

# Quick Guide to GR-106, GPS

## Data Logger and Receiver

### Overview

In addition to per-second location data output, [GR-106](#) also supports location data log in local memory. After a trip is completed, the logged location data could then be uploaded to PC for further processing.

For navigation, GR-106 could be connected to a computing device, such as a PC. GR-106U is equipped with a type-A USB connector for connection to USB port. The per-second data output is then used by the navigation software running on the computing device.

The logging activities could be configured and managed by the utility [NaviLog](#)\* running on PC Windows. For pure logging purpose, GR-106U could be connected to a power source, e.g. a car charger or battery bank with USB connector.

### Connected via USB port

GR-106U supports USB port connection using the PL-2303 USB to serial bridge controller. For such kind of application, one should install the driver before use. The document of “[USB Driver Quick Installation Guide](#)” is provided as an aid to the driver installation.

### Navigation Support

- Serial port: [9600bps](#); No parity, 8-data bit, 1 stop bit
- Protocol: NMEA v3.01
- Sentences: GGA, GSA, RMC, VTG @1Hz, GSV@0.2Hz

### Logging Support

A location data is logged to the embedded memory only when it is powered and location is fixed. The [NaviLog](#)



utility and related [interface protocol](#) could be used for logging management.

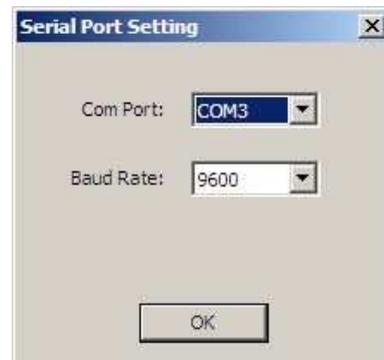
### NaviLog

To run NaviLog, double click on the program file's icon.



### Startup

Set the serial port by choosing an appropriate COM port number and the Baud Rate of 9600. The COM port converted by USB controller could be checked as below: [Windows Start → Setup → Control → System → Hardware → Device Manager → Connection Port \(COM & LPT\)](#)



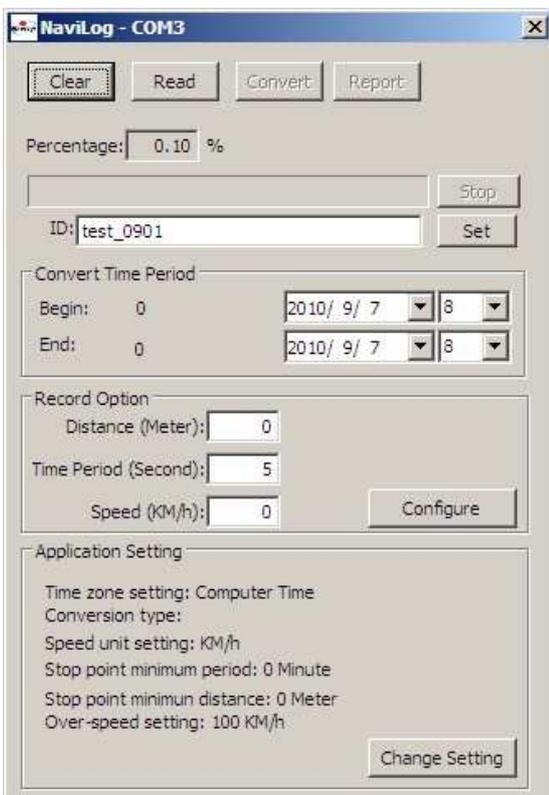
Click on button [OK](#), it is prompted whether to open the old log file. Every time users [Read](#) the logged data, the data will be also stored in a default temporary file “TraceLog.ltp” on the working directory. One could use [NaviLog](#) utility to read the logged data from the GR-106 directly, or from the old log file.



After entering the NaviLog utility, it shows the log status of GR-106. Following picture shows the percentage of used memory.

**Percentage:** 0.00~100.00, in this example, it's 0.10%.

**Percentage indication bar:** It shows the percentage of memory usage, and the percentage of process during **Read** and **Convert**.



### Simple Steps to use NaviLog

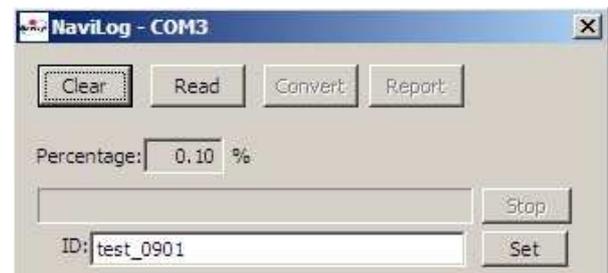
1. **Set ID** to distinguish each GR-106 if necessary
2. **Configure Record Option** before log if the parameters other than default values are desired
3. Auto log during the trip

4. **Change Time zone in Application Setting** if not to use the default Computer Time
5. **Read** the logged data
6. Change other parameters in **Application Setting** if necessary before **Converting** the logged data
7. **Convert Time Period** could be specified if only part of trip needs to **Convert**
8. Use **Report** to locate the working directory that stores the converted files
9. **Clear** the logged data to prepare for next trip

### ID setting

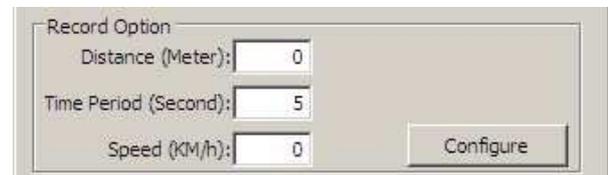
This device allows one to set a personal ID with maximum length of 32 printable characters associated with this device. To set the ID,

- Enter the preferred characters in **ID** field.
- Press **SET** button and the ID setting is done.



### Configure Record Option

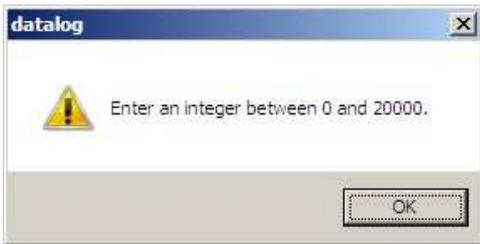
Three logging parameters can be configured. They are displayed in the "Record Option" block. These three options are described as following (metric):



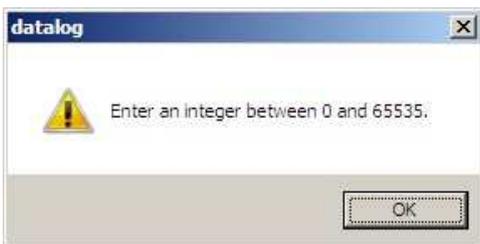
Following figure is for Imperial Unit.



**Distance (Meter):** (0~20000) Log the position data by checking if the distance between this and previous point exceeds this value. For imperial unit only, the entered value is multiplied by 10 as the final distance setting.



**Time Period (Second):** (0~65535); Log the position data by checking if the time period between this and previous point exceeds this value.



**Speed (KM/h):** (0~4000); Log the position data by checking if this point's speed exceeds this value.



Please note that

1. After the setting, be sure to click **Configure** button to commit the setting. Otherwise, the setting is not valid. Once it is committed, it will prompt with committed result for your confirmation as shown in following

picture.

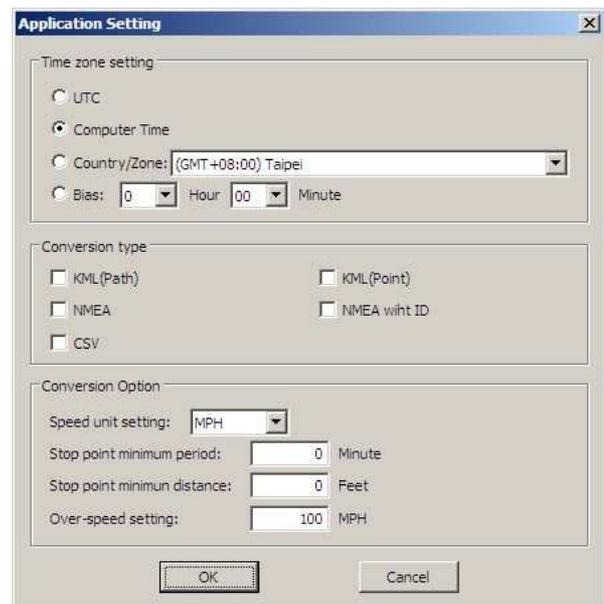


2. Once it is connected, NaviLog will read out the configuration and display them in the "Record Option" block.
3. If multiple parameters ("Distance", "Time Period", and "Speed") are set, a point is logged only if the combinations (AND) of the specified conditions are met.
4. If value of options "Distance", "Time Period", "Speed" is 0, it is ignored. If all these three parameters are 0, per-second logging is used.

Please note that the logging will start once the power is turned on and the position is fixed. The logging will stop when local memory is full.

### Time Zone Setting

Click on **Change Setting** in the **Application Setting** block allows one to set the preferred Time Zone.



There are four choices to set time zone for reading – UTC, Computer time, Country/Zone, and Bias. Choose one by clicking the corresponding radio button. Either one of them is ok for the setting.

**UTC:** is the GMT time zone

**Computer time:** is the time zone used by the computer

**Country/Zone:** allows one to select one from a list.

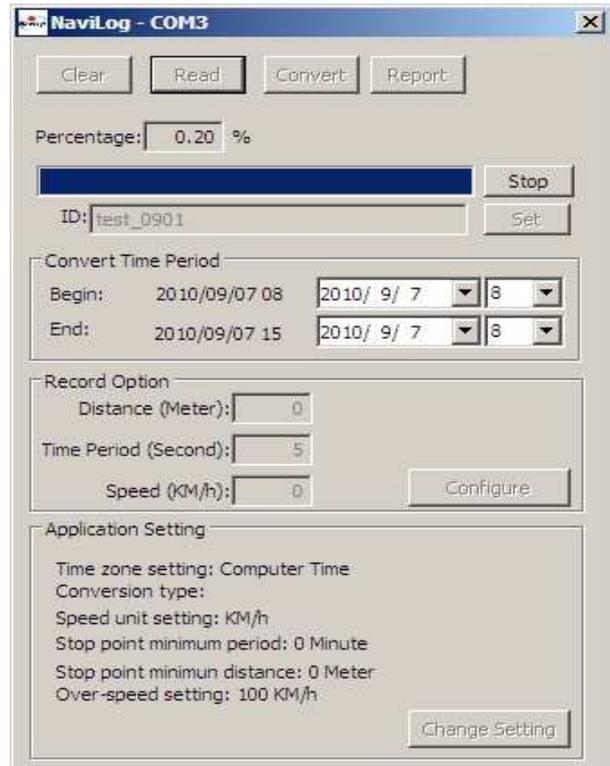


**Bias:** allows one to specify the time difference to GMT time directly.

Click on **OK** button for applying the setting or **Cancel** button for canceling the setting anytime during the setting.

### Reading Logging Data

To read (upload) the logged data, press the **Read** button.



**Percentage indication bar:** showing the reading status

Note: Pressing **Stop** button stops the reading.

### Reading Done

After all the data are read, it shows the mileage summary.



The mileage summary is the result from the first (start) to the last (stop) logged data. Please note that the **Begin** time and **End** time depend on the time zone setting. The unit of **Total mileage** also depends on the Imperial or Metric unit is set. If KM/h is selected, it is KM. If MPH is selected, it is Mile.

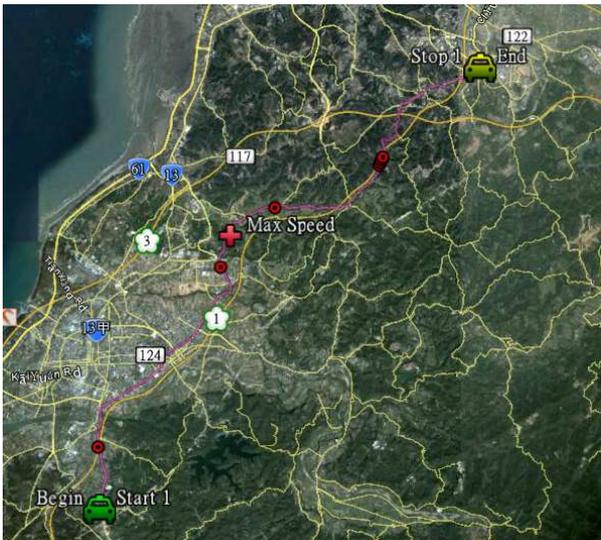
### Conversion type Setting

The uploaded data is stored in computer in encoded format. Five formats could be converted from the

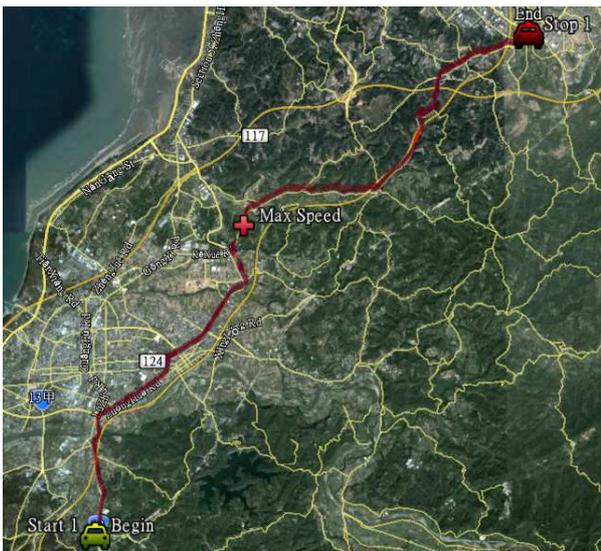
encoded one. Click on **Change Setting** in the **Application Setting** block to select the formats to convert.



**KML (Path):** Google Earth format that displays positions with continuous path. Following picture is an example.



**KML (Point):** Google Earth format that displays positions with points. Following picture is an example.



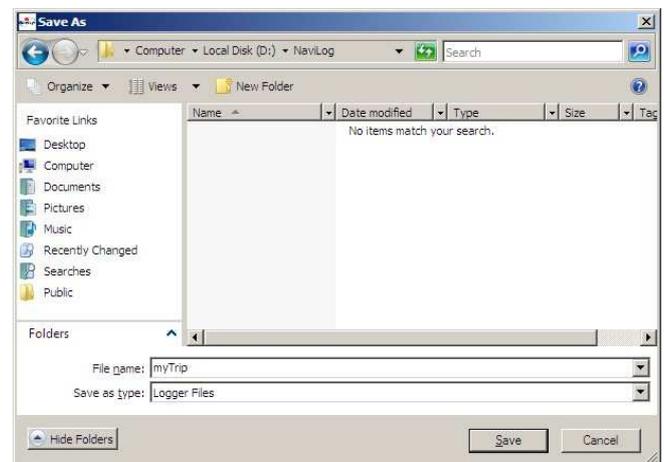
**NMEA:** Data are stored in format of GGA and RMC. This data could be further used to convert data into many other formats.

**NMEA with ID:** Data are stored in format of RMC prefixed by ID.

**CSV:** Data are stored in excel common separated value format. It is useful data for trip analysis purpose.

### Converting

Before the conversion, it prompts for a pathname to store those converted files.



For example, the filename is **myTrip**. It generates 5 files using the filename **myTrip** and default appendix.

- myTrip.txt** for format **NMEA**
- myTrip\_id.txt** for format **NMEA with ID**
- myTrip.csv** for format **CSV**
- myTrip.kml** for format **KML (path)**
- myTrip\_point.kml** for format **KML (point)**

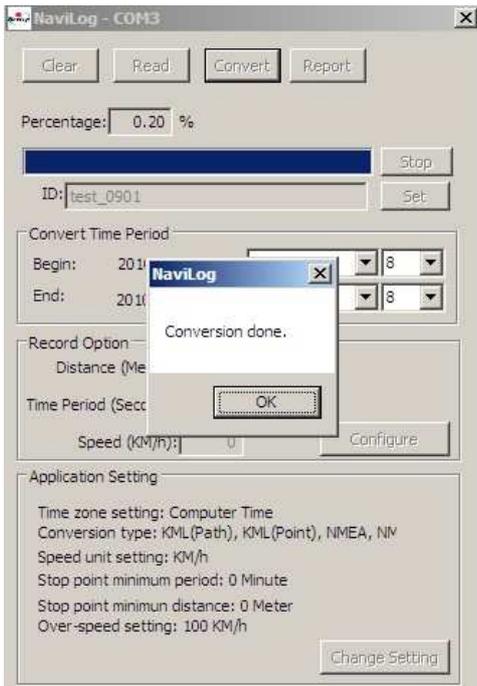
After **Save** button is pressed, the conversion goes on immediately.

**Percentage indication bar** shows the conversion progress.

Note: Pressing **Stop** button before it is done stops the conversion.

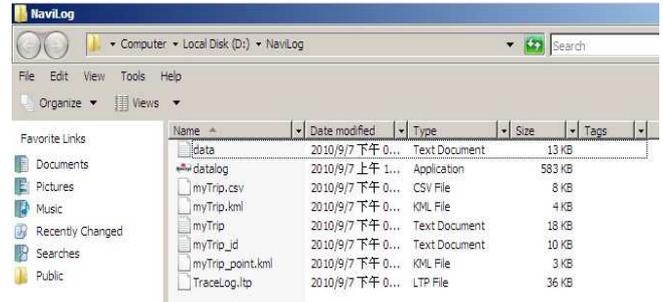
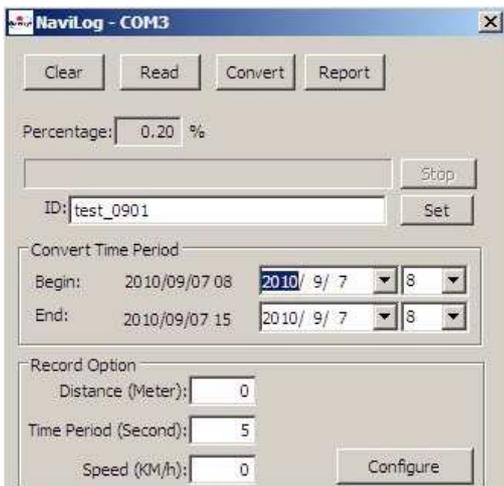
After the conversion is fully done, it prompts the **Conversion done** message and requests pressing the **OK**

button to continue.



## Report

The related files specified in Conversion type are created accordingly after **Converting**. Just activate **Report** function to check the working directory where the files are created.

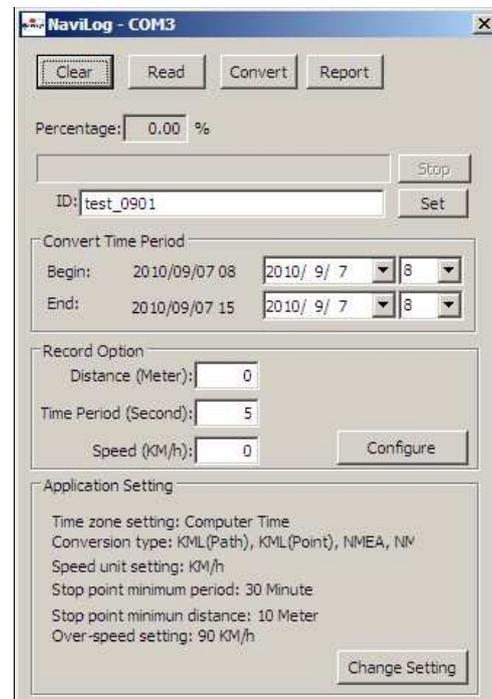


## Clearing

To clear the logging memory, click the **Clear** button. After it is clicked, it prompts for confirmation of data clearance.



Press button **OK** to clear the data or button **Cancel** to cancel the clearance. If button **OK** is pressed, there is no logged data and thus value of 0.00% is displayed as shown in following picture.



## Other Conversion Options

**Navisys Technology Corp.**

Tel : +886-3-5632598

Sales contact: [sales@navisys.com.tw](mailto:sales@navisys.com.tw)

Address: 2F, No.56, Park Ave. II, Science-Based Industrial Park, Hsinchu 300, Taiwan (R.O.C.)

<http://www.navisys.com.tw/>

Fax: +886-3-5632597

Technical support: [support@navisys.com.tw](mailto:support@navisys.com.tw)

Following options could be used when doing the conversion:

Conversion Option

Speed unit setting:

Stop point minimum period:  Minute

Stop point minimum distance:  Meter

Over-speed setting:  KM/h

### Speed Unit:

Conversion Option

Speed unit setting:

Stop point minimum period:  Minute

Stop point minimum distance:  Meter

Over-speed setting:  KM/h

One can choose one from m/s, KM/h, MPH. This unit selection would be used to generate related data (trip summary, KML, CSV etc). If the selection is **KM/h**, then the **unit** in setting is **metric**. On the contrary, if the setting is **MPH**, the **unit** in setting is **imperial**.

Conversion Option

Speed unit setting:

Stop point minimum period:  Minute

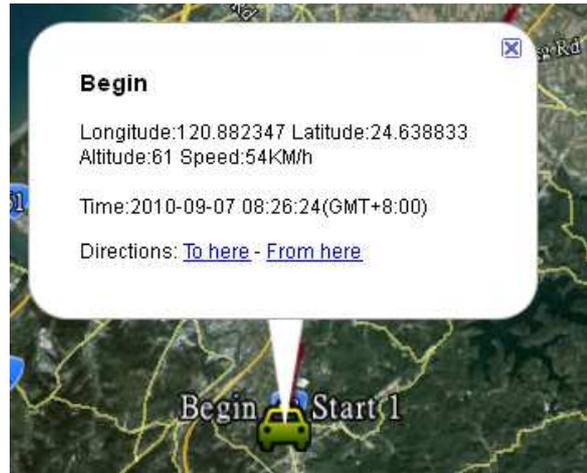
Stop point minimum distance:  Feet

Over-speed setting:  MPH

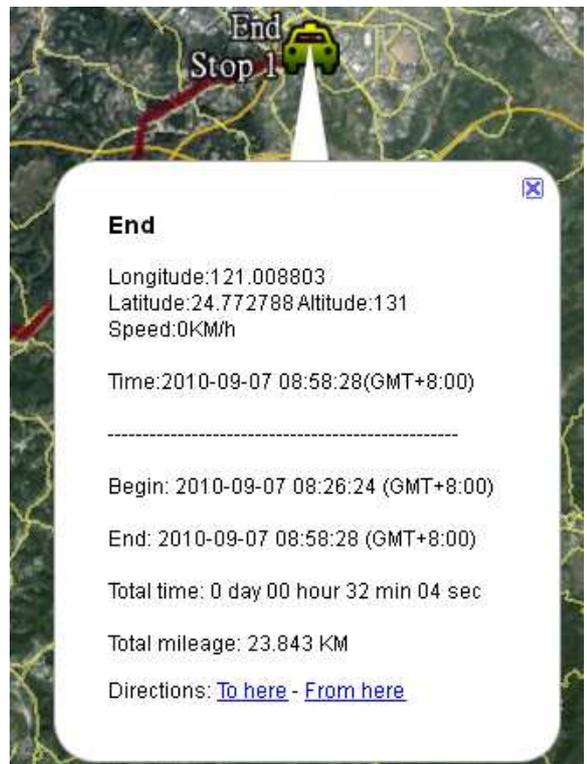
### Special Trip Points

The following special trip points are shown in the trip on the Google Earth.

**Begin:** Begin point is the first data in the data logger.



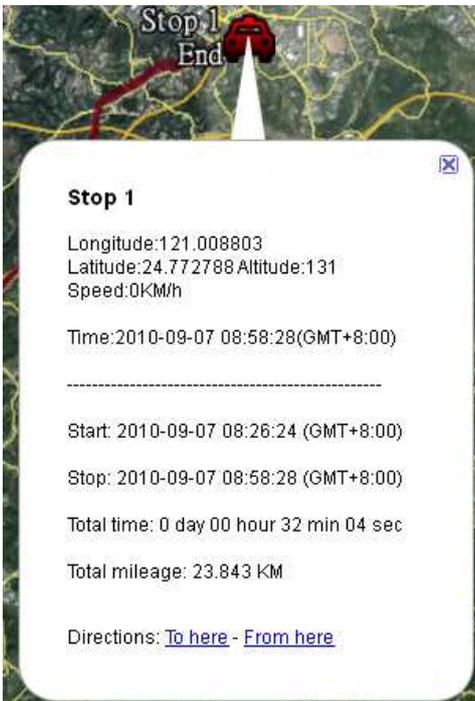
**End:** End point is the last data record in the logger. It also summarizes the full trip information. The total mileage is from Begin to End points.



**Start:** The full path from Begin to End is divided into multiple sub-paths by stop points. Start point is the first point of each sub-path. Start 1 is the same as point Begin.



**Stop:** Stop point is the last point of each sub-path. It also summarizes the sub-path trip data. The total mileage is from start point to stop point. The last stop point is the same as point End. Please note that the mileage of End is greater than the sum of those in stops.



**Max speed:** Max speed point is the point with maximum speed in the full trip.



**Over-speed:** Over-speed point is the point with speed more than that defined in Over-speed Setting.

### Stop Point Minimum Period, Stop Point Minimum Distance:

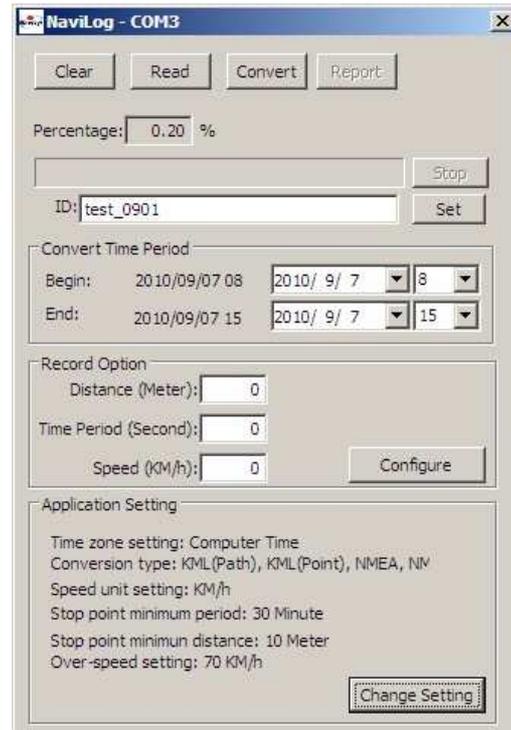
These two options are used to qualify a stop point. A stop point is a point where there is no movement for time period longer than **Stop Point Minimum Period**. In real case, during the stop point time period, there might be some small movements around this point. For this reason, the additional option **Stop Point Minimum Distance** is used to define the distance of movement. The final result is that several points within distance of **Stop Point Minimum Distance** and time period longer than **Stop Point Minimum Period** will be represented with a single stop point.

Please note that this setting is valid only during converting. It takes no effect during logging or after conversion is done.

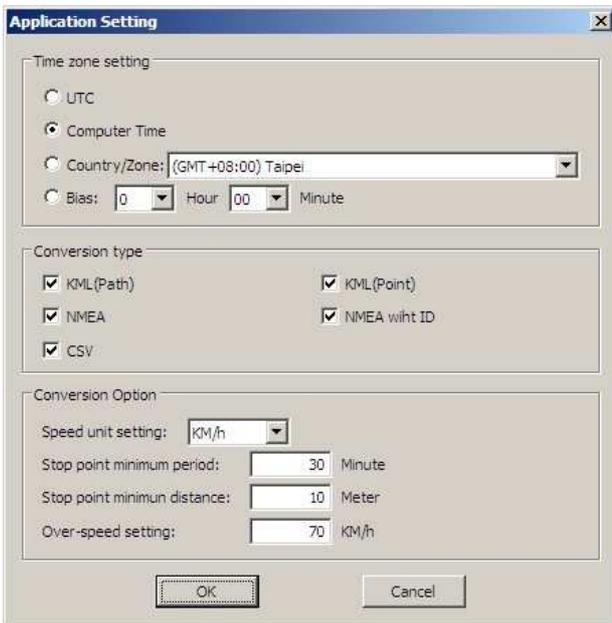
In KML (points) conversion, please note that the **Stop Point Minimum Distance** will also be used to reduce number of points located less than this value into a single point.

### Over-speed Setting:

A point is qualified as an over-speed point if the speed is greater than this value. For example, 70KM/h is set and points with speed greater than this value is represented by red circles in following picture.



Following picture is an example setting.



After the **OK** button is clicked.

### Tips for Google Earth Viewing

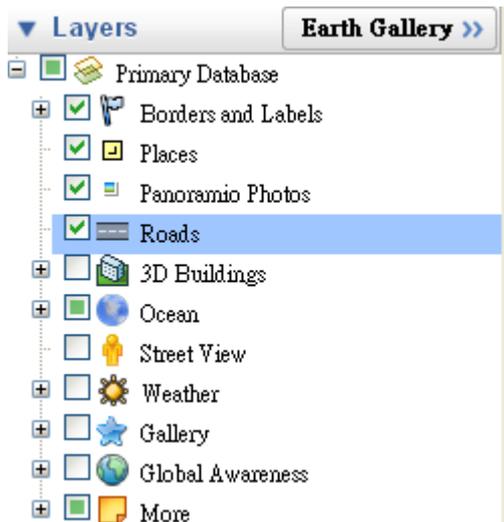
#### View path by moving time selector

After clicking on a ".kml" file, Google Earth displays the path automatically. There is a time selector in top of the display window. One can move the left or right time selector to see exactly where one has been to during that time period. Following is an example of time selector.



#### View path together with local map

Please note that if you prefer to view with road information, be sure to turn on the roads option under Layers menu in the Google Earth Side Bar. Please also note that local map may be not available in the interested region.



\*NaviLog is for reference purpose only.

\*This document is subject to change without notice.