GPSsim

GPS-Simulator

download from GPS-receiver

manual set-positions

| file selection | replay- | GPS-string | altitude-diagram | playback-position |
| load   store | intervall | selection | | |

folder

restart playback | 50 records back | 100 records forward | 10 Records forward | skip | loop | wait | end | select GMT/MEZ | maximum-speed | HW-output | SAVE +EXIT

Reset at new track

minimize

Info

Functions

GPSsim application is software based GPS device simulator.
GPSsim plays back NMEA data that was saved previously. It is also possible to generate custom NMEA data.
GPSsim allows you to test various PC-based navigation programs as well as use it as data logger application to track vehicle location

The NMEA-formatted data, (e.g. produced with FUGAWI or attached NAW.EXE) as well as track log(s) from GPS receiver, must be used in order for **GPSsim** to proper operate. GPSsim has an option that allows users to download track logs directly from GARMIN GPS receivers. Several applications, such as PCX5, GARDOWN, G7To, G7ToWin, TTQV or OziExplorer, could be used to produce NMEA data files that are suitable for **GPSsim.** Moreover, the NMEA data could be generated with **GPSsim.**

The NMEA data files should have an extension of *(.nma)* or *(.log).* The track log files should have an extension of *(.trk)* or *(.trl).*

While in NMEA playback mode, the following features are available:
playback speed change, infinite loop mode, skipping functionality, going forward or backward.

The chart, in the upper right corner, dynamically plots altitude (if such data supplied) graph of the NMEA data file.

The **GPSsim** provides support for non-generic NMEA strings, such as $GPVTG, etc., which are required by some navigation programs. Moreover, there is a custom selection of NMEA strings available to be transmitted to navigation program.

The data could be transmitted on communicational ports COM1 through COM9, COM1 through COM4 directly to the port, parallel ports LPT1 through LPT3, and TCP/IP.

Installation

Extract contents of the zipped file into temporary folder and execute SETUP.EXE.
The setup will create a program group called GPSSIM under Start->Programs.

To start an application click on GPSsim under Start->Programs->GPSsim.

Copy new tracklog files into the *Tracks* folder (default location is under C:\Program Files\GPSSIM\Tracks) or download it with **GPSsim** from a GARMIN GPS receiver.

Normally, **GPSsim** is installed on one PC and navigation program runs on a separate PC. The NMEA data is delivered through selectable serial connection. In order to physically connect two PC's, a crossover serial cable is used (see diagram below). Pins 2 and 3 are crossed on both ends of the cable, i.e. pin 2 on one side is connected to pin 3 on the other side, and pin 3 on one side is connected to pin 2 on the other side.
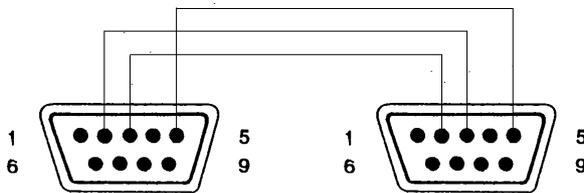
A common null-modem cable or a lap-link cable can be used.

If only one serial interface is available, the data could also be sent on the parallel interface via parallel-to-serial converter unit.

The usage of USB to Serial adapter is also appropriate in this case.

Moreover, virtual communication ports can be used with proper drivers.

If the button HW is marked, the data delivery is also possible via ports 1 through 4, if they are already used by other program. In this case, you need to short pins 2 and 3.

In order to uninstall GPSsim, go to Control Panel->Add Remove Programs, and select GPSsim from the list of installed software.

Operation

When **GPSsim** is started, you have to select an output port (COM1 to 9, port 1 to 4, LPT 1 to 3, TCP/IP).

When COM port is selected, it must not be used by another program, except for when selecting HW-output with port 1 to 4.

If LPT port is selected, a parallel-serial converter should be connected prior to starting playback. Otherwise, the only way to stop **GPSsim** is through CTRL-ALT-DEL.

If TCP/IP is selected, start the data delivery first, and then start the Navigation program.

TRACK SELECTION SECTION
In order to play back a track, using folder-button choose the directory where the tracks are stored. Then click on the track you want to playback.
(The selection is stored, if GPSsim is closed with the EXIT-key)
The track choice can be limited to NMEA-logs (button NMEA) or to track-logs (button TRK). The key ALL again shows all files.

INTERVAL SELECTION SECTION

The playback speed is adjusted in the INTERVAL-field. The CONT option produces continues playback. Using x2, x4, and x8 options from the Interval section, plays back every second, fourth, and eights NMEA data block accordingly. Using 1s, 2s, 4s, 8s options from the Interval section, delays playback by 1, 2, 4, and 8 seconds accordingly.

DATA SELECTION SECTION

Selection of NMEA string is possible from Data section of application. The NMEA strings that are not present in a log file are marked in grey and cannot be chosen (except for $GPVTG). Using OTH checkbox, all other remaining NMEA strings are chosen for playback. The PLUS-key chooses everything, and the MINUS-key makes minimum selection.

OPERATIONAL SECTION

The keys below serve the following function (starting from left to right):

|<	(RESTART)	start playback from the beginning
<	(BACK)	go back 50 records
>>	(SKIP 100)	go forward 100 records
>	(SKIP 10)	go forward 10 records / restart last track
->	(Auto Skip)	at NMEA: skip standing time with no movement at TRK: go forward to the next record at manual position: start NMEA output
<->	(LOOP)	endless playback (Demo-Mode)
Clock (Pause)		pause playback and cyclically start output of the last track
Stop (Halt)		stop playback

By clicking onto the playback-position display allows to set the positioning directly into the track.

Using fields GMT/MEZ, date-time could be set to UTC/CET.

Further operation fields:

=	time and date are equal in all data
Auto Reset	with fixed option in the TRK–mode the total value is reset with every new track
Port	here the COM–port for data output and download is set
? (Info)	program version (respectively registration with right mouse click)
X (Exit)	stores all settings and closes the program

Display:

Field in the upper right section:
- altitude diagram (if such data is present in the log file)
- In the TRK-mode new records are demonstrated by a green parting line

Field in the lower left section:
- displays NMEA strings in playback mode.

Other fields:
- Date / time of the recording
- Time / distance from starting point (trip)
- Driving direction
- Speed / top speed
- Altitude over NN, min., max.

Using MINI button will force GPSsim to minimize after the playback is started.

Download of Garmin tracks

- Set GPS receiver to Garmin mode and connect with the PC
- if needed choose another folder
- press download key in **GPSsim**
- confirm message
- eventually change COM-port
- write new filename or choose the already available
- press LOAD or ENTER

Available NMEA or track log files

Copy files into the **GPSsim** track folder (the default is: c:\program files\GPSsim\tracks)

Rename or delete tracklog files

With left mouse-key select the track you want and keep mouse-key pressed until submenu appears.
- "delete" deletes the track
- "rename" copies the filename into the input field. The name can now be changed and accepted with <ENTER>.

Virtual COM-port Driver

If two virtual ports are installed, i.e. COM 5 and COM 6, set the data output of GPSsim to port 5. The navigation program then gets the data via COM 6. It is important to start the navigation program first. Then the NMEA playback is to be started.

Direct output to a already opened port (HW) under Windows NT / XP

In case of installation problems, open command window, type **net stop io**, and hit Enter button.

TCP/IP

The data could be transmitted on the same PC, or on more than one PC. In this case, on each PC which shall receive data, a program for conversion of TCP/IP to COM must to be installed (i.e. DeviceComm-manager for Windows NT/2K/XP).

Installation of DeviceComm-Manager:
    - start DeviceComm.exe and do installation
    - call DeviceComm-Manager in Control Panel
    - mark first COM-port signed ´DISABLED´
    - click ´EDIT´
    - mark ´ENABLED´
    - at ´Host´: enter the IP-address of the computer on which GPSsim is in use
    - at ´Port´: enter 1000
    - click ´OK´
    - click at ´Settings´
    - on both fields enter 1000
    - click ´OK´
    - ´Enable Connection Status´ can be marked, to get at start and end of the connection a status report in form of
       pop-up-window
    - click ´OK`
    - reboot computer

Change km/h to miles

Clicking the buttons ´km´, ´km/h´ or ´m NN´, changes the display.

PC-Connections

| PC1 | COM1 ⇒ COM1 | PC2 |

PC1 — COM2 / COM1 ⇓

PC1 — LPT1 ⇒ Par./Ser.-Conv. / COM1

PC1 — USB ⇒ USB/Ser.-Conv. / COM1

PC1 — COM5 / COM6 — virtual Com-Ports

PC1 — COM1 ⇒ shortcut-plug for direct HW-output

Bluetooth connection

PC1 — USB — [bluetooth] ⇒ [bluetooth] PC2

PC1 (DeviceComm Manager) ⇓ PC2 (DeviceComm Manager) PC3 (DeviceComm Manager) — Output to LAN and TCP/IP

⇧ ⇧ ⇧ LAN
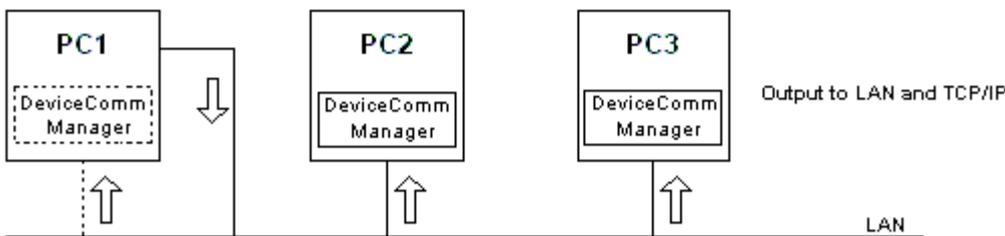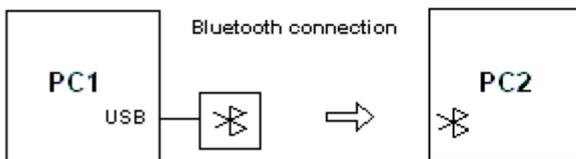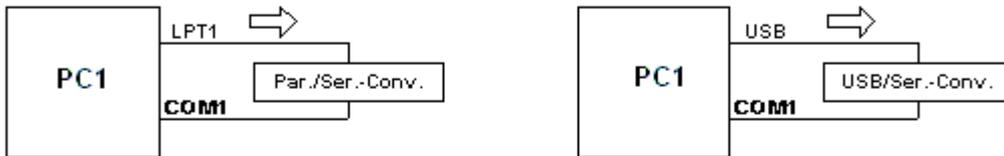
Manual input of positioning data

altitude

speed

Auto-Point

set position North

set position East

filename

save text to file

save position to file
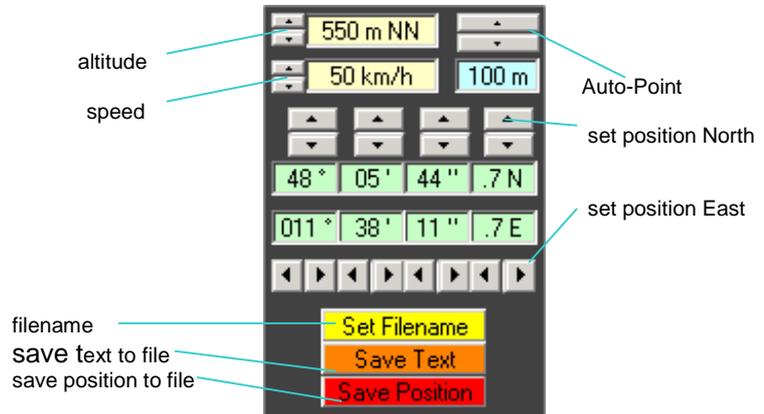
The coordinates of any adjustable point can be shown as NMEA-string and then shown on the map.
It is possible to produce custom log file by manually generating NMEA string for each consecutive point.

To use this feature press pictured button

"Set Position"

The last presented coordinates will be shown.

Auto-Point
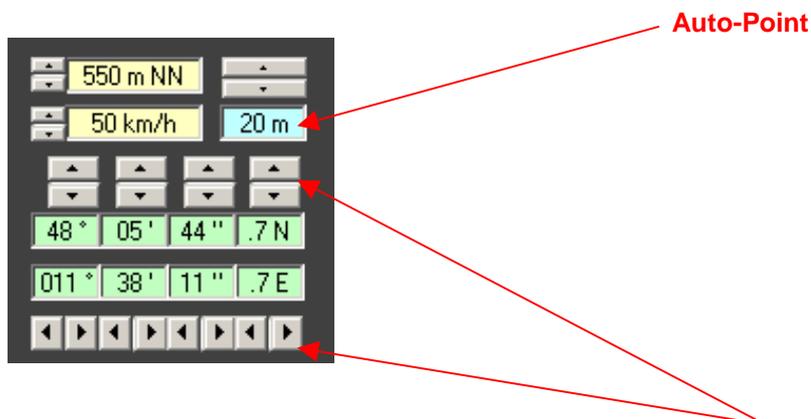
These coordinates can now be shifted in any direction with the **DIRECTION BUTTONS**.

In order to change Longitude from EAST to WEST, decrease the value of the Longitude degree field all the way on the left until it reaches zero. Once it crosses value 0 it will change to West Longitude, continue changing this value until needed.
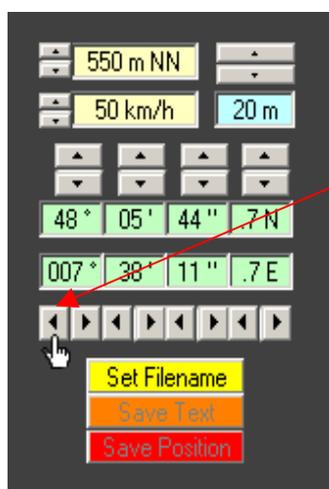
Output of data starts after pressing

[->] **"START KEY"**

Here is the location of **"START KEY"** on the main screen:

With **"Set Filename"** a data name for saving the data can be fixed.
If the last used track was an NMEA-log its filename is shown as default.
If the selected file exists, another window appears.
Here you can choose between overwrite or extend the data file.

"Save Position" saves the actual position as NMEA-string in the log-data-file.

With activated **"Auto-Point"** (value > 0) and a larger distance to last track-point intermediate positions with at least the adjusted
distance are produced automatically.

"Save Text" demands getting a comments-text. It is also saved together with the actual position (in degrees) in the data-log
as GPTXT …
At later playing the saved track-log the text is shown in data-window.

The following functions can be controlled via the keyboard:

Arrows-keys	shifting of Position at 1/10 sec.
ALT and Arrows	shifting of position at 1 sec.
CTRL (Strg) and Arrows	shifting of position at 10 sec.
SHIFT and Arrows	shifting of position at 1 min.
SPACE	save actual position in file
RETURN	get comments-text and save in file

In the tooltip of the text-fields altitude and speed the given value is shown in foot or miles.

The given values (position, altitude, speed)can be saved by stopping GPSsim via the red EXIT button.
By further using "Set Position" the manual setting of position will be left.

Example for producing a track log

Press **"Set Position"** go to manual position input.
Adjust start position by modifying degree / minute / second.
(If not done automatically by an already used track-log)

Press **"Set Filename"** and set a filename for saving the log.

Press **"START KEY"** (now the actual position is send to the port and shown on the navigation program)

Press **"SPACE"** (starting position is saved)

Alter position by pressing the arrow-keys (eventually together with ALT/CTRL for larger steps).
If next position you wanted is reached, press **"SPACE"** (position is saved)
Repeat till track-log is complete.

For longer straight distances no interval-position is necessary, as they appear automatically.

The data of start-position can be taken by a map or by a navi-program.

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Download: http://www.Lichtenheld-Mch.de

Virtual COM-Port: http://franson.biz/GpsGate
                  http://www.eltima.com/ (Testversion)
DeviceComm Manager: http://www.lantronix.com/support/utils/devicecomm (Freeware)