MaCORS

Massachusetts Continuously Operating Reference Station

Real-Time Network

MaCORS Quick Guide

Rover Configuration for Topcon GR-3 using Carlson SurvCE 2.x & Internal CDMA Modem

This Quick Guide outlines configuring the Topcon GR-3 with Carlson SurvCE & Internal CDMA modem to work with MaCORS.

- **Configuring the GR-3 to use MaCORS**

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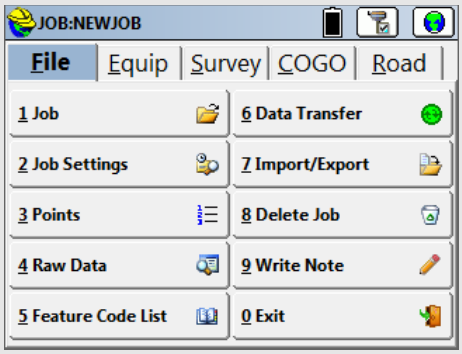
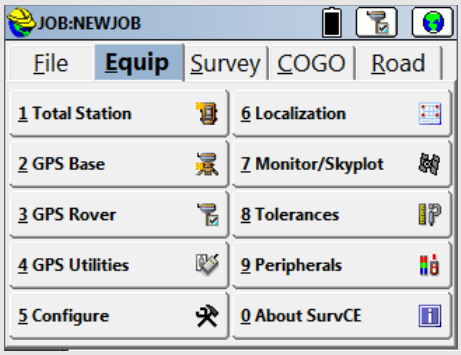
GR-3 with Internal CDMA Modem Configuration

Setting up rover for operation with an internal CDMA modem

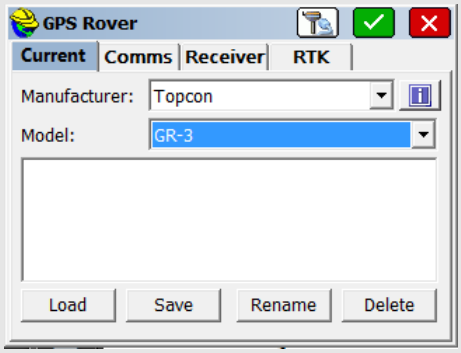


Since we will be using the receiver within the network, we need to configure it to work with an internal CDMA device.

1. Open SurvCE
2. Go to the **Equip** tab



3. Select **3 GPS Rover**



4. In the **Current** tab, select:

- Manufacturer: Topcon
- Model: GR-3

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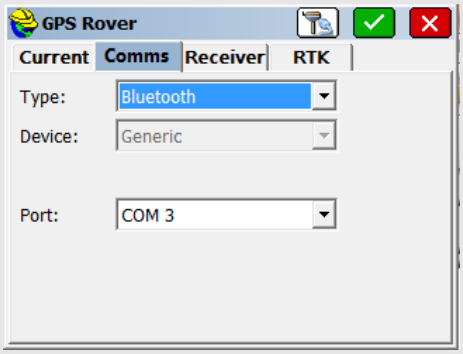
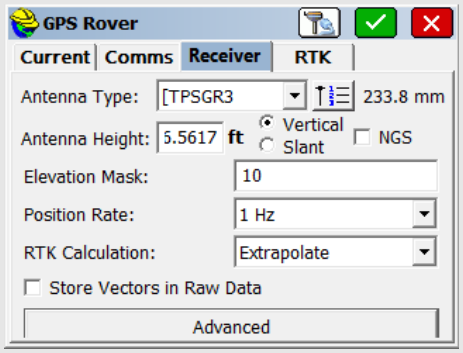


5. Select the **Comms** tab

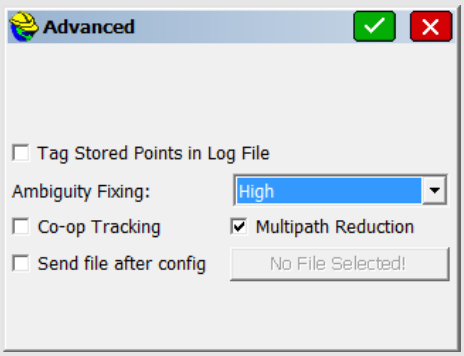
6. Select **Type**, either **Bluetooth** or **Cable** and the appropriate **Port**



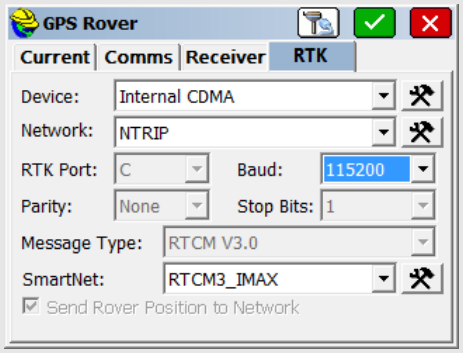
7. Select the **Receiver** tab

8. Input your correct **Antenna Height**

9. Select **Advanced**



10. Set **Ambiguity Fixing** to **High**



11. Select the **RTK** tab

12. Change your **Device** to **Internal CDMA** & select the appropriate **Baud** rate for this connection

13. Push the Setting icon to the right of **Device**

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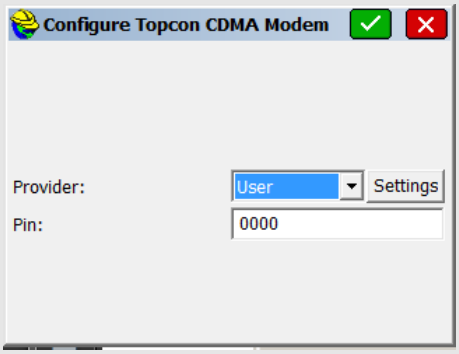
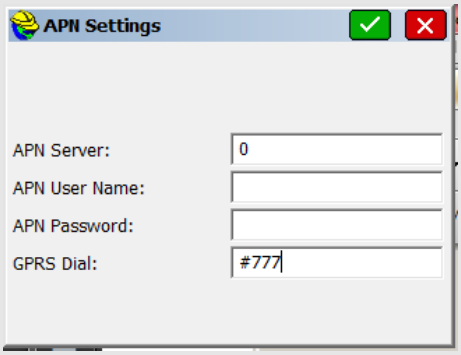


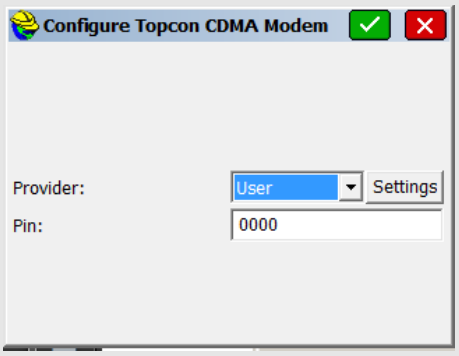


14. In the **Provider** field, select **User**

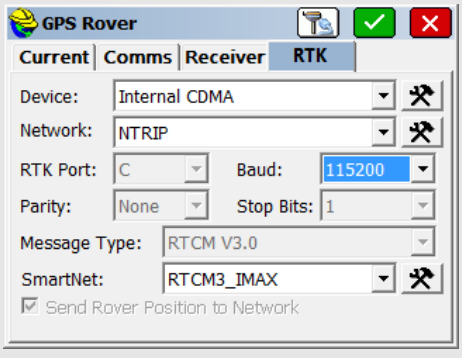
15. Select **Settings**

16. In the **GPRS Dial** field, enter **# 777**

17. Press the Green Check icon



18. Press the Green Check icon



19. Push the Setting icon to the right of **Network**

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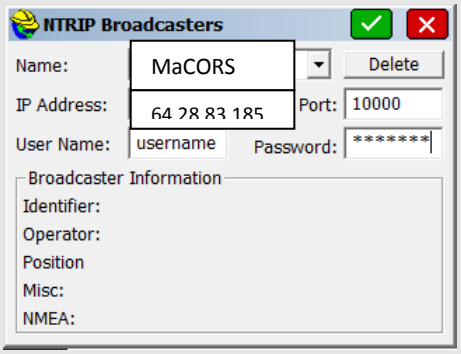
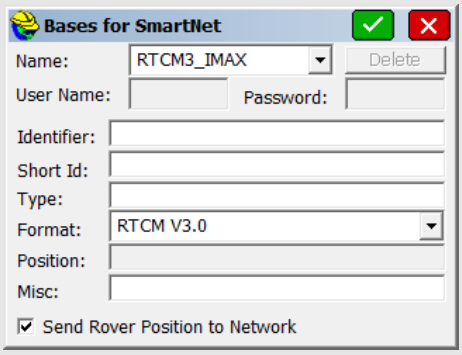




20. In the **Name** field, enter **MaCORS**

21. In the **IP Address** field, enter in the correct DNS address of the new server (please check the RTK Data Products tab on the MaCORS website) and a **Port** number of **10000**

    Example:

    - For MaCORS enter: 64.28.83.185

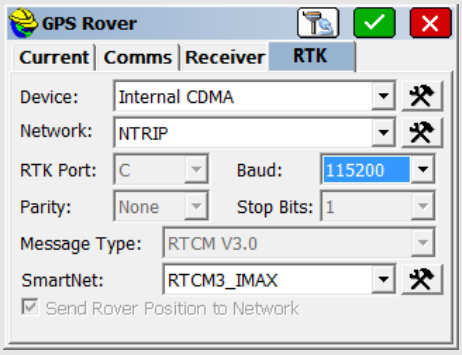
22. Enter the **User Name** and **Password** provide by MaCORS, press the Green Check icon

23. A new screen will appear, in the **Name** field enter the Mount Point name for the real-time product that is desired (see site)

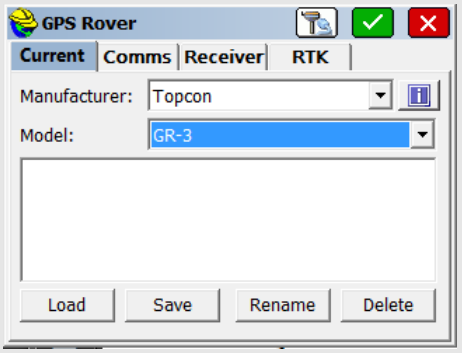
24. In the **Format** field, select **RTCM V3.0**

25. Check "**Send Rover Position to Network**"

26. Press the Green Check icon



27. Verify all your settings



28. Select the **Current** tab

29. Select **Save**

30. Enter a name for the new configuration file, such as MaCORS GR-3 Config

31. Press the Green Check icon

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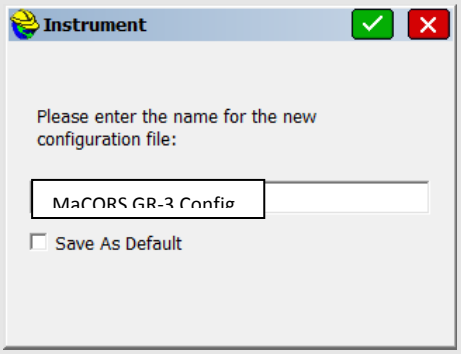

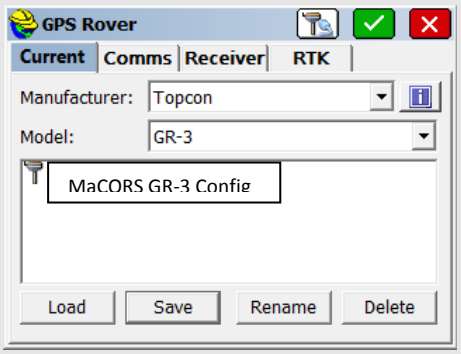

32. Congratulations, you should now be able to connect to MaCORS.

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MaCORS Quick Guide

Rover Configuration for Topcon GR-3 using Carlson SurvCE 2.x & Internal GSM Modem

This Quick Guide outlines configuring the Topcon GR-3 with Carlson SurvCE & Internal GSM modem to work with MaCORS.

- **Configuring the GR-3 to use MaCORS**

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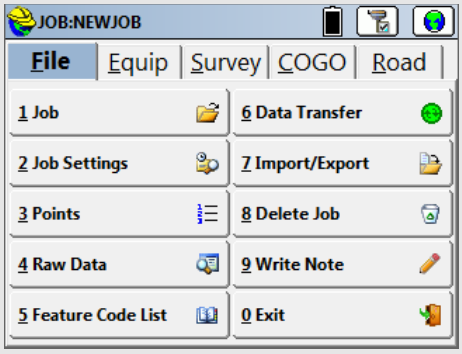
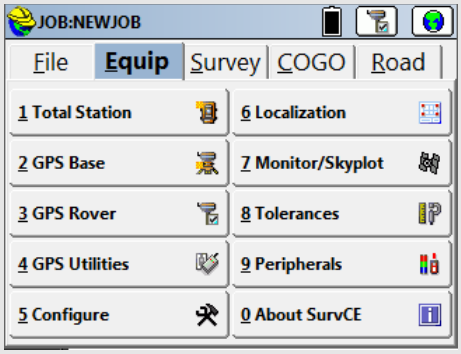
GR-3 with Internal GSM Modem Configuration

Setting up rover for operation with an internal GSM modem

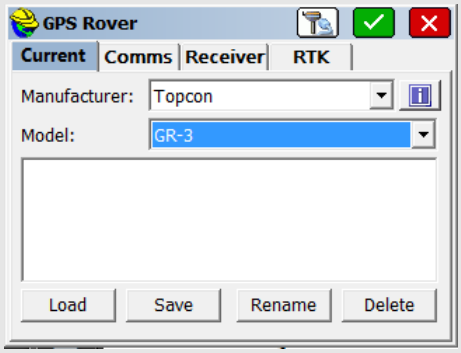


Since we will be using the receiver within the network, we need to configure it to work with an internal GSM device.

1. Open SurvCE
2. Go to the **Equip** tab

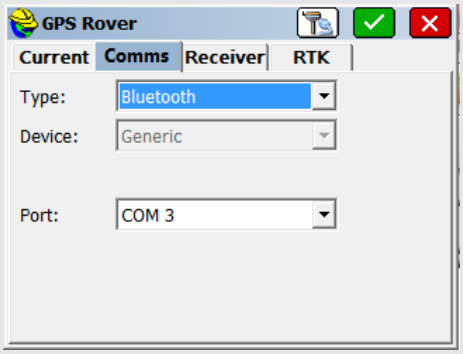


3. Select **3 GPS Rover**



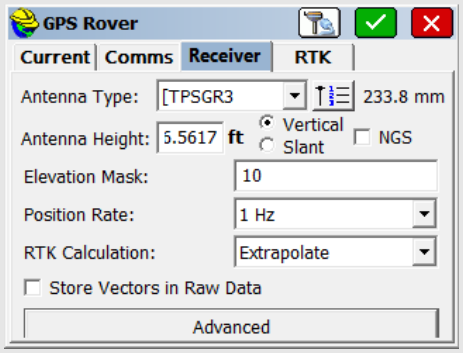
4. In the **Current** tab, select:

- Manufacturer: Topcon
- Model: GR-3



5. Select the **Comms** tab

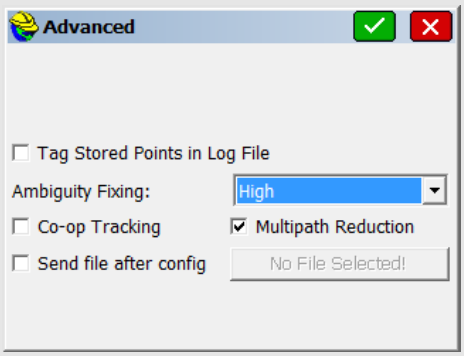
6. Select **Type**, either **Bluetooth** or **Cable** and the appropriate **Port**



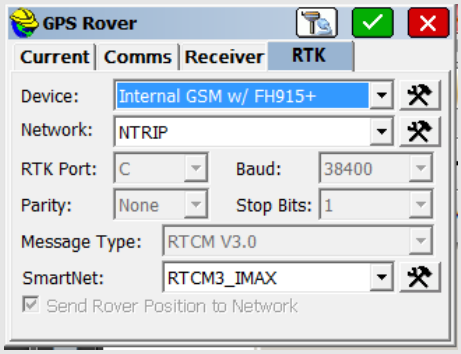
7. Select the **Receiver** tab

8. Input your correct **Antenna Height**

9. Select **Advanced**



10. Set **Ambiguity Fixing** to **High**



11. Select the **RTK** tab

12. Change your **Device** to either **Internal GSM w/ FH915+** or **Internal GSM w/ Digital UHF** depending on what model receiver you are operating

13. Push the Setting icon to the right of **Device**

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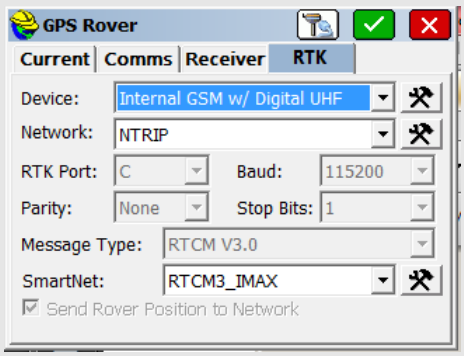
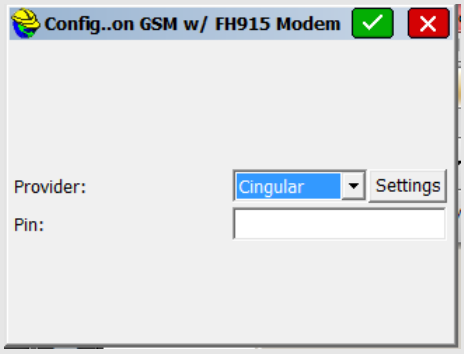
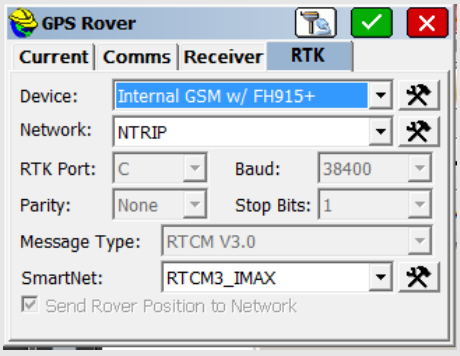


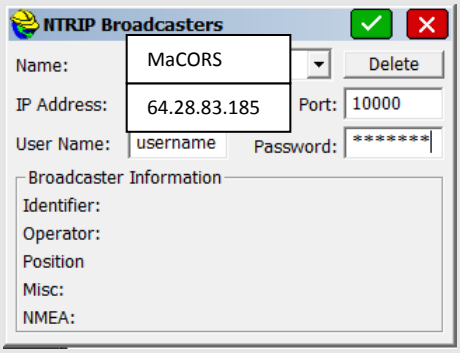


14. In the **Provider** field, select either **Cingular** or **T-Mobile** depending on your cellular service provider

15. Press the Green Check icon



16. Push the Setting icon to the right of **Network**



17. In the **Name** field, enter **MaCORS**

18. In the **IP Address** field, enter in the correct DNS address of the new server (please check the RTK Data Products tab on the MaCORS website) and a **Port** number of **10000**

    Example:

    - For MaCORS enter: 64.28.83.185

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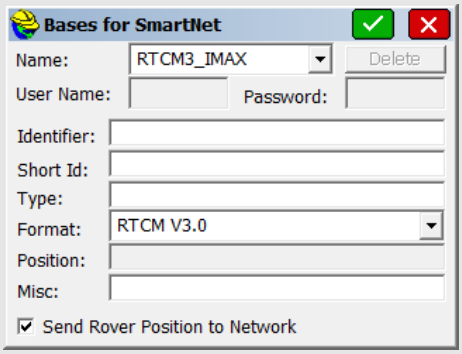


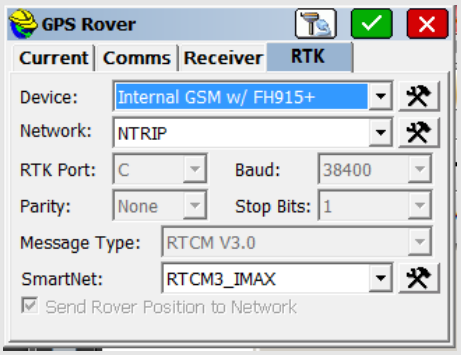
19. Enter the **User Name** and **Password** provide by MaCORS, press the Green Check icon

20. A new screen will appear, in the **Name** field enter the Mount Point name for the real-time product that is desired (see site)

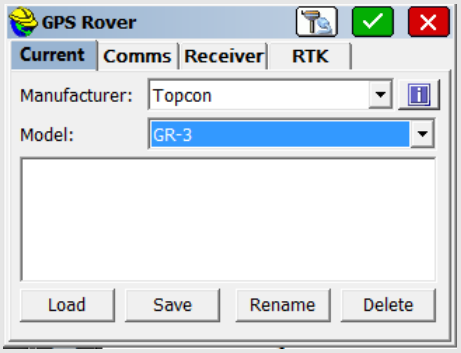
21. In the **Format** field, select **RTCM V3.0**

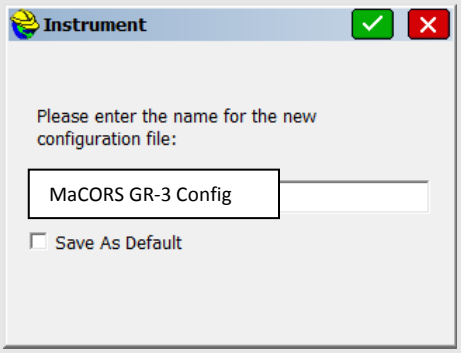
22. Check "**Send Rover Position to Network**"

23. Press the Green Check icon



24. Verify all your settings



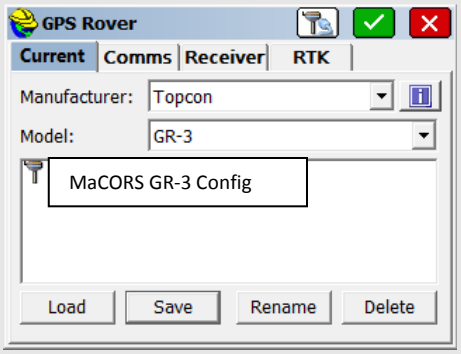


25. Select the **Current** tab

26. Select **Save**

27. Enter a name for the new configuration file, such as MaCORS GR-3 Config

28. Press the Green Check icon



29. Congratulations, you should now be able to connect to MaCORS.

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MaCORS Quick Guide

Rover Configuration for Topcon Hiper using Carlson SurvCE 2.x & Airlink Modem

This Quick Guide outlines configuring the Topcon Hiper family of GPS with Carlson SurvCE & Airlink modem to work with MaCORS.

- **Configuring the Hiper to use MaCORS**

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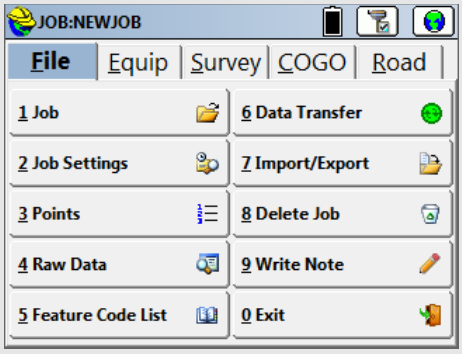
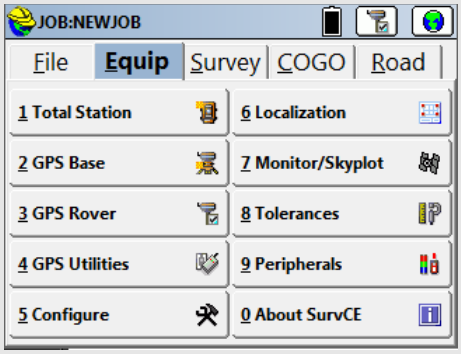
Hiper & Airlink Modem Configuration

Setting up rover for operation with an Airlink modem

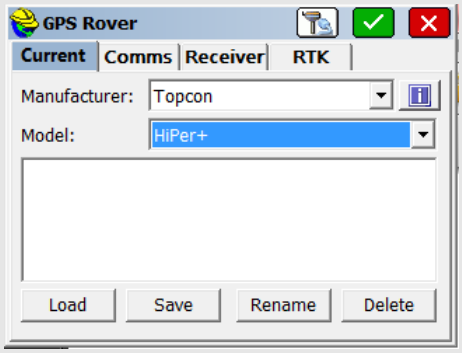


Since we will be using the receiver within the network, we need to configure it to work with an Airlink device.

1. Open SurvCE
2. Go to the **Equip** tab



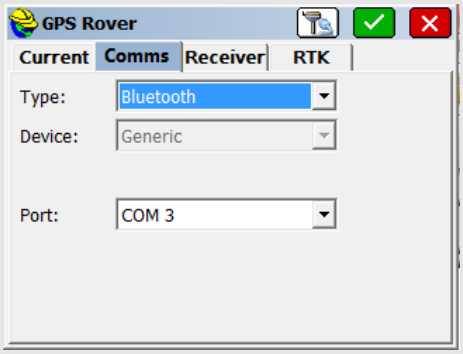
3. Select **3 GPS Rover**



4. In the **Current** tab, select:

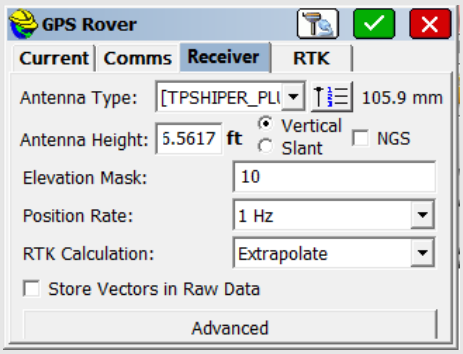
   Manufacturer: Topcon

   Model: Hiper+
   - select the appropriate model of Hiper you will be using



5. Select the **Comms** tab

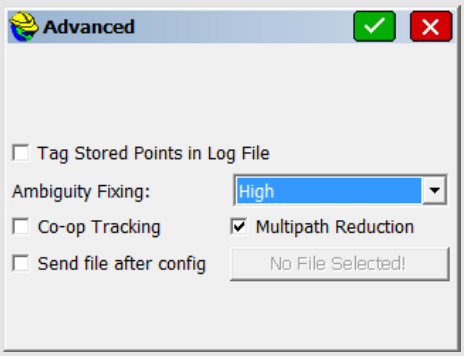
6. Select **Type**, either **Bluetooth** or **Cable** and the appropriate **Port**



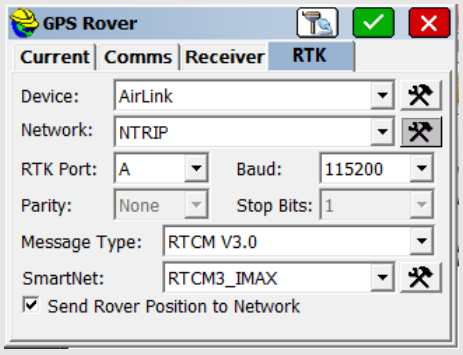
7. Select the **Receiver** tab

8. Input your correct **Antenna Height**

9. Select **Advanced**



10. Set **Ambiguity Fixing** to **High**



11. Select the **RTK** tab

12. Change your **Device** to **Airlink** & select the appropriate **RTK Port** for this connection

13. Change **Network** setting to **NTRIP**

14. Push the Setting icon 

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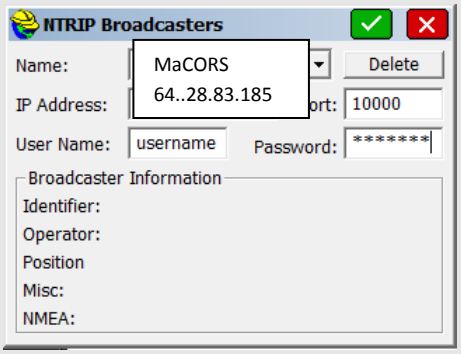
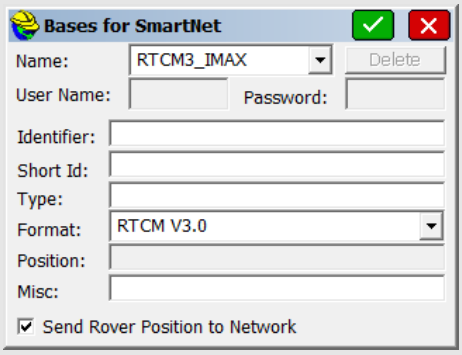




15. In the **Name** field, enter **MaCORS**

16. In the **IP Address** field, enter in the correct DNS address of the new server; (please check the RTK Data Products tab on the MaCORS website) and a **Port** number of **10000**

    Example: MaCORS

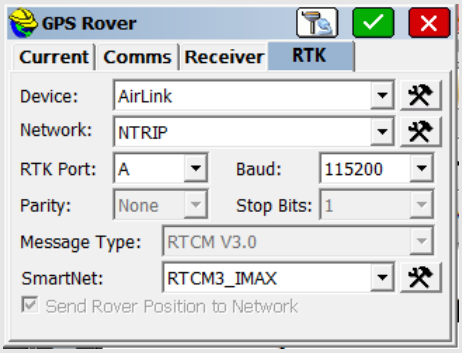
    - For MaCORS enter: 64.28.83.185

17. Enter the **User Name** and **Password** provide by MaCORS, press the Green Check icon

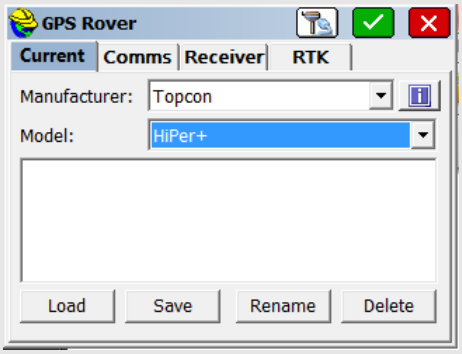
18. A new screen will appear, in the **Name** field enter the Mount Point name for the real-time product that is desired (see site)

19. In the **Format** field, select **RTCM V3.0**

20. Press the Green Check icon



21. Verify all your settings



22. Select the **Current** tab

23. Select **Save**

24. Enter a name for the new configuration file, such as MaCORS Hiper Config

25. Press the Green Check icon

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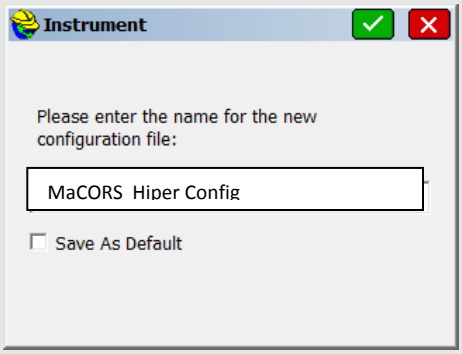

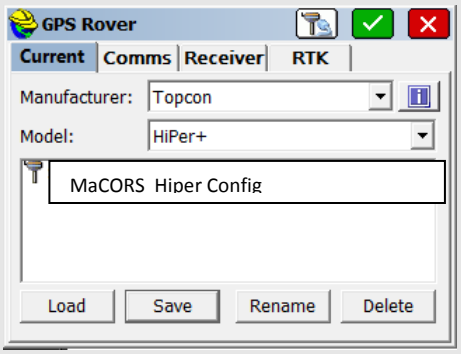

26. Congratulations, you should now be able to connect to MaCORS.

NOTE: You will need to verify that the R-Time Data in step 6, the Port number in step 13 and the Ref Network type in step 5 of the next section all correspond. The recommended settings are:

- **R-Time Data: RTCM v3**
- **Port: 10000** (MAX corrections for all of MaCORS)
- **Ref Network: MAX**

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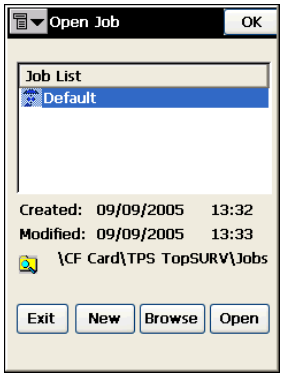
MaCORS Quick Guide

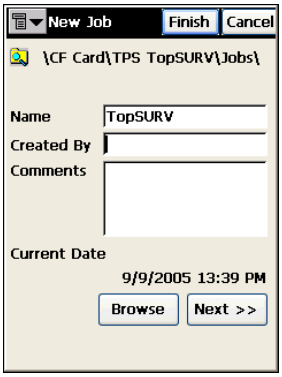
Rover Configuration for TopSurv GR-3 GPRS with NTRIP.

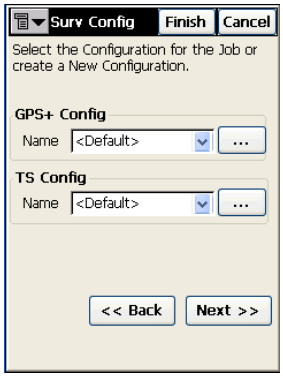
TopSurv GR-3 GPRS NTRIP

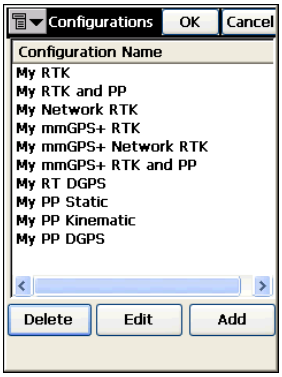
I. Job Setup.

a. Open **TopSurv** on your data collector.









b. In the *Open Job* screen, Click on **New** and the *New Job* screen will appear.

c. In the *New Job* screen, enter the **Name** and *all other appropriate information*. Click **Next** and the Survey Config screen will show up.

d. In the *Survey Config* screen, click on the **…** Configuration button.

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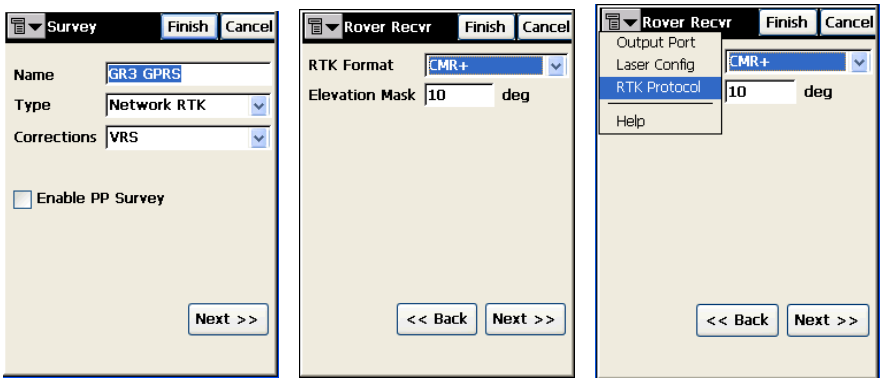
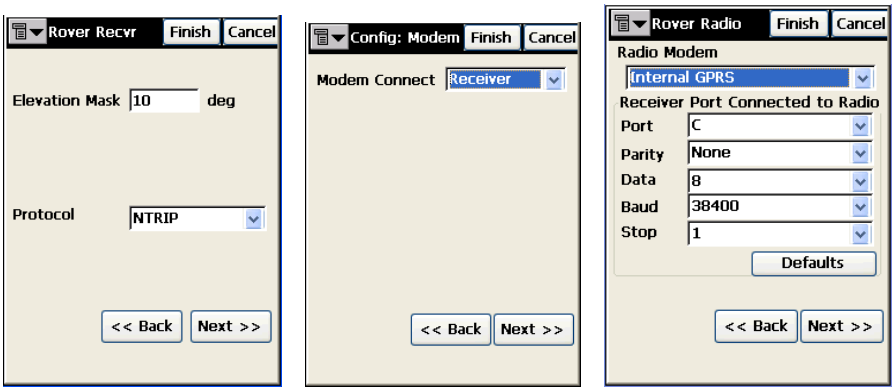
e. In the *Configuration* screens, click on **Add.**



f. Enter the desired **Name**, choose the type as **Network RTK**, and the appropriate **Correction type**. Click **Next.**

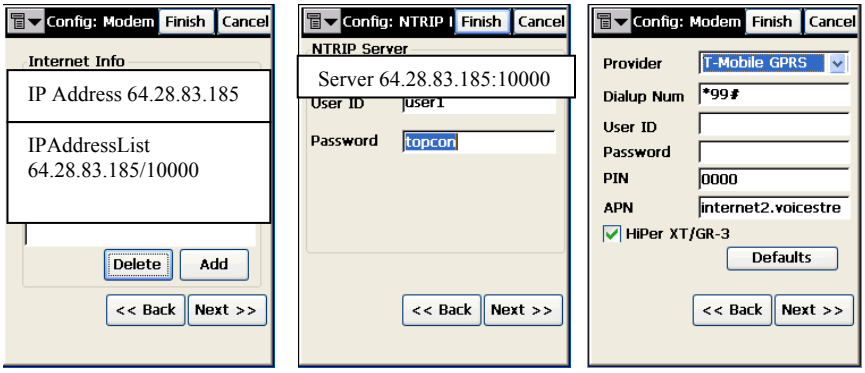


g. Under the *Rover Receiver Screen*, choose the appropriate **RTK Correction Format** and **Elevation Mask**. Choose the *context menu (Pull-down menu in the upper left corner)* and choose **RTK Protocol**. Select the RTK Protocol as **NTRIP.** Click **Next.**

h. Choose Modem is connected to the **Receiver**. Click **Next**.

i. Choose the Radio Modem as Internal GPRS. Configure the following, once finished, click Next:
   i. Port: **C**
   ii. Parity: **None**

iii. Data: **8**
iv. Baud Rate: **38400**
v. Stop: **1**

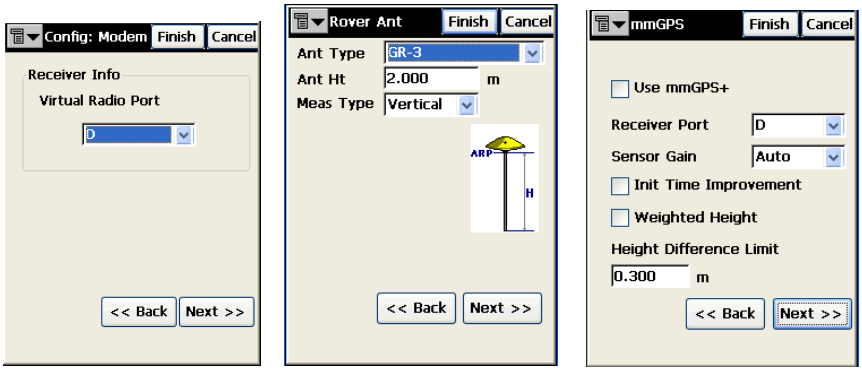


j. Enter the **IP address** and **Port number** of the network you are connecting to in the following format: *IP address/port number*. Note: The Port will coincide with the NTRIP Port of the network. Click **Add.**

k. Once the desired IP addresses are entered, click **Next**.

l. Enter the NTRIP **User ID** and **Password** assigned to you by the *network administrator*. Click **Next.**

m. Choose the Service Provider Associated with the Internal SIM Card. *Note: for T-Mobile and Cingular, these configurations are already provided.* Click **Next.**

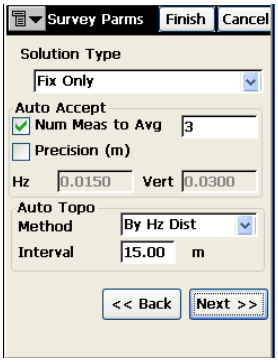


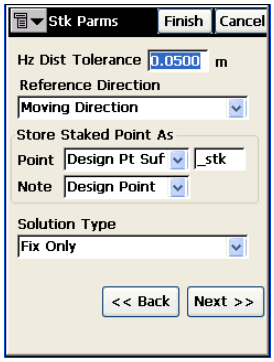
n. Select the **Virtual Radio Port**. *Note: The Virtual Radio Port is a port on the receiver that is not being used. Remember, B is the Bluetooth Port and C is the Radio modem port.* Click **Next.**

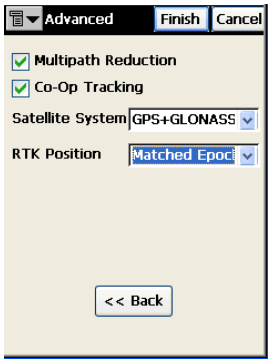
o. Enter the following information once finished, click **Next**:

i. **Antenna Type** being used
ii. **Antenna Height**
iii. **Measurement Type**

p. Enter the following information once finished, click **Next**:
   i. **Check** whether using mmGPS or not. If not, just click **Next**.
   ii. If using mmGPS, enter the **receiver port for the PZS-1** as A (or D depending on which port the CDMA is on.)
   iii. Sensor Gain – **Auto**
   iv. **Check** Init Time Improvement.
   v. **Check** Weighted Height.
   vi. Enter desired **height difference limit** between GPS and mmGPS determined height. Default is 0.3m





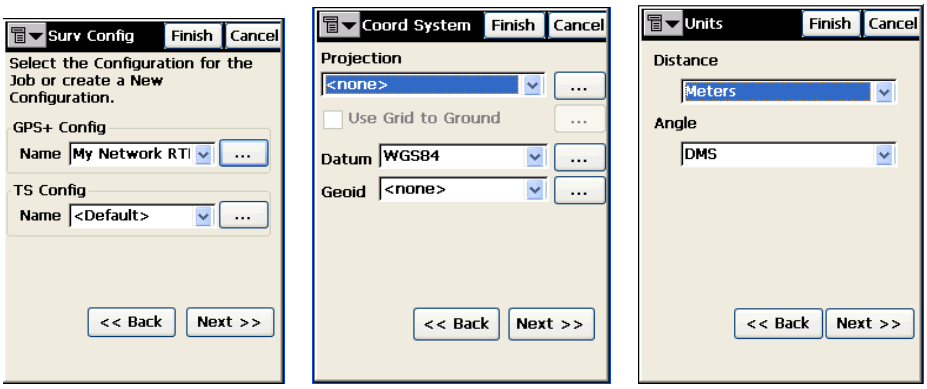


q. On the *Survey Parameters* screen, enter the following, once finished click **Next**:
   i. Solution Type – **Fix Only**
   ii. **Desired Auto accept parameters**
   iii. **Desired Auto-topo parameters.**

r. On the *Stakeout Parameters* screen, enter the following, once finished, click **Next**:
   i. **Desired Horizontal distance tolerance**
   ii. **Desired Reference direction**
   iii. Solution Type **– Fix Only**

s. On the *Advanced* screen, enter the following, once finished click **Finish**:
   i. Multipath Reduction – **checked**
   ii. Co-Op Tracking – **checked**
   iii. Satellite System – **GPS + GLONASS**

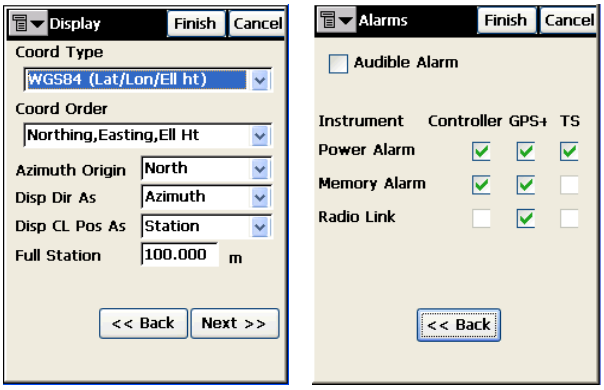
iv. RTK Position – **Matched Epoch.**



t. Click **Next** on the *Survey Config* screen.

u. On the *Coordinate System* screen, enter the following, once finished click **Next**:
   i. **Desired Projection**
   ii. **Desired Datum**
   iii. **Desired Geoid Model that you wish to add.**

v. On the *Units* screen, enter the desired **distance and angular units**. Click **Next.**



w. On the *Display* screen, enter the desired **coordinate type, order, etc**. Click **Finish.**

x. On the *Alarms screen*, enter user Preferences.

II. Connecting to the Network

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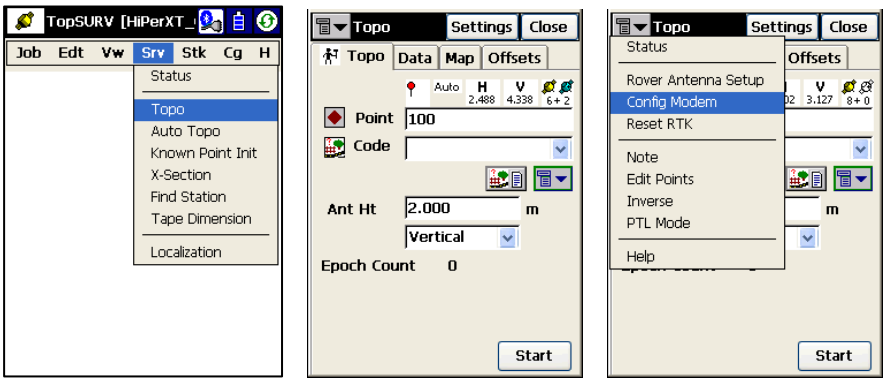
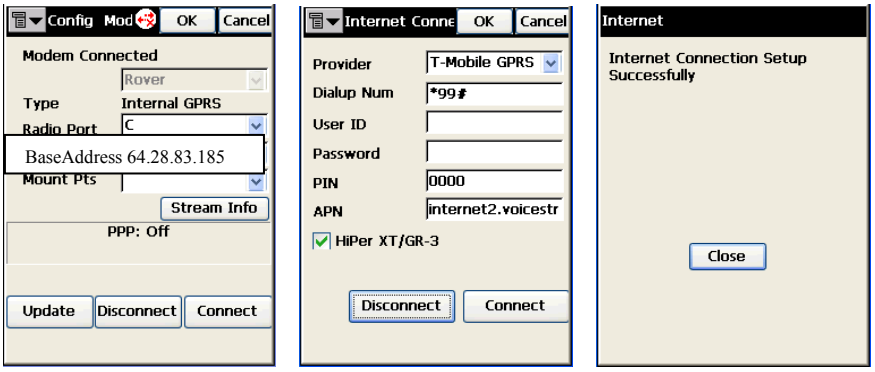
a. **Configure TopSurv Job accordingly**



b. Connect to your **rover receiver** via Bluetooth or serial cable.

c. Click on **Survey** and then **Topo.**

d. On the *Topo* screen, select **Config Modem.**



e. On the *Config Modem* screen, click on the **Red icon** to the left of the OK button.

f. On the *Internet Connection* screen, choose the provider of your Internal GPRS SIM Card and enter the appropriate dialup networking information.

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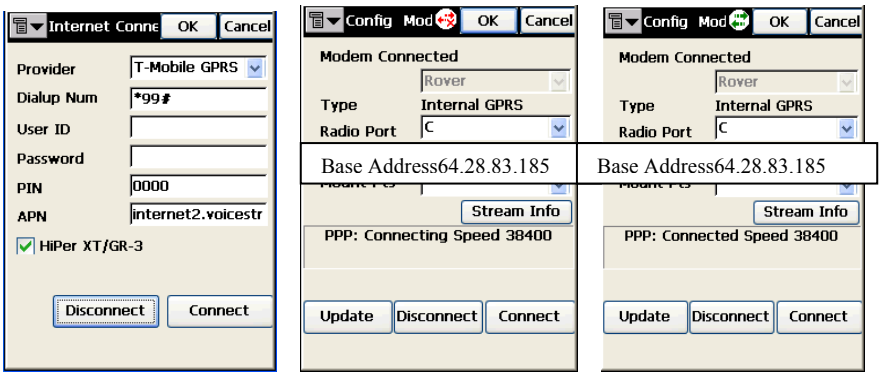
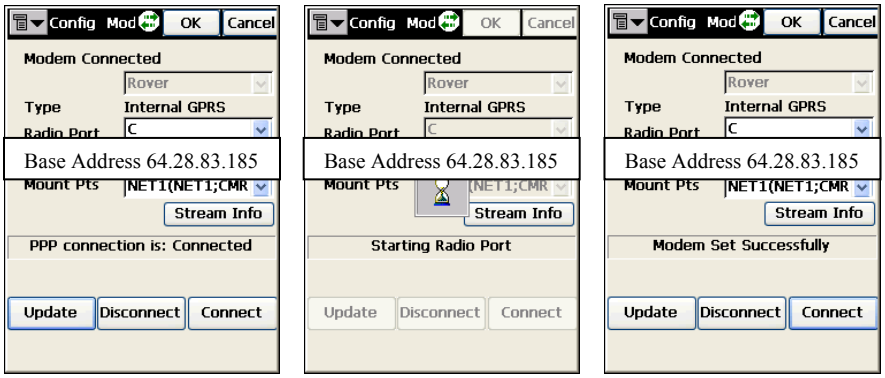
Note: *For T-Mobile and Cingular users, this information is already provided by default.*
Click on **Connect** and the receiver will connect to the Internet. MaCORS address is 64.28.83.185 & NTRIP port is 10000



g. Click **Ok** after connecting to the Internet to return to the *Config Modem* screen.

h. Wait for the *PPP Connection* to become **Connected** (most likely at 38400), then click on the **Update** button to generate the *NTRIP Mount Point Sourcetable.*



i. Once the Mount Points are generated, choose the one you wish to connect to and click on **Connect** and the message should say *Modem Set Successfully.*

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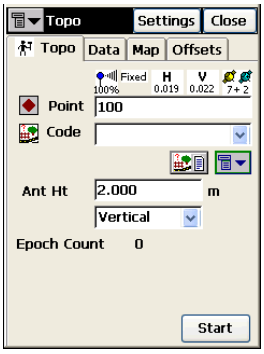
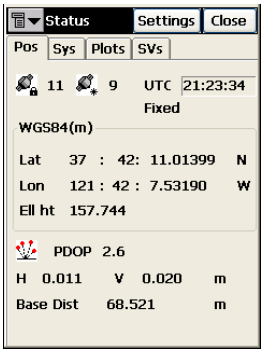
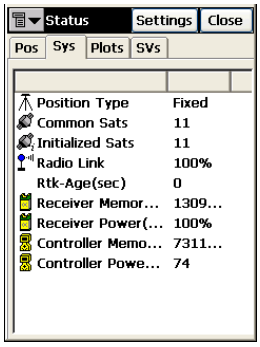
j. Click **OK** to return to the *Topo* screen and after a few moments, you should receive 100% radio link and an RTK Age of 0, indicating you are receiving RTK correction from the network you dialed.







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