Outdoor GPS Device
Boomerang
User Manual

Version 3.0

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Thank you for purchasing GS-Sport GH-561. We hope you to enjoy using this high tech GPS device. To fully understand the functions and features of the GH-561, please read the user manual before you use your device for the 1st time.

1. Introduction and Features

1.1 Introduction

The GS-Sport GH-561 is a route-planning device, which combines style and rigidity in a fully sealed, IPX4 water resistant housing. The GPS navigation function can locate and track points anywhere you go, you can plan the route on the Travel Manger included software before your trip. The GH-561 is powered by a SiRF Star III high performance GPS chipset that can fix your position even with a weak signal status.

1.2 Features

- Built-in SiRF Star III LPx high performance GPS chipset. Excellent sensitivity for position fixing even with a weak signal status.
- Built-in rechargeable high capacity lithium-ion battery.
- Large LCD for easy reading.
- WAAS/ ENGOS support.
- IPX4 Waterproof, rigid design.
- Accurate E-Compass
- Can be used as a simple route navigator
- Intuitive graphical interface.

2. Specifications

Electrical and Mechanical Parameters General		
Item	**GH-561**	
Number of Waypoints	10	
Route	5	
Display Size	21.9 x 32.87 (H x W in mm.)	
Display type	4 gray color LCD	
Pixels (H x W)	96 x 128	
Unit Weight	90g	
Waterproof Standard	IPX4	
Unit Size	76.5 x 61.5 x 17.5 (L x D (_) x H in mm.)	
Backlight Display	Single level	
Operating temperature	-10^{o}C – 60 ^{o}C	
Humidity	5% to 95% Non-condensing	
Voltage	3.7V for a rechargeable battery, 5V for charging input;	
Charging connector	DC 5V	
Battery	Rechargeable 1600mAh Li-Polymer 623759 battery	
Power Consumption	GPS (3D fixed) , Backlight on	75mA
	GPS (3D fixed) , Backlight off	50mA
Battery life	GPS (3D fixed) , Backlight on	19 hrs
	GPS (3D fixed) , Backlight off	30 hrs
Connect to PC Interface	USB interface	
Charger	Mini USB 350mA, 3 hours completed	
Electronic Compass	YAMAHA YAS52P 3Axis	
GPS Parameters General		

GPS Chipse	SiRF Star III LPx
Frequency	L1, 1575.42 MHz
C/A code	1.023 MHz chip rate
Channels	20 channel all-in-view tracking
Antenna Type	Built-in patch antenna
Position	10 meters, 2D RMS 5 meters, 2D RMS, WAAS enabled
Velocity	0.1 m/s
Time	1 us synchronized to GPS time
Default datum	WGS-84
Reacquisition	0.1 sec., average
Hot start	1 sec., average
Warm start	38 sec., average
Cold start	42 sec., average
Altitude	18,000 meters (60,000 feet) max.
Velocity	515 meters/ second (1000 knots) max.
Acceleration	Less than 4g
Jerk	20 m/sec3

3. Hardware Overview

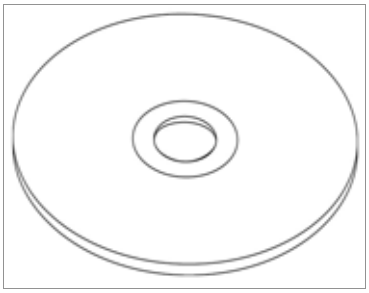
3.1 Accessories

Check the contents of your GH-561 packaging. If you find any accessories are missing or appear damaged, please contact your dealer immediately.

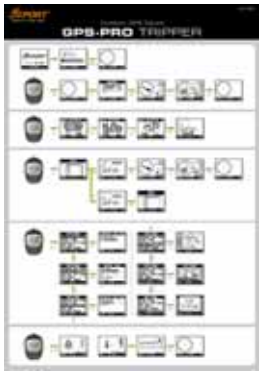
GH-561

Strap

USB Cable



CD-ROM



Quick Guide

3.2 Button Functions

	Button	Description
1.	POWER / LIGHT	● Power on/off and Backlight control
2.	MARK W.P. / ESC	● Mark points and escape to last page
3.	FIND WAYPOINT	● Go to waypoint
4.	TRACK BACK	● Following traveling route
5.	SCROLL	● Scrolling select
6.	OK	● Enter and confirm

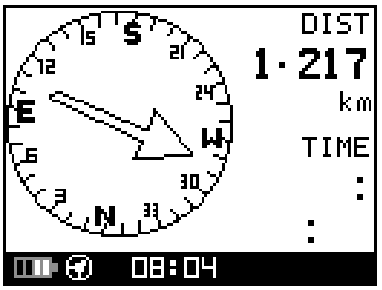
3.3 Antenna Introduction

The GPS antenna is located in the lower part of the device. Face it towards the sky for a better GPS fix when turning on.

3.4 Battery Introduction

The GH-561 uses a built-in Li-Polymer rechargeable battery. A battery icon shown on the left bottom corner of screen indicates the remaining battery power.

- ***To charge the battery:***
  1. Connect one end of the provided USB charging cable with the GH-561 unit and the other end with the AC adapter or USB port on your PC.
  2. The GH-561 unit may need about **5-6 hours** to fully charge the battery.



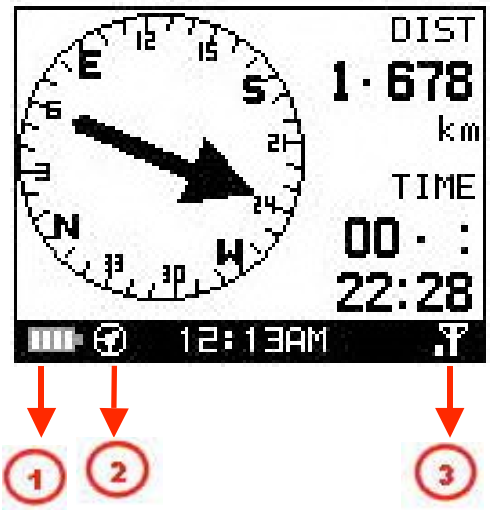
Note: Please fully charge before first use.

4. Getting Started

4.1 Starting the GH-561

Press and hold the Power button for 2 seconds to turn on the device. You will see the welcome screen displayed.
Allow the GH-561 a short period of time to track satellites for the first time you use it. Take your GH-561 outside or to an open space with a clear view to the sky and it will make acquiring a satellite signal easier.
Press the ‘’OK’’ button to exit the Locating Satellites screen.

4.2. Icon Explanation



1 The battery icon indicates the remaining battery power. Blinking means the device has little battery power left.

2 E-Compass status indicator
- Blinking: The E-Compass is experiencing magnetic interference or is unstable, the device will need to be re-calibrated.

3 GPS status indicator

- No bars: No signal
- Blinking: 2D fix
- Solid: 3D fix
- Solid with 1 bar: 3D fix with poor signal
- Solid with 2 bars: 3D fix with good signal
- Solid with 3 bars: 3D fix with strong signal

5. Routes

5.1 Start Route

- If you want to do geo-caching or navigate, you can perform it by following these steps:.

1. Press the button to select a route you have already planned on your PC and then

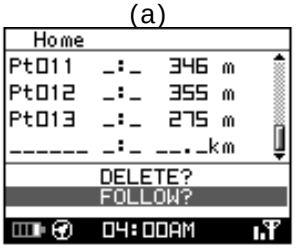
press ''OK''

2. The detail track points will be list, you can see the information and modify track point as follows

(a) Press or to select the track point and then pressing ''OK'' button to modify.

(b) After modified, click ''FOLLOW?'' to start route navigation.

(a)



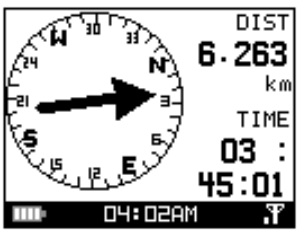
(b)

(c) Then select '' backward'' or '' forward'' to start the trip.

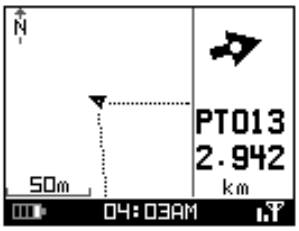
(c)

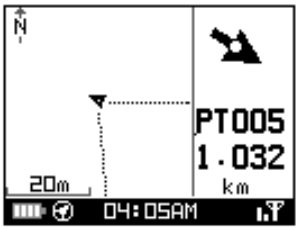
3. The E-Compass will show the direction on display along with the rest of the distance and estimated time of arrival based upon your current speed.

4. Press ''OK'' button will show map page.



5. Press button will guide you to the next point, press '' OK'' button will guide you previous waypoint. Press or button to zoom in or zoom out map page.

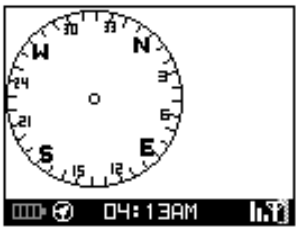




5.2 Quit Current Route

1. Press the button to exit the route when you want to quit on your current route.

2. Press the '' YES'' button, the E-compass will stop the selected route.



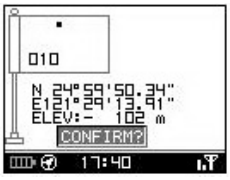
6. Waypoint

6.1 Waypoint Saving

- If you want to record where you car is parked or an interesting place, you can perform this by following these steps.

1. Press the button to enter "create a waypoint".

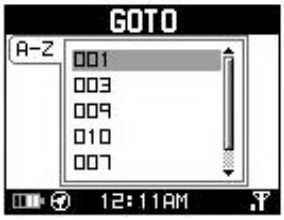
2. There are a total of 10 waypoints that can be saved on this device. Press the "**OK"** button, this will save your selected waypoint.



7. Find a waypoint

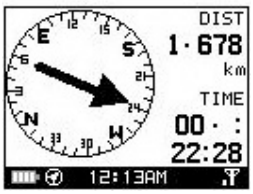
7.1 GO TO

- If you want find your parked car or interesting place, you can perform this by following these steps.

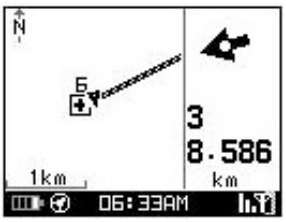


1. Press the to choose the desired waypoint.

2. Press the "**OK**" BUTTON, the E-compass will guide you to your destination.



6. Press ''OK'' button will show map page.



7.2 Deleting a Waypoint

1. Press the button to choose the waypoint you want to delete.

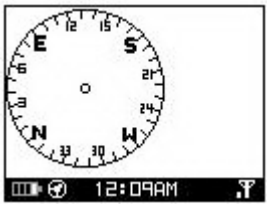
2. Press ''DELETE'' to delete to desired waypoint, you will then be returned to the previous page.

7.3 Stop GO TO function

1. If you would like to stop the go to function, press the button. A window will pop up asking you if you would like to ‘’EXIT GOTO’’

2. Press the ‘’ YES’’ button.

3. The compass will stop the trip.

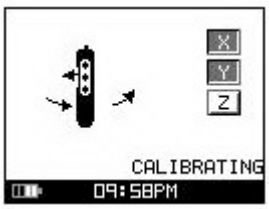


8. Calibration

- If you would like to perform a compass calibration or the compass symbol is blinking, you may perform a compass calibration by following these steps:

1. Pressing the and OK buttons simultaneously will result in entering the calibration display.

2. Follow the on screen steps to calibrate your device. Rotate the device horizontally and vertically as shown to the right. When the “X, Y, and Z” icons are all lit, it means the calibration has been completed.



3. After calibration has been completed a confirmation window will pop-up asking to confirm calibration. Please press OK to return to the previous menu screen.

9. Setting

- This functionality is used to personalize your settings.

Press the and buttons together. This will enter the settings display, the settings display can only be opened through the Location screen or E-compass screen.

9.1 Compass Setting

- ***[Calibration]***

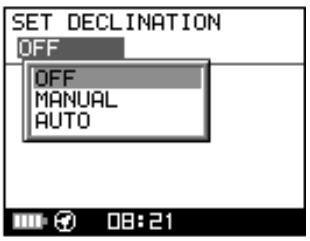
1. Follow the on screen steps to calibrate the device.

- ***[Declination]***

1. The GH-561's electronic compass indicates magnetic north. Geographic north (true north) is not exactly in the same direction. To get a more clear idea when traveling, you need to enter the declination between magnetic north and true north. By default, the value is set to 0.

You can ignore this parameter by selecting OFF. In this case, you assume that true north and magnetic north is the same thing. This can lead to significant errors of direction in some regions (near the poles).

If you select MANUAL you have to enter the declination value.



Press button to exit or go back to main menu

9.2 Setup Time

Use the or buttons to scroll to the item and press OK to modify it.

- ***[TIME ZONE]***

You must select your country to set up the time zone

- ***[DAYLIGHT SAVINGS TIME]***

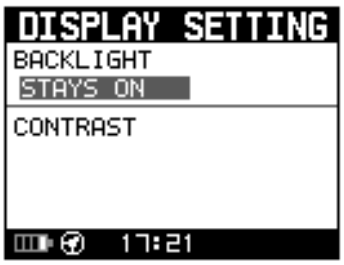
You have to select your local time zone and enable Daylight Savings Time if necessary, so system will display the correct time for you.

- ***[TIME FORMAT]***

You can also set the time to display the 12 Hour or 24 hour format.

Press the button to exit or go back to main menu

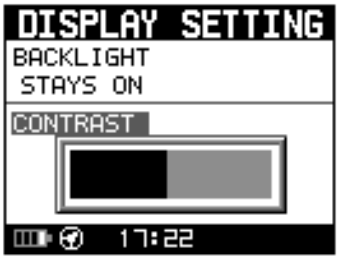
9.3 Display Setting



- ***[BACKLIGHT]***

Set the backlight to stay on or automatically turn off after a period of time once you press Power button to activate the backlight.

- ***[CONTRAST]***



1. Use the and buttons to adjust the contrast of the screen.
2. When the adjustments to the contrast have been made press the "**OK**" button to accept the adjustments.

Press button to exit or go back

to main menu

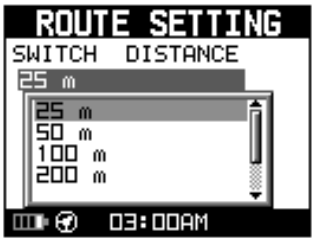
9.4 GPS Setting

Turn on/off the ‘’WAAS/ENGOS’’ feature.

Press button to exit or go back to main menu.

9.5 Route Setting

Switch distance means the setting of threshold detected distance for routing navigation.

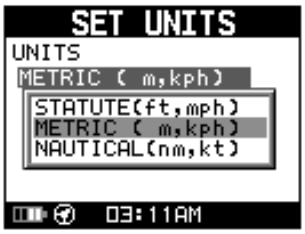


1. There are 25m,50m,100m,200m, 300m, 500m) for selecting. The default setting is 100m.
2. It is recommending to set 50m for walking, and 100m for cycling.
3. If the speed range is higher than the switch distance should be above 100m to get accurate navigation.

Press button to exit or go back to main menu

9.7 Set Units

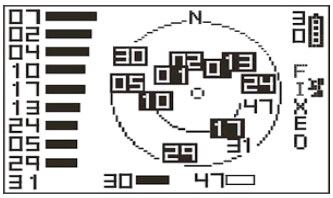
The measurement unit can be set as "statute" or "metric" or ‘’nautical’’.
.



Press button to exit or go back to main menu

9.8 GPS Info

In this screen you can see the positioning status of how many satellite signals are obtained and their signal strength.



Press button to exit or go back to main menu

9.9 Factory Reset

This feature will allow you to restore the GH-561 back to factory default settings. (Note: travel data, saved waypoints, and user profiles will be erased from the GH-561's memory).

Press button to exit or go back to main menu

9.10 About

This screen displays the firmware version information.

Press button to exit or go back to main menu

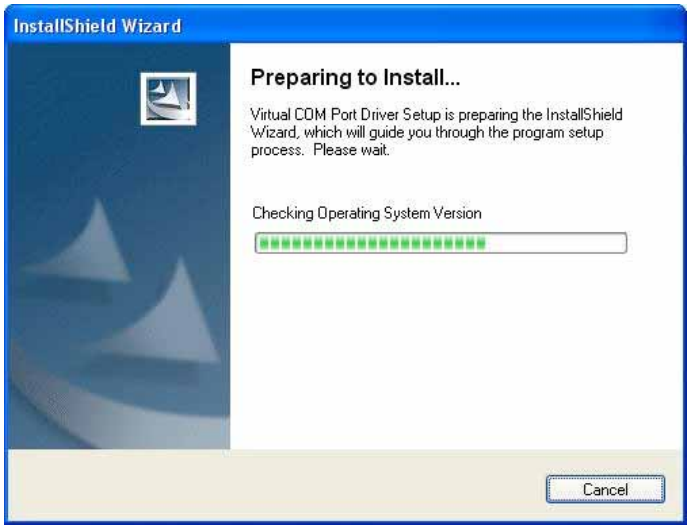
10. How to install PC software application

10.1 Installing the USB driver

The USB driver is required to recognize your GH-561 via USB when it is connected to your PC.

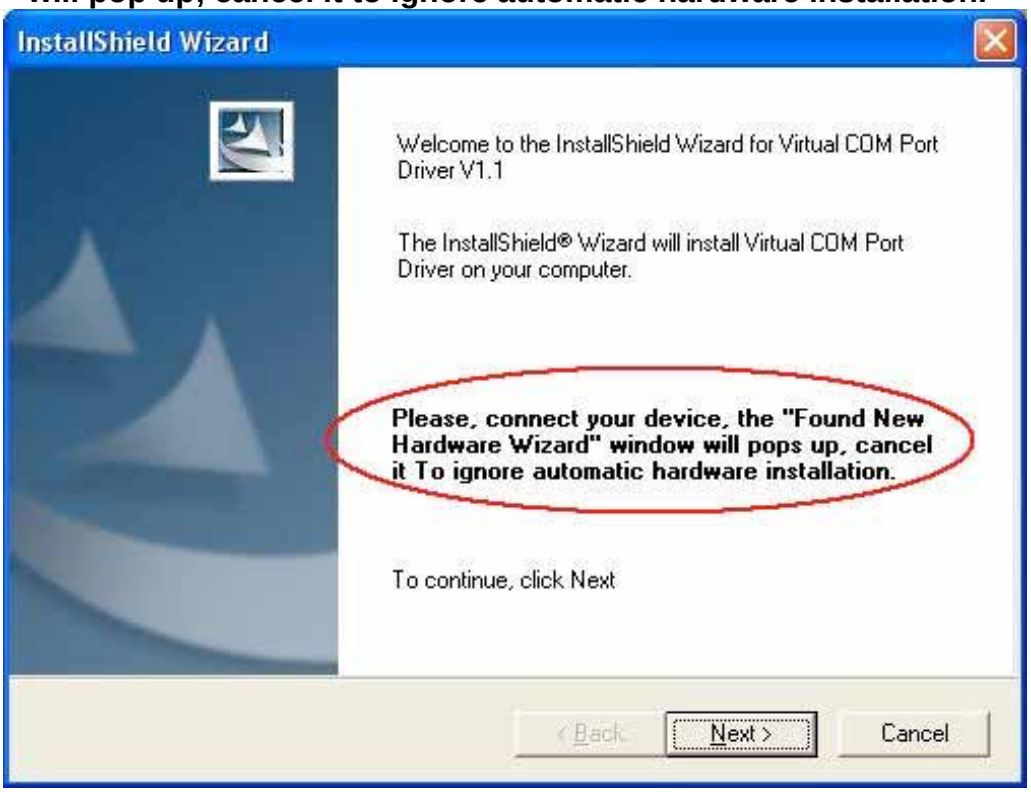
1. Insert the CD into the CD-ROM drive, and the Auto-run will begin.
2. Click on the "GS-Sport Travel Manager" to install driver to your PC.
3. Follow the on-screen instructions to complete the installation.

- Step 1 **:** Use auto-run to install the USB driver or select the installation file from the CD-ROM

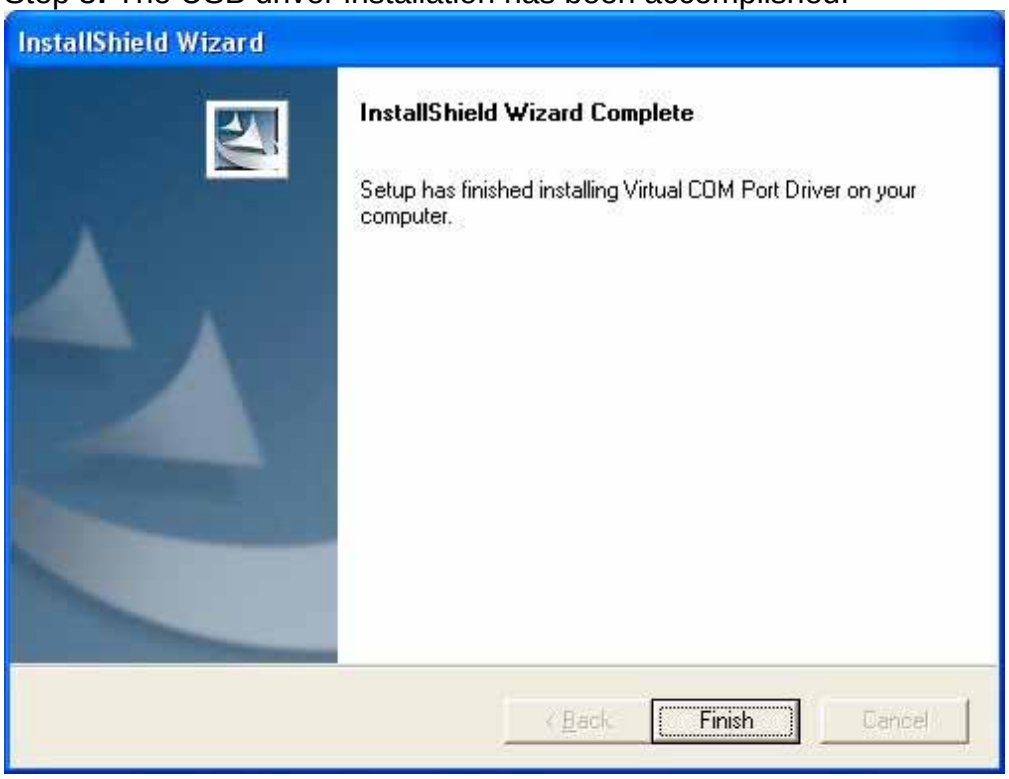


- Step 2: Connect the GH-561 device to your PC and follow the instructions below circled in red.

"Please, connect your device, the "Found New Hardware Wizard" window will pop up; cancel it to ignore automatic hardware installation."



- Step 3**:** The USB driver installation has been accomplished.



To check Computer Management_Device Manager
you may see the STM Virtual COM port has been detected.

10.2 Installing the Travel Manager

- Install Framework v2.0 or above

1. To check the Microsoft Framework version in your system go to:

Control Panel > Add/Remove Programs

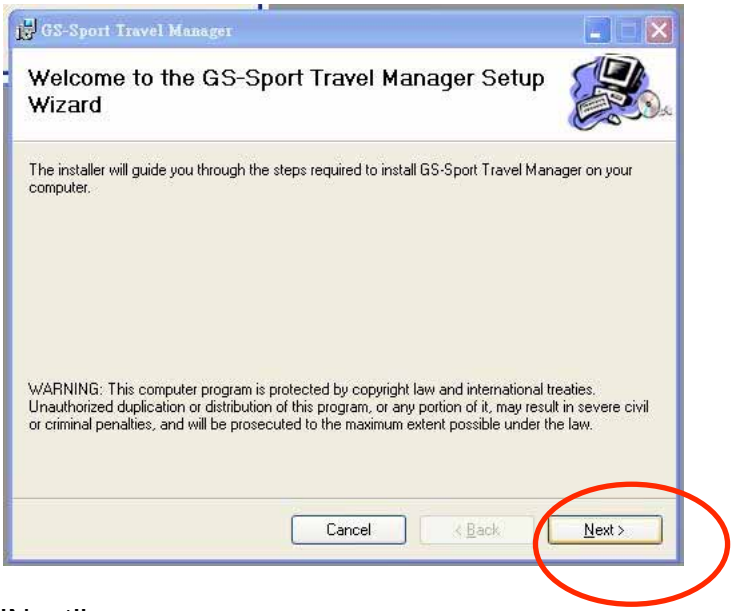
Note: Originally, the Framework version in Windows XP SP2, SP3 and Vista or above should be version 2.0.

- Installing the GS-Sport Travel Manager

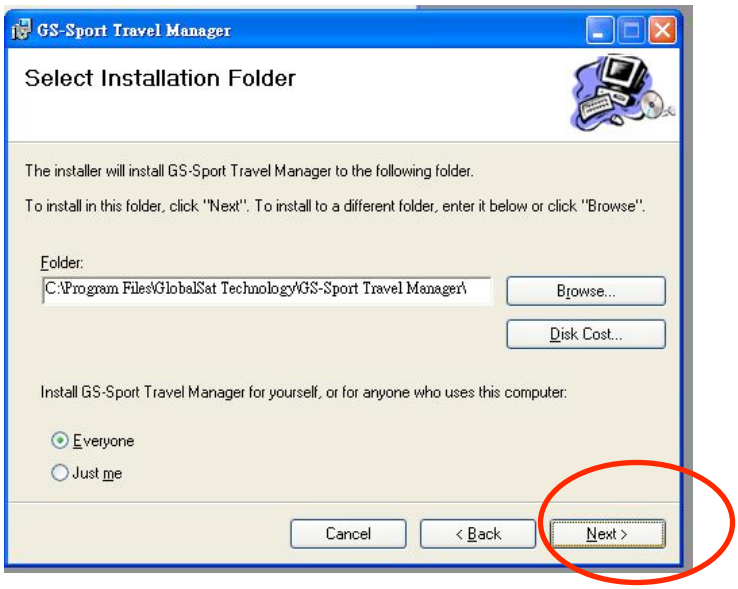
Use auto-run to install GS-Sport Travel Manager or select the installation file from the CD-ROM.

➢ Step 1**:** Click Setup.exe to install the travel manager.

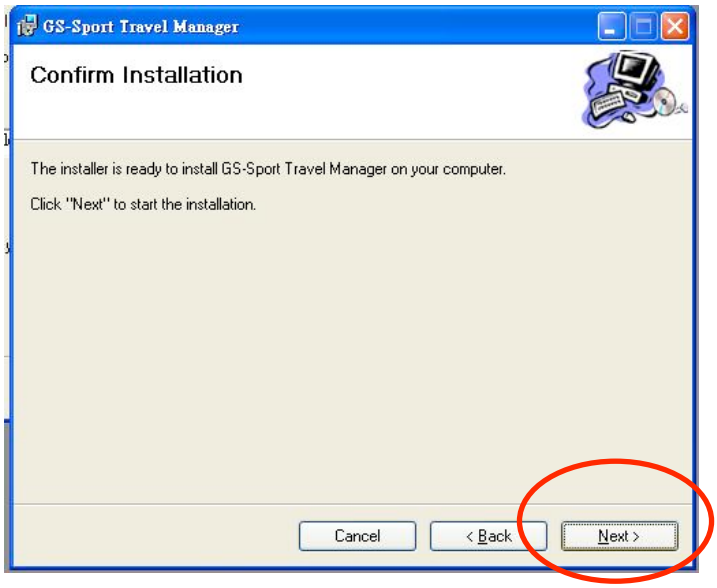
➢ Step 2 : Press ''Next''



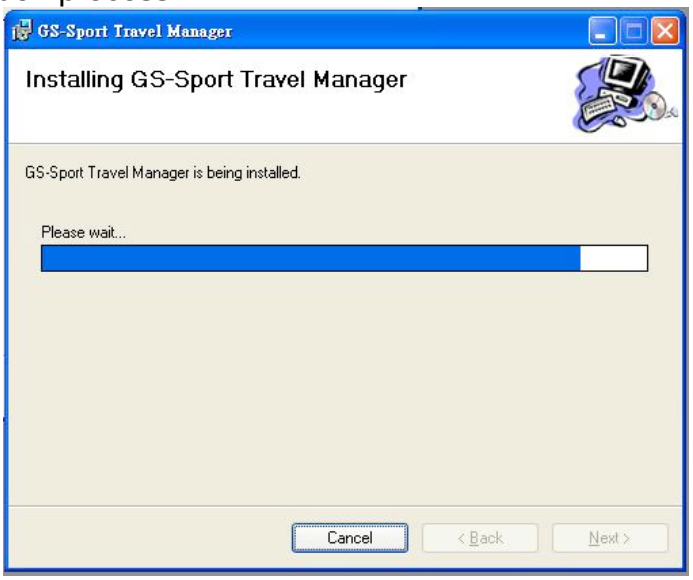
➢ Step 3 : Press ''Next''



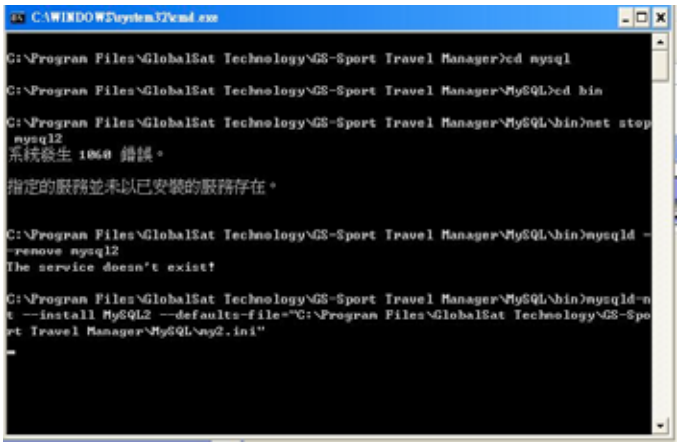
➢ Step 4 : Press ''Next''



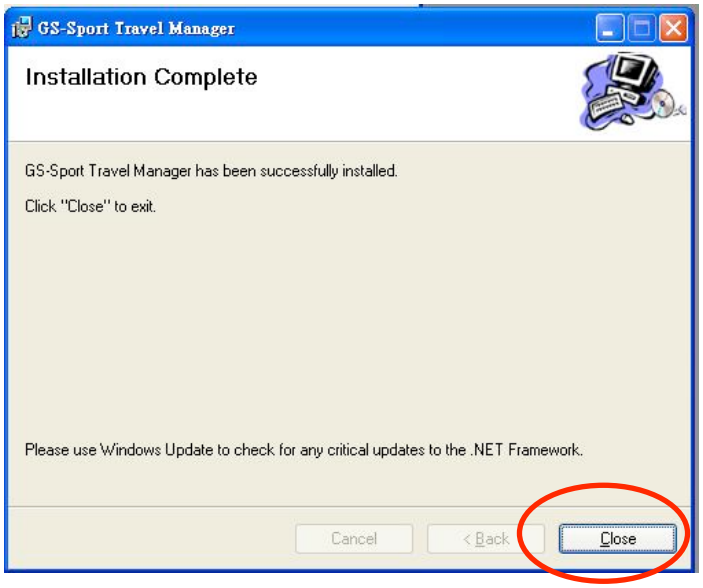
➢ Step 5: Installation process.



- The software will execute and connect the database automatically.

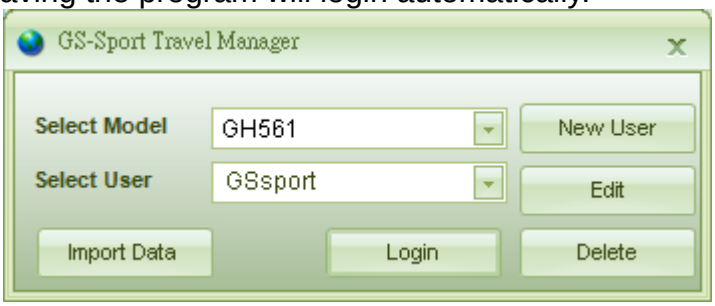


➢ Step 6: Press ‘‘close’’ to enter the travel manager installation application.

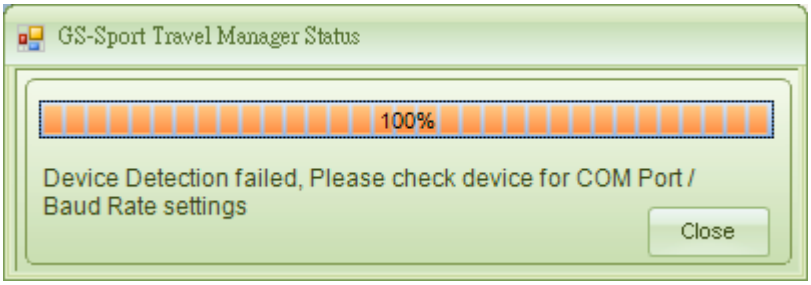


➢ Step 7: Create a user account and save it.

➢ Step 8: After saving the program will login automatically.



- **The process bar will detect connection via the USB cable.**



➢ Step 9: Plan your route.

10.3 Running the GS-Sport Travel Manager Application

You can run the GS-Sport Travel Manager by double clicking on the "GS-Sport Travel Manager" short-cut icon from desktop. Or go to **Start** > **All Programs** > **GlobalSat GS-Sport** > **Travel Manager**.

11. PC Software Application

11.1 System Requirement

For better performance, the following system requirements are recommended for GS-Sport Travel Manager:

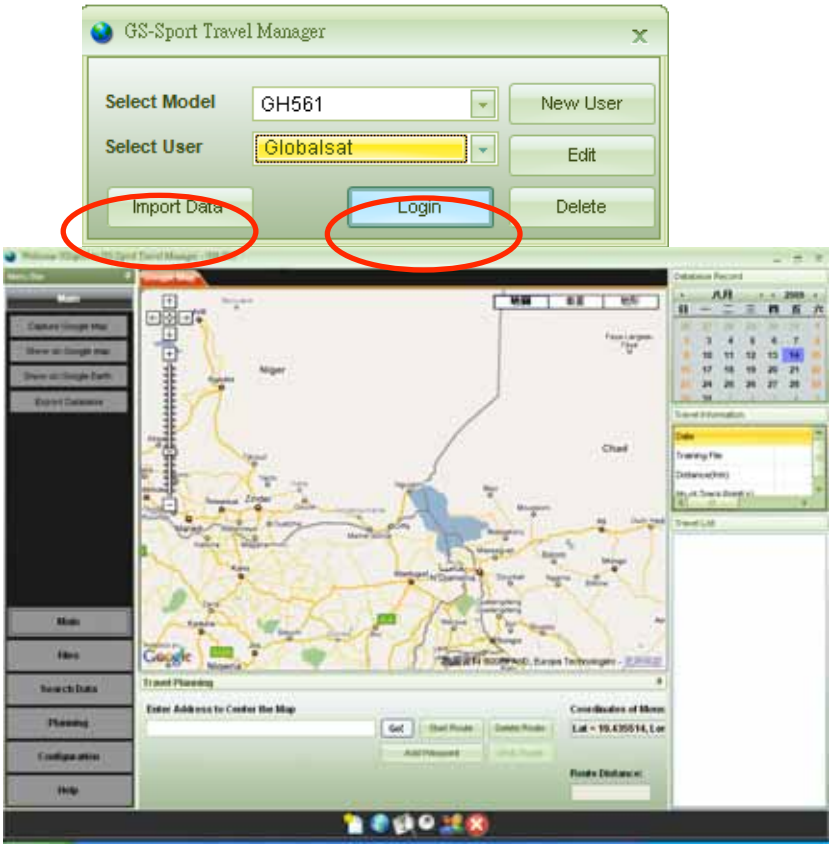
- CPU: Pentium III Processor or higher.
- At least 512 MB of RAM
- Windows XP or Vista
- Internet Explorer 6.0 or higher
- Framework 2.0 or higher

11.2 How to use the GS-Sport Travel Manager Software

11.2-1 Create a user name

- You should have been prompted to create a user name when you installed the software

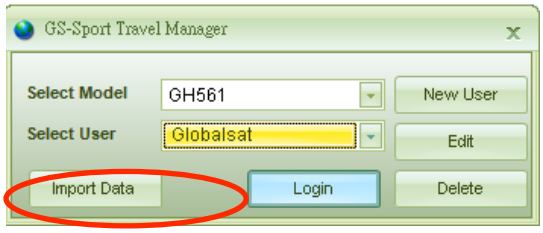
- Login

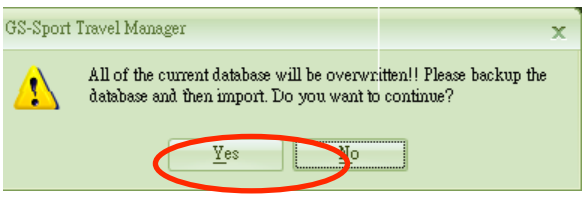


Note: 1. You can create other user names to login and import backup database as well.
2. Please be sure that you are connected to the Internet before the software is opened.

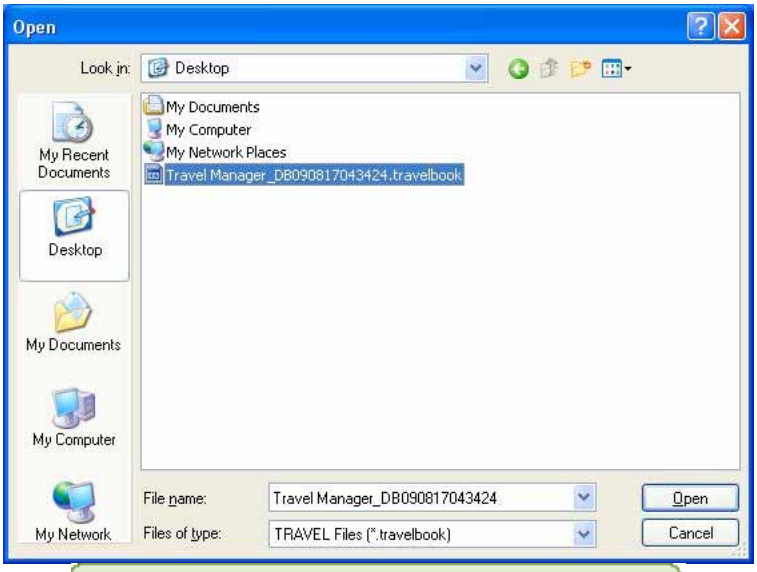
11.2-2 Importing Data

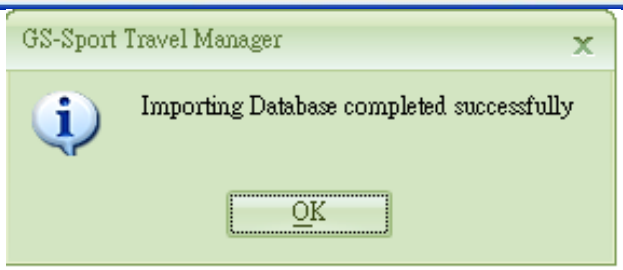
You should export the database before you go on to import the data.
Click ‘’import data’’ to transmit the whole database you’ve exported. The new database will overwrite the old one.





- Click the file you’ve exported (*.travelbook),The Import process will run automatically.

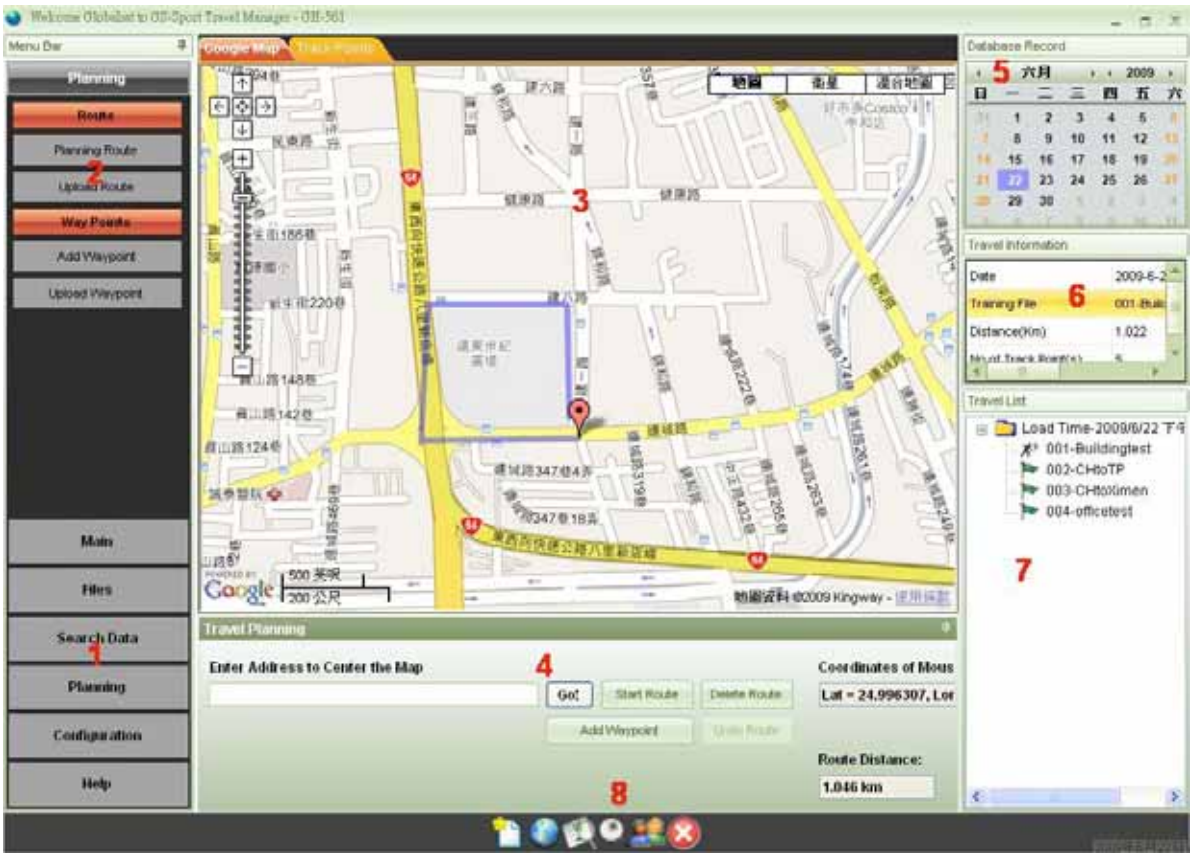




11.3 Travel Manager

11.3 – 1 Section Description

1. Main Function
2. Sub tool Bar
3. Google Maps, Track point data, Waypoint Data
4. Travel Planning
5. Travel database saved by calendar
6. Travel detail information
7. Travel files list
8. Software control Function


Menu Bar
Planning
Route
Planning Route
Upload Route
Way Points
Add Waypoint
Upload Waypoint
Main
Files
Search Data
Planning
Configuration
Help
Google Map
Track Points
Database Record
Travel Information
Date
Training File
Distance(Km)
1.022
Travel List
Load Time-2009/6/22
001-Buildingtest
002-CHtoTP
003-CHtoXimen
004-officetest
Travel Planning
Enter Address to Center the Map
Go!
Start Route
Delete Route
Add Waypoint
Coordinates of Mous
Lat = 24.996307, Lor
Route Distance:
1.046 km
1
2
3
4
5
6
7
8

11.3 - 2 Software Control Function description

Icon	Icon Description
	Open file
	Show on Google earth
	Show on Google map
	Search
	Log out
	Exit

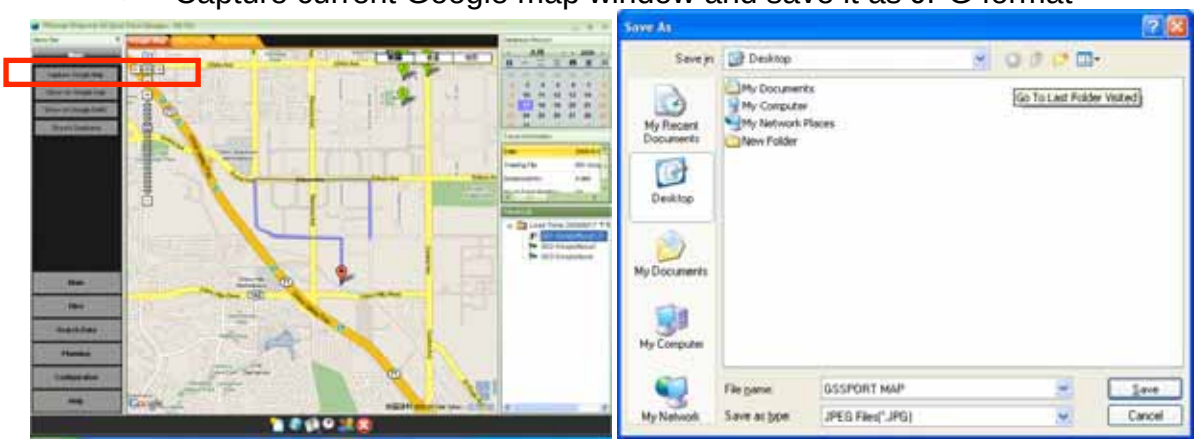
11.3 - 3 Menu Structure

Main	Capture Google Map	Capture current Google Map window as **JPG** or **BMP** format
	Show on Google Map	Show Training data on Google Map.
	Show on Google Earth	Show Training data on Google Earth. You can see the training data which be selected on google earth.
	Export Database	Export travel information to **Travelbook** format.
Files	Open	Open file (support **gpx**, **kml** format)
	Save	Save file (support **gpx**, **kml** format))
Search Data	Search by Date	Search records from database by selecting “start date” and “End date”
Planning	Route	Planning Route
		Upload Route
	Way Points	Planning Waypoint
		Upload Waypoint
Configuration	Com port Setting	Device Com port setting
	System Information	Check the device information
	Unit Exchange	Three Unit selection(Metric, Statute and Nautical)
	Language	Six Language selection (English, Traditional Chinese, Spanish, German, Italian, French and Japanese)
Help	Check update	Check the latest version from
	About GS-Sport	GS-Sport introduction
	About US	The team information

11.4 Main menu

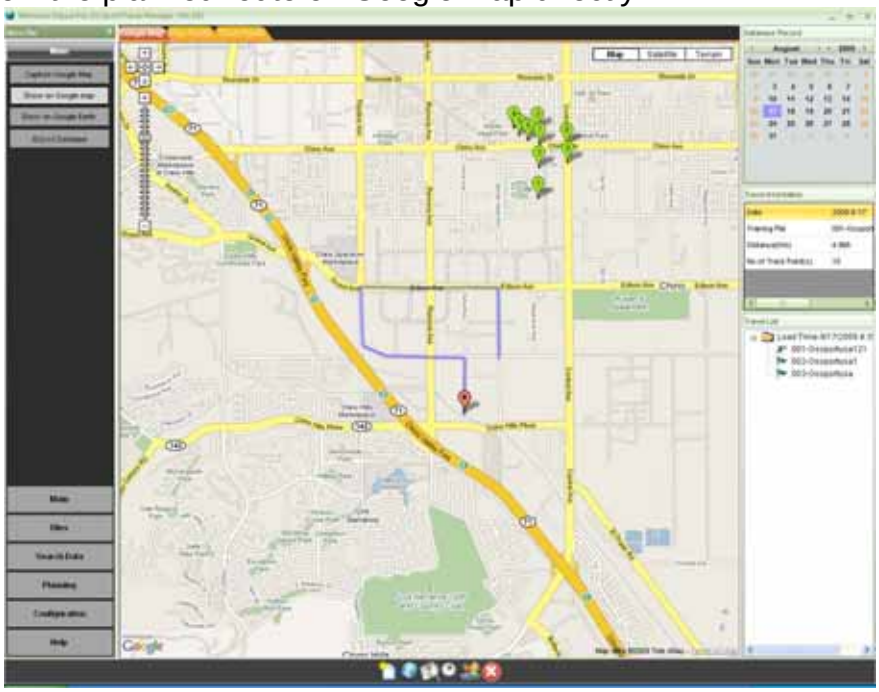
11.4 – 1 Capture Google Map

- Capture current Google map window and save it as JPG format



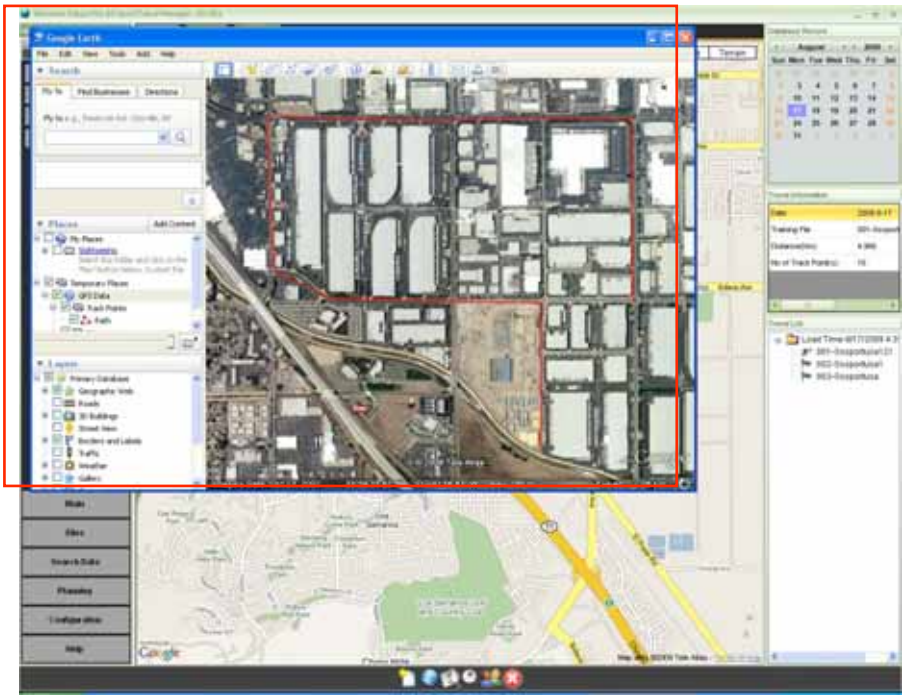
11.4 – 2 Show on Google Map

- Show the planned route on Google map directly



11.4 – 3 Show on Google Earth

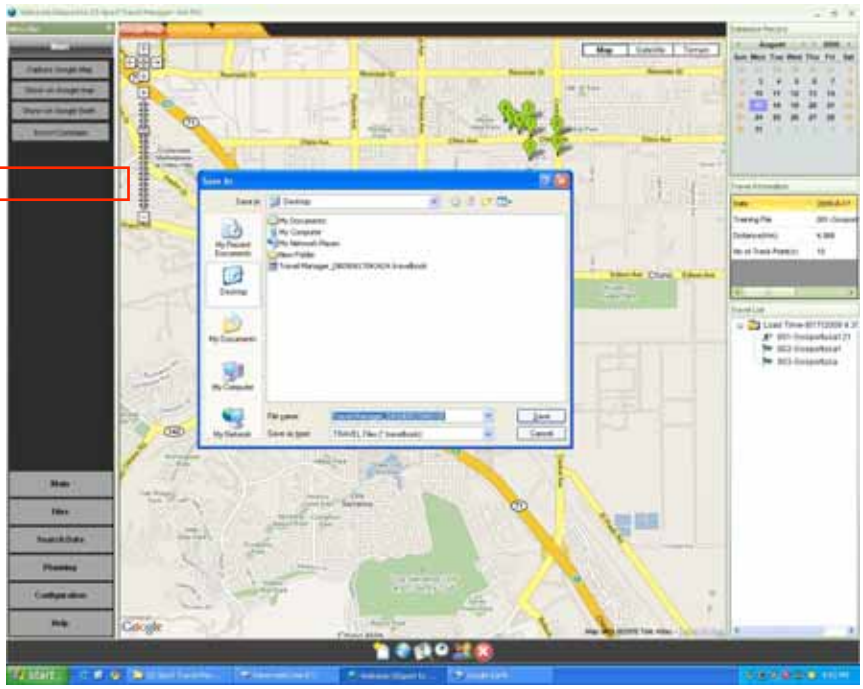
- Show the planned route on Google earth directly



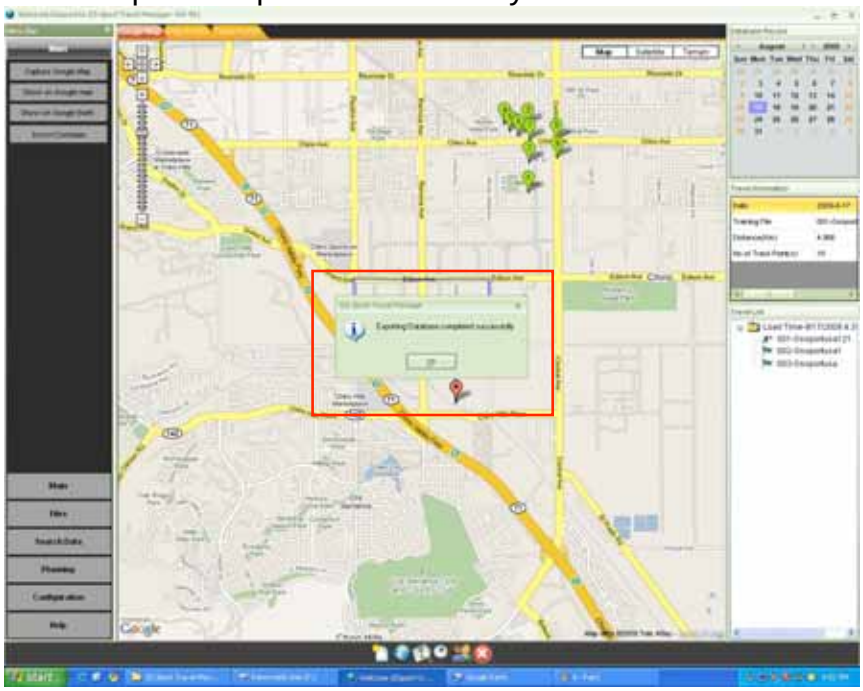
11.4 – 4 Export Database

Export the whole database of software to ‘’*.travelbook’’ file for backup.

- To name the database and save it.



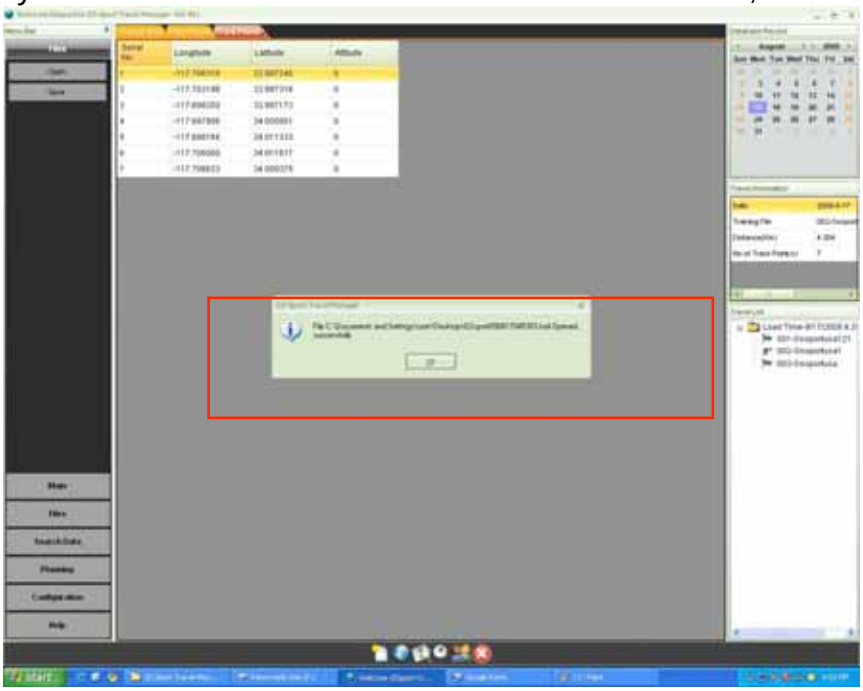
- Database export completed successfully



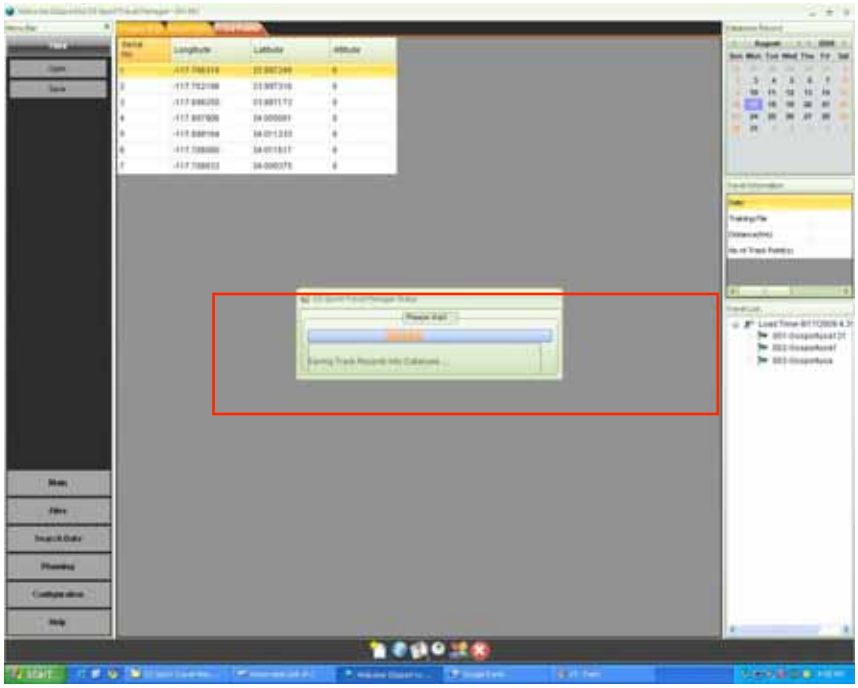
11.5 File Menu

11.5 - 1 Open file

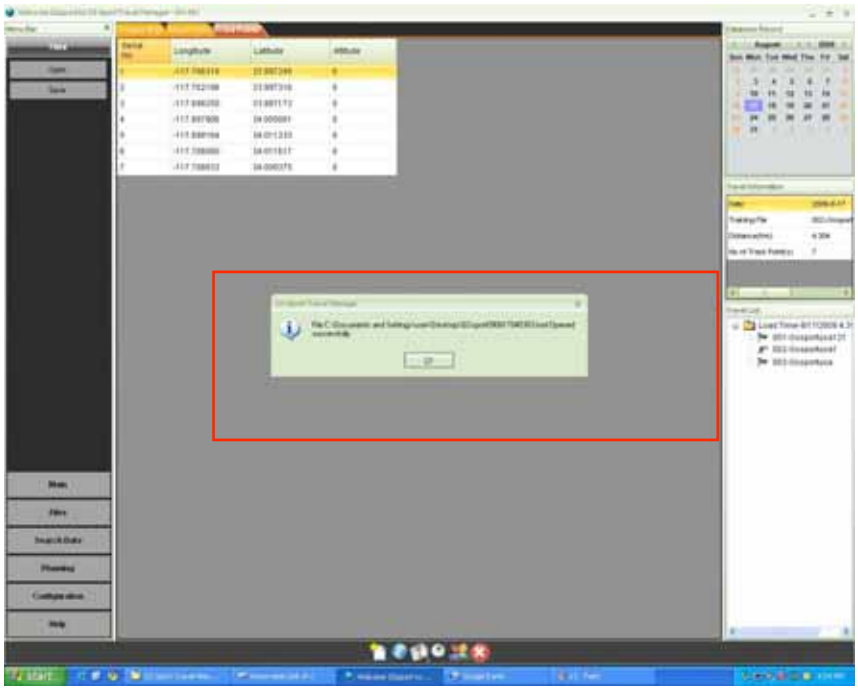
➢ 1st Step : Select the saved file and you want to put data into software. The window will show'' Do you want to save this file information into database'', click ''OK''.



➢ 2nd Step : the progressing message will be displayed on screen.

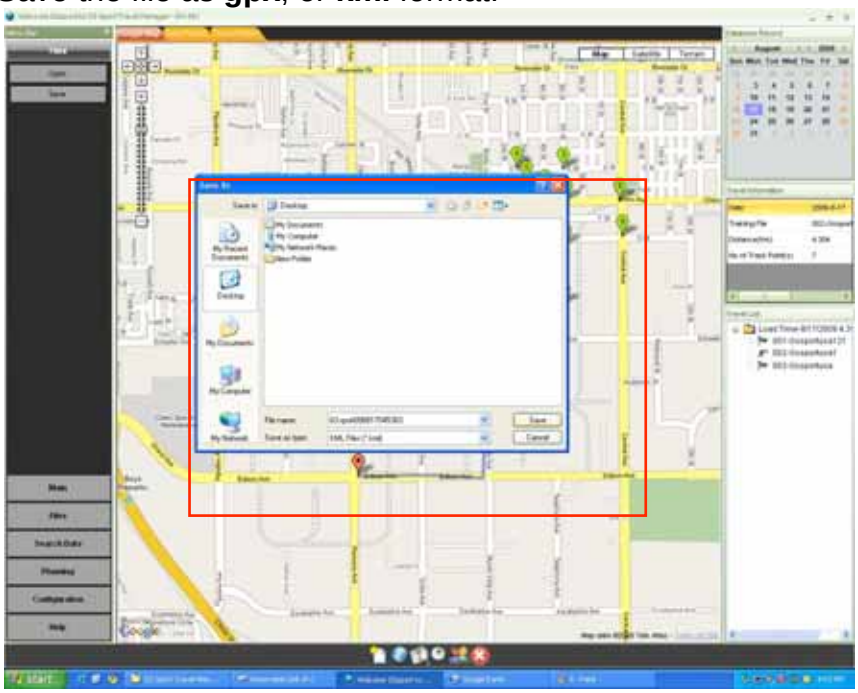


- 3rd Step: The message: “The file has been saved into the database successfully” will pop-up.

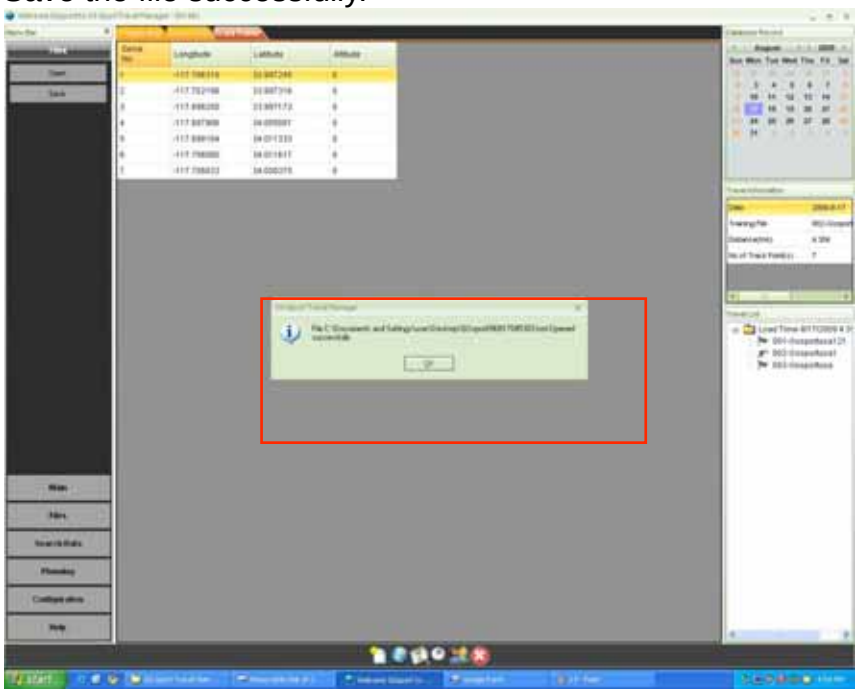


11.5 - 2 Save file

➢ 1st Step: Save the file as **gpx**, or **kml** format.

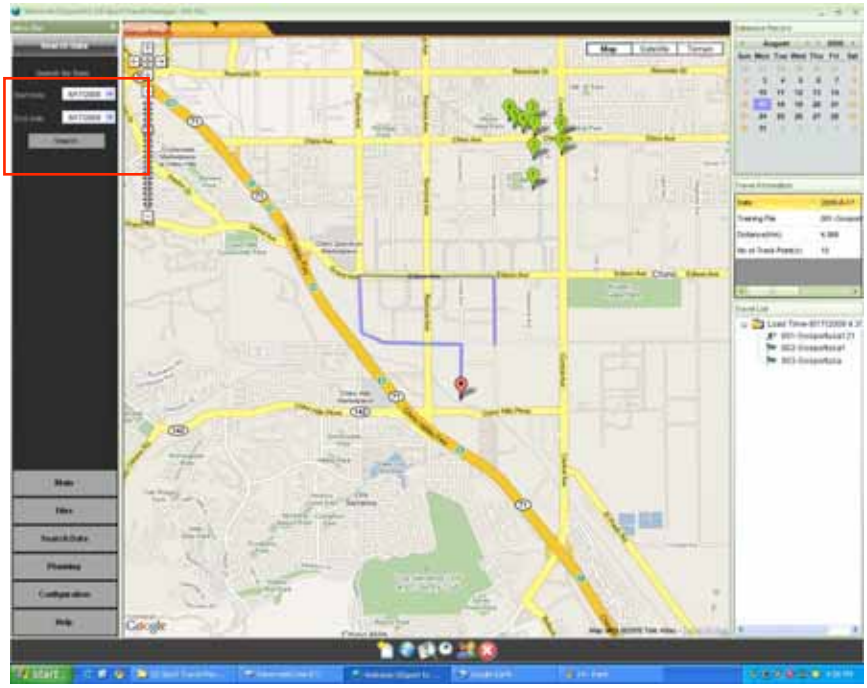


➢ 2nd Step: Save the file successfully.



11.6 Search Menu

- Search the travel data by date

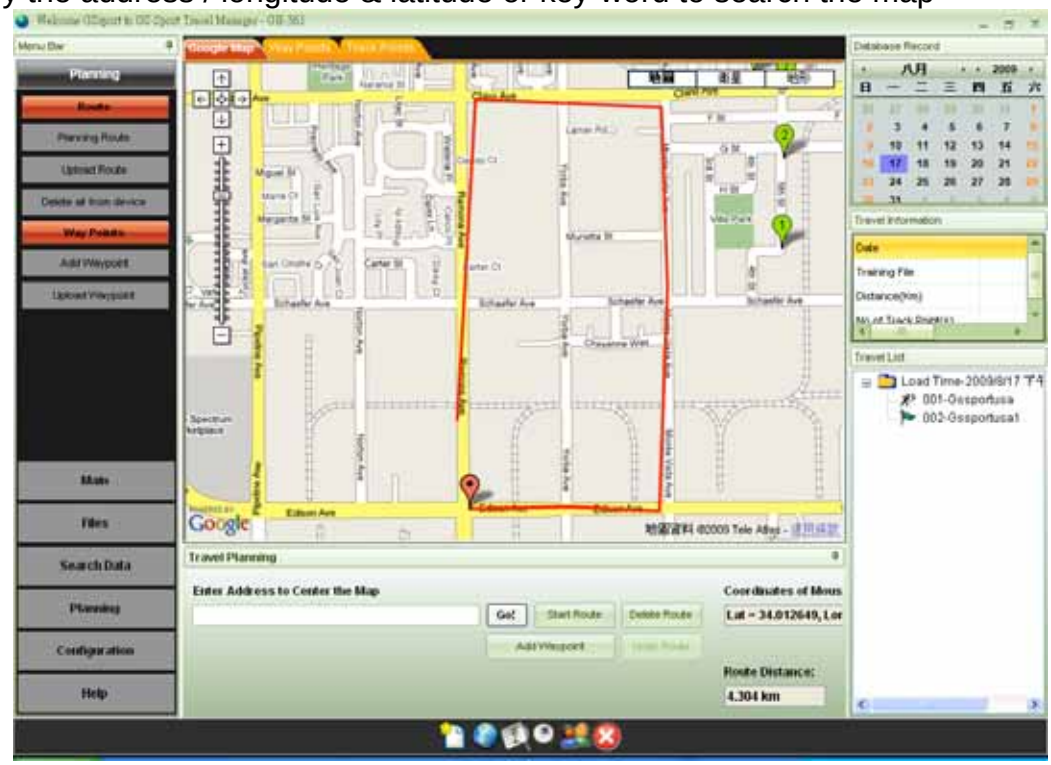


11.7.1 Planning Menu

11.7.1 - 1 Planning Route

In GS-Sport Travel Manager, click [Planning] > [Planning Route]

Start to plan route on map, click every points step by step. Press '' End Route'' stop planning route.
Or key the address / longitude & latitude or key-word to search the map



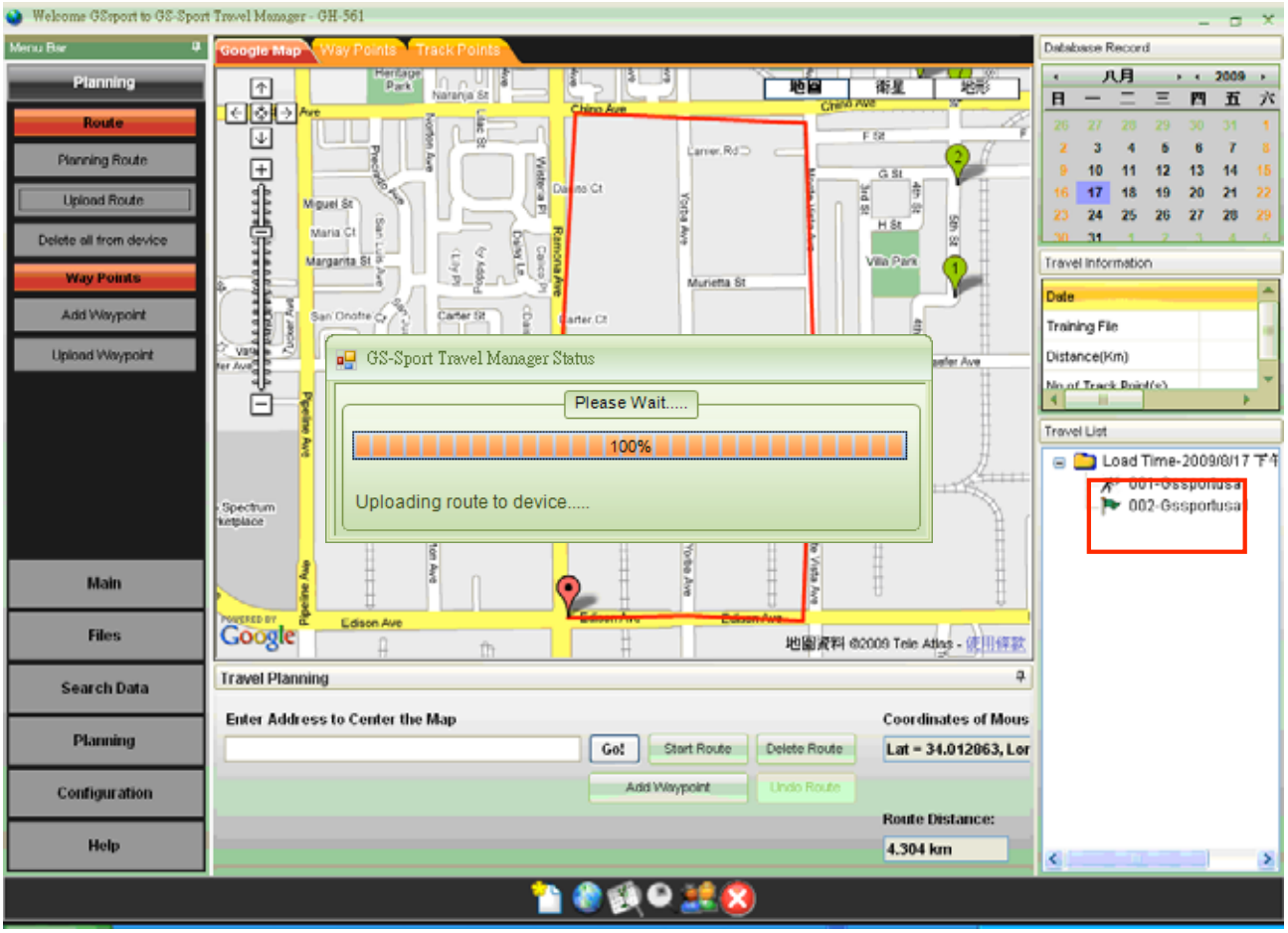
- Delete Route : Cancel the whole route you just planned
- Undo Route : Cancel last of one track you just planned.

11.7.1 - 2 Upload Route to GH-561 device

- 1st step : Connect GH-561 to your PC with the USB cable, then the device will show '' Connect To PC'', please press'' YES''

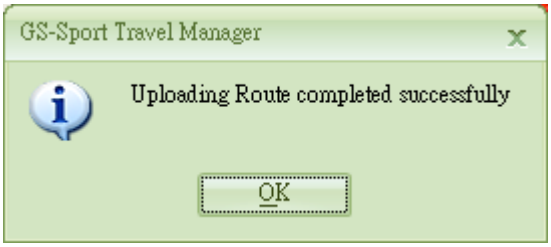
- 2nd Step : The device will show ''Synchronize To PC '' automatically.

- 3rd Step: On Travel Manager, click [Planning] > [Upload Route] to select the data (right bottom column) you want to transmit. When the download procedure is processing, the progressing message will be displayed on screen.



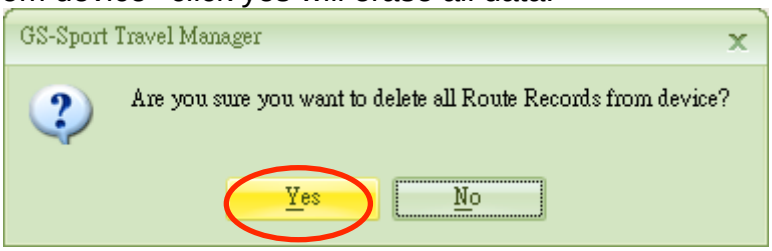
- 4th Step: Once the data succeeded in transmitting, device will show ''Route data download O.K''

- 5th Step: The travel manager will show'' Uploading Route completed successfully''

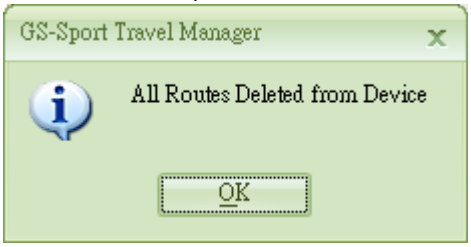


11.7.1 - 3 Delete All From Device

- 1st step: Connect GH-561 to your PC with the USB cable. On Travel Manager, press [Planning] > [Delete all from device]
- 2nd Step: The window will show'' are you sure you want to delete all route records from device'' click yes will erase all data.



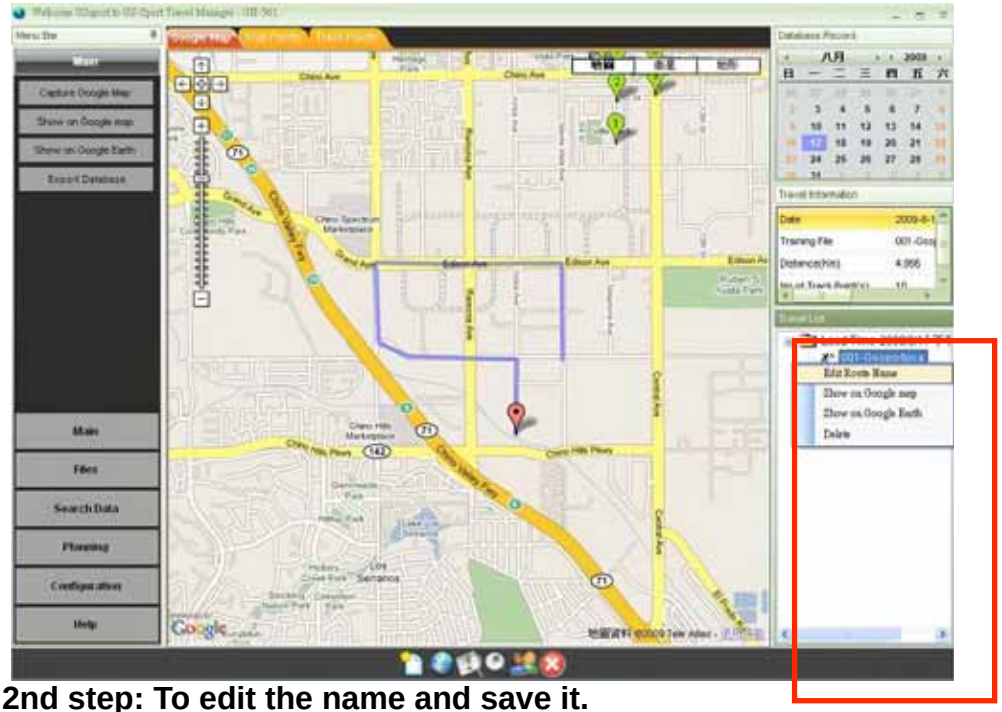
- 3rd Step: Once all data be deleted, the window will show as below



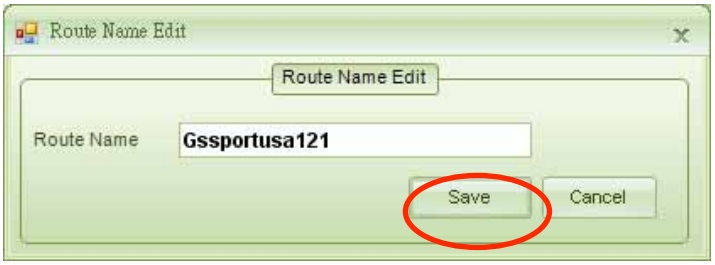
- 4th Step: The device is clean.

11.7.1 - 4 Edit Route

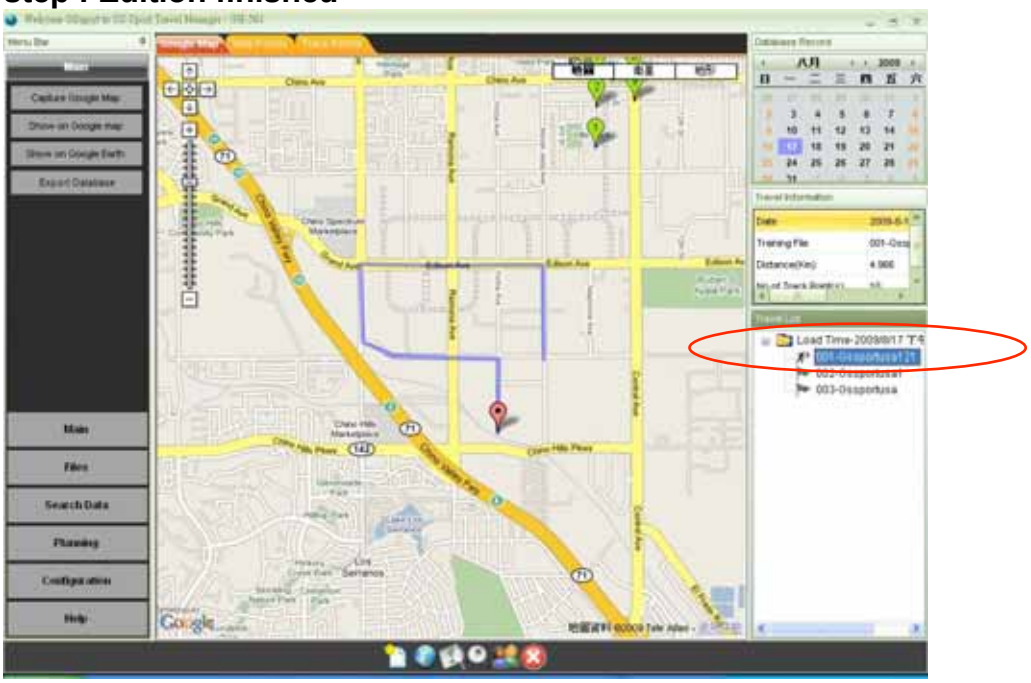
- **1st step: Select the data on right column and click the right button on the mouse.**



- **2nd step: To edit the name and save it.**



- **3rd step : Edition finished**

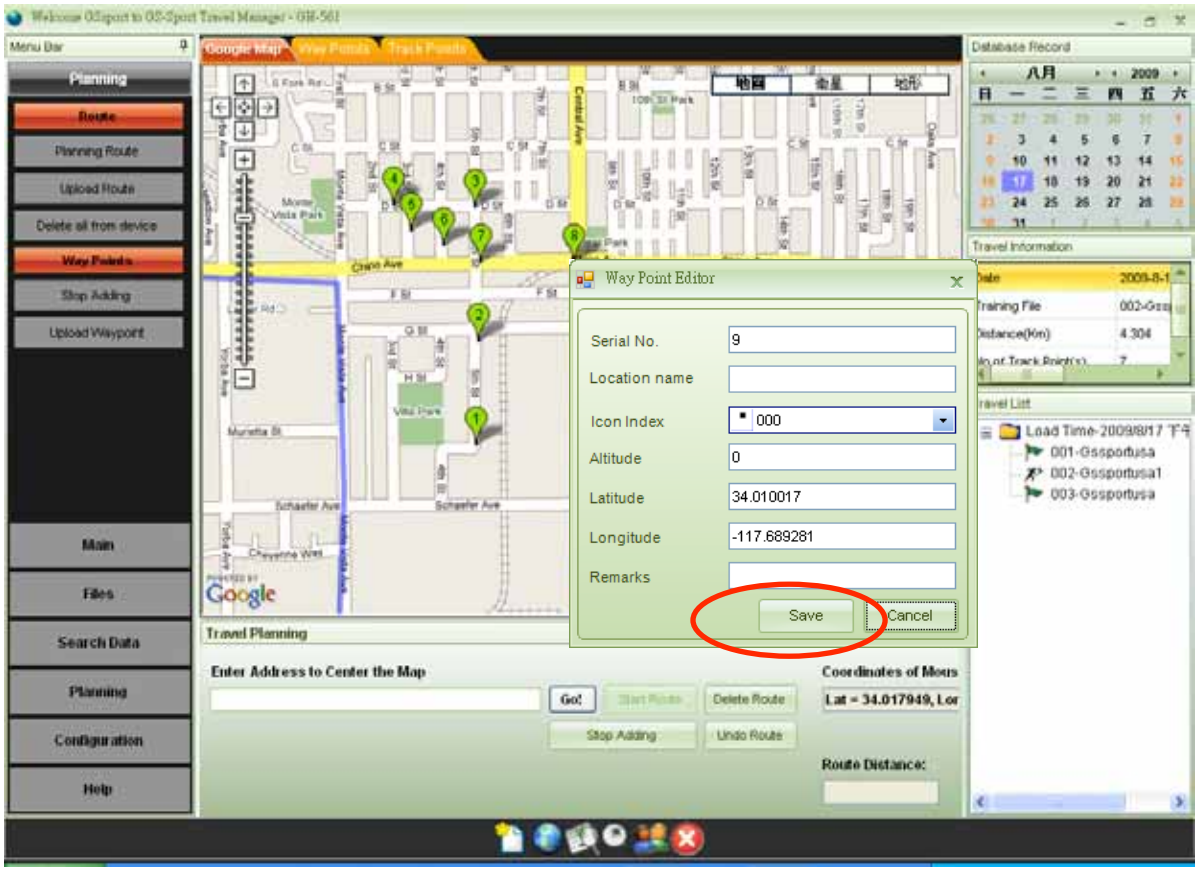


11.7.2 Waypoint

11.7.2 – 1 Add Waypoint

In GS-Sport Travel Manager, click [Planning] > [Add Waypoint]

Click the Google map to add waypoint. Press [Add waypoint] icon on the bottom then create the waypoint.
Press [Stop waypoint] icon to finish waypoint.

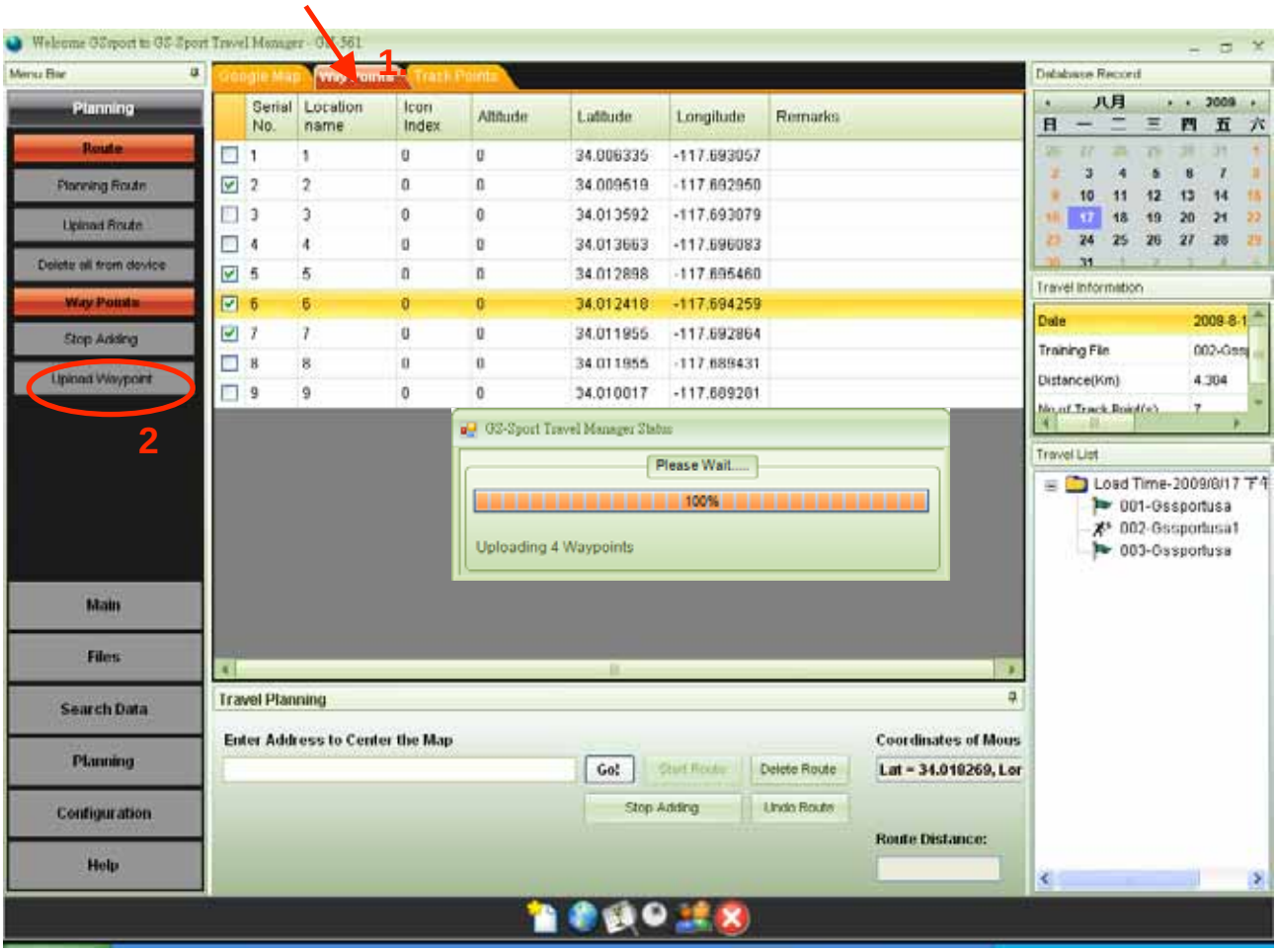


11.7.2 – 2 Upload Waypoint to GH-561 device

- 1st step : Connect GH-561 to your PC with the USB cable, then the device will show '' Connect To PC'', please press'' YES''

- 2nd Step: The device will show ''Synchronize To PC '' automatically.

- 3rd Step : On Travel Manager , select the '' waypoint'' bar to choose the waypoints you want to transmit. Then click the [Planning] > [Upload Waypoint] to select the waypoints you want to transmit.

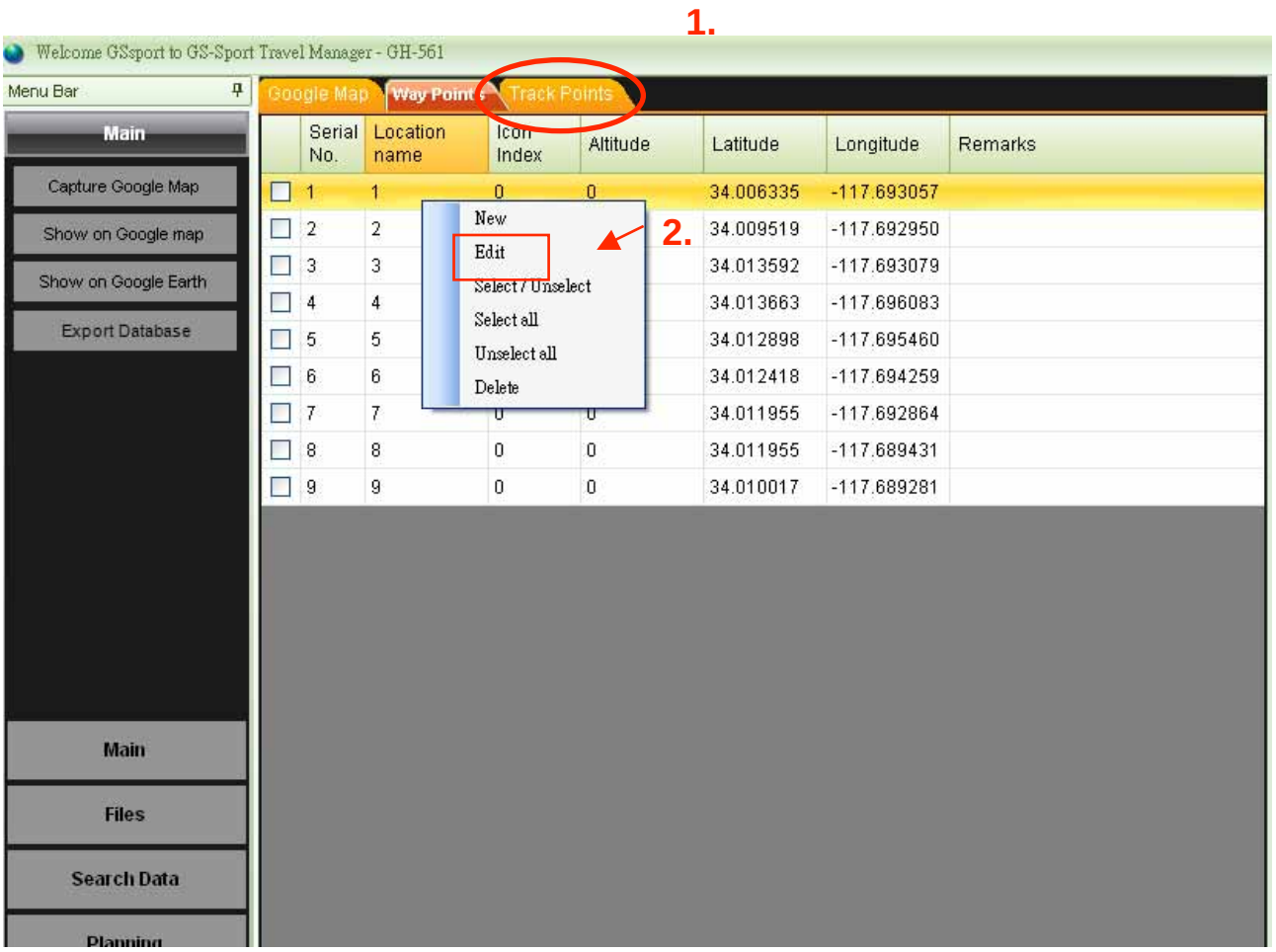


- 4th Step : Once the data succeeded in transmitting, device will show ''Route data download O.K''

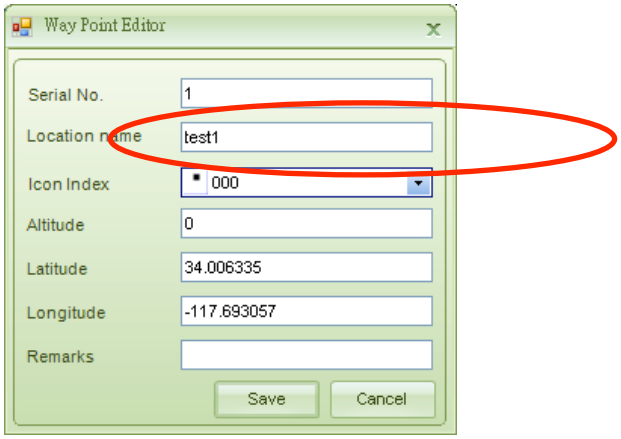
- 5th Step: The travel manager will show'' Uploading Route completed successfully''

11.7.2 – 3 Edit Waypoint

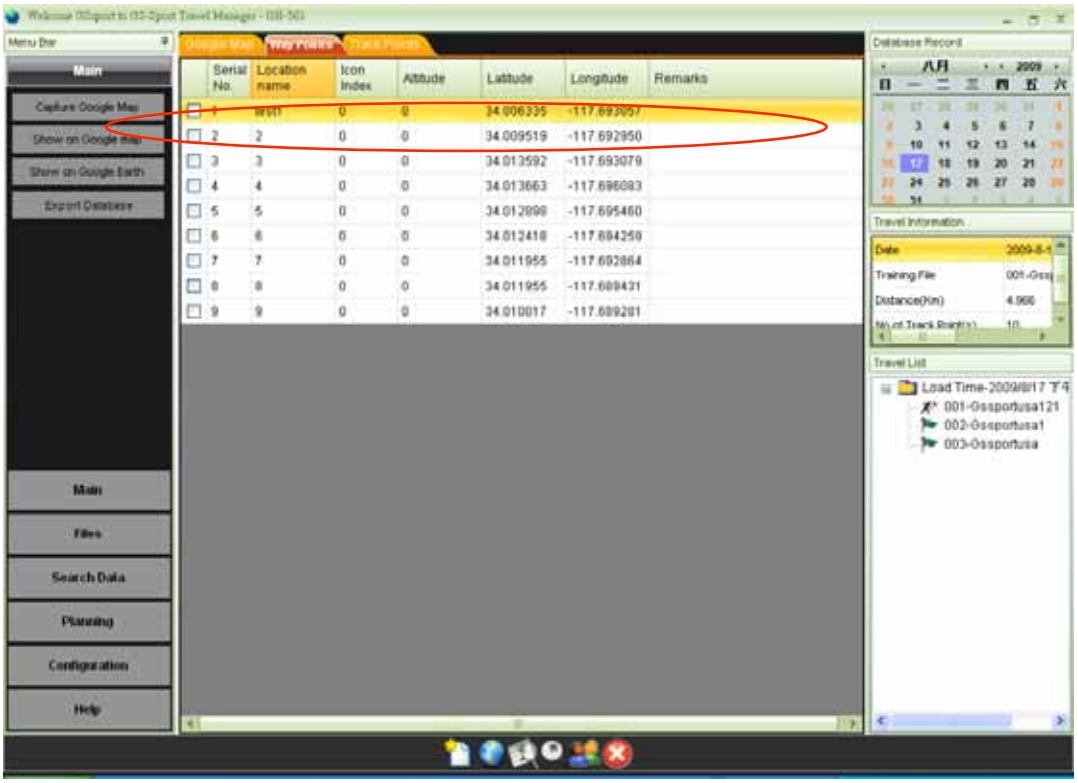
- **1st step :Select the waypoint click the right button on the mouse.**



- **2nd step: To edit the name and save it.**



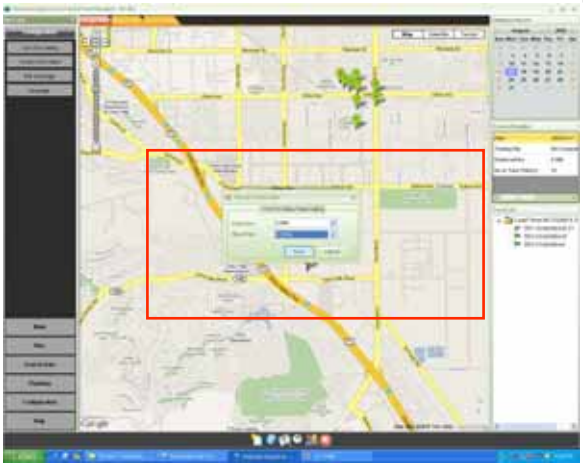
- **3rd step : Edition finished**

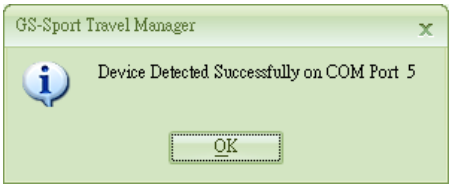


11.8 Configuration Menu

11.8 – 1 Com Port Setting

- Scan COM Port" button. COM port will be automatically scanned.



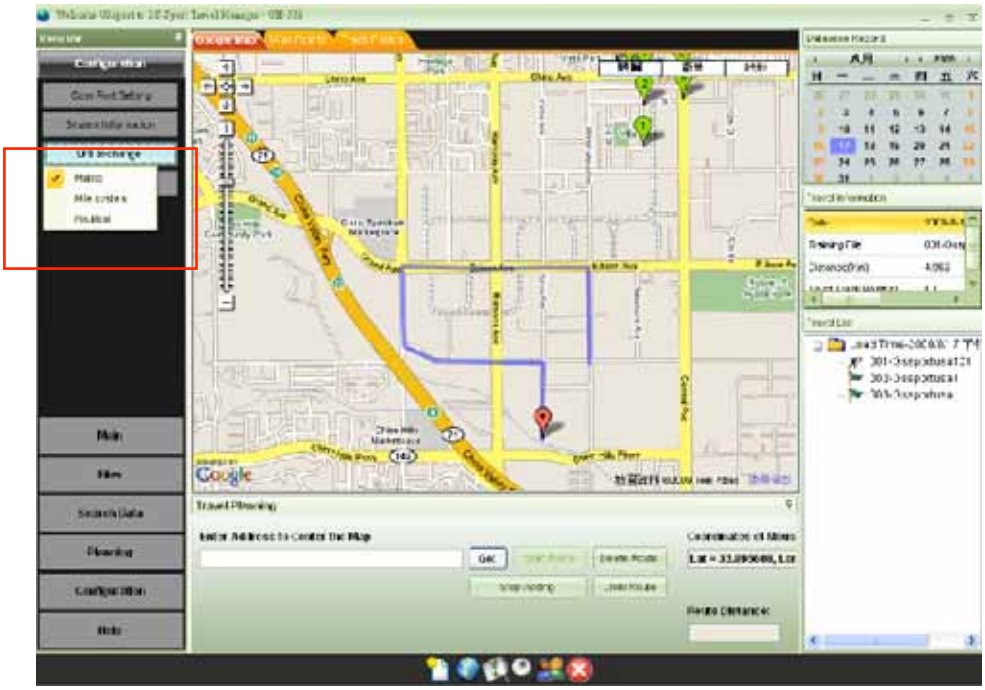


11.8 – 2 System Information

- Show system information on window

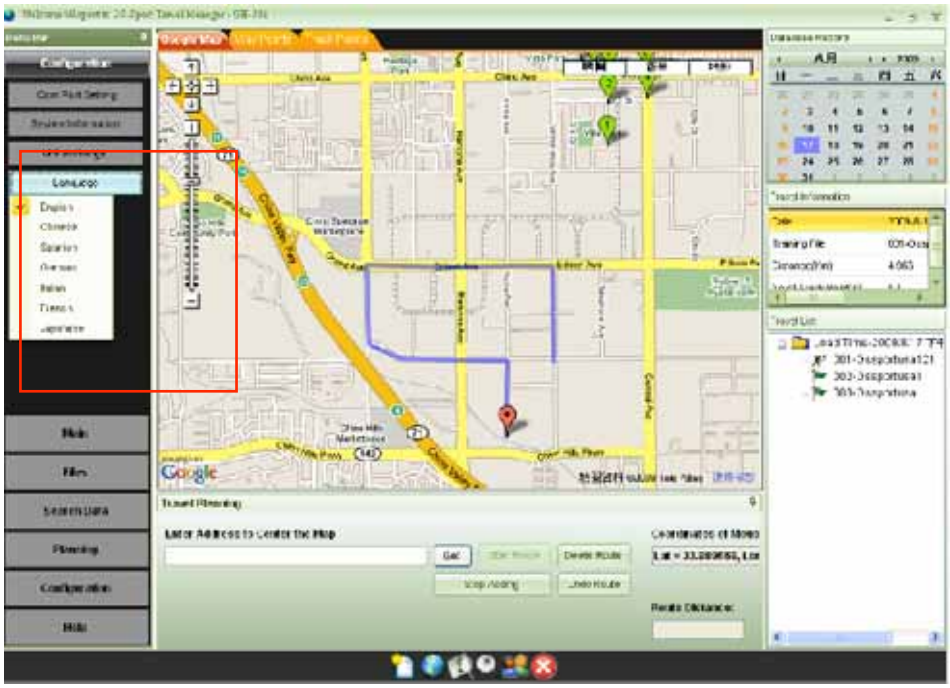
11.8 – 3 Unit Exchange

- Three Unit selection(Metric, Statute and Nautical)



11.8 – 4 Language

- Six Languages, English, Traditional Chinese, Spanish, German, Italian, French and Japanese



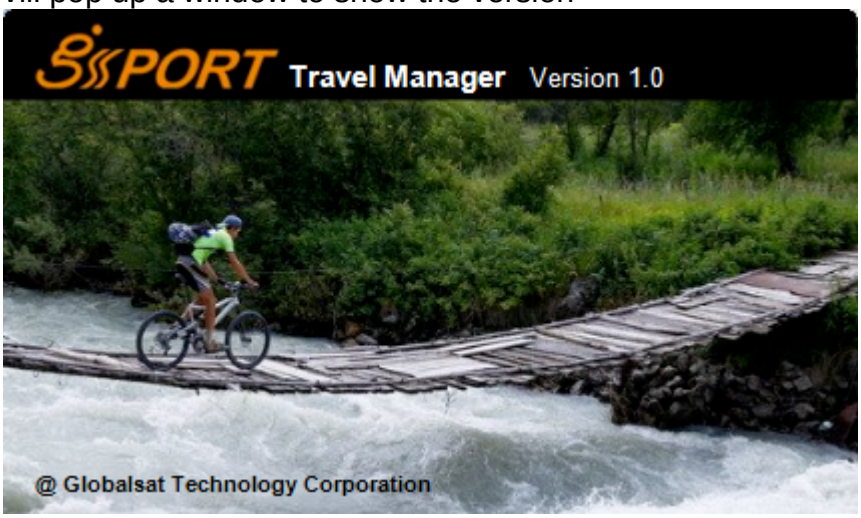
11.9 Help Menu

11.9 – 1 Check Update

- Check the latest version

11.9 – 2 About GS-Sport

Will pop up a window to show the version



11.9 – 3 About US

Will connect to Globalsat website directly. The line is
http://www.globalsat.com.tw/eng/index.htm

12. Maintenance

12.1 Take care of you GH-561

- Do not store your GH-561 in an extremely high or low temperature environment.
- Use a dampened cloth to clean your GH-561 and wipe dry. If necessary, apply mild detergent solution to the cloth. Do not use strong chemical solvents or it may damage the plastic surface.

13. Glossary

Activity	Relates to data being transmitted from GH-561. Activity is a history or log of events. Activity data includes time or distance updates.

Waypoint	Waypoints are sets of coordinates that identify a point in physical space. For the purposes of terrestrial navigation, these coordinates usually include longitude and latitude, and sometimes altitude (particularly for air navigation).
Trackpoint	The current moving trace.
Navigation	The act of determining the course or heading of movement.
2D Operating Mode	A “two-dimensional GPS position fix” includes only horizontal coordinates. It requires a minimum of three visible satellites.
3D Operating Mode	A “three-dimensional GPS position fix” includes horizontal coordinates, plus elevation. It requires a minimum of four visible satellites.
Weak Signal	GPS signal is weak (GPS is fixing).
Receiving	Can’t find GPS (GPS turned off or broken down).
WAAS/EGNOS	Wide Area Augmentation System / European Geostationary Navigation Overlay Service. These are two satellite-based systems that can be used to increase the accuracy of GPS position fixes.
IPX4	The IPX4 waterproof standard is for device to protect against splashing water without any adverse operational effects.
GMT	Greenwich Mean Time (GMT) is a term originally referring to mean solar time at the Royal Observatory, Greenwich in England. It is now often used to refer to Coordinated Universal Time (UTC) when this is viewed as a time zone, although strictly UTC is an atomic time scale which only approximates GMT in the old sense. It is also used to refer to Universal Time (UT), which is the astronomical concept that directly replaced the original GMT.

FCC Notices

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

FCC RF Exposure requirements:
This device and its antenna(s) must not be co-located or operation in conjunction with any other antenna or transmitter.

NOTE: THE MANUFACTURER IS NOT RESPONSIBLE FOR ANY RADIO OR TV INTERFERENCE CAUSED BY UNAUTHORIZED MODIFICATIONS TO THIS EQUIPMENT. SUCH MODIFICATIONS COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

14. Troubleshooting & FAQ

1. Why does it show "PC com port error" when I download data?

Solution:

(1). Please check if the USB driver is installed or not.
(2). Connect GH-561 to your PC with the USB cable.
(3). Double click the "GH561 GS-Sport Travel Manager" icon from desktop to start the application.
(4). From Configuration bar click "Com Port Setting", and click "Scan ‘’ button. The COM port will be automatically scanned.

2. How do I keep my database when upgrade GS-Sport Travel Manager with new version?

Solution:

(1) Select [Main]-> [Export Database] to export database to route where you want to save.
(2) Uninstall and re-install the later software.
(3). Select [import data] from Login menu to import database.

3. What kind of files format does GS-Sport Travel Manager support?

Solution:

GS-Sport Travel Manager supports standard GPX (GPS Exchange Format) and KML (Google Earth Format).

4. Why can I export data to Google Earth, but can't export data to Google Earth Pro?

Solution:

Since the installed directory are different between Google Earth and Google Earth Pro, sometimes you can't wake up it directly by click on GS-Sport Travel Manager Software; you have to follow the bellowing procedure to wake up it:

(1). If GS-Sport Travel Manager can't show the map to the Google Earth or Google Earth Pro, the pop-up message will ask you if want to modify the directory or not.

(2). To find the directory of Google Earth or Google Earth Pro you installed, choose the googleearth.exe then click OPEN to finish.

(3). Finally, the Google Earth or Google Earth Pro could be opened.

5. How can I uninstall GS-Sport Travel Manager?

Solution:

(1). Use uninstall function from Windows menu:
Start > Programs > Globalsat GS-Sport > Uninstall GS-Sport Travel Manager
(2). Use add/remove program from Windows control panel:
Start > Setting > Control panel > Add/Remove program, search for GS-Sport Travel Manager and uninstall.

6. Why I installed the GS-Sport Travel Manager, but pop-up message shows "the service is not ready"?

Solution:

(1). Please reopen the software and the database will active automatically.
(2) Please confirm that the firmware 2.0 or late has been installed.

7. Why do I feel the guiding of GH-561 not as expected?

Solution: (1). Please make sure is there any magnetic interference close to device
(2). Please follow the instruction of user manual to calibrate compass
(3). The poor reception from GPS signal will effect performance as well, Please toward to sky to keep good signal.

8. Why can't my GH-561 communicate with PC?

Solution:

(1). Please make sure that you have installed STM32 USB driver.
(2). Please make sure the com port has been set correctly

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