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ACCESSORY BOARDS

GPS-SIM18C User Manual

USER MANUAL

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Introduction

GPS Kit, is proposed to smooth the progress of developing and debugging of various designs encompassing of GPS Based applications with MCU. This evaluation board for our various GPS modules that incorporates many new features and supports connection to the various GPS modules. Serial interface for USB over the FT232RL and a classic RS232 interface.

Packages

- EVB-GPS Kit (sim18)
- Serial Port Cable
- CD contains
  - Software
  - Example Programs | User Manual

Technical or Customer Support

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1. Introduction

This GPS Kit is a high sensitivity, ultra low power consumption and low cost GPS Board. This evaluation board for our various GPS modules that incorporates many new features and supports connection to the various GPS modules. Power is provided over USB or a External +5VDC Adaptors. In this board by default sim18 GPS Module is mounted

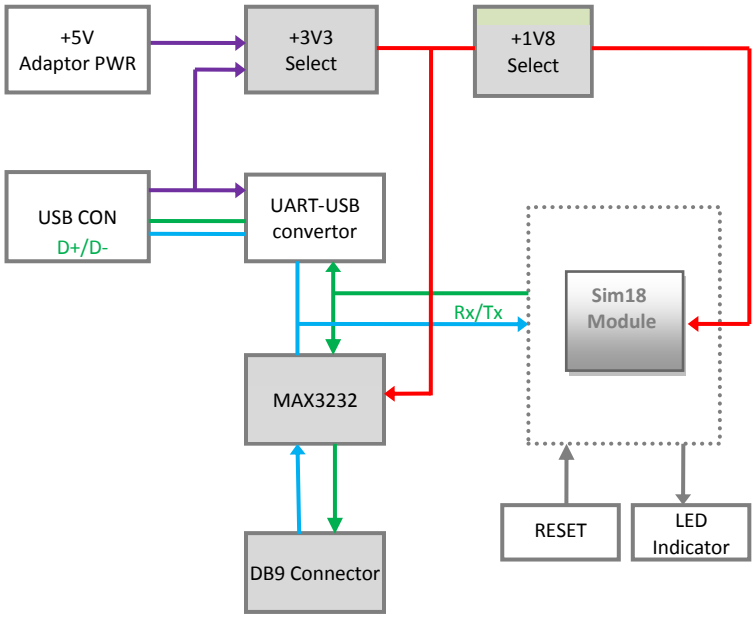
Supported Modules

- SIM18

Base Board Specifications

- On-Board Voltage Regulator
- Data Flow Indicators (PSS)
- Power ON status Indication LED.
- DB9 Connector for PC or MCU Interface FOR NMEA protocols.
- USB connection provides (power and a serial link), will show GPS NMEA data every second.

General Block Diagram



2. *GPS Module – SIM18*

It has 44 channel GPS receivers and Simcom chipset solution to track up to 20 satellites at a time while providing fast time-to-first-fix and 1Hz navigation updates. This hardware capability combined with software intelligence makes the board easy to be integrated and used in all kinds of navigation applications or products. The module communicates with application system via RS232 or UART level with NMEA0183 protocol.

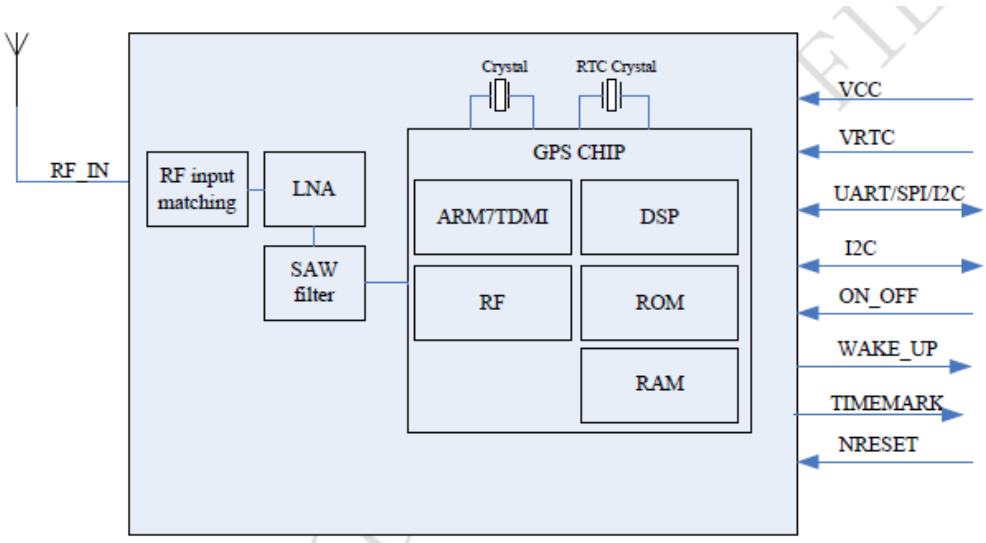
GPS Receiver

- 44 channel Simcom SIRF4 positioning engine
- Ultra high sensitivity to -160 dBm
- Supports AGPS, WAAS, EGNOS and MSAS
- Support UART RS232 ports
- Support 5Hz position update rate capability @3D fix
- Low power consumption 65mA
- Backup battery
- Low position/velocity drift in static mode
- RoHS compliant (lead-free)

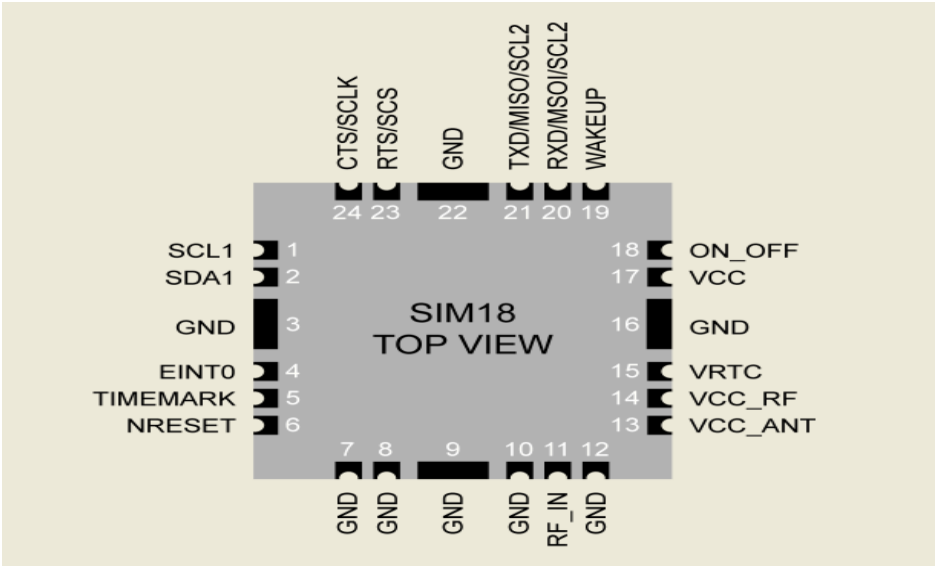
Other Features

Chipset	:	SIRF4 Simcom GPS chip
Frequency	:	L1, 1575.42MHz Channels, C/A code 44, 1.023 MHz chip rate,

Accuracy	:	Position 2.5 meters CEP | Time 1us rms (1 PPS)
Acquisition	:	Cold start 35 sec, typical
Rate	:	Warm start 33 sec, typical | Hot start 1.3 sec, typical
Dynamic	:	Altitude 18,000 meters (60,000 Feet) max.
Condition	:	Velocity 400 Km/hr (1000 Knots) max.



Block diagram SIM18



Pin diagram SIM18

NMEA Sentence Description

1	**GGA (default)**	Global Positioning System Fixed Data
2	**GLL**	Geographic Position - Latitude/Longitude
3	**GSA (default)**	GNSS DOP and Active Satellites
4	**GSV (default)**	GNSS Satellites in View
5	**RMC (default)**	Recommended Minimum Specific GNSS data
6	**VTG**	Course Over Ground and Ground Speed
7	**ZDA**	Time and Date

PIN Details

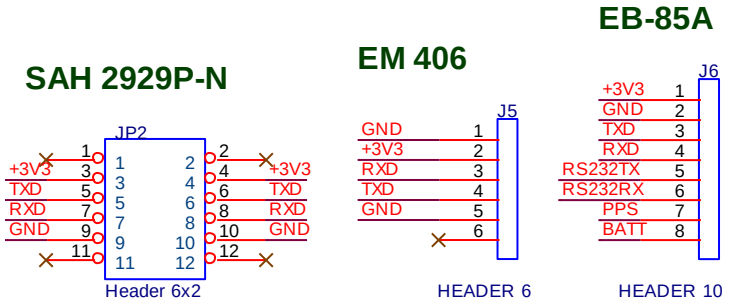
PIN	SIGNAL	IO	DESCRIPTION
1	SCL 1	O	I2C Clock
2	SDA 1	IO	I2C Data
4	EINT 0	I	External interrupt input
5	TIME MARK	O	IPPS output
6	NRESET	I	Reset input
11	RF_IN	I	GPS signal input
13	VCC_ANT	I	Power input active antenna
14	VCC_RF	O	1.8V output power supply for active antenna
15	VRTC	I	1.8v VRTC input
17	VCC	I	Main Power input
18	ON_OFF	I	ON_OFF control input
19	WAKE UP	O	Status indicate
20	RXD/MOSI/SDA2	I	For UART:receive data,SPI:slave input,I2C:data line
21	TXD/MISO/SCL2	O	For UART:transmit data,SPI:clock input,I2C:clock line
23	RTS/SCS	O	For UART:RTS signal, SPI:chip select input

24	CTS /SCLK	I	For UART:CTS signal,SPI:clock input
3,7,8,9,10,12, 16,22	GND		GROUND

Note :

The detail information please refers to SIMXXX series GPS module NMEA protocol reference manual.

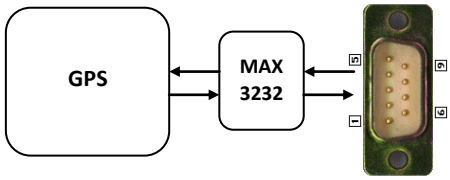
3. Connector Details



4. RS-232 Communication (USART)

- RS-232 communication enables point-to-point data transfer. It is commonly used in data acquisition applications, for the transfer of data between the PC.

- The voltage levels of a GPS Module and PC are not directly compatible with those of RS-232, a level transition buffer such as MAX3232 be used.

	UART DB-9 Connector	GPS Module Lines	Serial Port Section
UART0(P1)	TXD	TX	
	RXD	RX	

GPS Data Viewer Softwares

- GPS Viewer
- U-Blox
- GPS Trace
- Trimble GPS Monitor
- Mini GPS

Note :

SIMXXX GPS Module Datas can be viewed following softwares GPS Viewer | U-Blox | Mini GPS.

5. Introduction to Trimble GPS monitor

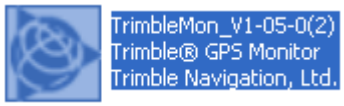
The new Trimble GPS Monitor (TGM) application is a tool that can replace many of the previous “Monitor” and “chat” programs used for Trimble Embedded and Resolution T products.

The TGM has the features found in the older Trimble applications to configure a GPS receiver as

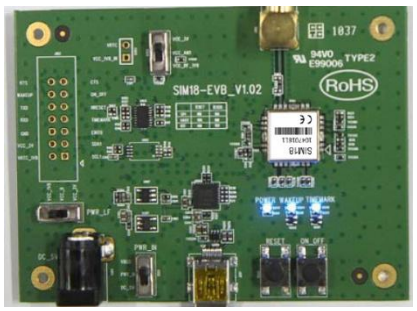
Well as improvements in the user interface. It will work with the standard RS 232 serial interface. As well as the USB version found in the later starter kits. Instructions for the USB interface are Included below. It has new features such as “Detect Receiver” that will test a GPS receiver port for protocol and baud rate if the user cannot remember, or has lost the settings.

Working procedure of Trimble GPS monitor

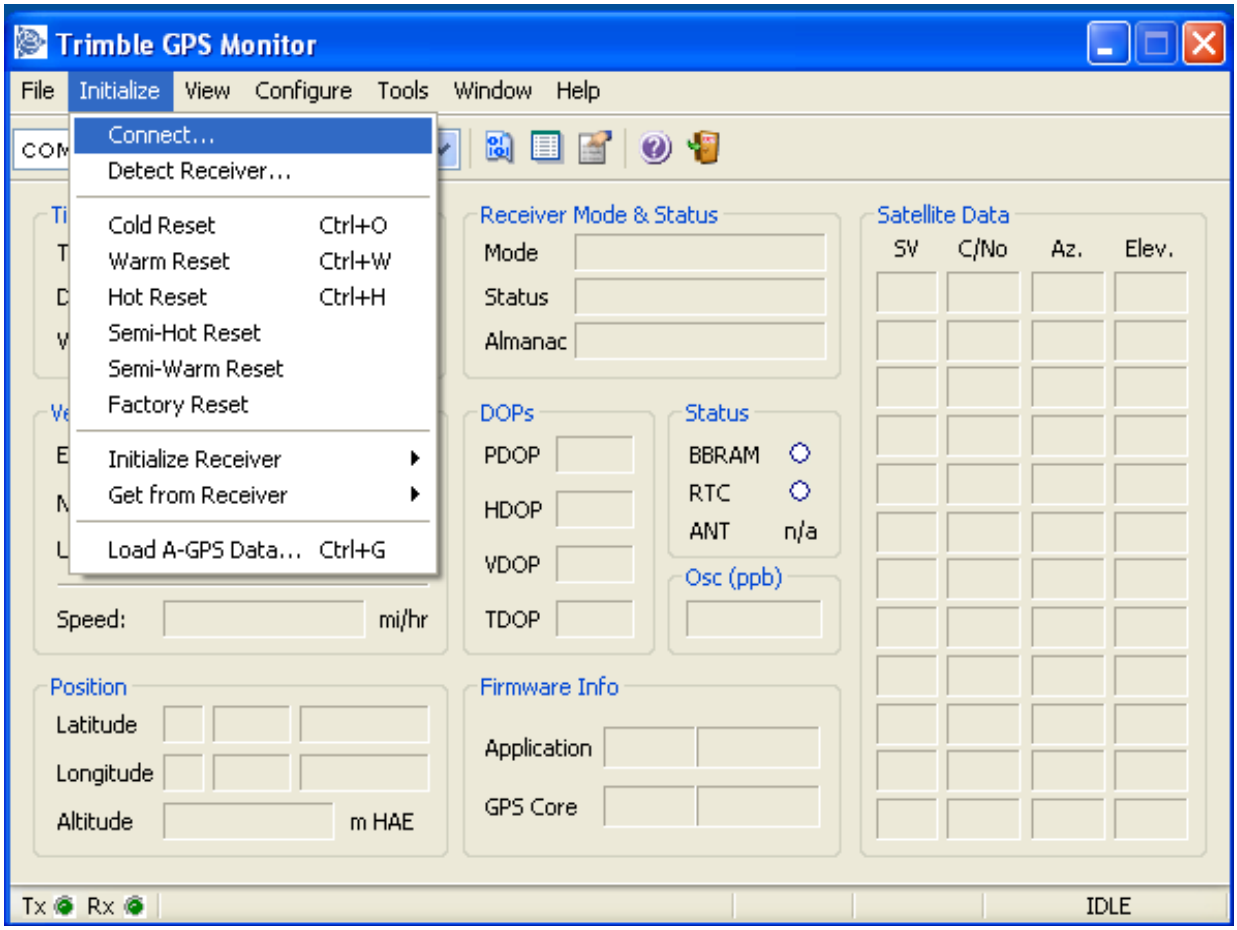
a) This is the Trimble GPS monitor icon if we double click the icon the main window will be opened



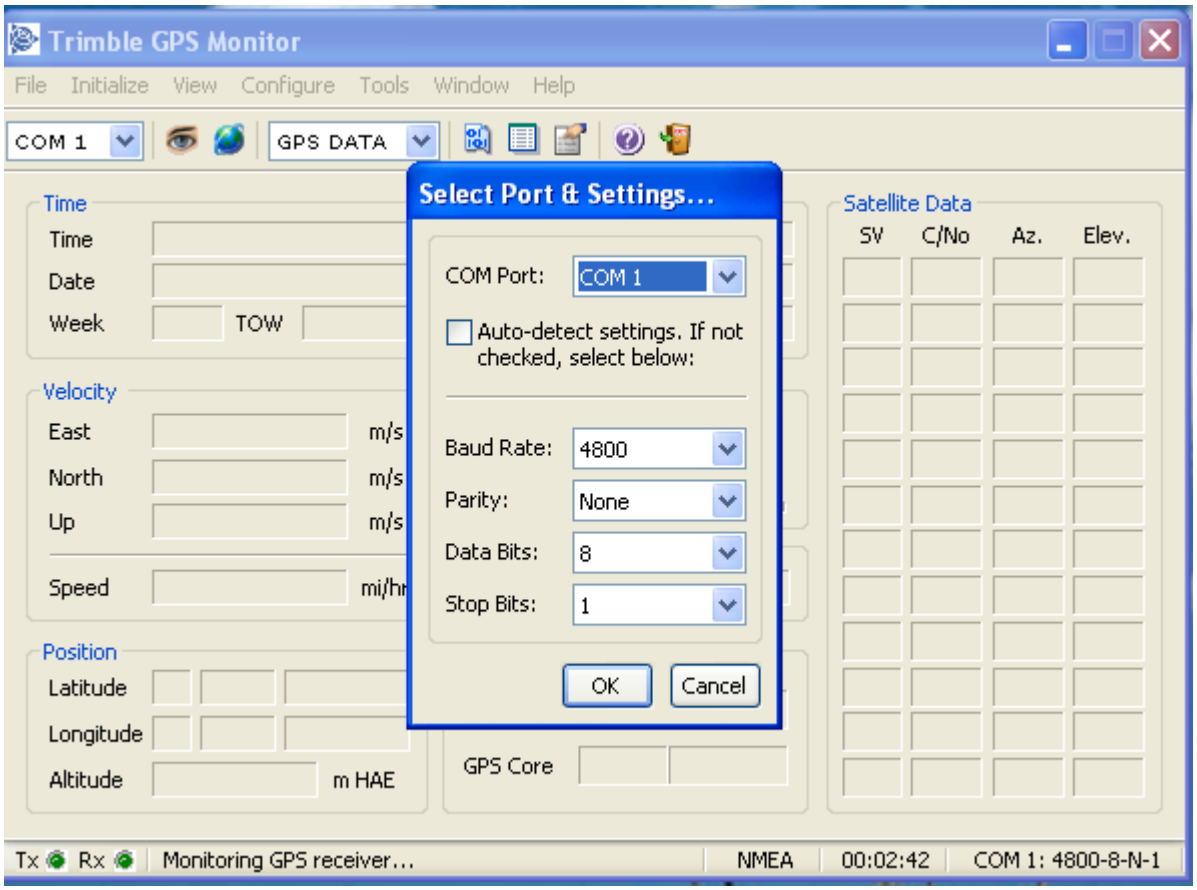
b) Connect the GPS receiver to the PC using the RS232 straight cable



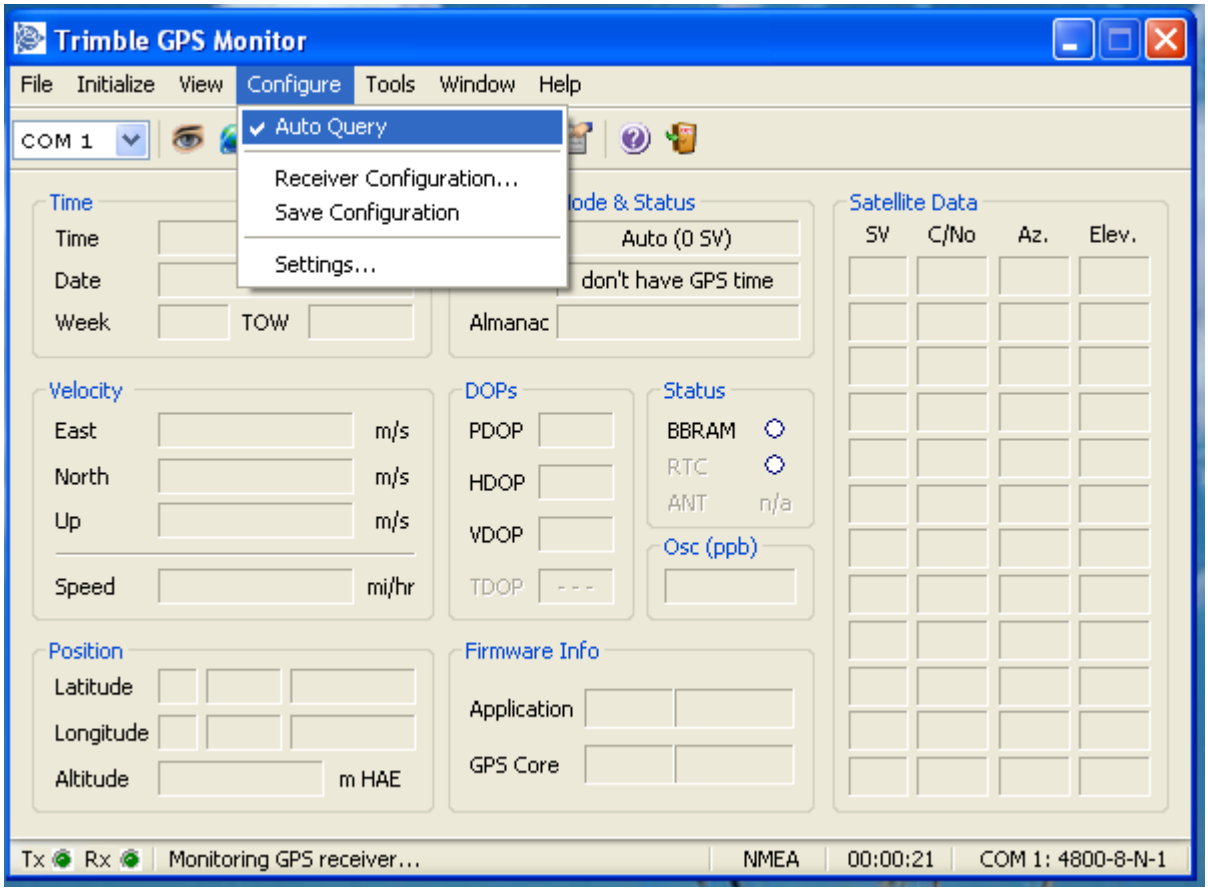
c) click the **initiliaze** menu➔and select **connect** option.



d) Select the configure pull down from the main screen select the receiver configuration, from that select the port configuration parity, baud rate, stop bits required. And click Save configuration.

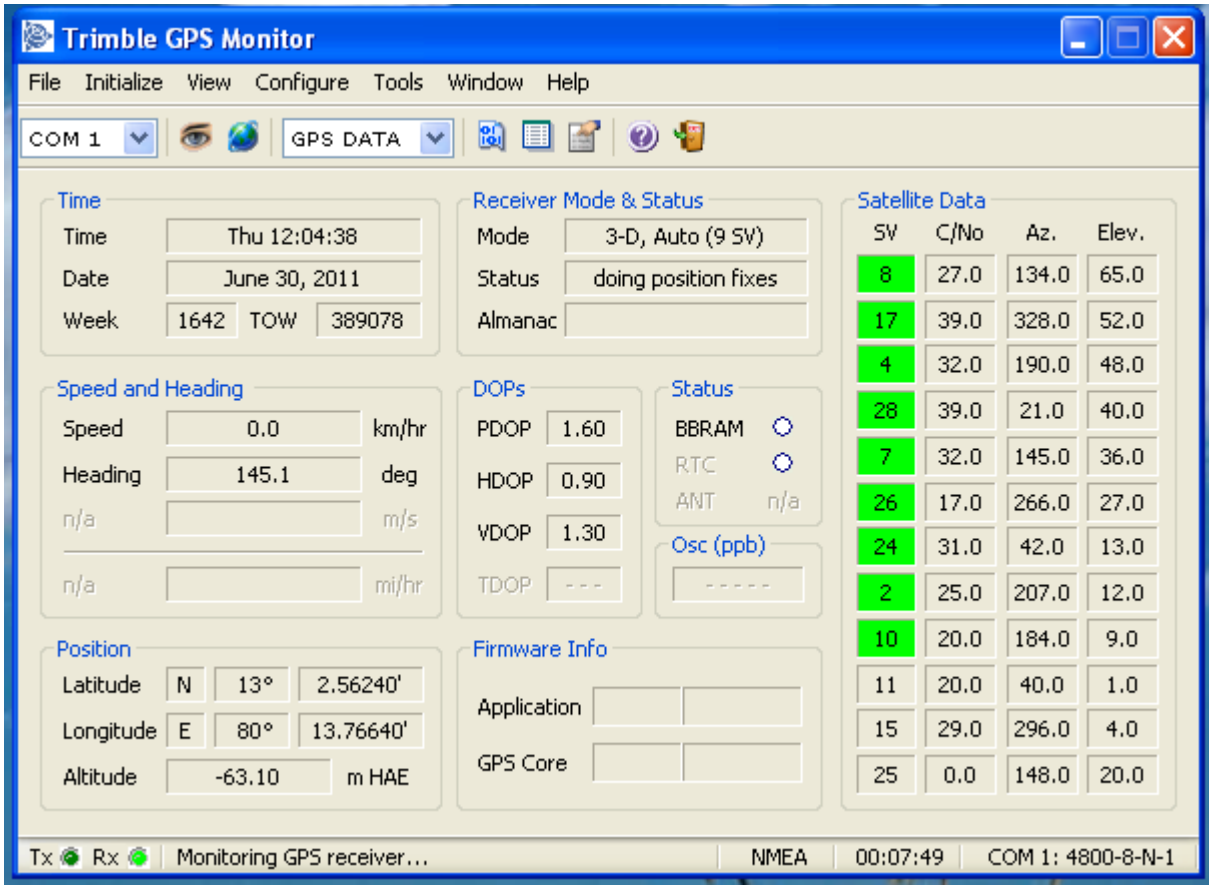


e) Select the Auto query from the configure

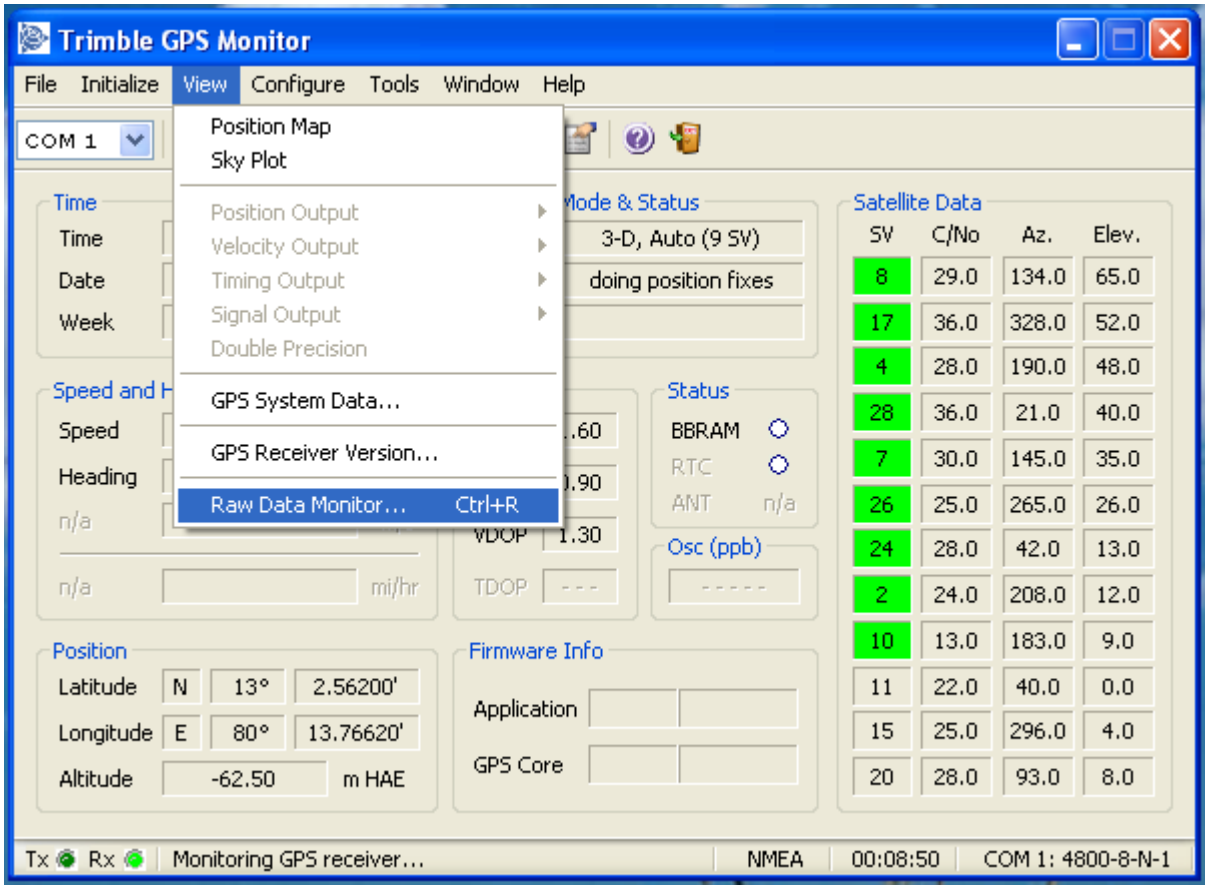


f) Select the configure pull down menu from the main window. Select the receiver configuration and the output tab, after selecting the required options from window click the save configuration

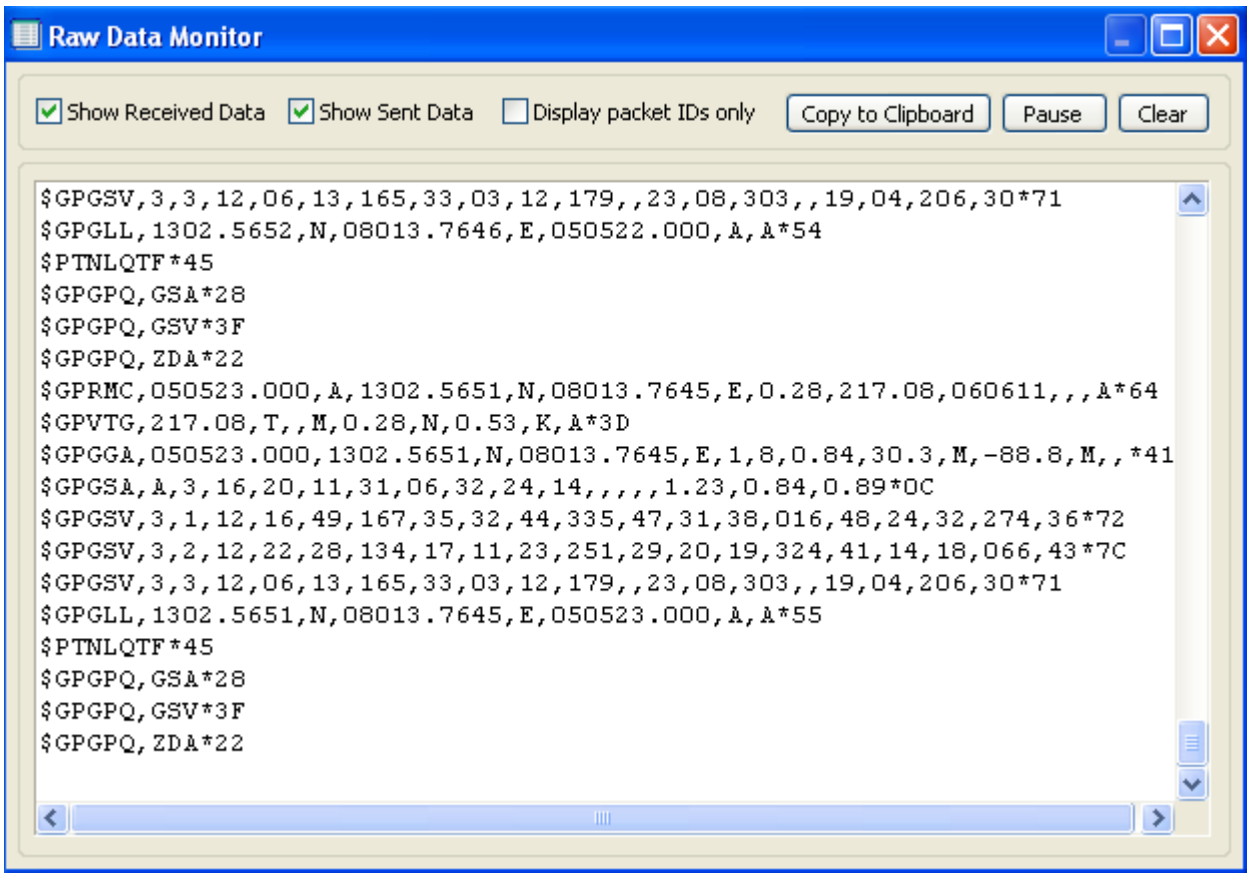
g) show the window and satellite data coverages appear with green mark and also display latitude and lontitude value .



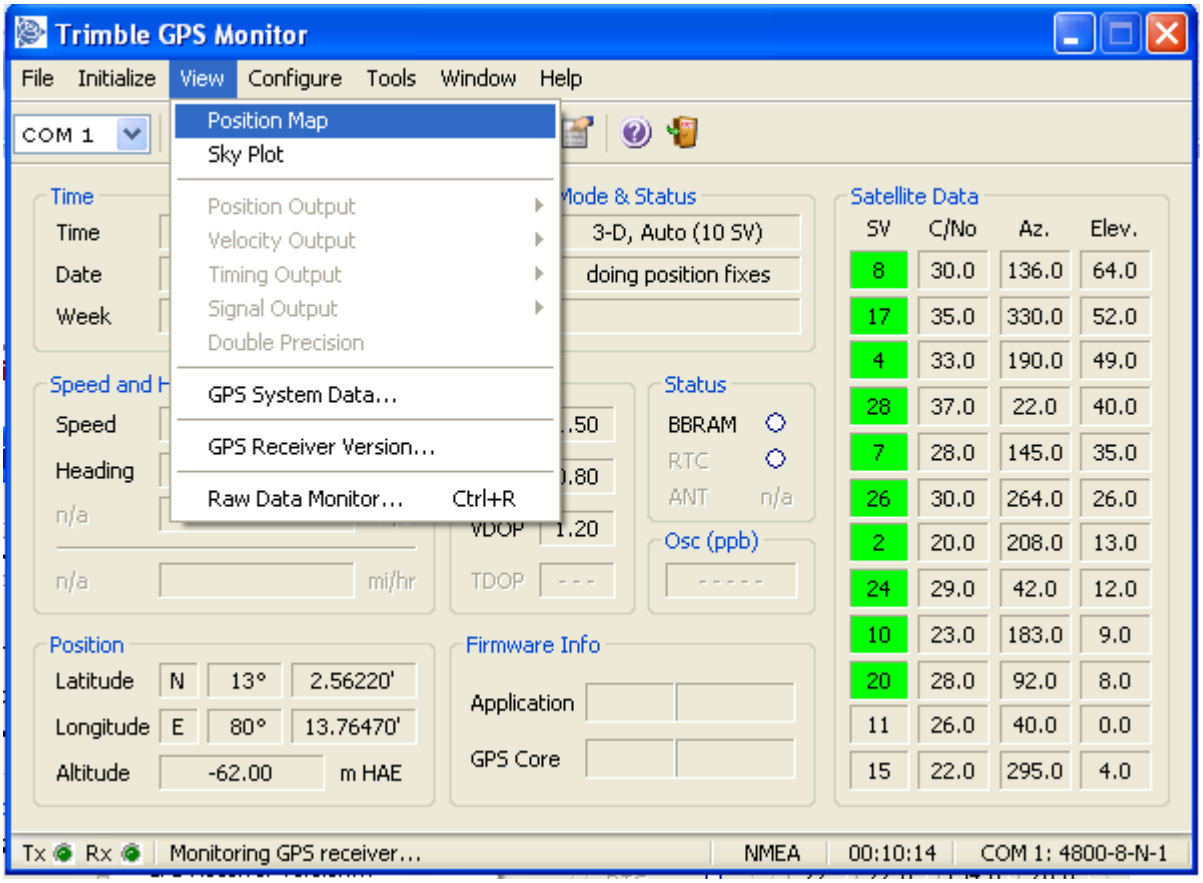
h) Click a **view** option and select the **raw data monitor** window



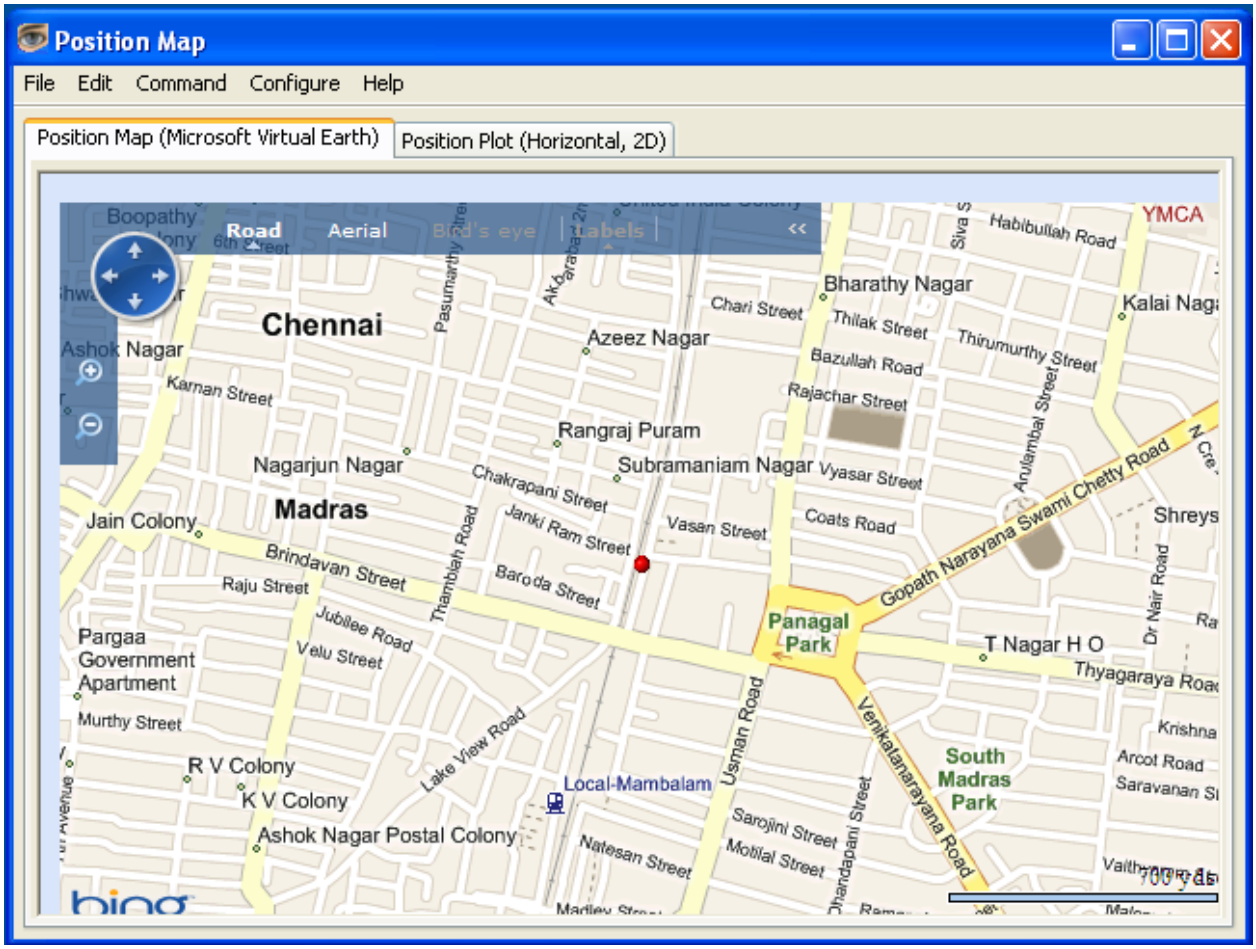
i) To view the sent data as well as the received, select the Show Sent Data box.



j) click a **view** option and select the **position map** from window



k) view the map and location of the gps is mark in red colour.



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