools**

Multipoint distance measurements and area measurements were performed by mouse picking points in the map window, as shown in the following below.

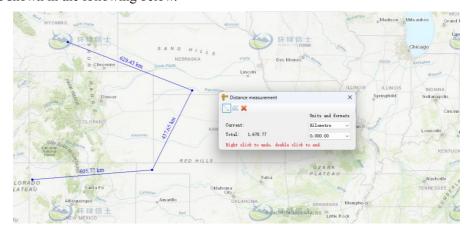


Figure 6.4 measured range

# 6.7. Map Option

Set the map background color, the coordinate format, the meridian offset degree, and the Tianditu key, as shown in the figure below.

💩 2D Map's Options	×
Background Colour	Meridian offset [-180, 180]
☑ GCJ02 Coordinate System Correction	60
🛃 Displayed lat/lon	Tianditu key
Coordinate format	
O Decimal Degrees	
O Degrees, minutes and seconds	OK Cancel

Figure 6.5 map option setting

#### 6.8. Full Screen Display

You can click the Full-Screen button to display the map in full screen.



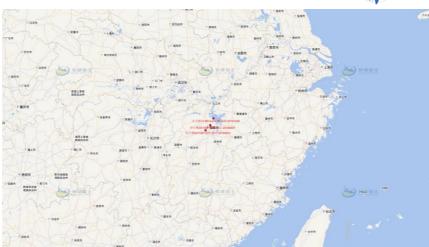


Figure 6.6 full screen show

### 6.9. Map Image Export

Users with data download permission can export the current map window content into pictures, supporting ordinary export pictures and HD export pictures.

(1) **Default export pictures:** After setting the image format, image quality, and export path of the exported image, export the current map content directly as the image.

(2) Exporting pictures in High Quality: Select the area to be exported in the box on the map, set the export map level, click [Cache Tile], when the tile cache is completed, click the [Export] button to generate high-quality pictures.

Тс	n Left: (	E45.4577781, N3	5099750)		0	
Extent	C	.t: ( <b>E</b> 62.4096730,				
🔿 Default		O High Qualit	у	Get	the	picture
Size	1543	pixels *	881	pixels		
Map Level	7/18	- +	0/70	Cache Ti	le	
Export Dir					)	
Frames				0/2		
				Expo	rt	

Figure 6.7 Map Export Interface

# 7. Layer Management

Layer Manager is similar to Windows resource Manager, which is divided into three nodes: layer list, layer group, and layer group. Layer group can contain multiple layers or multiple layer groups. Layer types are divided into points, lines, planes, vector layer, raster layer, and Web map layers.



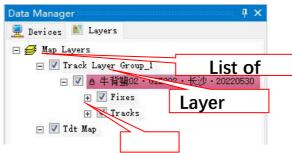


Figure 7.1 layer management

### 7.1. Layer List Operations

The layer list corresponds to the current map framework, and has the functions of adding map layer, Spatialite layer, and Wms layer, creating a new group, importing the offline group, and delete the map data.

ata Manager	ф х
🛃 Devices  🔝 Layer	5
🚽 🥩 🔳 ap Layer s	1010
🖃 🔽 Track 👎	Add Layer(A)
e 🗹 🕻 🚯	Add Spatialite Layer
±	Add Wms Layer(W)
- 🔽 Tdt Ma	New Group(N)
	Import Offline Group(L)
×	Remove All(D)
-	All Selectable(S)
53	Zoom To All(Z)
2	Property(Q)

Figure 7.2 layer list Menu

(1) Add layer: Add local spatial data to the map, with support for vector, raster, and image data, and the coordinate system for importing the data is automatically converted to the current map coordinates.

(2) Add Spatialite layer: The spatial data was read from the Sqlite database and added to the map.

(3) Add Wms layers: Get the WMS layers via a network request and add them to the map.

(4) New group: Create a new layer group node in the layer list.

(5) Import offline group: Offline data packets are imported to the map, and the coordinate system that imports the data is automatically converted to the current map coordinates. The offline layer group format is 2D Data group file (\*. dg 2), the account with data download permission can export the track data as an offline data package and share it with others.

- (6) Clear: Remove all the data in the map, and this operation does not delete the source data.
- (7) All selectable: Whether all of the vector layers in the batch setting map are selectable.
- (8) Zoom to all: Zoom the map to the maximum visual range that includes all of the objects.
- (9) Property: View the coordinate information for the map frame.

#### 7.2. Layer Group Operations



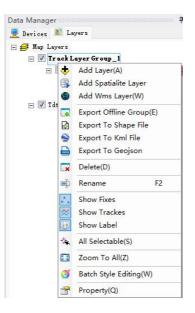


Figure 7.3 layer group menu

(1) Add layer: ditto.

(2) Add Spatialite layer: ditto.

(3) Add Wms layer: ditto.

(4) Export offline group: Users with data download privileges can export the currently selected layer group as an offline packet file (2D Data group file \*. dg2).

(5) Export files: You can choose to export the file as a Shape file, Kml file, or Geojson file

(6) Delete: Delete the currently selected layer group, and delete all the sublayer groups and layers below the layer group, and this operation does not delete the source data.

(7) Separate control track points, track line, and point numbers are shown : If the layer group type is a system-generated track layer group, you can individually control the visibility of track points, track lines, and track point numbers.

(8) All selectable: Batch sets whether all the vector layers in the layer group are optional.

(9) Zoom to all: Scale the map to the geometric range of all the objects in the selected layer group.

(10) **Property :** View the coordinate information of the selected layer group, and all the layer coordinate systems in the layer group are consistent.

(11) Batch style editing: Personalized the track points, track lines and so on in batches, as shown in the figure below.



Batch Style Editing Disable High Quality Rending	>
Fixes	
Color	• • • •
Size 8	
🕑 Outline	Tracks
Color (	
Width 1.0	🗌 Width 1.0 🌲
	OK Cancel

Figure 7.4 batch style editing

After selecting and right-click the track or the fixes, you can modify the style, as shown in the figure below.

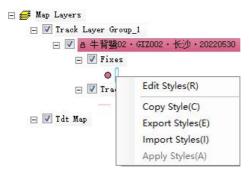


Figure 7.5 modify fixes, tracks styles

Symbol Type: Simple Symbol Type: Simple Simple Simple Color: Opacity:	
Symbal Type: Simple Simple Simple Calor: Opacity 1 Calor: Opacity 1 Color: Color: Opacity 1 Color: Color: Col	Preview:
Style: Illipse Caler: Opacity: Caler: Opacity: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Add to Custom Symbols
Outline	O Round

Figure 7.6 point and line symbolization setting

### 7.3. Layer Operation



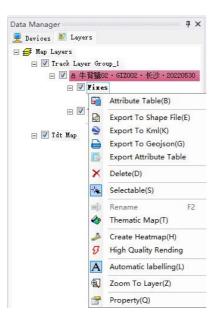


Figure 7.7 layer menu

(1) Attribute table : View all the attribute data of the selected layer, and right click to export the attribute

table or display it in the map, as shown in the figure below.

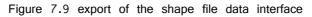
	Bevice List		ISS Data 📃 Mag	A ANDAR TOTAL	Sensor Data	- 10pm	ote Control	O Notifica		Fixes - Attribute T	aune					
Derices 📓 Layers	Device	DEI	Tine	Eff	Longitude	WS .	Latitude	Speed	Course	Altitude	Tenperature	Voltage	Activity	Satel	HDOP	VDOP
Nup Layers	牛粉蛋02-61	035760087	2022-05-30 18:00:31	2	113.45045	я	28.53303	0	320	132	32.57	4.032	898	6	1.8	10
□ ▼ Track Layer Group_1 □ ▼ 8 年育議び・612002・長沙・20220530	牛背號02 · GL	035760067	2022-05-00 21:00:42	2	113.45045	н	28.53308	0	145	117	30.4	4.008	677	8	1	0.9
- V Fixes	牛背髓02。GI	035760067	2022-05-31 00:00:52	2	113.45038	8	28.53303	0	30	122	30.68	3.964	518	6	1	0.8
•	4-198802 - GI	035760067	2022-05-01 03:00:43	2	113.45041	н	28.53308	0	345	112	30.23	3.966	746	10	1	0.8
😑 📝 Tracks	牛指辙02 · GI	035760067	2022-05-31 06:00:23	1	113 45058	8	28.53259	0	183	189	31.25	3.96	678	5	1.3	0.9
V Tát Map	牛留職02 · 61	035760067	2022-05-31 09:00:43		113.45806	8	28.5787	0	194	128	34.25	3.951	1652		2.4	0.8
a tur mak	牛皆雜02 · GI	035760067	2022-05-01 12:00:34	1	113.45026	н	28.53362	0	76	180	36.75	4.011	1659	5	1.8	0.9
	牛粉糖02 · GI	035760067	2022-05-31 15:00:19		113.44608		28.56816	0	225	73	37.66		2425		1.2	0.9
	牛留職02 · GI	035760067	2022-05-01 18:00:23		113.45099		28.53347	0	2	90	31.77	4.134	1838		1.3	0.8
	牛指辙02 · GI	035760067	2022-05-01 21:00:21		113.45074		28.53318	0	285	45	29.61	4, 119	492			0.8
	牛腳編02.61	035760067	2022-06-01 00:00:23		113.45088		28.53342	0	113	144	28.01		538	0	1.1	0.8
								u.								
	牛背腦02 · 61	035760067	2022-06-01 03:00:25	2	113.45078	н	28.53369	0	147	144	28.25	4.009	440		1.6	0.9
	牛猪獾02。GI	035760067	2022-06-01 06:00:29	2	113.45037	я	28.53296	0	220	48	29.51	4.074	637		2.3	0.9
	牛貨鐵02 · GI	035760067	2022-06-01 09:00:25	2	113.45607	H	28.58119	0	204	271	33.84	4.086	1944	4	2.6	0.9
	牛背鹱02 · GI	035760067	2022-06-01 12:00:20	2	113.45075	8	28.5335	0	60	150	33.63	4.143	1365	5	1.2	0.9
	牛背骥02 · 61	035760067	2022-06-01 15:00:28	2	113.43753	н	28.56736	0	264	147	41.87	4.197	1289	8	0.9	0.9

Figure 7.8 attribute table window

(2) Export to shape file : Users with data download privileges can export the currently selected layer as an

offline data file in a Shape file format (\*. And shp), as shown in the figure below.

🖢 Export shape files		×
Coordinate System		
○ GCS_WGS_1984		
• WGS_1984_Web_Mercator_Auxiliary_Spher	re	
User Defined Coordinate System GROGCS ["GCS_WGS_1984", DATUM["D_WGS_19 37, 298.257223562997]], PKIMEM["Greenwi 2925199433]]	984", SPHEROID ["WGS_1984 ch", 0], UNIT ["Degree", 0	", 63781 .017453
Export File		
C:\Users\Mayn\Documents\牛背鹭02 · GIZ002 · 长	沙 • 20220530. shp	
	Export	Cancel



(3) Export to Kml : Users with data download permission can export the currently selected layer as an

offline data file as a kml file.



(4) Export to Geojson: Users with data download permission can export the currently selected layer as an offline data file as a Geojson file.

(5) Export attribute table : Users with data download privileges can export the attribute table of the currently selected layer as an excel file.

(6) Delete : Remove the specified layer from the current layer group does not delete the data source file.

(7) Selectable: Set whether the objects in the vector layer are optional. After setting the selection, you can view the layer object information.

(8) Thematic map: Modifies the various styles of the current layer.

Custom	🔿 Uni que	Values 🔿 G	uantities	Field:		1 the second sec
Use Colo HSL RC			Symbol O	Values	Legend Text	Count 1722
Hue Range	2:					
Saturati	on Range:					
Li ghtnes:	s Range:					
)Size Rad	nge	Edit				
	۰	From:				
-		5 🚖				
c	0					
		-				
					OK Ca	ncel Apply

Figure 7.10 thematic map setting

(9) Create heatmap: Select the point layer to create the heat map, and the gradient can be personalized, as shown in the figure below.

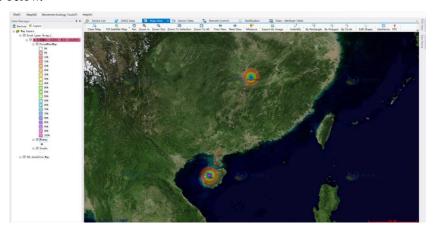


Figure 7.11 heat map interface



(10) High quality rending: After the high-quality rendering mode is opened, you can set up a richer point symbols and lines, but the graphics rendering speed will be reduced, it is not recommended to open.

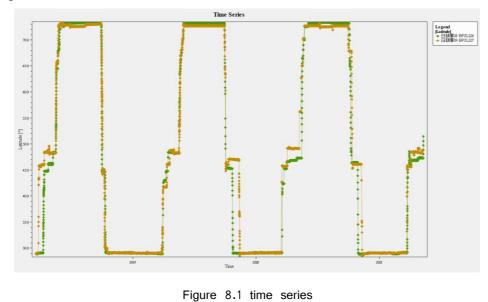
- (11) Automatic labelling: Disows or hides the number of trace points.
- (12) Zoom to layer: Zoom the map to the maximum range of the current layer.
- (13) Property: View the scope of the layer space, the number of figures, the coordinate information, etc.

# 8. Trace Statistics And Analysis

The station has statistical functions such as time sequence and aggregation. Right-Click "Statistics" in the [GNSS Data] window to open the Statistics Chart.

#### **8.1.Time Series**

Time series of the longitude, latitude, height, speed, and temperature and other attributes of the track data, as shown in the figure below.



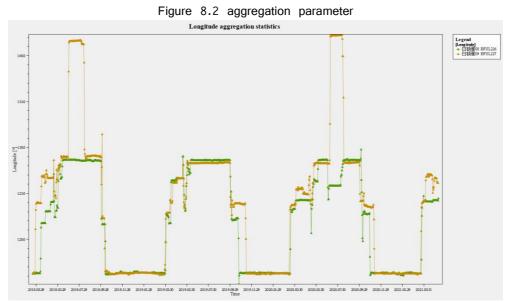
# 8.2. Aggregation

The aggregation of the longitude, latitude, height, speed and temperature of the track data can be analyzed, as shown in the following figure.

Statistics Item		0.001	<b>O 1 1 1</b>
🗿 Longi tude	O Latitude	() Altitude	O Activity
🔿 Speed	🔿 Voltage	🔿 Temperatu	re
() Max	⊖ Min	O Mean	🔿 Sum
Group by Day	√ In	terval 1	Hours

Room 1004, Building B2, Huanchuang Enterprise Plaza, 2450 Yuelu West Avenue, High-tech Zone, Changsha City, China Tel: +86-731-85568037 E-mail:market@hqxs.net Web:www.gm-tracking.com





# **8.3.Time Period**

Figure 8.3 aggregation

The longitude, latitude, height, speed, temperature and other attributes of the track data can be statistical analyzed on time period, as shown in the figure below.

🔿 Speed 🔷 Voltage 🔿 Temperature
me Period Type
🔿 Months 🔿 Days 💽 Hours
(Segment is separated by " ")
6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17   18, 19, 20, 21, 22, 23, 0, 1, 2, 3, 4, 5

Figure 8.4 time period parameter



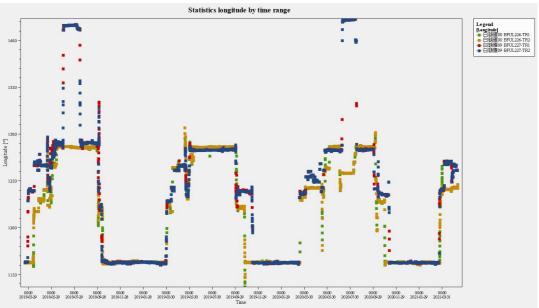


Figure 8.5 time period parameter interface

### 8.4. Activity Statistics

The activity amount of the device over a period of time can be color distinguished, and the activity amount can be referred to the color table on the right

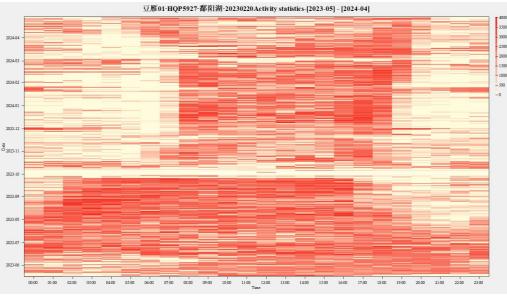


Figure 8.6 activity statistics

# **8.5.** Tracking Duration

One working time of the equipment can be displayed statistically, as shown in the figure below.



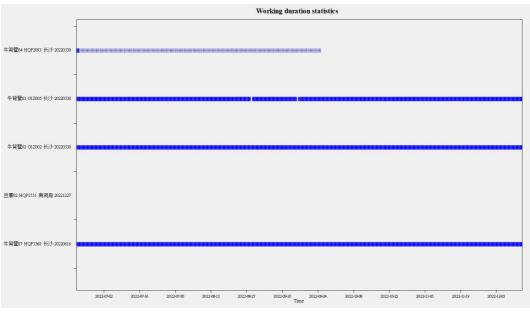
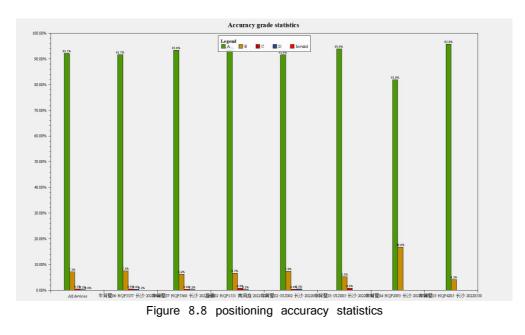


Figure 8.7 tracking duration statistics

# 8.6. Positioning Accuracy

The statistics of the positioning accuracy of the track data, and the number and percentage of loci of different location levels can be counted, as shown in the figure below.



# 8.7. Fixes Frequency

The statistics of the fixes frequency of the device over a period of time shows that if there are multiple species in the data, the union statistics or single species statistics can be selected.



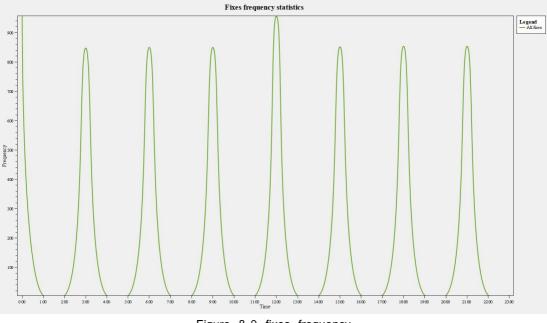


Figure 8.9 fixes frequency

## 8.8. Series Symbology, View All, Export

You can style modify the linetype of the display chart, restore the default display of the data, and export the current data chart.

	🦢 Line Symbology		×
	Size and Thickness		
	Marker Size 3	Stroke Thickness 2	-
	Marker Type		
	O Random	O Uniform None	~
	Marker Fill Color		
	🗿 By Stroke	🔿 Uniform	
	Marker Outline		
	O By Stroke	🔿 Uniform 📕	
	Outline Thickness 1	<b>▲</b>	
	Line Style		
	🔘 Random	O Uniform Solid	~
	Line Color		
	Random	O Uniform	
	Smooth line		ncel
	🥑 Smooth line	Ok Ca	ncel
	🥑 Smooth line		ncel
	🥑 Smooth line	Ok Ca	noel
cpo	🥑 Smooth line	Ok Ca	ncel
	Smooth line Figure 8.1	Ok Ca	ncel
	Smooth line Figure 8.1	Ok Ca	ncel
out	Smooth line Figure 8.1	Ok Ca	noel
out ew	Smooth line Figure 8.1	Ok Ca	ncel
out ew	Smooth line Figure 8.1 rt plot view file zoom 1.0	0k Ca 10 line symbology [1.0 - 5.0]	[

#### Hunan Global Messenger Technology Co., Ltd



## 9. Movement Ecology Tools

The platform functions as a tool for movement ecology. Select the track layer, click [Movement Ecology Tools] in the main menu, and select the minimum convex polygon (MCP), kernel density estimator (KDE), and identify habitat (T-DBSCAN), and split fixes by time.

File(F)	Map(M)	Mo	ovement Ecology Tools(T)	Help(H)
Data Mana			Minimum Convex Polygor Kernel Density Estimation	
环球	1000 million		Identify habitat (T-DBSCA	AN)
37 sele	ected.	1	Split fixes by time	

Figure 9.1 movement ecology tools

#### 9.1.Minimum Convex Polygon(MCP)

Select the track layer or track layer group, select the time field according to the requirements, and calculate the minimum convex polygon algorithm. The result line layer and surface layer can be generated on the map. The attribute contains the information of selection percentage, area and so on, as shown in the figure below.

uput Data Time Field Time			1 0 11 1 1
andardization		Unique Anima	1 O All Animals
Tag	Fixes	Schoener Index	Swihart_Slade Index
<b>牛背嵹02・GIZOO2・长沙・20220530</b>	1722	0.00037	6, 38272
sopleth(&) 99, 95, 90, 50		<table-cell> Lines (</table-cell>	 ] Polygons

Figure 9.2 minimum convex polygon setting



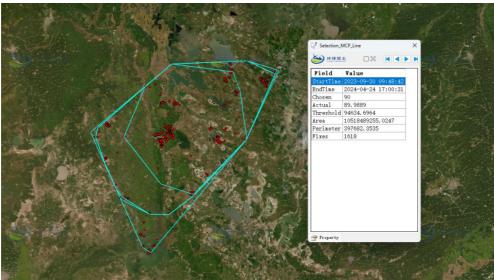


Figure 9.3 minimum convex polygon (MCP) calculation model

#### 9.2.Kernel Density Estimator (KDE)

Select the track layer or track layer group, select the time field, and set the generating kernel method, grid parameters and broadband (kernel smoothing) parameters, and calculate the kernel density analysis for each individual or all individuals through the kernel density estimation algorithm. The parameter selection interface is shown in the following figure.

Input Data Time Field Time	~	🗿 Uni que	Animal 🔿 All Animal	Ls
Standardization				
Tag	Fixes	Schoener Index	Swihart_Slade Index	Ste
牛背鸀02.GIZ002.长沙.20220530	1722	0.00037	6. 38272	255
4 → Adjusted to unit variance (smoothing) x and y. If the variance is lar	othing pe rge, it i	s recommended to a	djust the data proportion	nce of ns)
☐ x and y. If the variance is lar	othing pe rge, it i	s recommended to a Raster Paramet Cell Size 2	djust the data proportion ers 25	ns) m
→ x and y. If the variance is lar Kernel Methods ○ Fixed Kernel ○ Adaptive Kernel	othing pe rge, it i	s recommended to a Raster Paramet Cell Size 2 Expansion d	djust the data proportion ers 139562 v + 0	ns)
<ul> <li>⊥ x and y. If the variance is lar</li> <li>Kernel Methods</li> <li>○ Fixed Kernel</li> <li>○ Adaptive Kernel</li> </ul>	othing pe	s recommended to a Raster Paramet Cell Size 2	djust the data proportion ers 139562 v + 0	ns)
<ul> <li>x and y. If the variance is lar</li> <li>Kernel Methods</li> <li>Fixed Kernel</li> <li>Adaptive Kernel</li> <li>Smoothing Parameters (Bandwidth)</li> </ul>	rge, ít í	s recommended to a Raster Paramet Cell Size 2 Expansion d	djust the data proportion ers 139562 v + 0	ns)
<ul> <li>x and y. If the variance is last Kernel Methods</li> <li>Fixed Kernel</li> <li>Adaptive Kernel</li> <li>Smoothing Parameters (Bandwidth)</li> <li>Href (Reference Bandwidth)</li> </ul>	rge, ít í	s recommended to a Raster Paramet Cell Size 2 Expansion a Scaleing Fac	djust the data proportion ers 139562	ns)

Figure 9.4 kernel density estimator setting





Figure 9.5 nuclear density (KDE) calculation model

## 9.3. Identify Habitat(T-DBSCAN)

Select the track layer or track layer group, select the species type, set the habitat parameters and analysis result parameters, and generate the habitat fixes layer and migration route layer. The parameter selection interface is shown in the figure below.

	T-DBSCAN)		
Species type:	O Bird	🔿 Mammal	
The parameters of	É stopover		
The maximum radi	us 25.0		🔹 Km
The minimum stay	v duration 3.0		🔹 Day
The parameters of	f analysis resul	ts	
Breaks of saty	duration (separ	ate by ,)	
3, 7, 14, 30, 5	50, 70		(Day)
-Trajectory sam	pling		
-Trajectory sam Simplify [1-2			
Simplify [1-2	0]		2
Simplify [1-2	<b>::</b> ]		
Simplify [1-2	<b>::</b> ]		

Figure 9.6 identify habitat Parameter settings



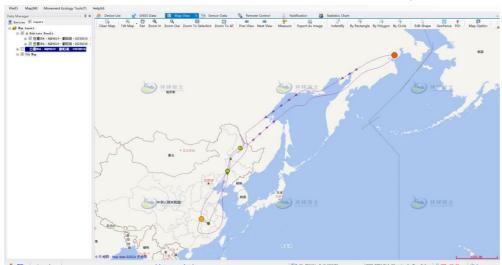


Figure 9.7 identify habitat result

## 9.4 Split Fixes By Time

Select the track layer or track layer group, and select the division items (such as by month, quarter, day and night) to generate the division result layer, as shown in the following figure.

Data Manager 🛛 🕴 🕇 🕇
💂 Devices 🔊 Layers
🖃 🛃 Tap Layer s
🖃 🔽 🛆 Split by month
🕀 🔽 January
🕂 📝 February
Ŧ 📝 March
Ŧ 📝 April
🛨 📝 May
Ŧ 🔽 June
+ 🔽 July
+ 🔽 August
🕀 🔽 September
+ V October
+ V November
🕀 🔽 December
A Split by day and night
+ V Night
🛨 🗹 Daytime ল 🔽 👌 Split by quarter
□ ♥ △ Split by quarter IF ♥ Winter
+ V Autumn
+ V Summer
+ V Spring
田 正 CP1118     豆 雁054 · HQP6019 · 鄱阳湖 · 20230218     □
Tdt Map

Figure 9.8 different split by



Figure 9.9 comparison of different split fixes

# 10. Sensor Data

#### 10.1 Data Queries

Select the device with extended sensors in the device list, and you can query the sensor data of multiple devices according to the latest [Recent] and [Time Period] two time modes, the types of sensors are acceleration sensors, GNSS sensors, temperature sensors, pressure sensors, water depth sensors, image, video, audio sensors, illuminance sensors, humidity sensors, red & infrared light sensors, the type will be displayed in the upper left corner of the interface, and the query interface is shown in the following figure.

		【加速度】 O Last		10 0		<b>]</b> ▼ - 2024-05-23 23		Query	
121.2	1 10000	20		2	1		3 7 8	1 2 2 3	
Device	IMEI	Tine	Acc raw x	Acc raw y	Acc raw z	Acc x (mg)	Acc y (ng)	Acc z (ng)	ODBA
		2024-05-22 21:50:09.900	-430	289	3545	-209.96	141.11	865.48	221.6064
		2024-05-22 21:50:09.800	-708	755	4027	-345.7	368.65	983.15	259.3506
		2024-05-22 21:50:09.700	-532	257	3222	-259, 77	125, 49	786.62	266.2842
		2024-05-22 21:50:09.600	-536	841	4563	-261.72	410.64	1114.01	348.8037
		2024-05-22 21:50:09.500	-274	-1	2540	-133.79	-0.49	620.12	683. 7646
		2024-05-22 21:50:09.400	-703	747	5014	-343.26	364. 75	1224.12	493.9697
		2024-05-22 21:50:09.300	-684	75	2287	-285.16	36.62	658.35	604.3213
and the second second		2024-05-22 21:50:09.200	-631	920	5605	-259.28	449.22	1368. 41	644.2139
10. Sec. 1.		2024-05-22 21:50:09.100	-366	150	2135	-178.71	73.24	521.24	664.9658
and the second se		2024-05-22 21:50:09.000	-702	854	5459	-342. 77	416.99	1332.76	654.3701
		2024-05-22 21:50:08.900	-339	137	1817	-165.53	66.89	443.6	624. 5361
		2024-05-22 21:50:08.800	-653	735	5590	-270.02	358.89	1364. 75	693.0908
and the second se		2024-05-22 21:50:08.700	-304	195	1679	-148.44	95.21	409.91	646. 9971
10 C	1000	2024-05-22 21:50:08.600	-599	824	5892	-292.48	402.34	1438.48	832, 7393
10 C 10 C 10 C	1.000	2024-05-22 21:50:08.500	-270	375	2064	-131.84	183.11	503.91	481. 7139
10 C 10 C 10 C	A CONTRACTOR	2024-05-22 21:50:08.400	-266	437	4644	-129.88	213.38	1133. 79	304.126
10 C 10 C 10 C	10000	2024-05-22 21:50:08.300	-479	692	3223	-233.89	337.89	786.87	271.3135
		2024-05-22 21:50:08.200	-114	9	3938	-55.66	4.39	961.43	414.9658
		2024-05-22 21:50:08.100	-653	822	4087	-318.85	401.37	997.8	417.4561
and the second se		2024-05-22 21:50:08.000	-299	235	3663	-146	114.75	894.29	147.1436
		2024-05-22 21:50:07.900	-561	798	4043	-273.93	389.65	987.06	276.5869
		2024-05-22 21:50:07.800	-324	-8	2590	-158.2	-3.91	632.32	579.6143
10 10 10 10 10 10 10 10 10 10 10 10 10 1		2024-05-22 21:50:07.700	-667	854	4866	-276.86	416.99	1187.99	507.7881
		2024-05-22 21:50:07.600	-219	54	2268	-106.93	26.37	553.71	687.0361
		2024-05-22 21:50:07.500	-767	896	5166	-374.51	437.5	1261.23	699, 1943
	1000	2024-05-22 21:50:07.400	-620	116	1955	-253.91	56.64	477.29	586.2061
		2024-05-22 21:50:07.300	-921	798	5445	-449.71	389.65	1329.35	794.6533
10 March 10	1000	2024-05-22 21:50:07.200	-458	267	1753	-223.63	130.37	427.98	592.0654
		2024-05-22 21:50:07.100	-728	800	5795	-355.47	390.62	427.90	786, 8408
		2024-05-22 21:50:07.100	-728	279	1938	-365.47	136.23	473.14	620, 1416

Figure 10.1 sensor data query interface

Image, video, and audio sensor data can be viewed, played, downloaded, and downloaded in batches, as shown in the following figure.



Device	DEL	Time	Longi tude	Latitude	Altitude	File Name	File size	View	DownLoad
梅花廳01(雌)・ZJQLO01・20221110	033678527	2024-04-05 12:02:50	119.1234200	30. 3053800	1186.00	P24040512025010.jpg	360.2 K	View	DownLoad
梅花鹿01()睢)・ZJQL001・20221110	033678527	2024-04-05 12:02:45	119.1234200	30.3053800	1186.00	P24040512024510.jpg	358.6 K	View	DownLoad
梅花鹿01(雌)・ZJQLO01・20221110	033678527	2024-04-05 12:02:39	119.1234200	30.3053800	1186.00	P24040512023910. ipg	363.8 K	View	DownLoad
梅花鹿01(雌)・ZJQL001 · 🐸 Image Viewer						– 🗆 X	362.4 K	View	DownLoad
<sub>梅花鹿01(雌)・ZJQLO01</sub> 、环球信士					20,	24-04-03 15:02:57	385.2 K	View	DownLoad
梅花鹿01(雌)・ZJQLO01・	12						440.4 K	View	DownLoad
梅花鹿01(雌)・ZJQL001・	PA.			Mary	C 4	DO LA	473.5 K	View	DownLoad
梅花鹿01(雌)・ZJQLO01・	119 22			ALCON.			486.4 K	View	DownLoad
梅花鹿01(雌)・ZJQL001・					R. Cha		231.0 K	View	DownLoad
梅花鹿01(雌)・ZJQL001・		ZA		CALLENVE		SF /S	260.3 K	View	DownLoad
梅花鹿01(雌)・ZJQLOO1・					1 4 A	A LANDAN	200.7 K	View	DownLoad
梅花鹿01(雌)・ZJQL001・	and the state						308.4 K	View	DownLoad
梅花鹿01(雌)・ZJQLOO1・		112	17			1 Block and	261.1 K	View	DownLoad
梅花應01(雌)・ZJQL001・		man I man	nille	11/1/1 1		1 El Cart	274.6 K	View	DownLoad
梅花鹿01(雌)・ZJQL001・						At Charles	290.0 K	View	DownLoad
梅花鹿01(雌)・ZJQLOO1・			Kaptal			AT A ST	286.4 K	View	DownLoad
梅花鹿01(雕)・ZJQLOO1・			A MAR				278.4 K	View	DownLoad
梅花鹿01(雌)・ZJQLO01・						Martin 18	340.4 K	View	DownLoad
梅花鷹01(雌)・ZJQLOO1・						STAL STA	302.1 K	View	DownLoad
梅花鹿01()睢)・ZJQL001・							311.7 K	View	DownLoad
梅花鹿01(雌)・ZJQLOO1・					3-4-1 × 18	1020 A 10	39.9 K	View	DownLoad
梅花鹿01(雌)・ZJQL001・							40.1 K	View	DownLoad
梅花鹿01(雌)・ZJQL001・							39.7 K	View	DownLoad
梅花鹿01(雌)・ZJQL001・							39.8 K	View	DownLoad
梅花鹿01(雌)・ZJQL001・20221110	033678527	2024-04-03 00:03:29	119.1192100	30. 3020800	1133.00	F24040300032910.jpg	39.6 K	View	DownLoad
梅花鹿01(雌)・ZJQL001・20221110	033678527	2024-04-03 00:03:23	119.1192100	30. 3020800	1133.00	P24040300032310. jpg	39.8 K	View	DownLoad
梅花鹿01(雌)・ZJQL001・20221110	033678527	2024-04-03 00:03:18	119.1192100	30. 3020800	1133.00	P24040300031810.jpg	40.0 K	View	DownLoad
梅花鹿01(雌)・ZJQL001・20221110	033678527	2024-04-03 00:03:12	119.1192100	30. 3020800	1133.00	F24040300031210.jpg	39.9 K	View	DownLoad
梅花鹿01(雌)・ZJQLOO1・20221110	033678527	2024-04-03 00:03:07	119.1192100	30. 3020800	1133.00	P24040300030710.jpg	40.4 K	View	DownLoad
梅花鹿01(唯)・ZJQL001・20221110	033678527	2024-04-03 00:03:01	119.1192100	30.3020800	1133.00	F24040300030110.jpg	40.5 K	View	DownLoad

Figure 10.2 Image data query interface

#### 10.2. Data Export

After the data query is successful, you can right-click the row in the list to export the selected records, or export all records in Excel table, as shown in the following figure.

IMEI	Time	Acc raw x	Acc raw y	Acc raw z
035478066	2023-10-29 01:40:07.900	736	241	3636
035478066	2023-10-29 01:40:07.800	699	267	3749
035478066	2023-10-29 01:40:07.700	547	383	3784
035478066	2023-10-29 01:40:07.600	575	xport selection	3913
035478066	2023-10-29 01:40:07.500	632	418	4006
035478066	2023-10-29 01:40:07.400	695	434	3870
035478066	2023-10-29 01:40:07.300	734	421	3911

Figure 10.3 data export

# **11.Remote Control**

Select the remote control window in the top navigation bar, where you can search according to the keywords, and all the instructions sent can be revoked within two minutes through the right click.



Derives 🔉 Layers		Xey:		<u> </u>	Tip: Cuncellation of instruction sem	ding allowed :	eithin 2 sis	ates.				
読	T Show all	Device	DEI	Renote Control	Detail	Rolay Caption	Sender	Status	Sending Time	Extinated Applic	Actual Applicati	 
zalected R Device List-[13]	Clear selection	大約截20 · FEME378 · 鸭	035720913	Change cellect times	VTC +08:00 [00:00, 01:00, 02:00, 03:0		OR Buckstage	COMM_ESSION	2024-03-11 10:55:36			
□-□=> 吉林省林业科学研究	按(孔維売)-[1]	大約動20 · FEME378 · 鸭	035720913	Change cellect times	VTC +08:00 (00:00, 01:00, 02:00, 03:0		OR Backstage	SUCCESSFUL.	2024-03-09 08:54:13	2024-03-11 12:04:21	2024-03-09 09:04:27	
□□□ 與花慶-[1]	LAFOI	盐电东方白鹳2-45880	035708991	Change cellect times	VTC +08:00 (00:00, 01:00, 02:00, 03:0		199802	COMM_ESSION	2024-03-08 09:21:02	-		
新工業物給開家級自 第二条約給開家級自 第二条約給開家級自 2022年初第一(2)	然保护区管理局-[12]	反喻計19 · FIME309 · 來	035296021	Change cellect times	NTC +08:00 [00:00, 03:00, 08:00, 09:0		OR Backstage	SUCCESSFUL	2024-03-08 08:44:39	-	2024-03-08 09:03:59	
	E) - ZJQL001 - 20221110	绿头鸭26(註) - 73823	035739616	Change callect times	NTC +08:00 [00:00, 01:00, 02:00, 03:0		OR Backstage	SUCCESSFUE.	2024-02-29 14:01:05	2024-02-29 16:04:39	2024-02-29 16:04:18	
	#) 死亡・ZJQL019・2022111	\$6502 · 7372245 · 丹东	035755737	Change callect times	NTC +08:00 [00:00, 01:00, 02:00, 03:0		A lookstage	SUCCESSION	2024-02-29 13:48:54	-	2024-03-02 00:05:22	
	) · ZJQL008 · 20231122	· · · · · · · · · · · · · · · · · · ·	046062868	Change cellect times	NTC +08:00 [00:00, 01:00, 02:00, 03:0		PINLS	SUCCESSION.	2024-02-29 13:02:50	-	2024-03-01 12:04:57	
	<ol> <li>1)、1,36L002、清宗峰、201</li> </ol>	盐电东方白翻2号-10980	035708991	Change cellect times	NTC +08:00 [00:00, 01:00, 02:00, 03:0		SOBBLA	COMM_ESSION	2024-02-29 10:27:52	-		
	E) · ZJQL005 · 資奈崎 · 201 ) · ZJQL009 · 資奈崎 · 201	盐电东方白鹳2号-10880	035708991	Change postback time	Transmission every 5 fixes		VINBOS	COMM_ESSION	2024-02-29 10:27:48		12	
	<ol> <li>2.5(1007)·清宗峰·200</li> </ol>	的尾膀胱14 · 7182246 ·	035725706	Change cellect times	UTC +08:00 (00:00, 06:00, 12:00, 18:00)		OR Buckstage	SUCCESSFUL.	2024-02-29 09:30:02	-	2024-02-29 11:08:09	
	<ul> <li>2.3%L010 · 資奈峰 · 200</li> <li>4.) · 2.7%L011 · 資奈峰 · 200</li> </ul>	黑祖长脚鹬14 · FDM2456	035670688	Change cellect times	VTC +08:00 (00:00, 06:00, 12:00, 18:00)		OR Backstage	SUCCESSFUL.	2024-02-27 07:35:01	-	2024-02-28 15:04:05	
	<ol> <li>2.JRL012 · 資沖結 · 200</li> <li>2.JRL013 · 資沖結 · 200</li> </ol>	小白骥25(幼) - 36[840	046067943	Change cellect times	VTC +08:00 [00:00, 04:00, 08:00, 12:0		OR Backstage	2000,23308	2024-02-27 07:34:58	-		
	<ol> <li>2.3%L015・資序編・200</li> </ol>	円顶離15、19691033、盐	005685505	Change callect times	NTC +08:00 [00:00, 02:00, 04:00, 08:0		OR Backstage	SUCCESSFUL	2024-02-26 11:08:30	2024-02-26 15:04:51	2024-02-26 15:04:48	
		丹顶鳍11、1983029、盐	035159416	Change callect times	NTC +08:00 [00:00, 02:00, 04:00, 06:0		I lookstage	SUCCESSIVE.	2024-02-26 11:08:09	-	2024-02-27 00:04:28	
		黑斑长脚翻14 · FEMEADS	035670608	Change callect times	NTC +08:00 [00:00, 06:00, 12:00, 18:00]		I lookstage	COMM_ESINCE	2024-02-26 00:26:00	-		
		小白鑾25(幼) - NGP40	046087943	Change cellect times	NTC +08:00 [00:00, 06:00, 12:00, 18:00]		OI Dockstage	COMM_ESSION	2024-02-26 08:26:00	-		
		反爆翻17·HQP6347·奥	035702630	Change cellect times	NTC +08:00 [00:00, 06:00, 12:00, 18:00]		OR Buckstupe	SUCCESSFUL	2024-02-26 08:25:58		2024-03-03 15:04:04	
		丹顶離13 · ¥100031 · 盐	035709346	Change cellect times	UTC +08:00 [00:00, 02:00, 04:00, 06:0		OR Buckstage	SUCCESSFUL.	2024-02-23 13:57:54	2024-02-23 14:04:26	2024-02-24 10:07:13	
		円顶離13・1000031・盐	035709346	Change cellect times	VTC +08:00 [00:00, 02:00, 04:00, 06:0		Of Backstage	SUCCESSFUL	2024-02-23 13:57:54	2024-02-23 14:04:26	2024-02-24 10:05:24	
		反唱剧17·HQ26347·索	035702630	Change cellect times	UTC +08:00 [00:00, 06:00, 12:00, 18:00]		Of Backstage	COMM_EBBOR	2024-02-22 17:21:06	-	-	
		小白毓25(幼) · MQP40	046087943	Change callect times	NTC +08:00 [00:00, 06:00, 12:00, 18:00]		OR Backstage	20162_23100	2024-02-22 16:41:02	-	14	
		黑道长脚都14 · FIME456	855073200	Change callect times	NTC +08:00 [00:00, 06:00, 12:00, 18:00]		OR Inckstage	0.005_PM07	2024-02-22 16:24:10	-	1.0	
		东方白翻05 · \$\$\$\$\$015 ·	035706938	Change callect times	NTC +08:00 [00:00, 02:00, 04:00, 06:0		I lookstage	SUCCESSFUL	2024-02-22 11:16:51	2024-02-22 12:03:59	2024-02-22 12:04:25	
		黑斑长脚翻15 · FEME453	035662610	Change cellect times	NTC +08:00 E00:00. 03:00. 06:00. 09:0		OI Iookstage	SUCCESSFUL	2024-02-22 09:35:56	-	2024-02-23 06:04:03	
		黑斑长树酸14 · FDME456	035670688	Change cellect times	UTC +08:00 [00:00, 06:00, 12:00, 18:00]		OI Duckstage	COMM_EBROR	2024-02-22 09:35:36			
		小白鑾25(幼) · HQP40	046087943	Change callect times	VTC +08:00 [00:00, 04:00, 08:00, 12:0		Ol Buckstage	COMM_EXER	2024-02-21 15:01:23	-	-	
		盐电东方白槽2-45880	035708991	Change postback time	Transission every 5 fires		10002	COMM_EXER	2024-02-21 10:54:39	-	-	
		盐电东方白槽2-6-65820	035708991	Change cellect times	VTC +08:00 [00:00, 01:00, 02:00, 03:0		10002	COMM_EBBOR	2024-02-21 10:54:28	-	-	
		中白臻06、HQP6868、金	035671389	Change callect times	NTC +08:00 [00:00, 12:00]		OR Backstage	SUCCESSFUE.	2024-02-20 16 54:10	2024-02-21 00:04:02	2024-02-21 00:04:11	
		盐电东方白翻公号K5800	035708991	Change callect times	NTC +08:00 [00:00, 01:00, 02:00, 03:0		1100302	COME_233008	2024-02-18 08:21:19	-	-	
		1022410	036413963	Change callect times	UTC +08:00 [00:00, 06:00, 12:00, 18:00]		A lookstage	SUCCESSION.	2024-02-02 17:30:13	2024-02-02 22:04:54	2024-02-02 10:04:26	
		大10・10/1014・提南・	040659461	Change cellect times	UTC +00:00 [00:00, 12:00]		A Isokstage	SUCCESSFUL	2024-02-02 16:35:56	2024-02-02 19:11:15	2024-02-02 19:11:27	
		城都01 · FINE244 · 丹东	035670480	Change cellect times	NTC +08:00 [00:00, 02:00, 04:00, 06:0		OI Buckstage	SUCCESSION	2024-02-02 15:28:13		2024-02-09 15:07:45	

Figure 11.1 remote control interface

## 12. POI Management

#### 12.1 New POI

Select [POI] in the map window toolbar, and in the point of interest window on the right, click New POI to add relevant attribute information and picture information to the POI, as shown in the figure below.

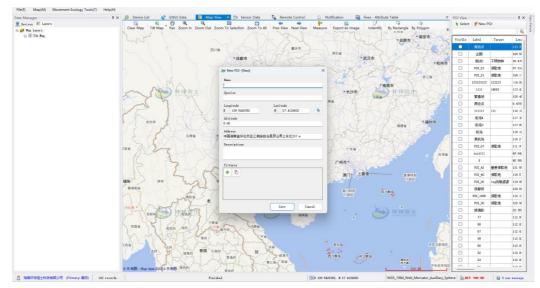


Figure 12.1 new POI

## 12.2.POI Edit

Select the POI in the POI View window, right-click to edit, and you can re-edit the attribute information and pictures of the POI in the map window.

#### 12.3. POI Adjust

Open the POI window in the navigation bar menu, users can view all the POI under their account, edit, delete, display, refresh the POI, and also generate the display POI on the map, as shown in the figure below.





Figure 12.2 POI are shown in the map

# **13.GeoFence Management**

## 13.1 New GeoFence

Select [GeoFence] in the toolbar of the map window, select Draw Circle or Draw Polygon, fill in the Fence Name and save to create a new GeoFence.

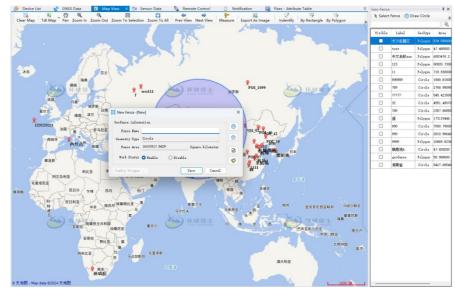


Figure 13.1 new geofence

## 13.2 GeoFence Edit

Right-click the GeoFence in the GeoFence window, the GeoFence can be modified, deleted, displayed, or Config Trigger.



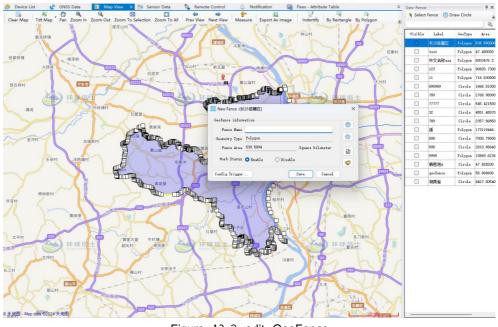


Figure 13.2 edit GeoFence

# 14.Notification

# 14.1 Search For Notification

Click [Notification] in the navigation bar menu, you can select Event Type and enter Key as the filter condition, search the required Notification, and right click message can select Export, Notification type can also be modified.

🐣 Device List 🛛 🗞 GNSS	Data 🔝	Map View	Sensor Data 🕞	Remote Control	0	Notification ×	Fixes - Attribute Table	🕙 Statistics Char
Event Type: All		Key:		(	<b>Q</b>	Event	notification type: 🕑 App	🗌 Email
Device	IMEI	Time				Details		
未閏01・3025504・崀山・20220906	035718297	2024-05-16 04:04:34	[Location update event]	Tine: 2024-05-16 04:0	00:25,	longitude: 110.76373,	latitude:26.35238	
未罰01・HQP5504・崀山・20220906	035718297	2024-05-16 04:04:34	[Location update event]	Tine: 2024-05-16 04:0	00:25,	longitude: 110.76373,	latitude:26.35238	
朱鹮02・HQP5506・崀山・20220906	035699455	2024-05-16 02:04:34	[Location update event]	Time: 2024-05-16 02:0	00:25,	longitude: 110.76334,	latitude:26.35387	
朱鹮02・HQP5506・崀山・20220906	035699455	2024-05-16 02:04:34	[Location update event]	Tine: 2024-05-16 02:0	00:25,	longitude: 110.76334,	latitude:26.35387	
中白鹭04・HQP6736・金井・2023	035726761	2024-05-16 00:04:34	[Location update event]	Tine: 2024-05-16 00:0	00:18,	longitude: 109.02438,	latitude:21.60908	
朱鹮01・HQP5504・崀山・20220906	035718297	2024-05-15 23:04:34	[Location update event]	Time: 2024-05-15 23:0	00:27,	longitude: 110.76363,	latitude: 26. 35309	
朱鹮01・HQP5504・崀山・20220906	035718297	2024-05-15 23:04:34	[Location update event]	Tine: 2024-05-15 23:0	00:27,	longitude: 110.76363,	latitude:26.35309	
未閏02・HQP5506・崀山・20220906	035699455	2024-05-15 21:04:34	[Location update event]	Time: 2024-05-15 21:0	00:25,	longitude: 110.76371,	latitude:26.35358	
朱鹮02・HQP5506・崀山・20220906	035699455	2024-05-15 21:04:34	[Location update event]	Time: 2024-05-15 21:0	00:25,	longitude: 110.76371,	latitude:26.35358	
朱鹮01・HQP5504・崀山・20220906	035718297	2024-05-15 18:04:34	[Location update event]	Tine: 2024-05-15 18:0	00:30,	longitude: 110.76387,	latitude:26.35421	
未鹮01・HQP5504・崀山・20220906	035718297	2024-05-15 18:04:34	[Location update event]	Time: 2024-05-15 18:0	00:30,	longitude: 110.76387,	latitude:26.35421	
朱鹮02・HQP5506・崀山・20220906	035699455	2024-05-15 16:04:34	[Location update event]	Time: 2024-05-15 16:0	00:42,	longitude: 110.76326,	latitude: 26. 35393	
朱鹮02・HQP5506・崀山・20220906	035699455	2024-05-15 16:04:34	[Location update event]	Tine: 2024-05-15 16:0	00:42,	longitude: 110.76326,	latitude:26.35393	
未鹮01・HQP5504・崀山・20220906	035718297	2024-05-15 13:04:34	[Location update event]	Time: 2024-05-15 13:0	00:18,	longitude: 110.76328,	latitude:26.35368	
朱鹮01・HQP5504・崀山・20220906	035718297	2024-05-15 13:04:34	[Location update event]	Time: 2024-05-15 13:0	00:18,	longitude: 110.76328,	latitude:26.35368	
朱鹮02・HQP5506・崀山・20220906	035699455	2024-05-15 11:04:34	[Location update event]	Time: 2024-05-15 11:0	00:41,	longitude: 110.76329,	latitude:26.35382	
未鹮02・HQP5506・崀山・20220906	035699455	2024-05-15 11:04:34	[Location update event]	Time: 2024-05-15 11:0	00:41,	longitude: 110.76329,	latitude:26.35382	
中白鹭04・HQP6736・金井・2023	035726761	2024-05-15 09:04:34	[Location update event]	Time: 2024-05-15 09:0	00:42,	longitude: 109.05471,	latitude:21.58534	
朱鹮01・HQP5504・崀山・20220906	035718297	2024-05-15 08:04:34	[Location update event]	Time: 2024-05-15 08:0	00:21,	longitude: 110.76471,	latitude:26.35341	
未鹮01・HQP5504・崀山・20220906	035718297	2024-05-15 08:04:34	[Location update event]	Time: 2024-05-15 08:0	00:21,	longitude: 110.76471,	latitude:26.35341	
朱鹮02・HQP5506・崀山・20220906	035699455	2024-05-15 06:04:34	[Location update event]	Time: 2024-05-15 06:0	00:30,	longitude: 110.76476,	latitude: 26. 35446	
朱鹮02・HQP5506・崀山・20220906	035699455	2024-05-15 06:04:34	[Location update event]	Time: 2024-05-15 06:0	00:30,	longitude: 110.76476,	latitude:26.35446	
未鹮01・HQP5504・崀山・20220906	035718297	2024-05-15 03:04:34	[Location update event]	Time: 2024-05-15 03:0	00:44,	longitude: 110.76347,	latitude:26.35304	
朱鹮01・HQP5504・崀山・20220906	035718297	2024-05-15 03:04:34	[Location update event]	Time: 2024-05-15 03:0	00:44,	longitude: 110.76347,	latitude: 26. 35304	
朱鹮02・HQP5506・崀山・20220906	035699455	2024-05-15 01:04:34	[Location update event]	Time: 2024-05-15 01:0	00:37,	longitude: 110.76339,	latitude:26.35378	
朱鹮02・HQP5506・崀山・20220906	035699455	2024-05-15 01:04:34	[Location update event]	Time: 2024-05-15 01:0	00:37,	longitude: 110.76339,	latitude: 26. 35378	
朱鹮01・HQP5504・崀山・20220906	035718297	2024-05-14 22:04:33	[Location update event]	Time: 2024-05-14 22:0	00:29,	longitude: 110.76355,	latitude: 26. 35424	
朱鹮01・HQP5504・崀山・20220906	035718297	2024-05-14 22:04:33	[Location update event]	Time: 2024-05-14 22:0	00:29,	longitude: 110.76355,	latitude:26.35424	
未鹮02・HQP5506・崀山・20220906	035699455	2024-05-14 20:04:33	[Location update event]	Time: 2024-05-14 20:0	00:42,	longitude: 110.76337,	latitude:26.35368	
朱鹮02・HQP5506・崀山・20220906	035699455	2024-05-14 20:04:33	[Location update event]	Time: 2024-05-14 20:0	00:42,	longitude: 110.76337,	latitude:26.35368	
中白鹭04・HQP6736・金井・2023	035726761	2024-05-14 18:04:33	[Location update event]	Time: 2024-05-14 18:0	00:38,	longitude: 109.02425,	latitude:21.60907	
朱鹮01・HQP5504・崀山・20220906	035718297	2024-05-14 17:04:33	[Location update event]	Time: 2024-05-14 17:0	00:36,	longitude: 110.76337,	latitude:26.35367	
朱鹮n1、HQP5504、当山、20220906	035718297	2024-05-14 17:04:33	[Location undate event]	Time: 2024-05-14 17:0	00:36.	longitude: 110 76337.	latitude:26.35367	

#### Figure 14.1 notification list

#### 14.2 Data Export



After selecting the message, right-click, you can choose to export to Excel file format.

Event Type: All	~	Key:	🔍 Event notification type: 🖉 App 🗌 Email
Device	IMEI	Time	Details
朱鹮02・HQP5506・崀山・20220906	035699455	2024-05-23 04:04:43	[Location update event] Time: 2024-05-23 04:00:25, longitude: 110.76317, latitude:26.35392
朱鹮01・HQP5504・崀山・20220906	035718297	2024-05-23 01:04:42	Export(E) t] Time: 2024-05-23 01:00:40, longitude: 110.76337, latitude:26.95386
朱鹮02・HQP5506・崀山・20220906	035699455	2024-05-22 23:07:42	Refresh(R)
中白鹭04・HQP6736・金井・2023	035726761	2024-05-22 21:04:42	[Location update event] Time: 2024-05-22 21:00:22, longitude: 109.33827, latitude:22.04916
朱鹮01・HQP5504・崀山・20220906	035718297	2024-05-22 20:04:42	[Location update event] Time: 2024-05-22 20:00:21, longitude: 110.76334, latitude:26.35339
朱鹮02・HQP5506・崀山・20220906	035699455	2024-05-22 18:04:41	[Location update event] Time: 2024-05-22 18:01:05, longitude: 110.7642, latitude:26.35406
朱鹮01・HQP5504・崀山・20220906	035718297	2024-05-22 15:04:41	[Location update event] Time: 2024-05-22 15:00:42, longitude: 110.76323, latitude:26.35365

# 15. Data Specification

In the "Help" menu, you can view the standards of each data item in the system, software version history, etc.

File(F)	Map(M)	Movement Ecology Tools(T)	He	elp(H)	
ita Mana	der	1		Data Standards	
🖳 Devices 🔝 Layers				User Manual	
			ß	Suggestions & Feedbacks	
) sele	ected.	<u>Clear selecti</u>	3	Check for Upgrade	
□				Version History	
● □ ● 湖南环球信士(2021)-[61]			(mail)	About Global Messenger	

Figure 15.1 help menu

Tracking data	
Parameters	Explanation
Time	Data collection time.
Longitude	Measured by geodetic coordinate system, with seven decimal places (Unit: Degree).
Latitude	Measured by geodetic coordinate system, with seven decimal places (Unit: Degree).
Speed	Instantaneous speed when collecting data.
Course	The angle formed by the clockwise direction and due north (Unit: degree).
Altitude	Elevation (Unit: meter).
Temperature	The temperature of the device (Unit: celsius).
Voltage	Battery voltage of the device (Unit: volt).
Activity	Number of movements within one data collection interval.
Accuracy	Accuracy of GNSS positioning in 5 classes A, B, C, D, E. (See 1.2).
HDOP	horizontal dilution of precision of GNSS, smaller values indicate higher accuracy.
VDOP	Dilution of precision of GNSS, smaller values indicate higher accuracy.
.1 Activities	
Activity is a	a cumulative value of the animal's movement within one data collection interval. When the
acceleration of th	he built-in three-axis accelerometer exceeds 0.15 G in any direction, the activity value is
added by 1. The	activity indicator is in accordance with the animal activity model.
1.2 Positioning a	Iccuracy
Positioning	accuracy is the closeness between GNSS positioning and its actual position. The
ositioning accu	racy of the tracker is calculated using an accuracy factor utilizing a linear regression

positioning accuracy of the tracker is calculated using an accuracy factor utilizing a linear regression algorithm. It is calculated as: Error= 2.679243 \* HDOP + 0.59144 Units are in meters. The accuracy classes - 46 -

#### Hunan Global Messenger Technology Co., Ltd



#### Figure 15.2 data standards

	Version history	
•	V3.0.4 2024-05-27	
	[Feature] Account registration module.	
	[Feature] Device experience area module.	
	[Feature] Sensor data management module.	
	[Feature] Multi-level management module for device lists.	
	[Feature] Geofence module.	
	[Feature] Device event subscription module.	
	[Feature] Device management page module.	
	[Feature] Species biological information recording module.	
	[Feature] Habitat identification module.	
	[Feature] Quick division function for fixes.	
	[Feature] Data service station in North America.	
	[Feature] GeoJSON data engine.	
	[Fixed] Command module to support batch sending of commands and remote	
	control commands for radio devices.	
	[Fixed] Personal account maintenance module.	
	[Fixed] Statistical analysis module.	
	[Fixed] POI module.	
	[Fixed] other bugs.	
	V3.0.3 2022-06-24	
	[Feature] Heatmap module.	
	[Feature] WMS data source engine.	
	[Feature] SQLite data source engine.	
	[Feature] Remote command control module.	
	[Feature] Attribute tables module.	
	[Feature] Functionality to save selected geometric objects as vector layers.	
	[Feature] Web map address query Feature.	
	[Feature] Account information management Feature.	