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Setting up a Trimble Pro 6T to connect with Vivax Metrotech devices



Over view of steps and objectives

- Install GPS Controller onto the device you use to manage both positional quality and NMEA output from the Pro 6T.
- Establish Communication with Pro 6T
- Use GPS controller to make settings changes (Quality, NMEA and Real-Time Corrections)
- Connect Locate Device and test readings

The Pro 6T or 6H must first be enabled to support the NMEA output format. This is not a standard option in the Pro 6T. That option must be initiated by GPServ as a non-standard option.

Retrieving and installing GPS Controller

In order to set up the required positional accuracy and desired NMEA communication protocol, you must use GPS Controller from a PC or Windows Mobile device to connect to the Pro 6T and establish your desired settings.

GPS Controller for PC (Supports Windows Vista, XP, 7 and 8)

http://www.trimble.com/support_trl.asp?pt=GPS%20Controller&Nav=Collection-91944

GPS Controller for Windows Mobile (Supports Windows Mobile 5.0, 6.0, 6.1 and 6.5)

http://www.trimble.com/support_trl.asp?pt=GPS%20Controller&Nav=Collection-91944

Communications to the Pro 6T

There are two ways to connect to and manage Pro 6T with the GPS Controller.

- 1) Bluetooth to a PC or Windows Mobile device
- 2) DB-9 null modem cable that is provided with the Pro 6T to a PC or Windows Mobile Device

Support and instructions for these connections may be found in the Pro 6T User Guide.

http://trl.trimble.com/docushare/dsweb/Get/Document-608772/ProSeriesReceivers_UG_v1RevB.pdf

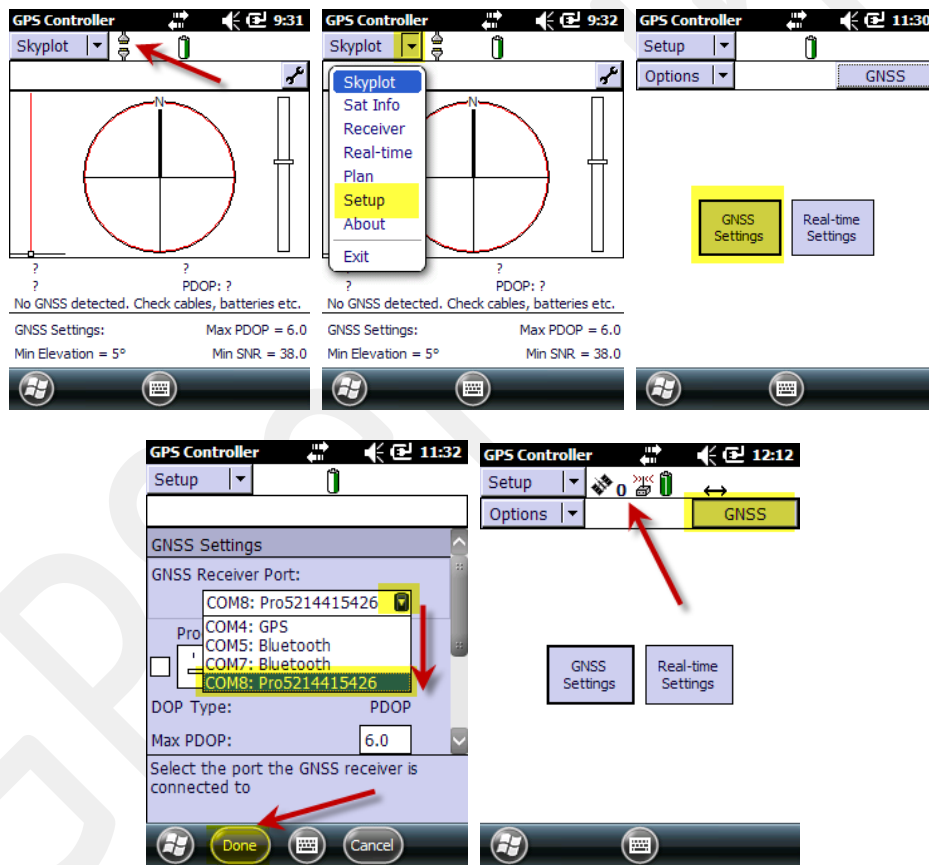
See Appendix 1

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Using GPS Controller to Establish Appropriate Settings

When starting GPS Controller, the software will attempt to connect to the Pro 6T. It may not have the correct port selected to connect to the Pro 6T. In this case, the cable connector icon will show an incomplete connection. Follow the screens below to go to settings and establish a connection to the Pro6T.

From the Main Menu, currently Skyplot, select the small down arrow (pull down menu) and select the Setup option. Once in the GNSS Settings you may select the appropriate GNSS Receiver Port. This port will depend on your computer, or windows mobile device and the method of connection. In this case, the connection was made in Bluetooth on a Windows Mobile device and the connection was assigned to Com Port 8. The port number was assigned at the time the Bluetooth connect was created. Once the correct com port is selected, choose Done.

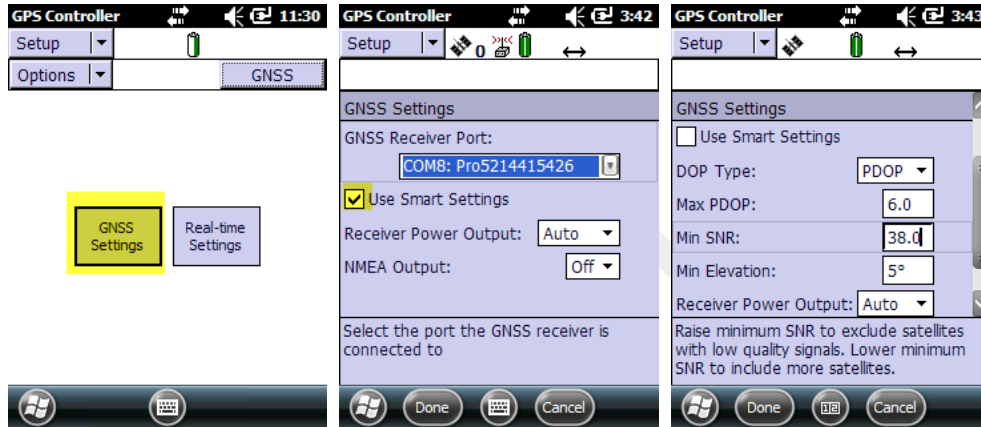


Now we have set the correct com port we will need to force the connection. In the Setup screen, select the GNSS Button to force a connection. GPS Controller should show a connection to the Pro 6T in the form of a Satlite icon and number of satlites, indicated with the red arrow above. Since your most likely inside, you may not find any satlites.

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Setting up NMEA output and our data quality

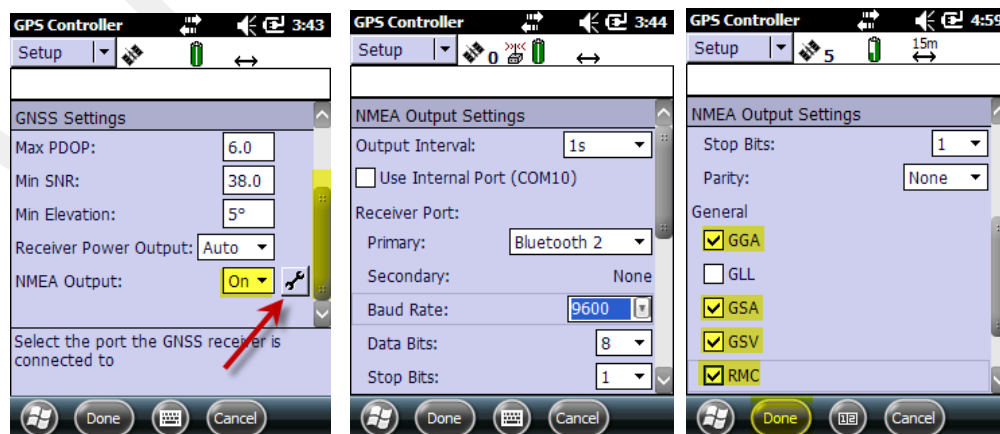
First, return to the GNSS Settings Screen. Uncheck the Use Smart Settings box. Once the Smart Settings are turned off, a menu to change various settings in the GNSS data is available. We recommend the settings as provided below. Once they are made, use the scroll bar on the right to move down the screen to establish the NMEA output.



See Appendix 2

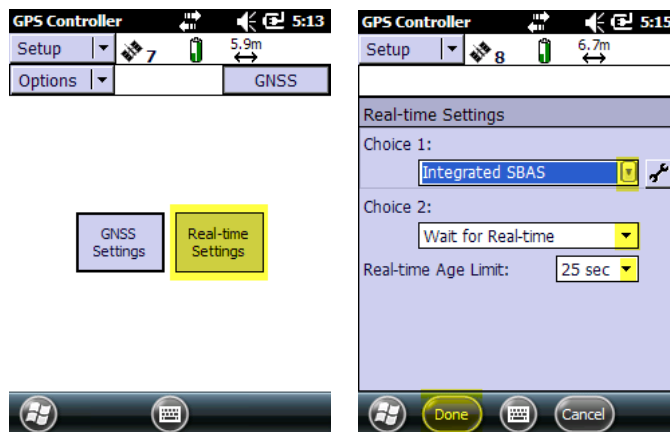
Change the NMEA Output to On. Then select the Wrench to establish the NMEA protocol and communication Settings. Make the following setting changes then select Done

Output Interval: 1s	General:
Use Internal Port: empty, leave unchecked	GGA
Primary: Bluetooth 2	GSA
Secondary: None	GSV
Baud Rate: 9600	RMC
Date Bits: 8	
Stop Bit: 1	
Parity: None	



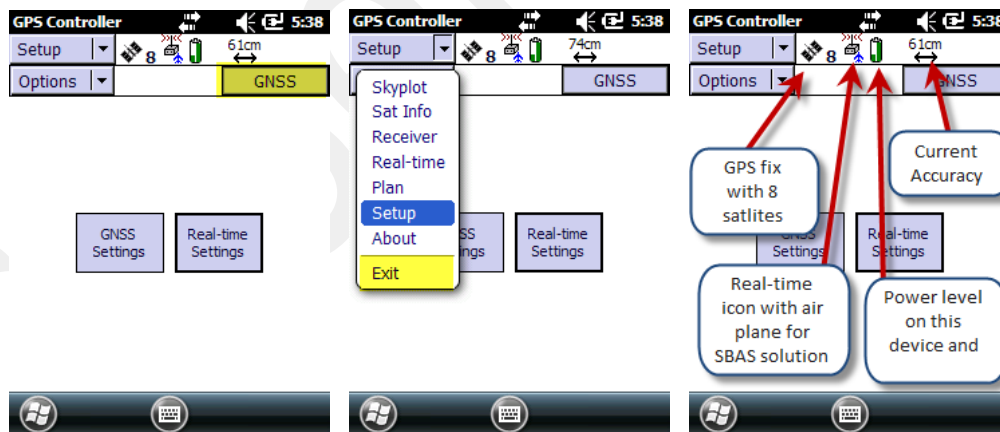
Set Real-Time Correction

From the Setup menu in GPS Controller, select Real-Time Settings. In the Real-Time settings wizard, select the pull down menu for Choice 1. Change it to Integrated SBAS (Satellite Based Augmentation Systems). Then Choice 2 will become available; change Choice 2 to Wait for Real-Time. Next change the Real-Time Age limit to 25 Seconds.



See Appendix 3

To force a connection between GPS Controller and the Pro 6T, you may use the GNSS button. This button is a toggle and will connect or disconnect. GPS Controller will provide information on accuracy number of satellites and connection to a real-time correction source. Exit from GPS Controller by opening the main Menu and selecting Exit. If using Bluetooth to set up the Pro 6T force a disconnection before turning off the device. Without intentionally disconnecting, your ability to successfully connect to your locate device may experience difficulty.



For the Bluetooth connection to your locate device, see that devices user guide.

Appendix

Appendix 1

Once you have the device search for and add a new device, Pro 6T, make sure you select to make this a Serial connection. You will be prompted for a pass key; it is '0000'. After linking to the Pro 6T, you will need to create a **new outgoing** com port. The port number that is available depends on the device you are using. It is a safer bet to use a higher number. There is less chance of conflict with existing com ports function. You may be offered to make the connection a secure connection. Do not make the connection secure.

Appendix 2

Settings such as PDOP, SNR and Elevation Mask are used to establish a minimum standard or Geometry between you and the satellites (PDOP); signal strength and line of sight with the signal (SNR) and Elevation Mask which limits satellites that are very low on the horizon that may be impacted by atmospheric conditions and obstruction.

Appendix 3

When setting up the real-time correction, the most common form of real-time is the FAA satellite bases solution, SBAS. The real-time source typically takes a couple minutes longer to provide a good and stable correction. Once the SBAS Satellites are located and corrected positions are calculating, the connections are typically stable. The SBAS Satellites are in the south to southwest sky and are just under 50 degrees elevation in south Florida. The further north you go the lower they will be on the horizon. Large buildings in the southern sky can block this reception.

The Real-time settings as provided will only produce a coordinate to the locate device if the Pro 6T is receiving a correction. If the user changes Choice 2 to use uncorrected, the unit may send uncorrected positions with no warning from the Pro 6T. The Real-time age limit is the length of time that the Pro 6t will use the last correction data after the unit loses SBAS signal. The longer that time is set, the less the user will suffer interruptions. Increasing this time will also allow old correction data to be used and will create and positional quality that is lower than expected. The SBAS correction is often producing position that is in the 60 -75 centimeter range once the unit is allowed to warm up and stabilize the position quality.