Spectra Precision
Survey Pro 4.8 GPS

General Operations

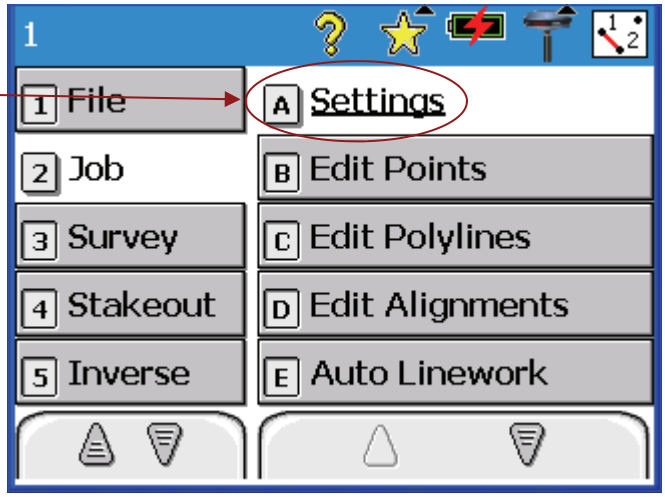
Topcon Receiver/Radio Configuration
One-Point Calibration
Multi-Point Calibration
Mapping Plane

Procedures Manual

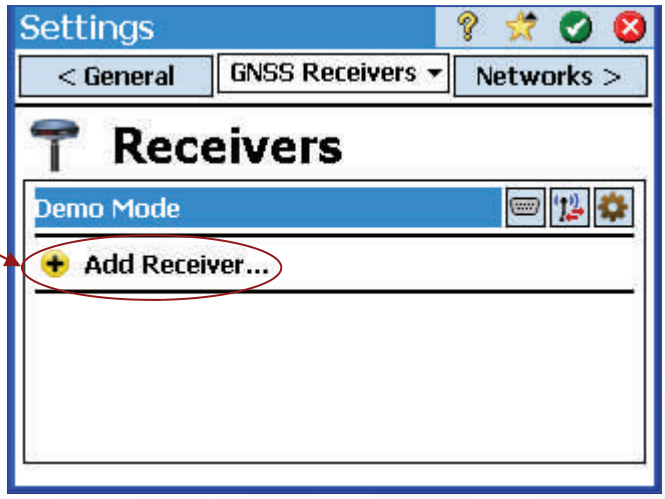
Creating a profile for the Topcon GPS Receiver

The following procedure will create a profile for your Topcon GPS receiver. This only needs to be done once per receiver. Make sure the receiver is ON and within 10 ft of the data collector.

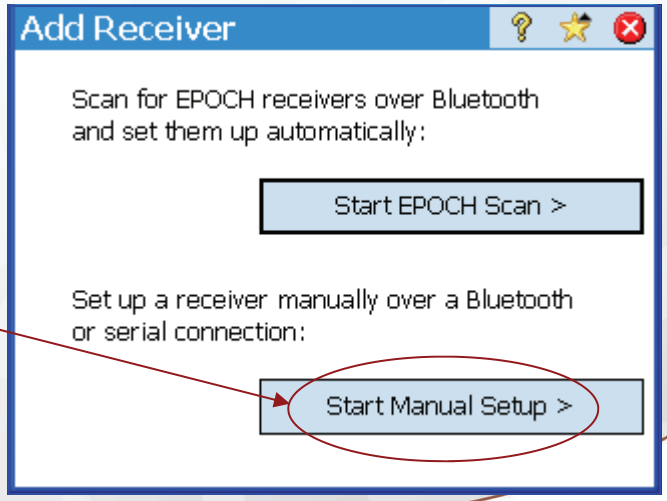
Step 1:
Tap [**Job**] - [**Settings**]



Step 2:
Tap [**Add Receiver**]

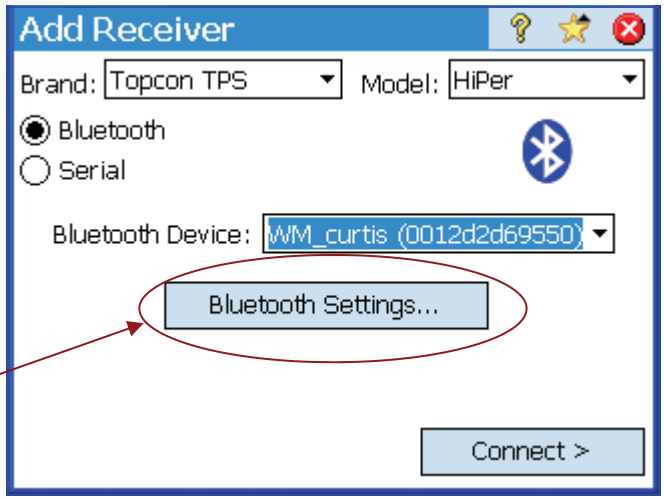


Step 3:
Tap [**Start Manual Setup**]



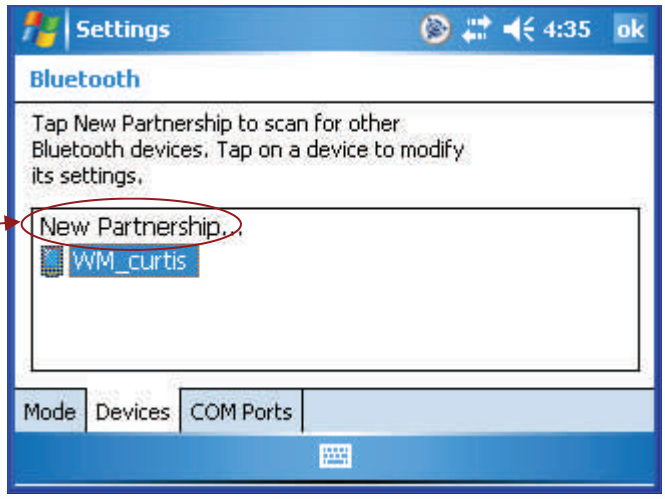
Creating a profile for the Topcon GPS Receiver

Step 4:
Set the dialog up as shown.
- Brand: Topcon TPS
- Model: (Select your GPS model)
- Bluetooth: (if using BT connection)

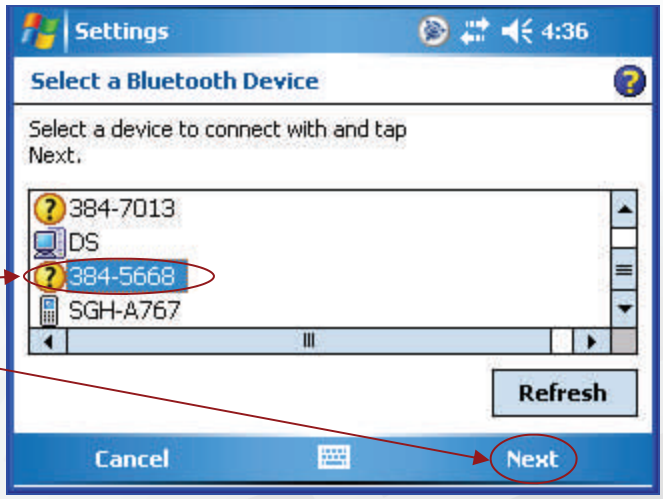


Step 5:
If your Bluetooth connections have already been created **then** go to **Step 13** **Else** tap [**Bluetooth Settings**] to create them.

Step 6:
Tap [**New Partnership**]

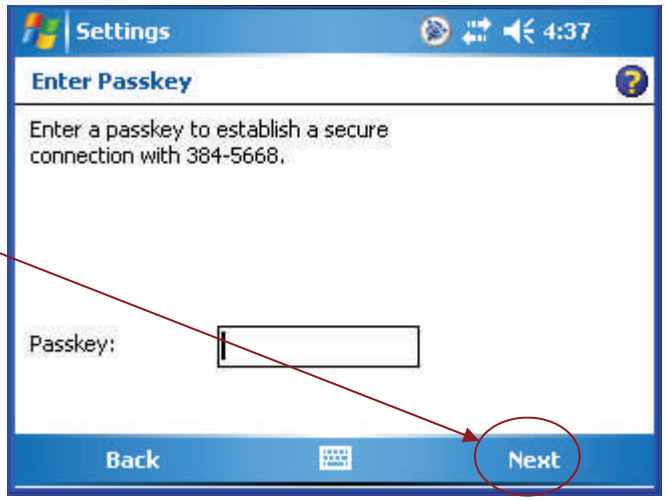


Step 7:
Select your receiver off the list and press [**Next**]

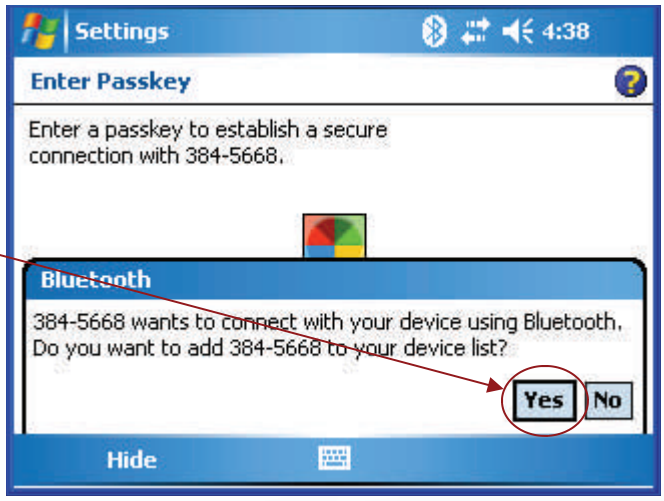


Creating a profile for the Topcon GPS Receiver

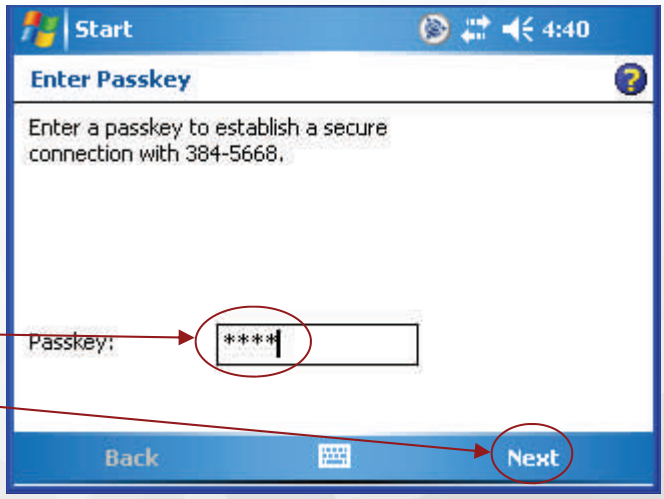
Step 8:
Press [**Next**]



Step 9:
Press [**Yes**]



Step 10:
Enter **1111** for the passkey and press [**Next**]



Creating a profile for the Topcon GPS Receiver

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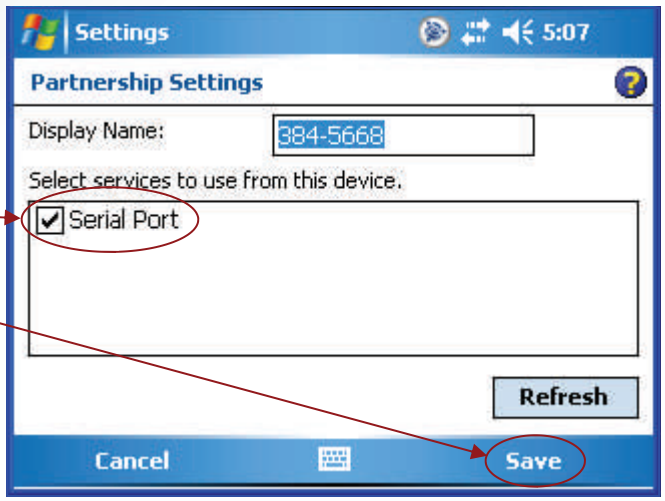
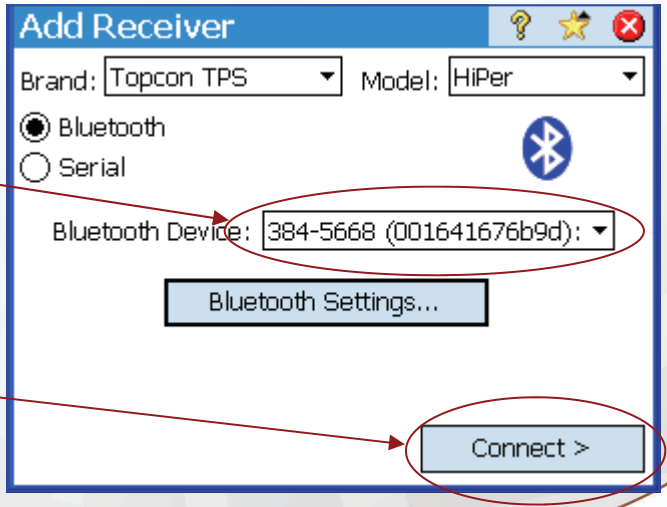
Step 11:
Check [**X**] Serial Port and press [**Save**] or [**Finish**]



Step 12:
Press [**OK**]

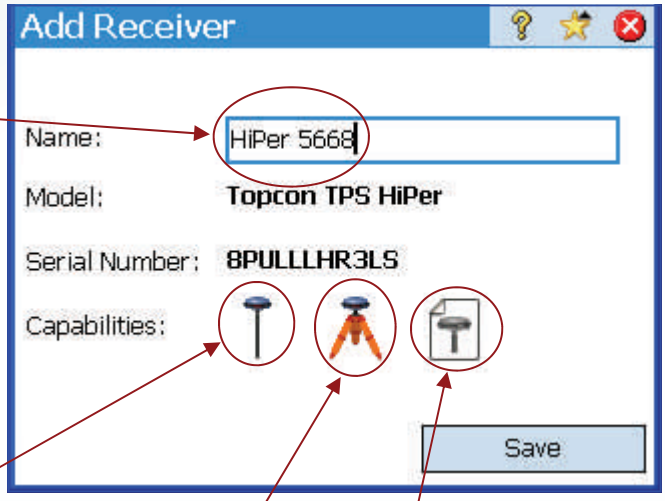
Step 13:
Set the Bluetooth Device: to the blue-tooth connection we just created.

Step 14:
Press [**Connect**]



Creating a profile for the Topcon GPS Receiver

Step 15:
Give the profile a specific name (Ie. serial number, HiPer 1, Dave, etc.) and press [**Save**]



Note:
Spectra Precision does not recognize a receiver as a "Base" or "Rover". Any receiver with the capability to be a base or a rover can be used as either when selected.

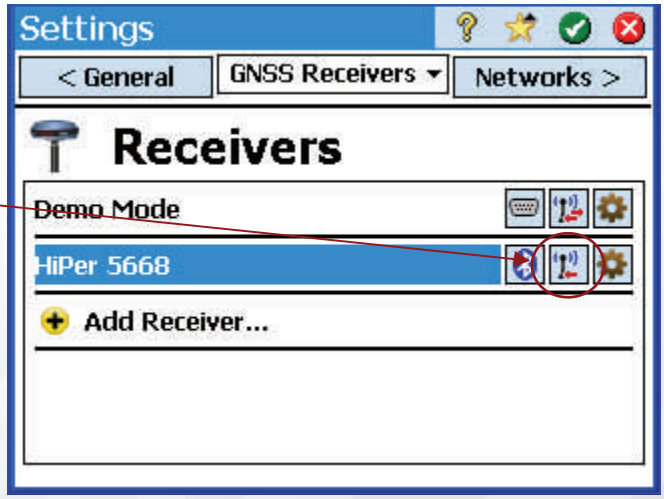
Note:
This symbol means the receiver can be used as a Rover.

Note:
This symbol means the receiver can be used as a Base.

Note:
This symbol means the receiver can be used for Post Processing.

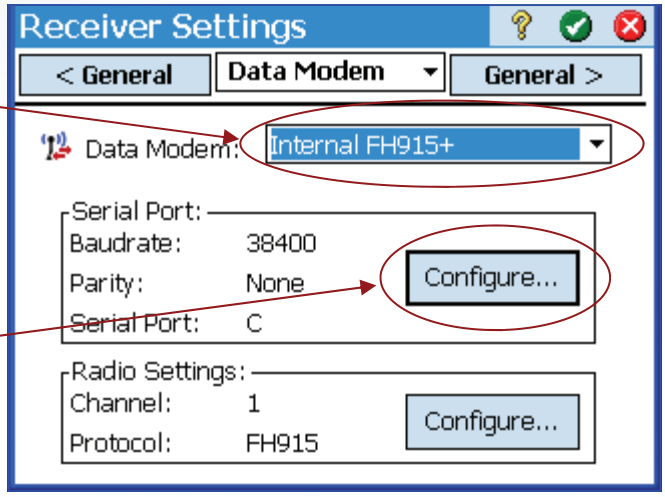
Step 16: Configure the Radio

Tap 



Creating a profile for the Topcon GPS Receiver

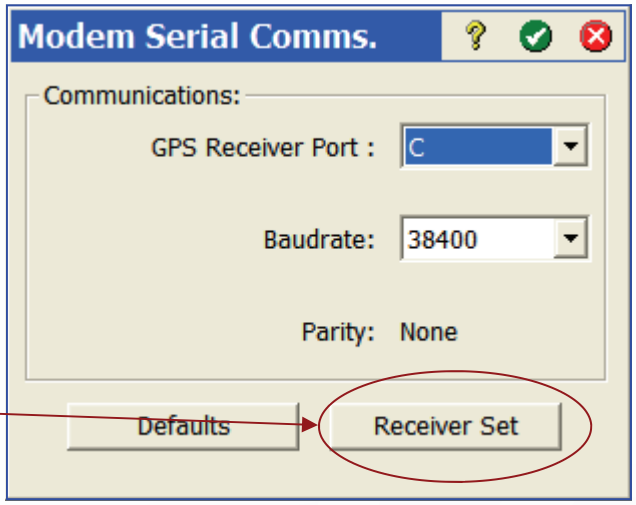
Step 17:
Set the Data Modem to the radio type of your GPS receiver.
- I.E. HiPer Lt is <**Internal FH915+**>
- HiPer GA is <**Internal D-UHF**>



Step 18:
Tap [**Configure**] to configure the serial port.

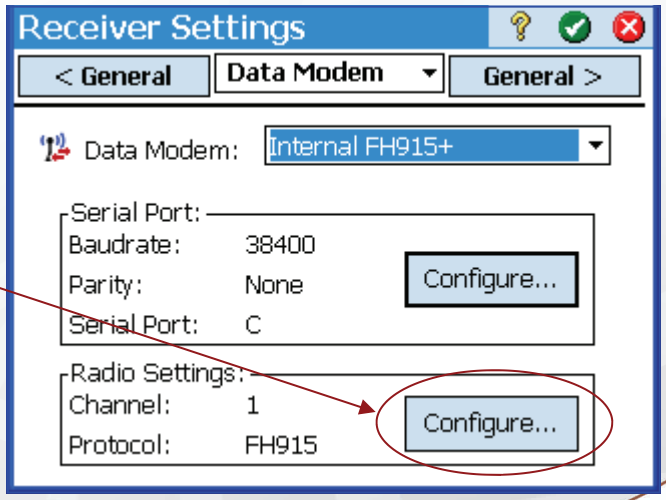
Step 19:
- Set the Port to **C**
- Baudrate to **38400**.
- Parity to **None**

Note: Typical for HiPer Settings.



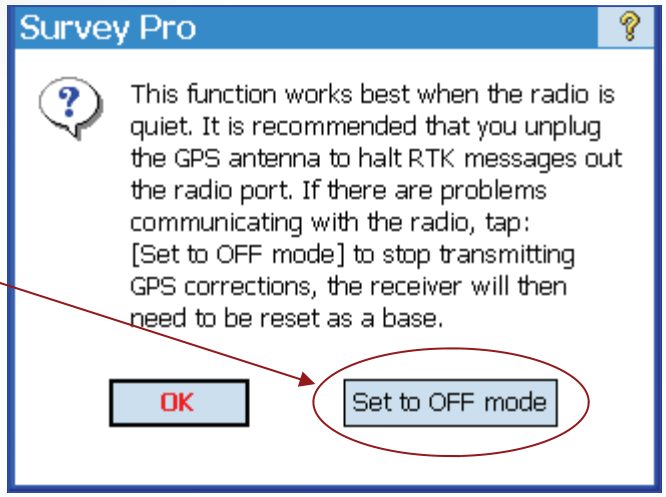
Step 20:
Press [**Receiver Set**]

Step 21:
Press [**Configure**] to configure the Radio Settings.



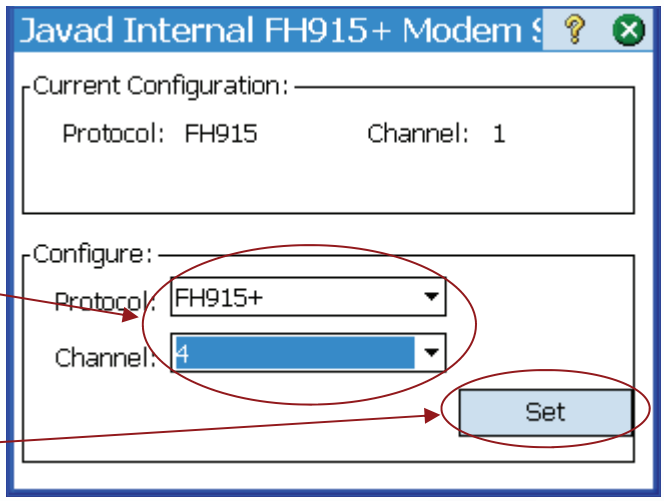
Creating a profile for the Topcon GPS Receiver

Step 22:
Tap [**Set to OFF mode**]

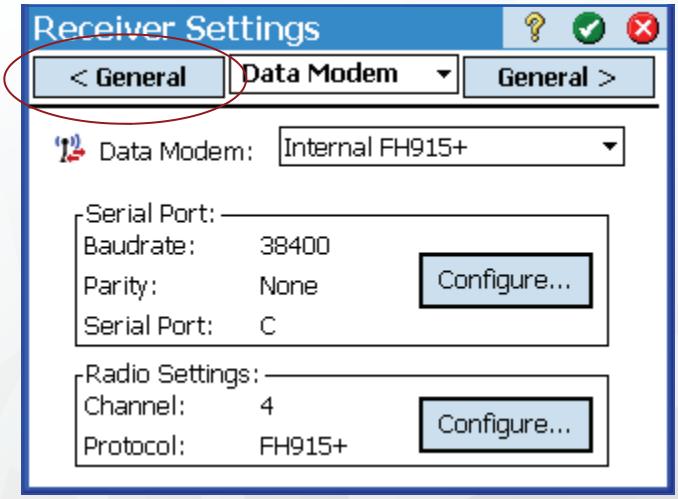


Step 23:
Set the Protocol and Channel

Step 24:
Tap [**Set**]



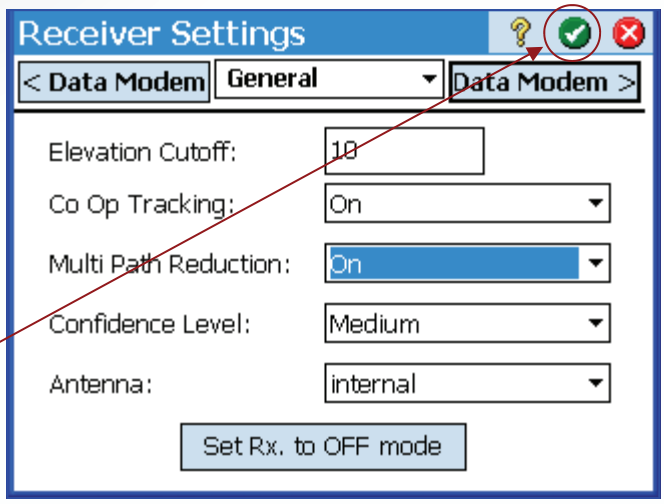
Step 25:
Tap [**General**]



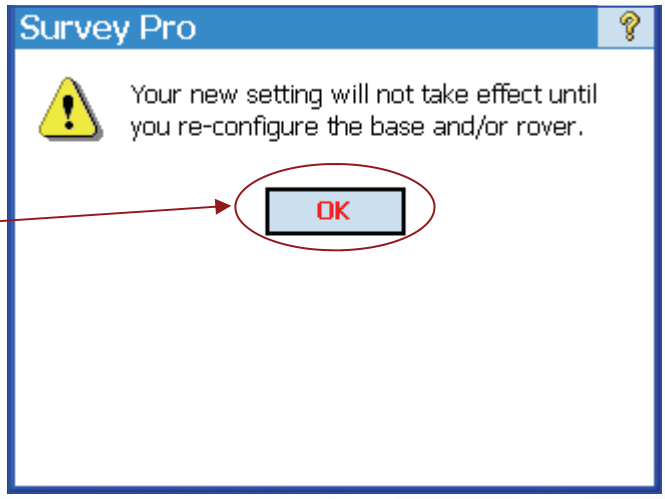
Creating a profile for the Topcon GPS Receiver

Step 26:
Set the user preferences in the <General tab>

- I.E. Elevation Cutoff to **10**
- Co Op Tracking to **ON**
- Multi Path Reduction to **ON**
- Confidence Level to **Medium**
- Antenna to **Internal** (Optional)



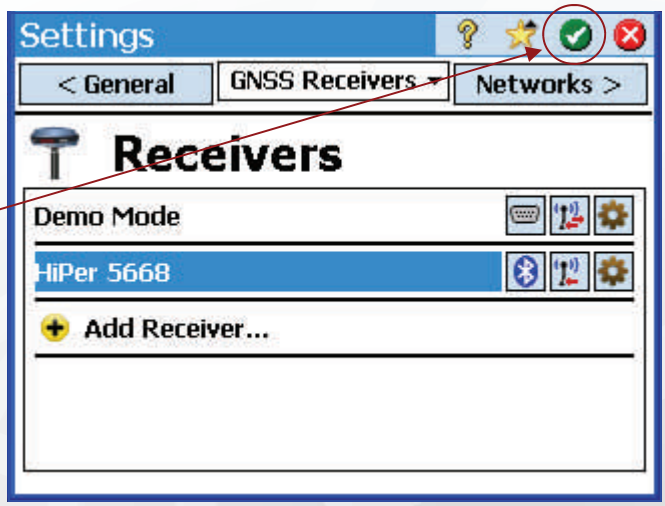
Step 27:
Tap 



Step 28:
Tap [**OK**]

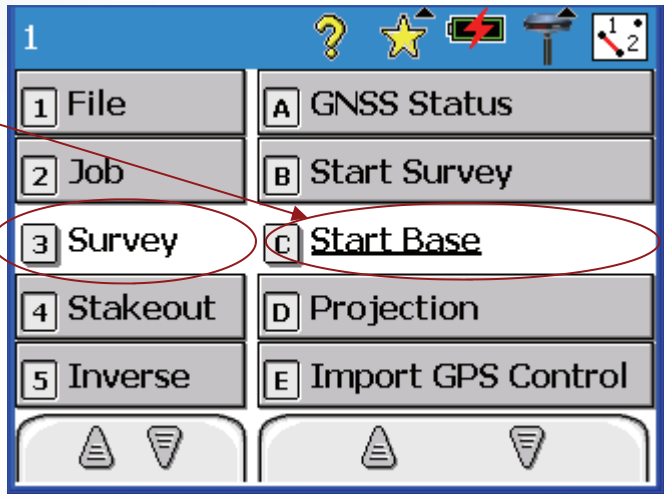
Step 29:
Repeat **Step 2** to **Step 29** until all your receivers are entered.

Step 30:
Tap  To finish adding receivers.

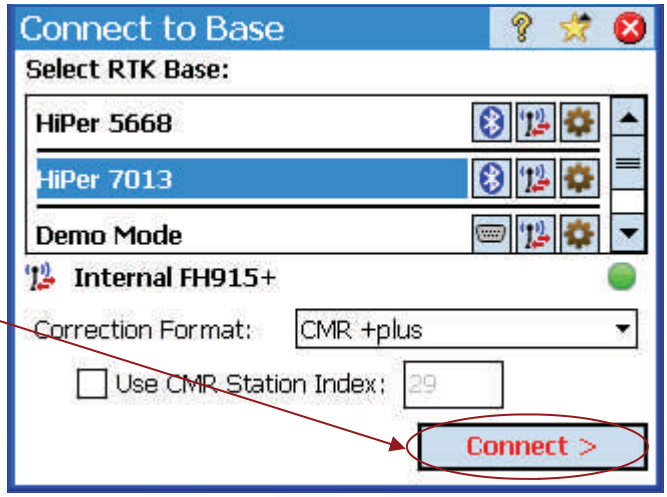


One-Point Setup
Base and Rover

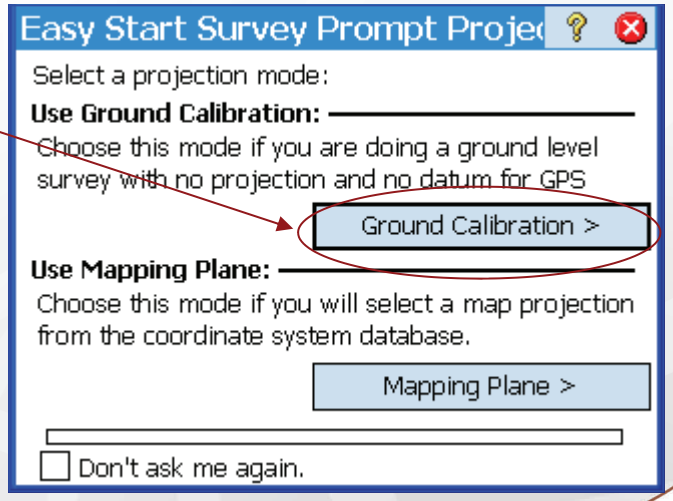
Step 1:
Tap [**Survey**] - [**Start Base**]



Step 2:
- Select a receiver to be the Base (**Note**: this can be any receiver you have profiled.)
- Set the Correction Format (typically CMR+)
- Make sure your base is in proximity, powered on and ready to work.
- Press [**Connect**]

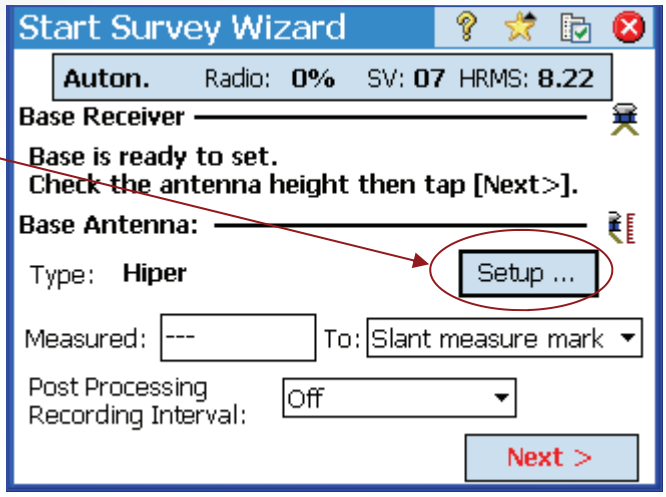


Step 3:
Since we are assuming a simple one point setup, Press [**Ground Calibration**]

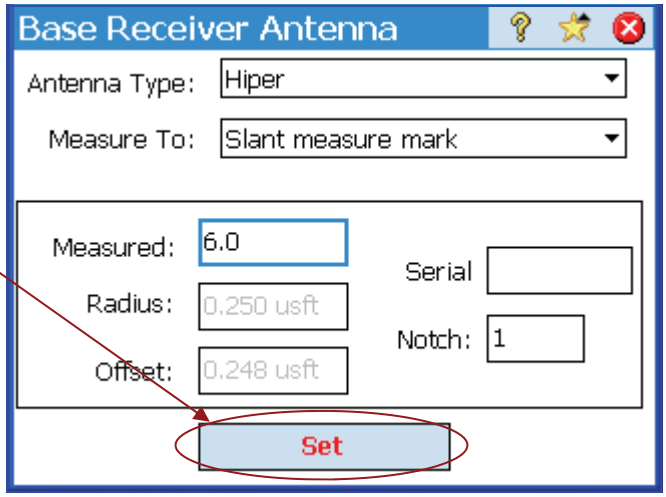


One-Point Setup
Base and Rover

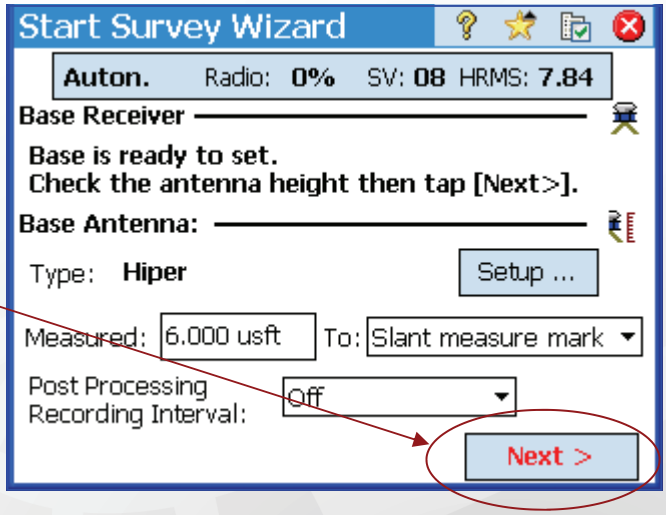
Step 4:
If this is a new setup, we need to set the antenna profile. Press [**Setup**]



Step 5:
- Set the Antenna Type to the correct model. (HiPer for all HiPer Receivers)
- Set the Measure To: (Typically Slant on the Base)
- Enter in the measure-up value.
- Press [**Set**]

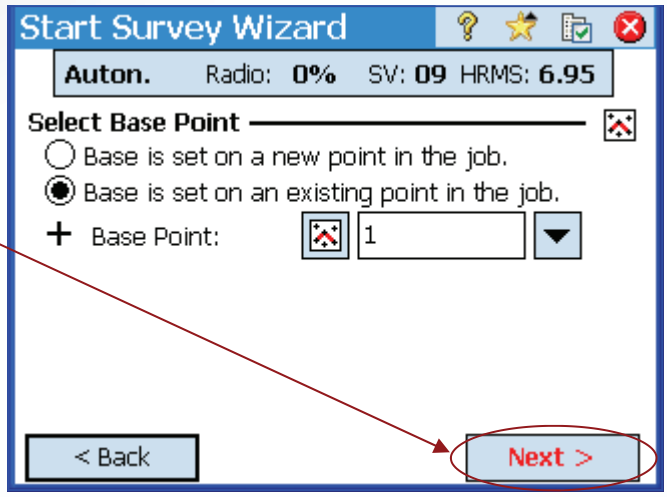


Step 6:
Tap [**Next**]

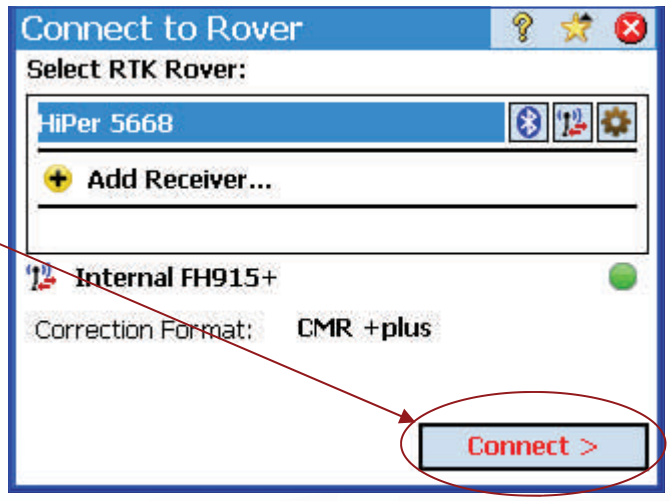


One-Point Setup
Base and Rover

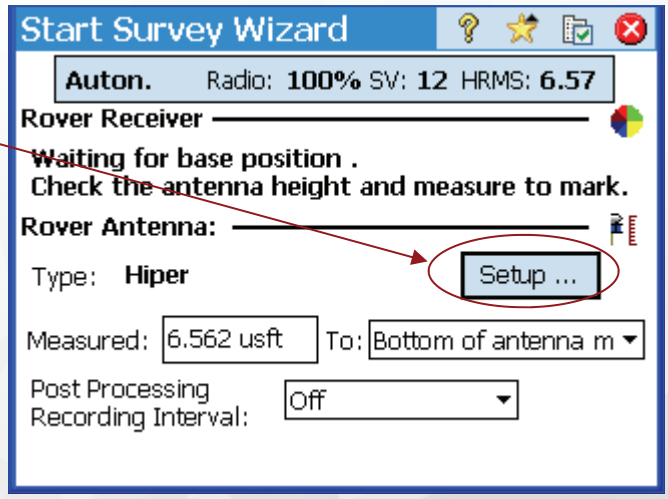
Step 7:
- Make sure [**x**] Base is set on existing point.. is checked. (Default)
- Press [**Next**]



Step 8:
- Select the receiver you want to use as a Rover.
- Press [**Connect**]

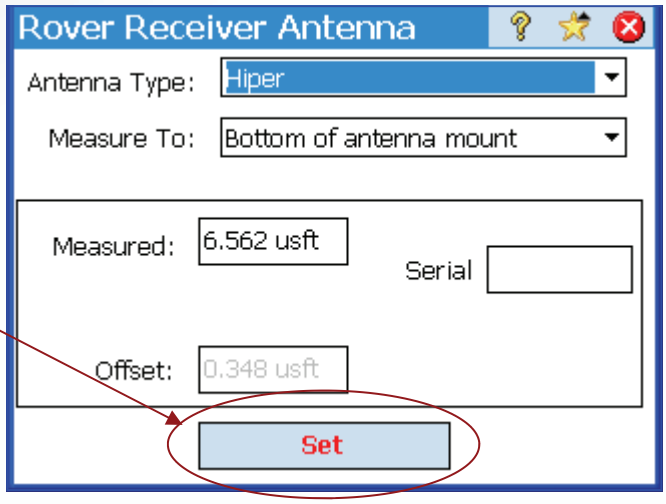


Step 9:
If this is a new setup, we need to set the antenna profile. Press [**Setup**]

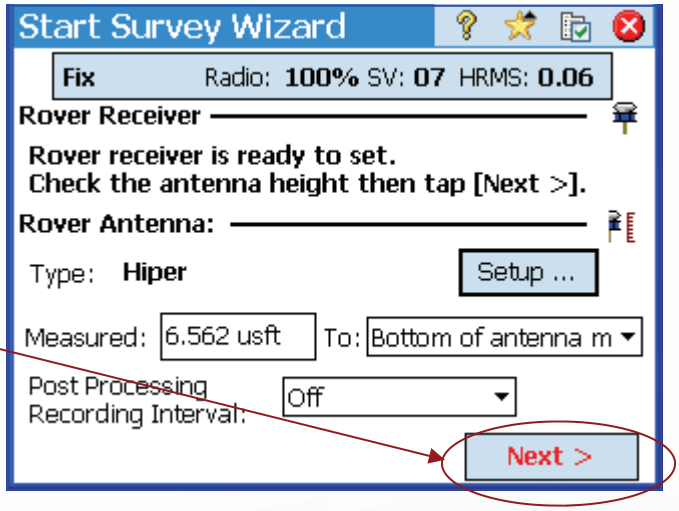


One-Point Setup
Base and Rover

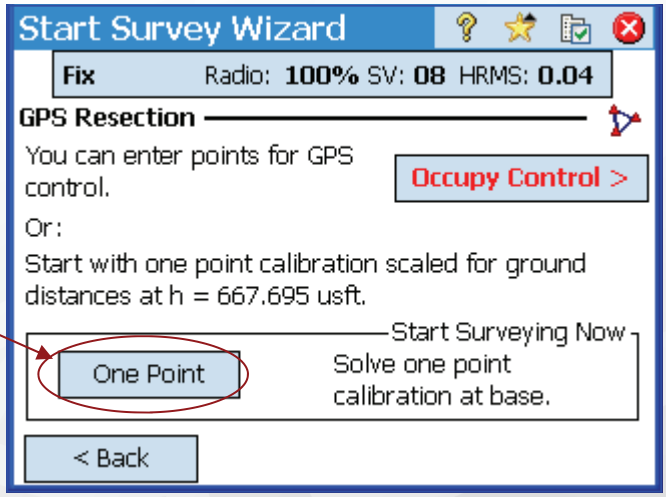
Step 10:
- Set the Antenna Type to the correct model. (HiPer for all HiPer Receivers)
- Set the Measure To: (Typically Bottom of Mount on the Rover)
- Enter in the measure-up value.
- Press [**Set**]



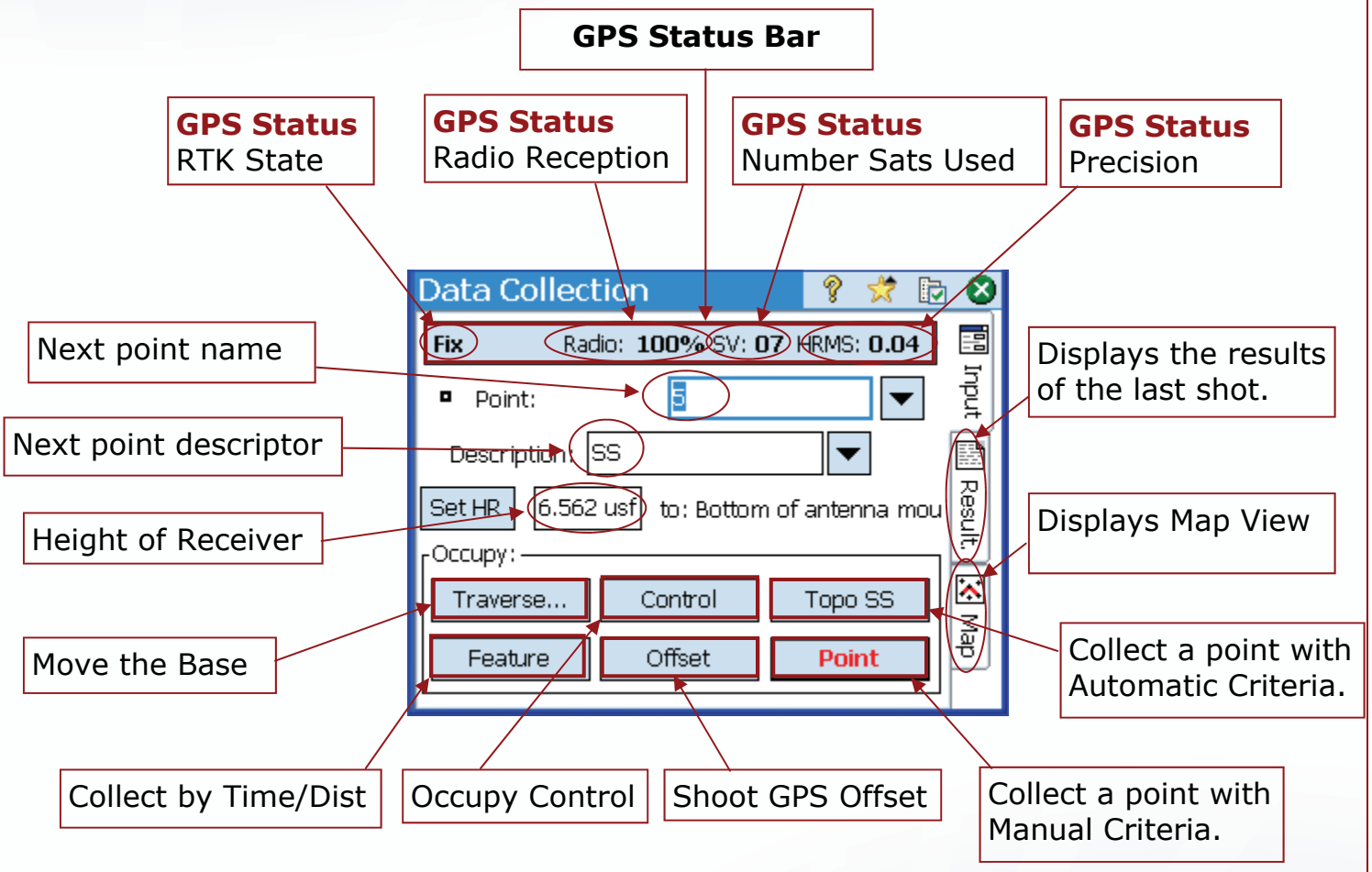
Step 11:
Tap [**Next**]



Step 12:
For one-point Setup, press [**One Point**]



Anatomy of the Data Collection Dialog

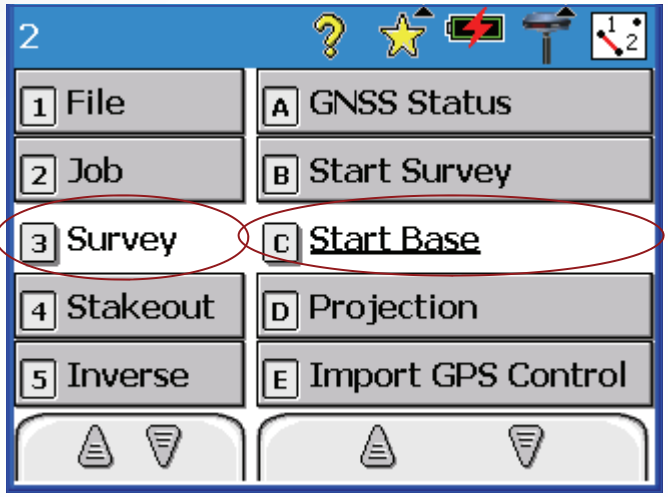


Step 13:
Survey Pro should go Fixed and you can begin work.

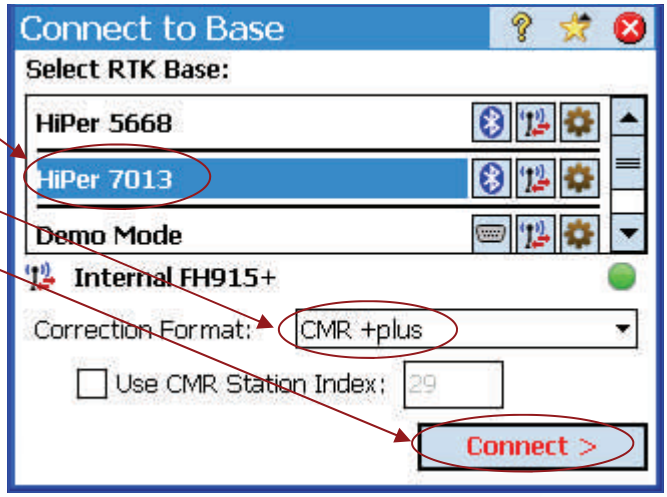
Multi-Point Calibration (Localization)

This procedure assumes you have a base and rover setup and that you are localizing (calibrating) into an existing ground system for the first time. For further reading on Calibration see "**Introduction to RTK GPS**" on www.hayeshelp.com.

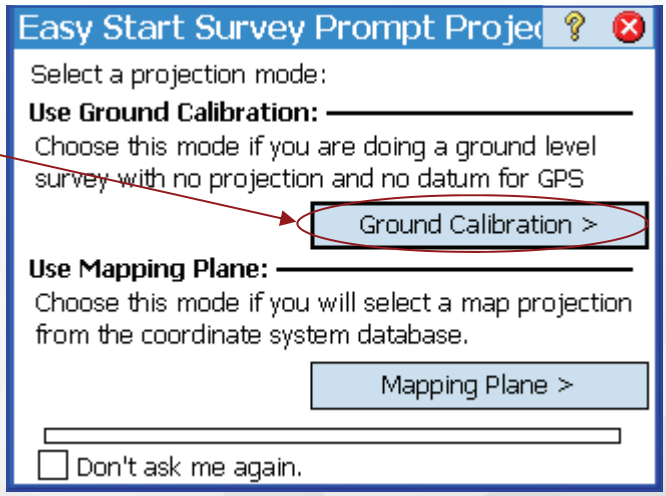
Step 1:
Tap [**Survey**] - [**Start Base**].



Step 2:
- Select the receiver profile to use as a base.
- Set the Correction Format. (CMR+ or RTCM 3.0 are good)
- Press [**Connect**]



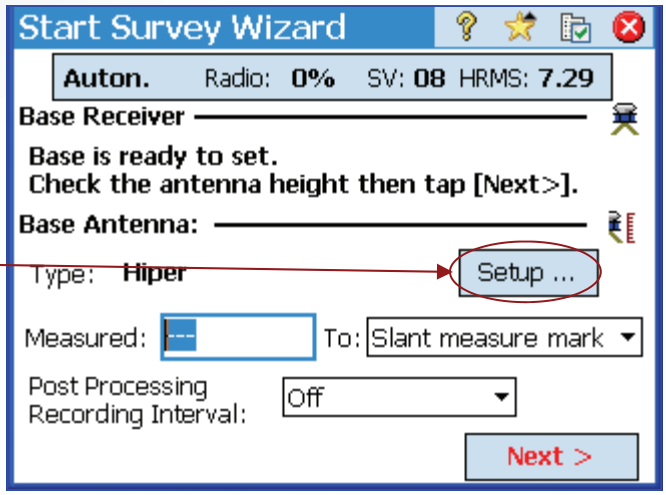
Step 3:
Tap [**Ground Calibration**]



Multi-Point Calibration (Localization)

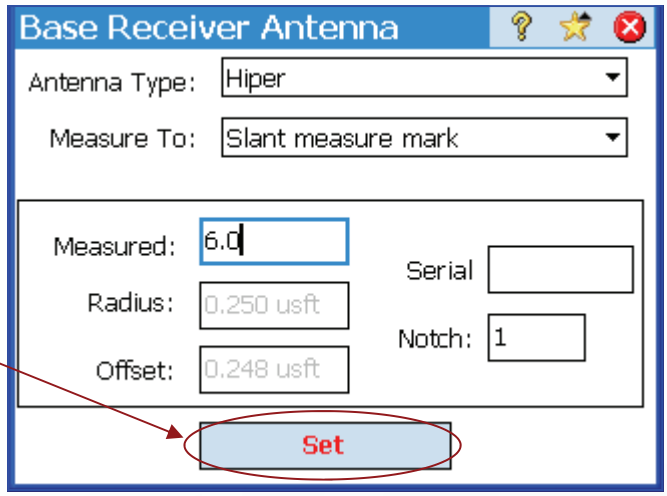
Step 4-

- **If—** The antenna is already configured—then enter the HR and skip to **step 6**
- **Else**—this is our first setup we will need to configure the GPS antenna for the first time. Press [**Setup**]

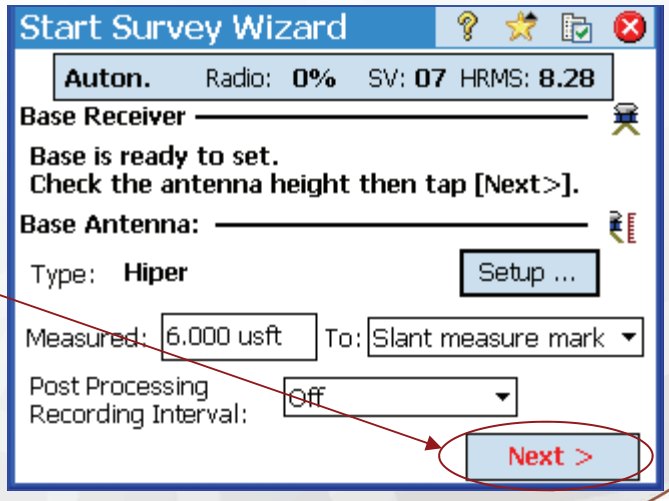


Step 5:
Setup the Base Receiver Antenna.

- Set Antenna Type: (HiPer for all HiPer model receivers).
- Set the Measure to: (Typically slant for the base.—Nail to face of receiver).
- Enter the measured HR.
- Press [**Set**]



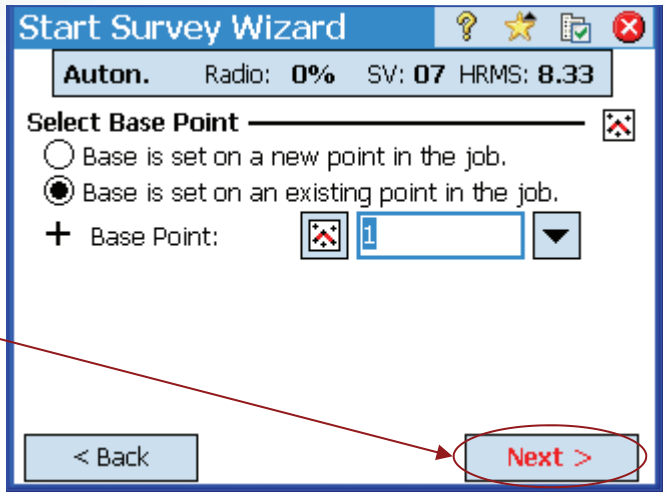
Step 6:
Tap [**Next**]



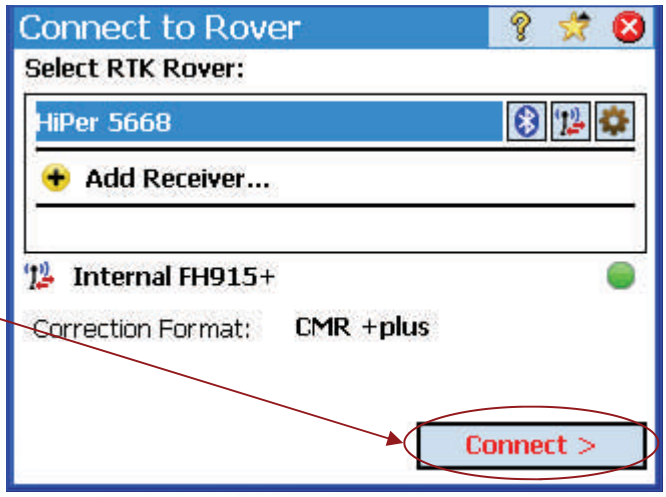
Multi-Point Calibration (Localization)

Step 7:
Set the Base Point—
- Select whether the base is on a new point or a existing point.
- Enter the Base Point Name.
- Press [**Next**]

Note* The base will automatically set.

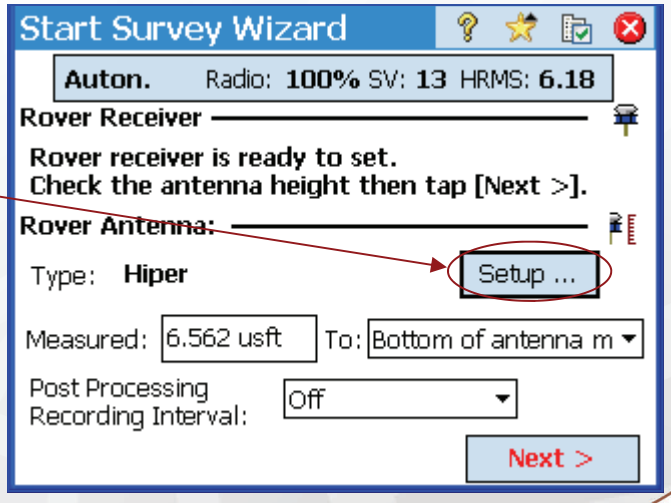


Step 8:
- Select the receiver profile to use as a rover.
- Press [**Connect**]



Step 9-
- **If—** The antenna is already configured—then enter the HR and skip to **Step 11**

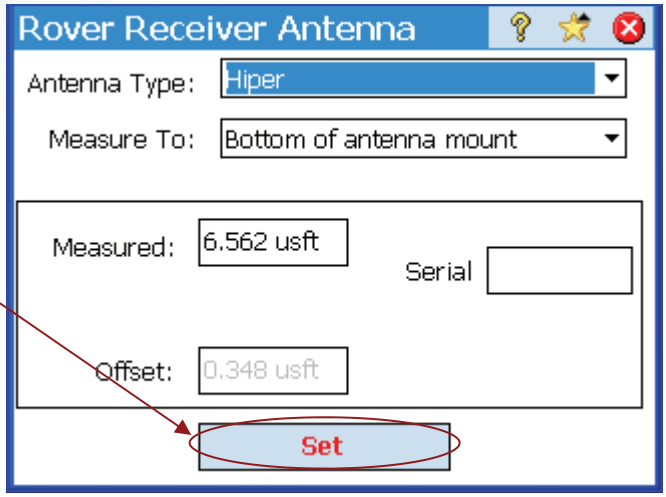
- **Else**—this is our first setup we will need to configure the GPS antenna for the first time. Press [**Setup**]



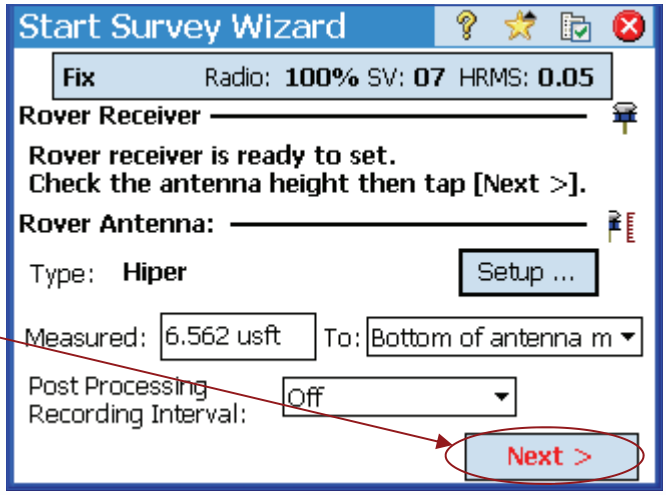
Multi-Point Calibration (Localization)

Step 10:
Setup the Rover Receiver Antenna.

- Set Antenna Type: (HiPer for all HiPer model receivers).
- Set the Measure to: (Typically Bottom of Antenna mount for the Rover)
- Enter the measured HR.
- Press [**Set**]

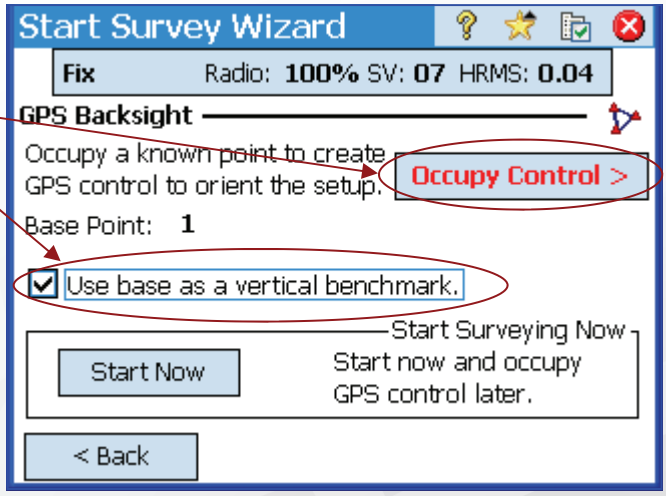


Step 11:
Tap [**Next**]



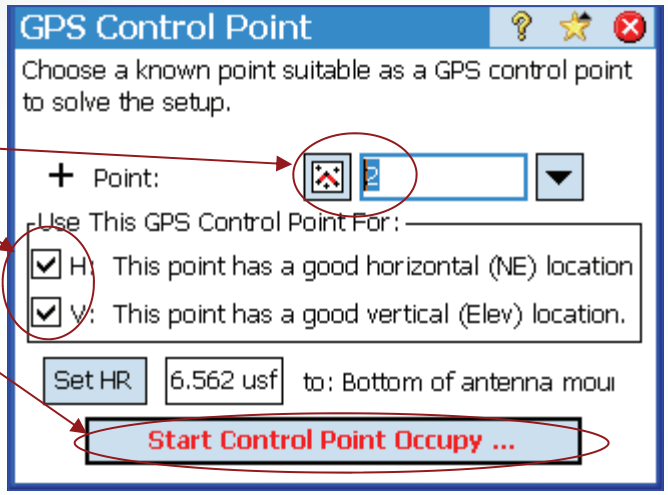
Step 12:

- If the base point elevation is used for a vertical benchmark then check the [**x**] Use Base as a Vertical Benchmark box.
- Press [**Occupy Control**] to occupy a calibration point.

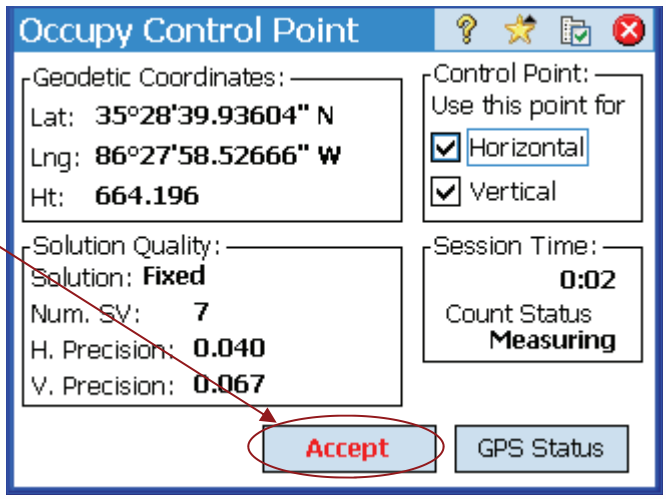


Multi-Point Calibration (Localization)

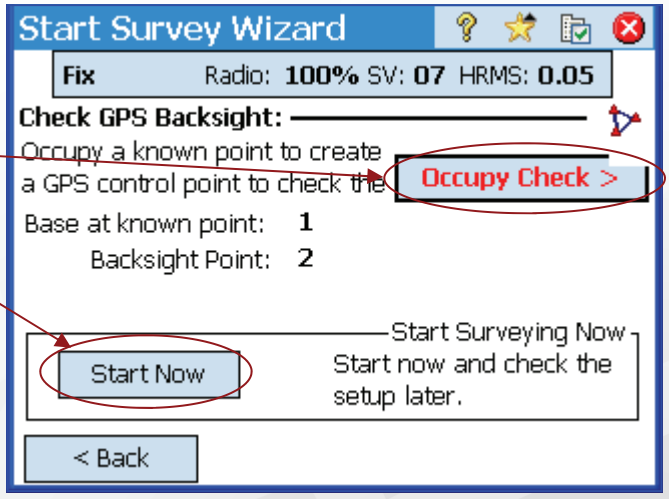
Step 13:
- Choose the control point that you are occupying.
- Set whether holding the point for Horizontal, Vertical or both.
- Occupy the point very accurately and press [**Start Control Point Occupy**]



Step 14:
- Continue to occupy the point for at least 15 seconds.
- Press [**Accept**]

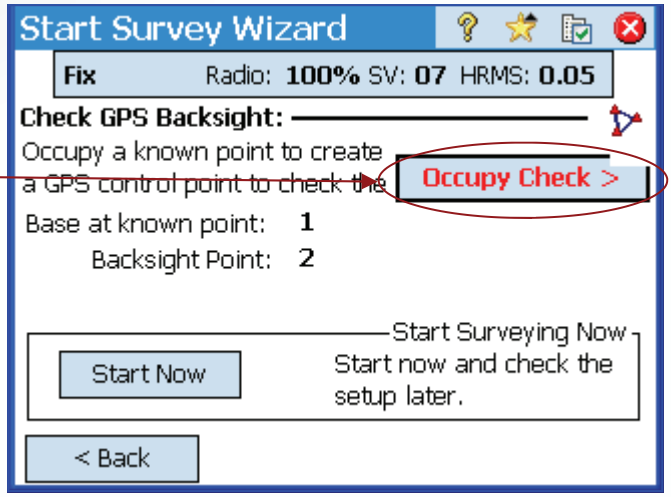


Step 15:
Note: Spectra Precision now uses conventional survey terminology to describe the GPS occupation.
- Press [**Start Now**] to start a 2 point calibration solution. Go Survey you're done.
- Press [**Occupy Check**] to calibrate to an additional point.

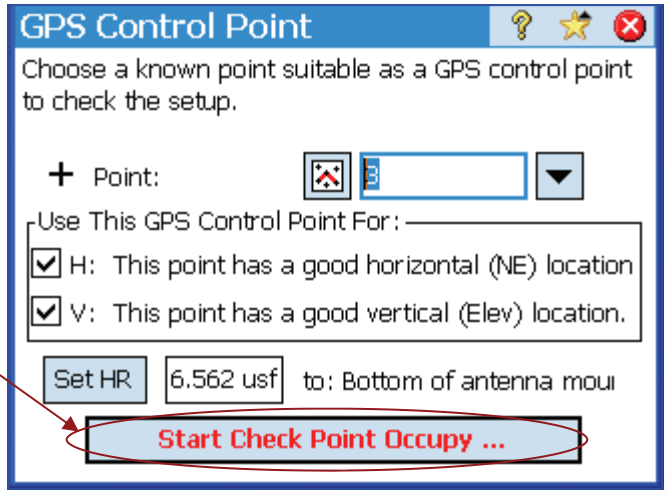


Multi-Point Calibration (Localization)

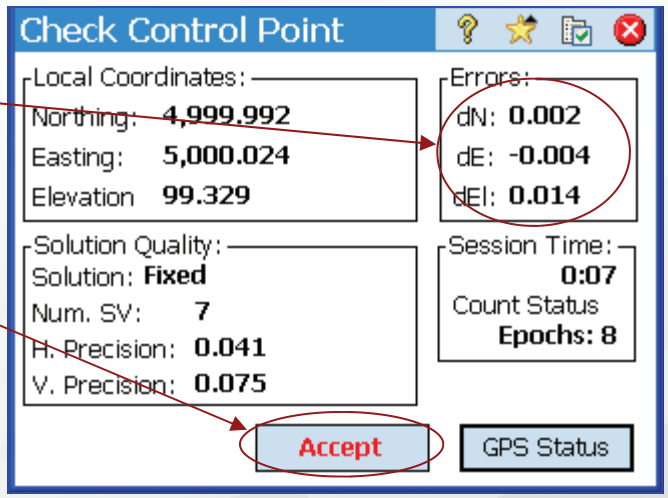
Step 16:
- To add another control point, Press [**Occupy Check**]



Step 17:
- Choose the control point that you are occupying.
- Set whether holding the point for Horizontal, Vertical or both.
- Occupy the point very accurately and press [**Start Control Point Occupy**]



Step 18:
- **Note:** Survey Pro will display the difference between the calculated and measured position of the control point.
- Continue to occupy the point for at least 15 seconds.
- Press [**Accept**]



Multi-Point Calibration (Localization)

Anatomy of the Control Solution Dialog

Note:
GPS Status Bar

Note:
Used for Horizontal/ Vertical Control

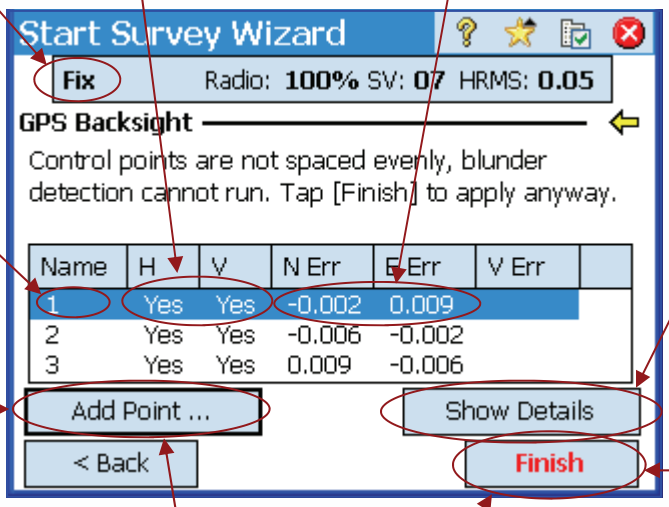
Note:
North and East Error

Note:
Control point #

Note:
Projection Details

Note: Add Point
[**Add Point**] will take you back to **Step 17**.

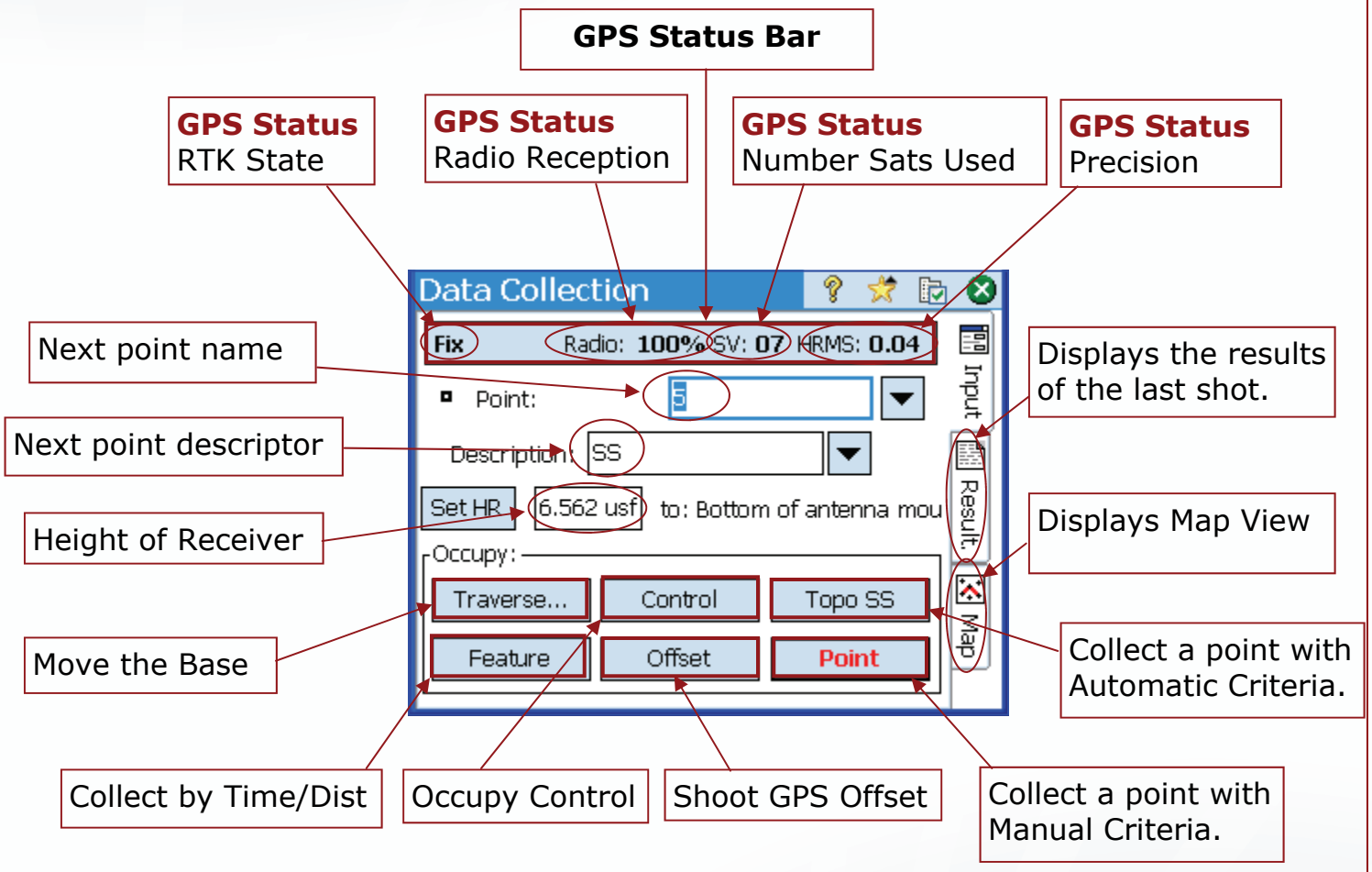
Note: Finish
[**Finish**] will solve the projection and take you to Data Collection.



Step 19:
If— You have more control points to add—Press [**Add Point**]
Else—Press [**Finish**] to solve the projection and begin surveying.

Multi-Point Calibration (Localization)

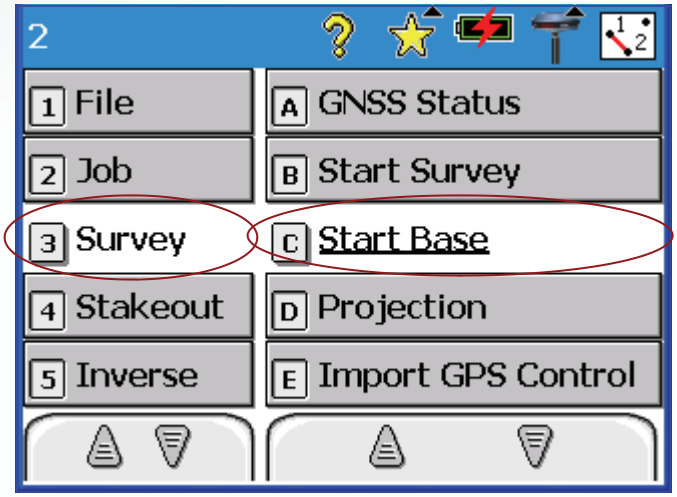
Anatomy of the Data Collection Dialog



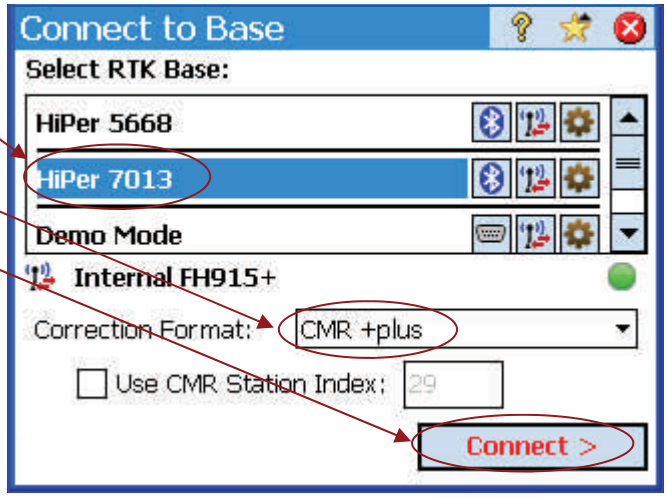
Mapping Plane

This procedure assumes you have a base and rover setup and that you are occupying into an existing mapping plane (I.e. NAD83 Tennessee 4100). For further reading on Mapping Plane see "**Introduction to RTK GPS**" on www.hayeshelp.com.

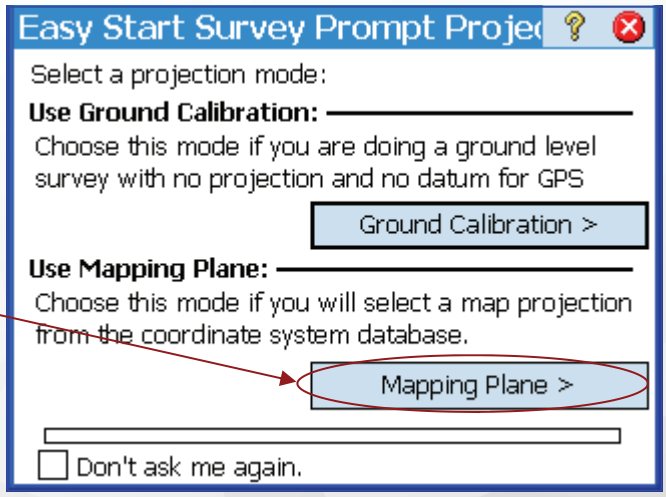
Step 1:
Tap [**Survey**] - [**Start Base**].



Step 2:
- Select the receiver profile to use as a base.
- Set the Correction Format. (CMR+ or RTCM 3.0 are good)
- Press [**Connect**]



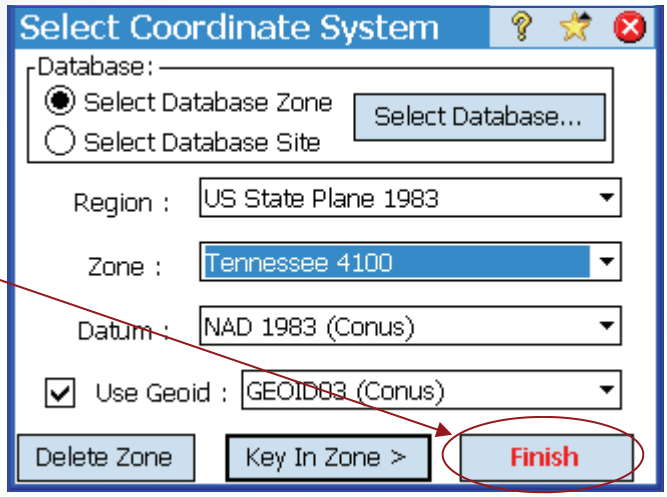
Step 3:
Tap [**Mapping Plane**]



Mapping Plane

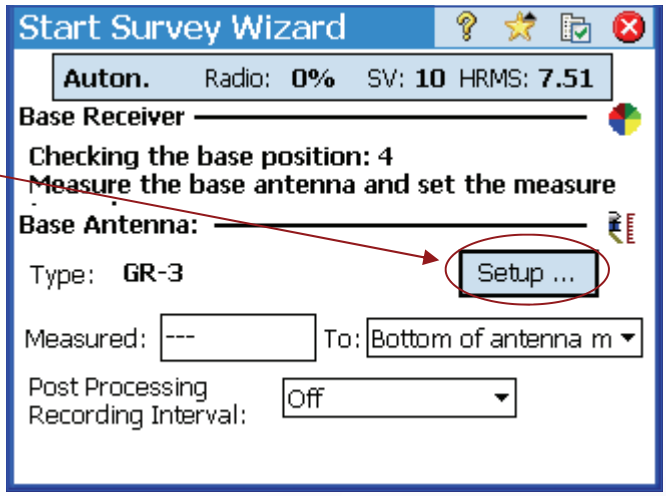
Step 4:
Set the Coordinate System.

- Check [**x**] Select Database Zone
- Set the Region (i.e US State Plane 1983)
- Set the Zone: (i.e. Tennessee 4100)
- Set the Datum: (NAD 1983)
- Check [**x**] Use Geoid: (Geoid03 files can be found on www.hayeshelp.com.
- Press [**Finish**]



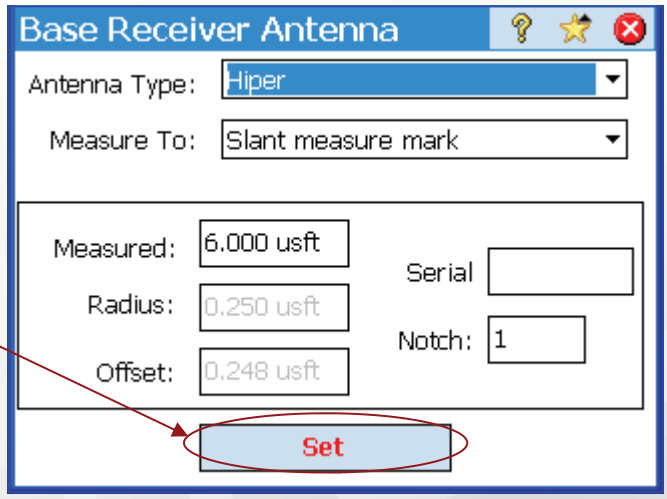
Step 5-

- **If—** The antenna is already configured—then enter the HR and skip to **Step 7**
- **Else**—this is our first setup we will need to configure the GPS antenna for the first time. Press [**Setup**]

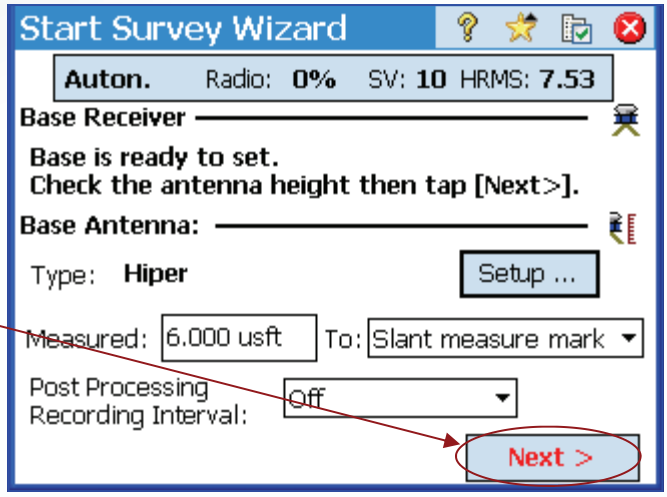


Step 6:

- Set the Antenna Type to the correct model. (HiPer for all HiPer Receivers)
- Set the Measure To: (Typically Slant on the Base)
- Enter in the measure-up value.
- Press [**Set**]

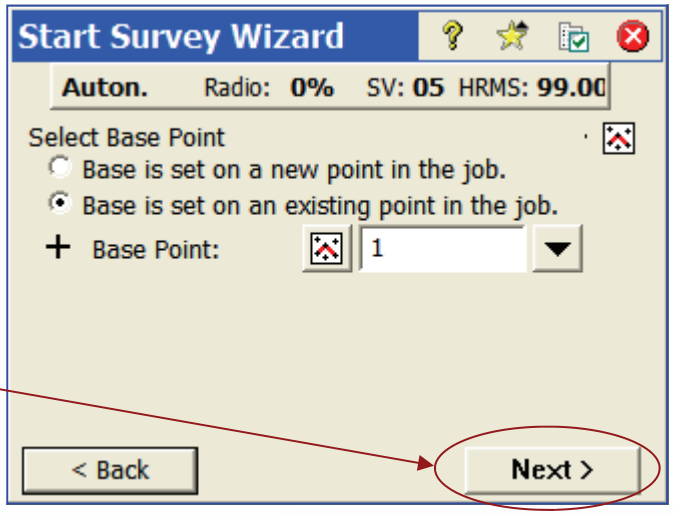


Step 7:
Tap [**Next**]



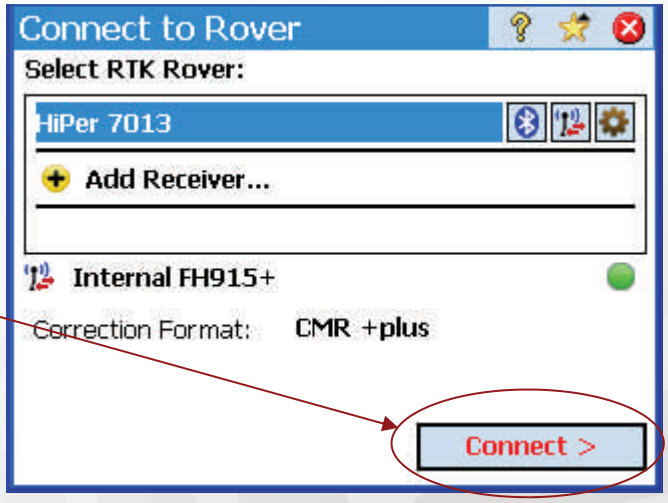
Step 8:
Set the Base Point—

- **If—** Your Base is on a new point check [**x**] Base is set on a new point… Press [**Next**]
-
- **If —** your Base is on an existing point check [**x**] Base is set on an existing point.. Press [**Next**]
- **Note:** This document will use existing point operation.



Step 9:
Connect to the Rover.

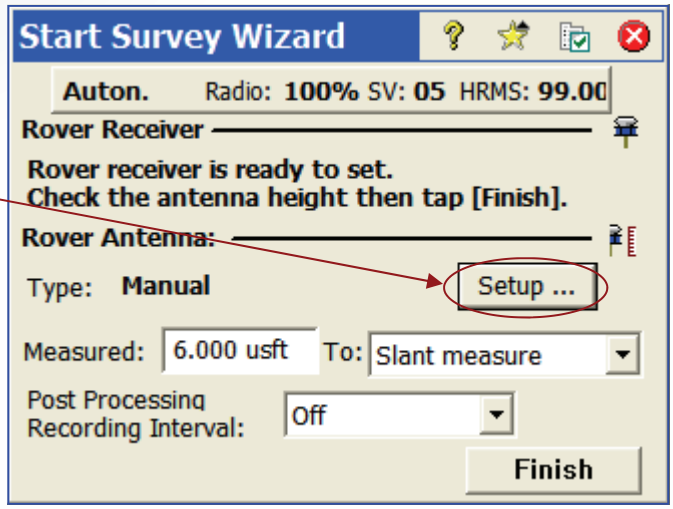
- Select the Receiver to be used as a Rover.
- Press [**Connect**]



Mapping Plane

Step 10-

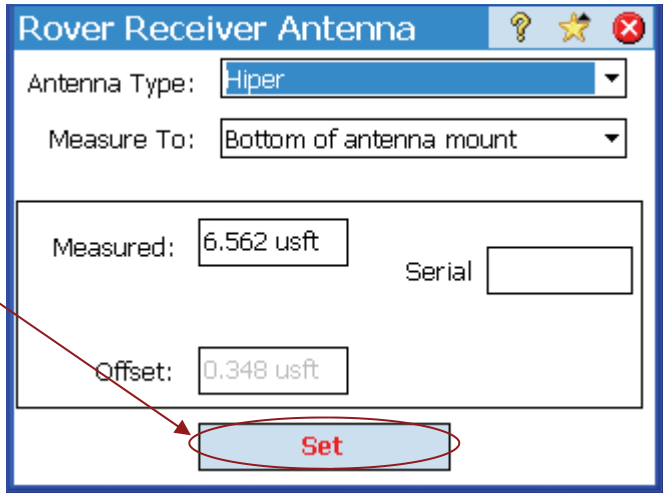
- **If—** The antenna is already configured—then enter the HR and skip to **Step 12**
- **Else**—this is our first setup we will need to configure the GPS antenna for the first time. Press [**Setup**]



Step 11:

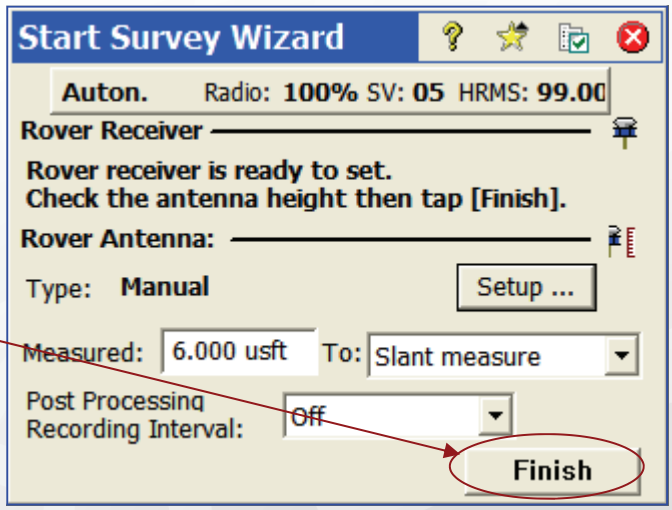
Setup the Rover Receiver Antenna.

- Set Antenna Type: (HiPer for all HiPer model receivers).
- Set the Measure to: (Typically Bottom of Antenna mount for the Rover)
- Enter the measured HR.
- Press [**Set**]



Step 12:

Tap [**Finish**]



Anatomy of the Data Collection Dialog