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GPS 16x HVS

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GPS 16x HVS wrong date and time

Garmin GPS Week Number Rollover Statement

What is the GPS Week Number Rollover (WNRO)?

The GPS system is world-renowned for its ability to provide accurate and reliable positioning and timing information worldwide. The GPS satellites transmit to users the date and time accurate to nanoseconds. However, back in 1980, when the GPS system first began to keep track of time, the date and time were represented by a counter that could only count forward to a maximum of 1024 weeks, or about 19.7 years. After 1024 weeks had elapsed, this counter “rolled over” to zero, and GPS time started counting forward again. This first rollover occurred in August of 1999. The second rollover will occur on April 6, 2019.

Is My Device Affected?

For many years, Garmin has anticipated and prepared for this event. Regardless, Garmin has been performing exhaustive testing of current and legacy devices to determine if they will be affected by the GPS week number rollover. Our testing shows the vast majority of Garmin GPS devices will handle the WNRO without issues.

What is the Effect of a GPS Week Number Rollover Issue?

GPS16X-HVS Firmware Update Procedure

The GPS date rollover event of April 2019 caused a date output error in many GPS16X-HVS devices. In the affected GPS16X-HVS devices, the date output from the GPS unit starts at August 1999. The data logger misinterprets this as 1963 when setting its clock to GPS time. Garmin released an updated firmware in March 2019 that resolves the issue. Updating the GPS unit requires the GPS16X-HVS, a 12 VDC power supply, free software from Garmin, and a computer with a RS-232 port. A native RS-232 port is preferred; some USB to RS-232 converters may be suitable.

System requirements:

- IBM-compatible computer running Windows 2000 or later operating system and an available COM 1, 2, 3, or 4 port

1. Download the files:

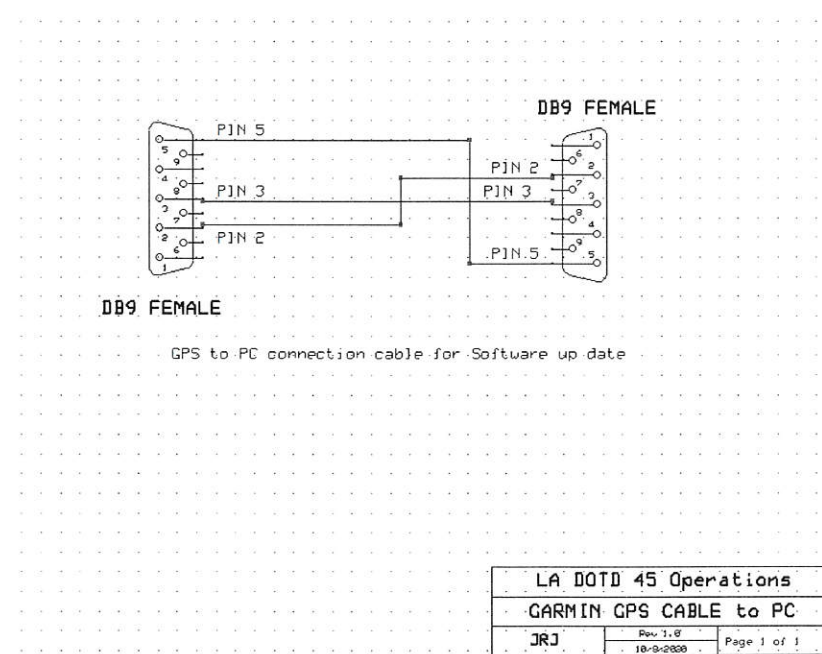
<https://www8.garmin.com/support/collection.jsp?product=010-00258-62>

You need both the unit software for the GPS16X and the SNSRXCFG configuration software. The unit software is a self-extracting zip file that must be run on the computer. Save the SNSRXCFG.exe file to a location where you can find it.

2. Connect the GPS16X-HVS to a 12V power supply. You can connect the GPS16X-HVS to

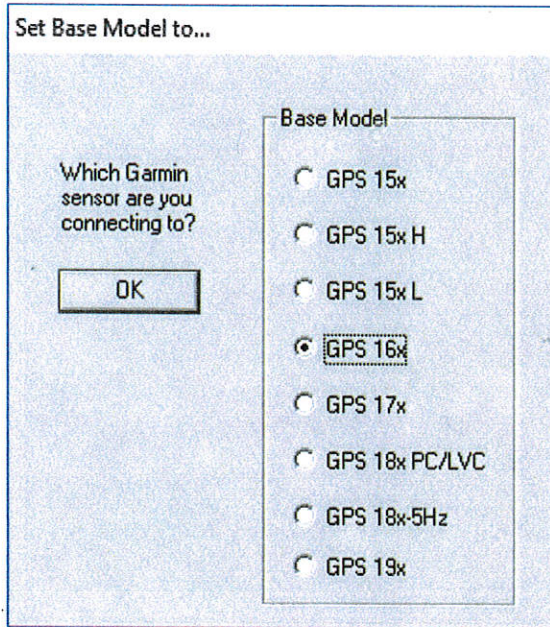
This is what I made to connect GPS to PC using USB to RS232 DB9 connector.

← Give
Ronnie Jarreau a
call if you need
help making the
cable.

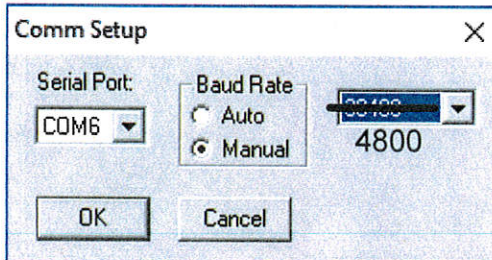


5 STEPS after connection

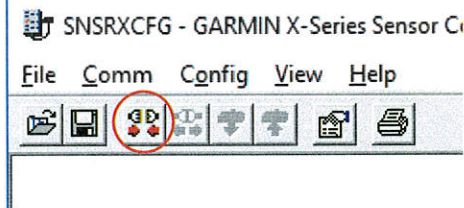
4. Open the SNSRXCFG software from Garmin. Select the correct base model as **GPS 16x** and click **OK**.



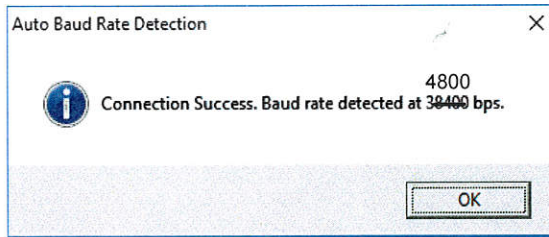
5. Within the SNSRXCFG software, open **Comm Setup**. Select the appropriate Serial Port number. The GPS16X-HVS is shipped from ~~Campbell Scientific set to 38400 baud.~~ Traffware set to 4800 baud



6. Click **OK** to close Comm Setup, then click the connect button.



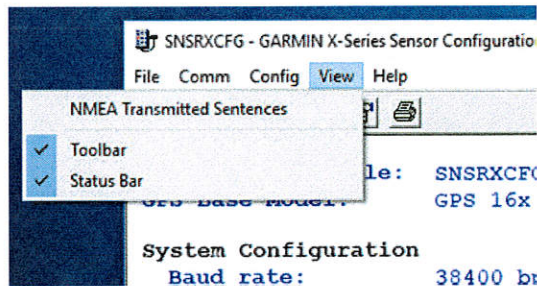
You should get a notification that connection was successful.



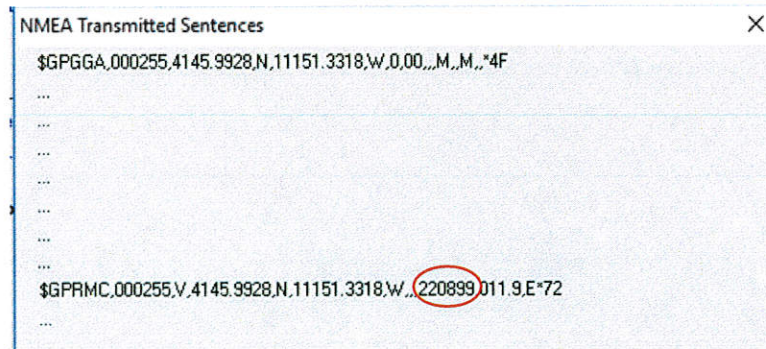
7. Place the GPS16X-HVS near a window without film or tint, or place the GPS16X-HVS outside with a clear view of the sky. Wait for at least 5 minutes while the GPS16X-HVS is powered.

Skip to # 9 to update software

8. With a successful connection, go to **View > NMEA Transmitted Sentences**

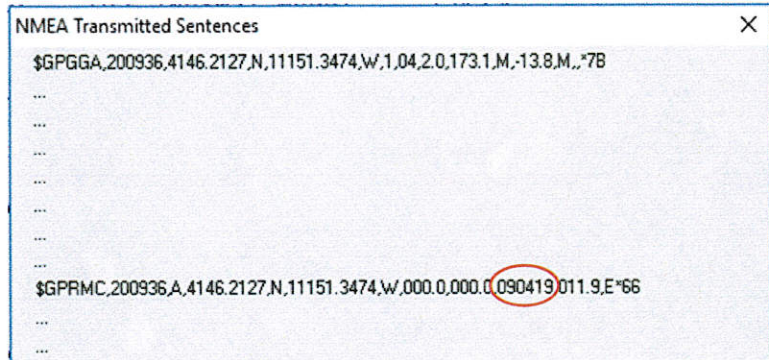


If the \$GPRMC date shows something other than the current date (following example shows 220899, which is the 22nd day of August 1999), it did not roll over, and you need to update the firmware by following the remaining steps in the procedure:

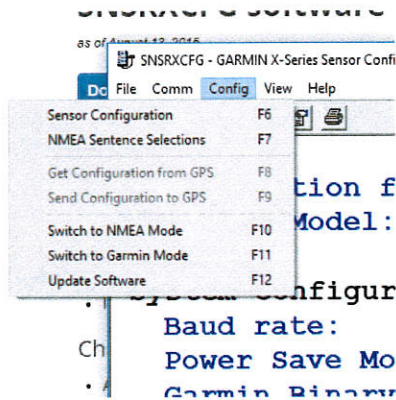


If the \$GPRMC date shows something similar to 090419 (9th day of April 2019), the GPS16X-HSV is working properly and you do not have to update the firmware.

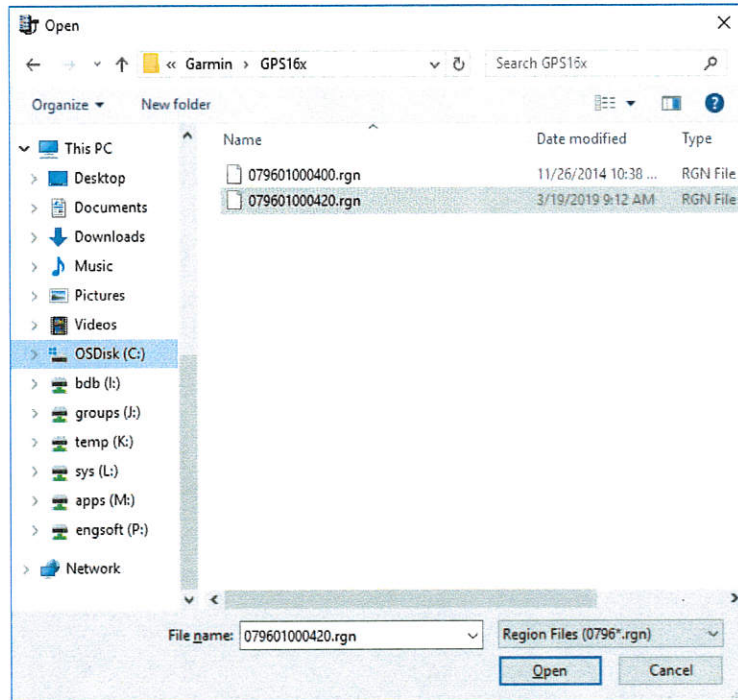
NOTE Campbell Scientific recommends that the user update the firmware to version 4.20 or better.



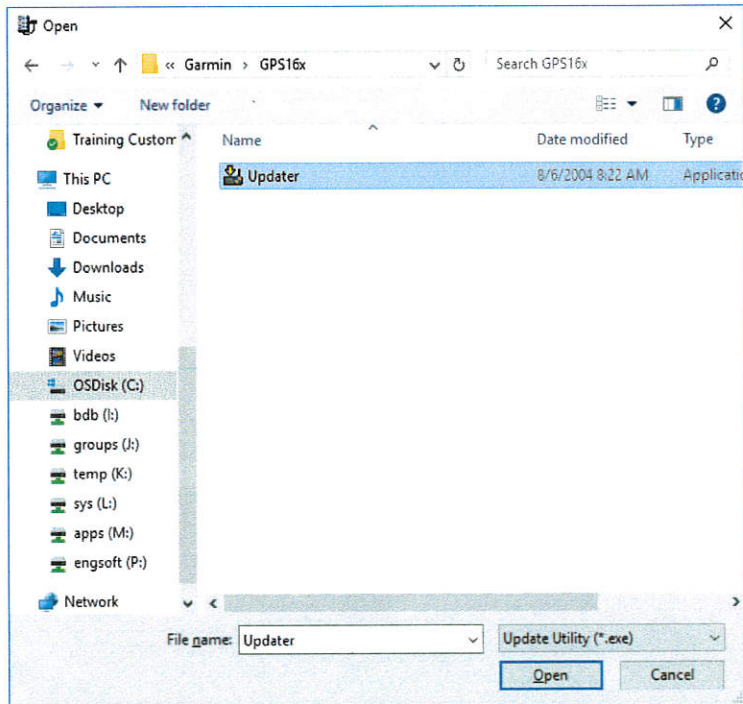
If you need to update the firmware, go to **Config > Update Software**.



10. Select the latest region file; version number is the last four digits. Last four digits of the file selected should be 0420 or higher. Click **Open**. The default folder where they are located is C:\Garmin\GPS16x.



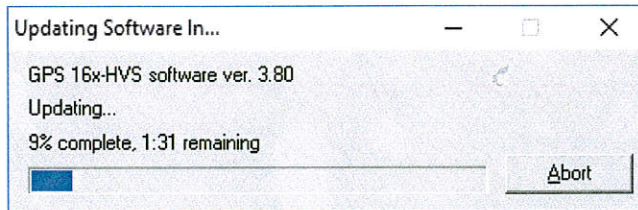
11. Open the Updater Utility.



You should get a progress screen such as the following. If it does not appear, the software failed to launch, but the GPS16X-HVS should be ready for update.

NOTE

The version listed in the progress screen is the firmware version that is currently in the GPS16X-HVS and not the firmware version to which it is being updated. This progress screen shows the GPS16X-HVS had version 3.80, which will be updated to version 4.20.

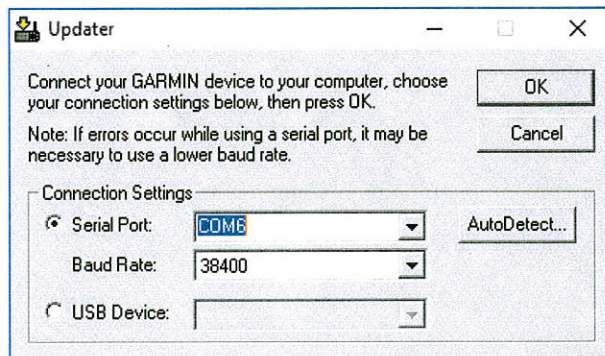


WARNING

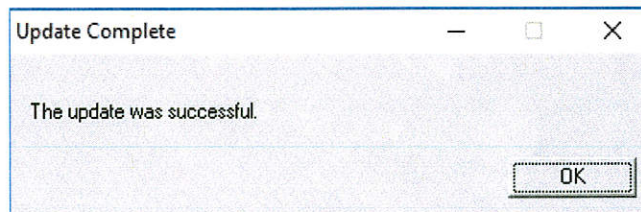
Interrupting the update process will render the GPS unusable and unrepairable.



If the progress screen did not appear, open Updater by itself. Pick your serial port number and **38400** baud. The progress screen should then appear.

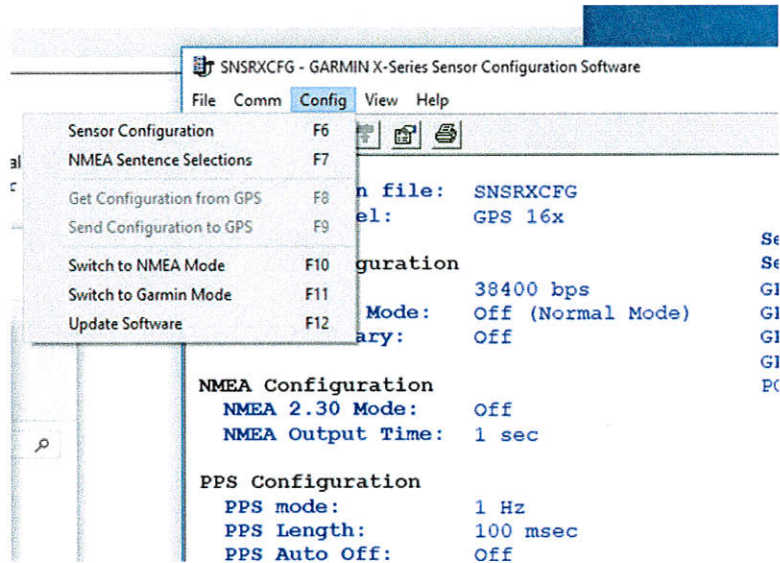


A confirmation message will appear when the process is complete.



Click Comm > "Disconnect" and skip to # 14

- Set the GPS16X-HVS back to the NMEA mode by going to **Config > Switch to NMEA Mode**:



- Power off the GPS16X-HVS and reconnect it to the ~~data logger~~ ^{Controller}. It should now function properly. After getting a GPS fix again, the ~~data logger~~ ^{Controller} should set its clock to the correct GPS time.

NOTE

The GPS16X-HVS may not receive a fix while indoors. Placing the GPS16X-HSV on a window sill for 10 minutes, while powered, will often allow it to receive a fix.