WAITERS
GPS
SET TIME

GPS Set Time

Altitude   Startup   Source   Comm   Hide   Exit

Computer :   **1 May 08 0646:18**

GPS :   **1 May 08 1046:18**

Next Update :   **1943**   ▌▌   SET TIME

Latitude :   N 41:36.5825

Longitude :   W 083:28.3863

Altitude :   367 feet

Version 1.0.2   Copyright 2008 John McAvoy

GPS_Time - Why?

If you have access to one of the gazillion Time Servers that are available via the internet, you may ask, "What's GPS_Time going to do for me?"

Well, probably nothing. But, if you have difficulty connecting via the internet, or, that Time Server you selected keeps changing IPs, etc, then GPS_Time may be a good utility to run, especially if you already have one of those Inexpensive GPS Serial receivers. (I've seen them advertised as cheap as $39 from Delou Electronics, WOW)

The Program, GPS_Time

When opened, GPS_Time reads the computers internal clock and continuously displays this on the screen.
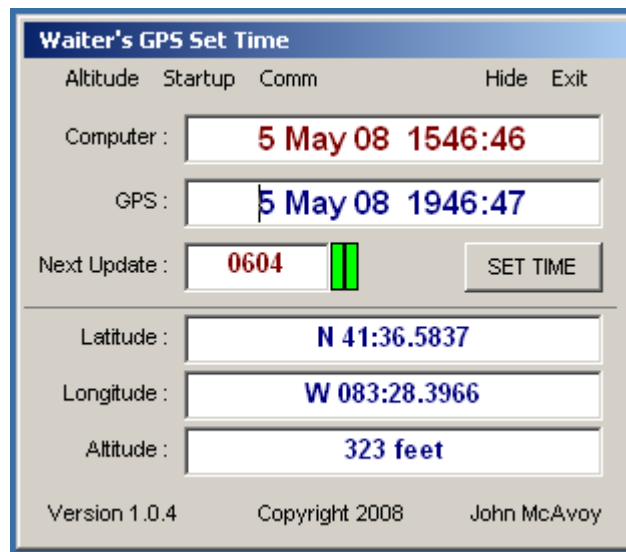
After the selected time delay (provides the user time to get the receiver connected, or other programs to start, etc) it starts monitoring the selected serial port, looking for the connected GPS receiver. When valid data is recognized, an indicator (the one on the left) turns a bright green to indicate GPS Sentence data is being received.

When the GPS receiver obtains a valid 2D or 3D fix, the fix indicator light (the one on the right) turns a bright green, and the SET TIME button becomes enabled.

The GPS_Time screen then displays the GPS Fix Time, Receive altitude (feet or meters), and the receiver position in Latitude and Longitude.

You can see view the raw serial data stream by placing your mouse over any of the GPS label items (GPS Time, Latitude, Longitude, or Altitude)

INSTALLATION

Unzip GPS_Time.zip and run the "setup.exe" file.

SETTING THE TIME

GPS_Time updates the computers internal clock immediately if the SET TIME button is pressed, OR Automatically at a random time. The random Next Update happens a maximum of once each 24 hours.

Time updates will set the computers internal Time and Date, and take into account the local computers "Time Zone" settings.

You can try this by manually setting the computers Date and Time to some value, then clicking on the SET TIME and see it reset to the current GPS Fix Time.

VERY IMPORTANT NOTE REGARDING GPS FIX TIME

The GPS Time displayed is NOT the ultra accurate GPS Atomic Clock.

The GPS Time displayed is the time that the position fix was calculated. This is normally accurate to Plus/Minus one second of GPS Atomic clock.

If you need more accuracy than this, then you need to be looking at one of the Cesium Atomic Clock accessories that can connect to your computer :-)

GPS THEORY - Where Am I?

A GPS Receiver computes its position by calculating the distance from numerous satellites, then triangulating these distances to calculate a three dimensional position referenced to a standard earth model (usually WGS84 datum).

In order to navigate, you only need two items; 1) An accurate clock, and 2) you need to know the position of your reference (Satellite, star, etc)

Each Satellite transmits a continuous data stream. This data stream includes many components, two of which are a time stamp of when the transmission took place, and, highly accurate data as to the orbital parameters of the individual satellite.

The Time stamp comes from an on board clock. This clock is very accurate (1 part in a billion) and is synchronized with all the other GPS satellites.

The Satellite Orbital parameters, along with the clock are used to very accurately calculate the position of the satellite. This is done in the receiver when it receives the GPS signal.
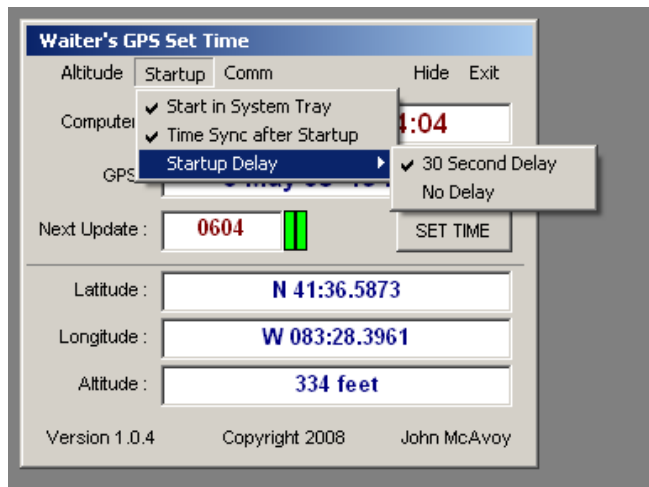
USER OPTIONS

All user options are saved in the file GPS_Settime.XML, This file is located in the Program Files folder.
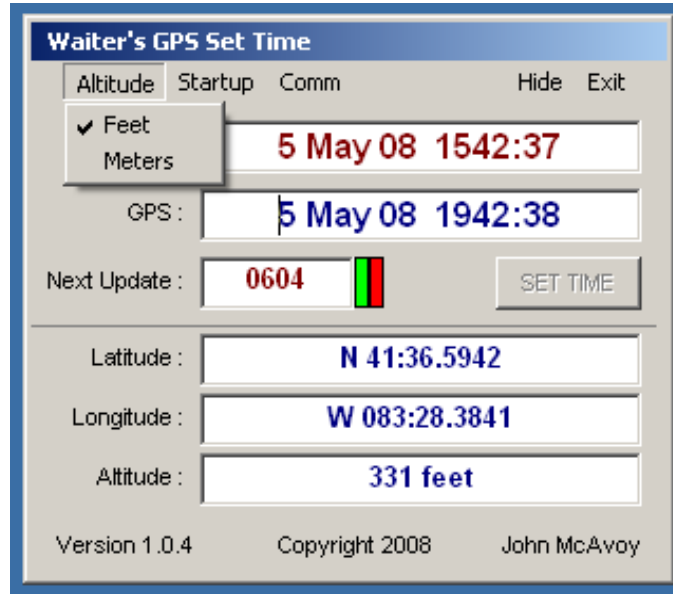
ALTITUDE - Select either Meters or Feet for the Altitude Display.

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STARTUP - When the program is started, it can start as a windows screen or be moved to the System Tray

    Start In System Tray - If checked, will move the program to the system Tray after it starts.

    Time Sync after Startup – After Waiters GPS Set Time starts and establishes communication with the GPS receiver, it will perform a time sync .

    STARTUP DELAY

        30 SEC - A delay of 30 seconds before the port is initialized. This delay allows any drivers to get loaded and initialized before GPS_Time attempts to start the port.

        No Delay - The serial port is initialized after about two seconds.

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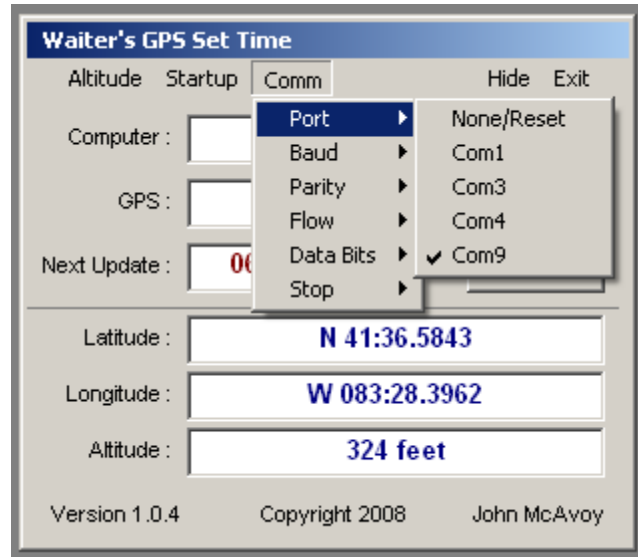
COMM - Select the serial port parameters These are the standard Port Number, Baud rate, flow, etc, etc. Most GPS receivers will transmit at 4800 baud, No Parity, No Flow control, 8 Data bits, and 1 stop bit.

PORT - GPS_Time will analyze your computer and only provide you with the comm ports that have been detected when the program starts.

If your port is not on the list, OR, you get an error telling you that the port doesn't exist, then click on the "None/Reset" selection. This will force GPS_Time to go out and reevaluate the comm ports again.

Example : This is useful in the event you changed ports after you started GPS_Time; i.e. plugged in the USB GPS receiver after you started GPS_Time.

Click on None/Reset, Your USB serial port assignment will now be in the list.

NOTE: Most computers have several USB plugs Your USB receiver should always be given the same serial port assignment whenever its plugged into the "same" USB port on your computer. However, if you plug your receiver (or USB-Serial converter) into a different USB port (i.e. multiple ports or a "hub"), then it will be given a different serial port for that USB port.
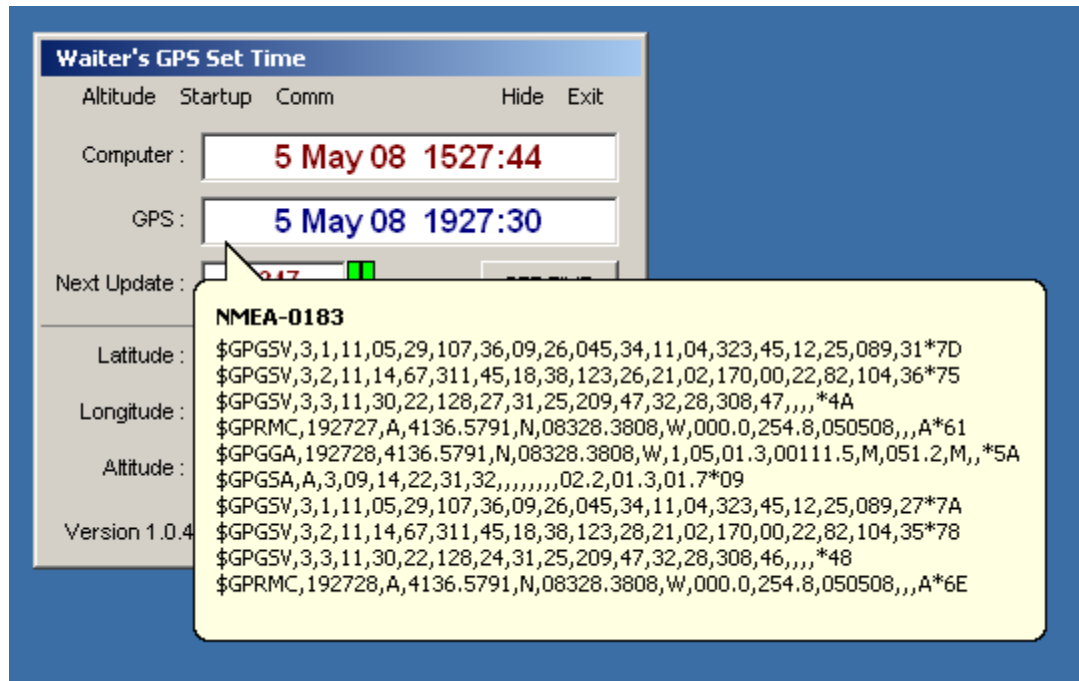
There are two styles of Tool Tip Popups:

1) Moving the mouse over the **GPS:, Latitude:, Longitude:,** or **Altitude:** labels will display a single line that shows the current data being received from the GPS receiver.

2) If the mouse is moved over one of the Data Fields, a pop up window will show the current GPS Comm port and Fix status.

   There are Three STATUS headers:

   a) NO GPS Rx - There is no data being received from the GPS Receiver.

   b) FIX NOT VALID – The GPS receiver is connected to the com port, but no GPS fix has been calculated.

   c) NMEA-0183 or GARMIN - Shows what the data format

SETTING TIME ON YOUR NETWORK

You can use the computer that's running GPS_Time as a reference to set the clocks on other computers that are on your network.

Windows has a command called "Net Time". You can read about it in their Knowledge Base article 314090.

I leave my home computers running 24/7, so I created a batch file (SETTIME.BAT) and placed it in the root directory. I then use Windows Scheduler to run this file once a day at 3:30am.

The Batch file (SETTIME.BAT) is a one line script:

net time \\192.168.10.1 /set /yes

or

net time \\GPS_Computer /set /yes

The "IP address" or "GPS_Computer" is the address or name of the computer that has the GPS receiver attached and is running the program SETTIME.EXE

When the SETTIME.BAT file runs, it connects to the computer specified, and sets the local computers time/date to the time/date that is on the remote machine.

Waiter