

Leica GS16 GNSS Receiver + CS20 Data  
Controller with Captivate Software  
RTK Rover Wizard: MA CORS RTN

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Be Captivated



## Leica Geosystems Captivate Software

This Quick Guide outlines the steps within the Leica Captivate Software, from the **Settings > Connections > RTK Rover Wizard** to create a new Profile for Network RTK Surveying using the GS16 GNSS Receiver and CS20 Data Controller with a Cellular Internet connection to the **MA CORS RTN, (Real-Time Network)**.

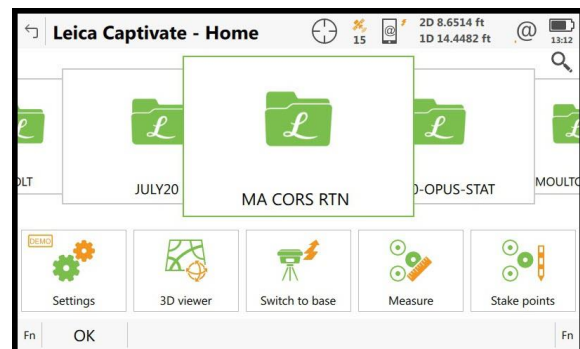
The end user must register for a Free, (No Charge), RTK Rover Account, create their Username and Password Credentials with MASS DOT; then activate their RTK Rover account on the MaCORS Spider Business Center web page, before the RTK Rover Account can be used in the field.

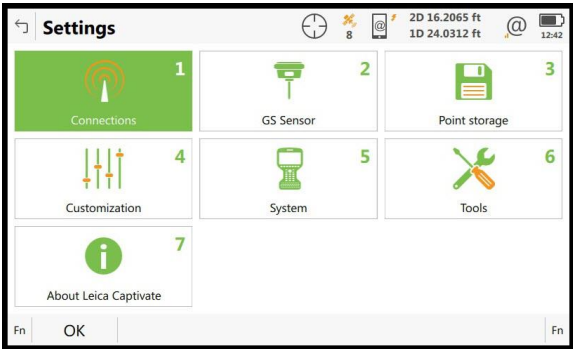
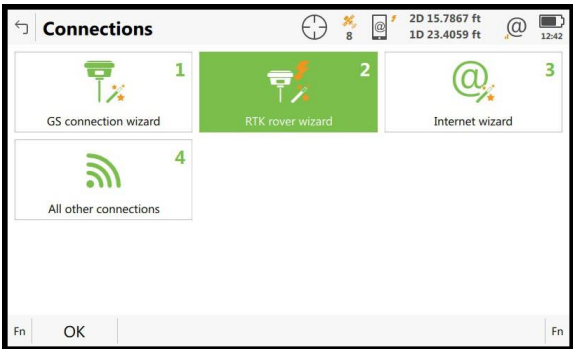
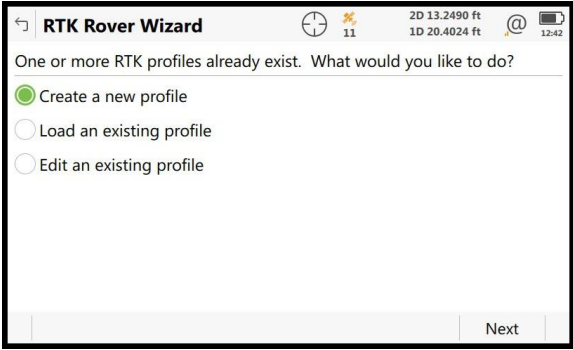
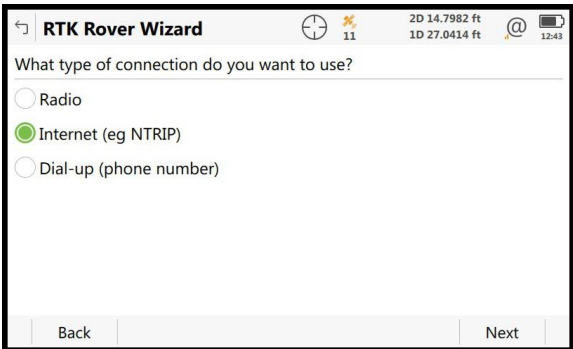
The following link is provided for the MaCORS – RTN, (Real-Time Network), Home page, <http://macors.massdot.state.ma.us/spiderweb/frmlIndex.aspx>

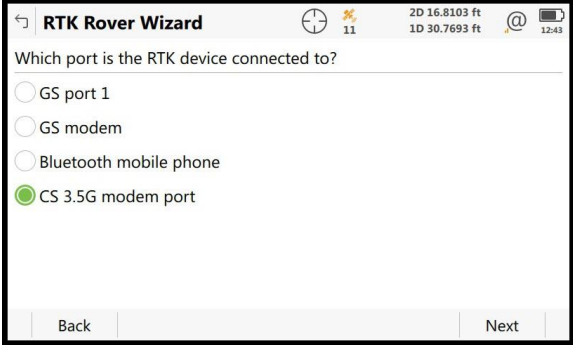
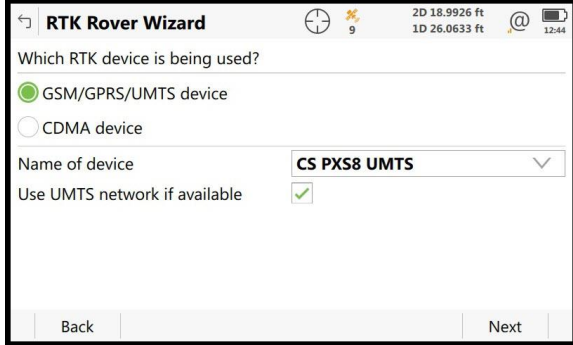
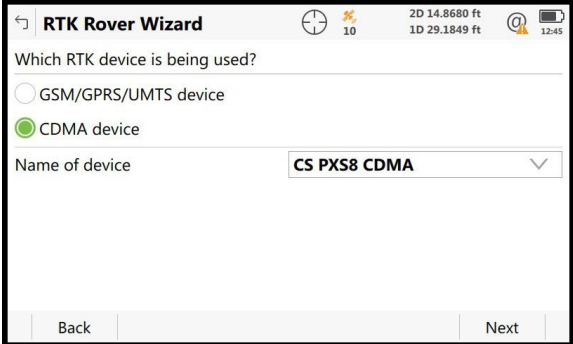
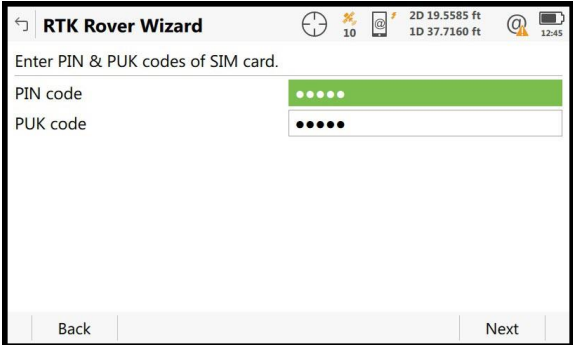
For RTK Rover account registration on the MaCORS – RTN, (Real-Time Network): <http://64.28.83.185/sbc/Account/Register>

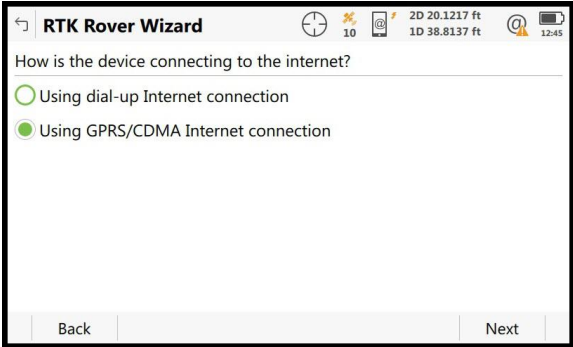
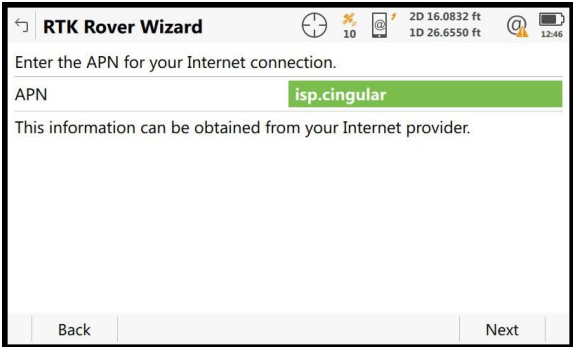
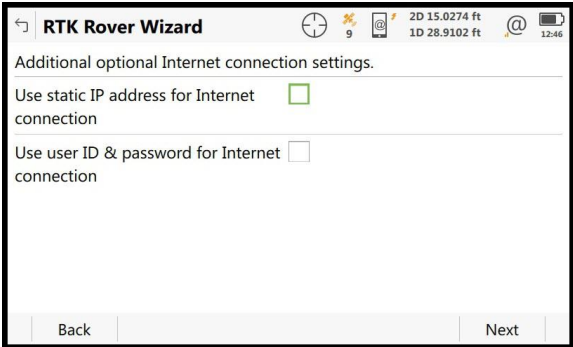
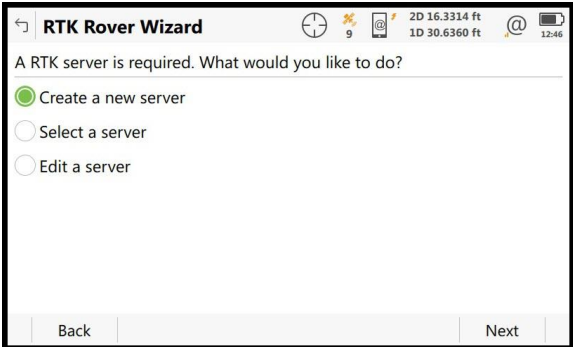
Typically, the MaCORS CORS Account Team will send the Registered User an Email link for the Spider Business Center, the End User clicks on this link to activate their RTK and Rinex Products, the following link for the Spider Business Center Login page is provided: <http://64.28.83.185/sbc>

**Step 1-** From the Captivate Software Main Menu, Job Carousel, Select any current Job,



<p><b>Step 2-</b> From the Apps Carousel, Select <b>Settings &gt; Connections</b>,</p>	
<p><b>Step 3-</b> From the <b>Connections</b> panel,</p> <p>Select <b>RTK rover wizard</b></p> <p>Select F1 OK</p>	
<p><b>Step 4-</b> From the <b>RTK Rover Wizard</b> panel, One or more RTK profiles already exist. What would you like to do? Panel, select the option,</p> <p><b>(•) Create a new profile</b></p> <p>Select F6 Next</p>	
<p><b>Step 5-</b> From the <b>RTK Rover Wizard</b> What type of connection do you want to use Panel, select the option:</p> <p><b>(•) Internet (eg NTRIP)</b></p> <p>Select F6 Next</p>	

<p><b>Step 6-</b> From the <b>RTK Rover Wizard</b> Which port is the RTK device connected to? Panel, select the option:</p> <p><b>(•) CS 3.5G modem port</b></p> <p>Select F6 Next</p>	 <p>The screenshot shows the 'RTK Rover Wizard' interface. The question is 'Which port is the RTK device connected to?'. There are four radio button options: 'GS port 1', 'GS modem', 'Bluetooth mobile phone', and 'CS 3.5G modem port'. The 'CS 3.5G modem port' option is selected with a green dot. At the bottom, there are 'Back' and 'Next' buttons.</p>
<p><b>Step 7-</b> From the <b>RTK Rover Wizard</b> Which RTK device is being used?</p> <p><b>If you are using AT&amp;T, or T-Mobile Cellular Service with a SIM card in the CS20 Data Controller, select the option</b></p> <p><b>(•) GSM/GPRS/UMTS device</b></p> <p>Select F6 Next</p>	 <p>The screenshot shows the 'RTK Rover Wizard' interface. The question is 'Which RTK device is being used?'. There are two radio button options: 'GSM/GPRS/UMTS device' (selected) and 'CDMA device'. Below, there is a dropdown menu for 'Name of device' set to 'CS PXS8 UMTS' and a checked checkbox for 'Use UMTS network if available'. At the bottom, there are 'Back' and 'Next' buttons.</p>
<p><b>Step 8-</b> From the <b>RTK Rover Wizard</b> Which RTK device is being used?</p> <p><b>If you are using Verizon Wireless Cellular Service (No SIM card) in the CS20 Data Controller, select the option</b></p> <p><b>(•) CDMA device</b></p> <p>Select F6 Next</p>	 <p>The screenshot shows the 'RTK Rover Wizard' interface. The question is 'Which RTK device is being used?'. There are two radio button options: 'GSM/GPRS/UMTS device' and 'CDMA device' (selected). Below, there is a dropdown menu for 'Name of device' set to 'CS PXS8 CDMA'. At the bottom, there are 'Back' and 'Next' buttons.</p>
<p><b>Step 9-</b> From the <b>RTK Rover Wizard</b> Enter PIN &amp; PUK codes of the SIM card, panel</p> <p>Leave the Defaults, Do Not Change, Do Not Enter ANY Information here,</p> <p>Select F6 Next</p>	 <p>The screenshot shows the 'RTK Rover Wizard' interface. The question is 'Enter PIN &amp; PUK codes of SIM card.'. There are two input fields: 'PIN code' (with a green bar) and 'PUK code' (with a black bar). At the bottom, there are 'Back' and 'Next' buttons.</p>

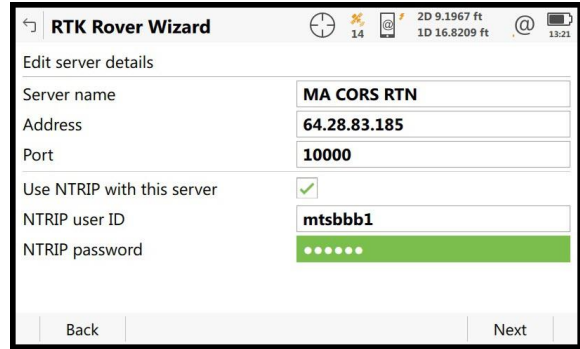
<p><b>Step 10-</b></p> <p>From the <b>RTK Rover Wizard</b> How is the device connecting to the Internet, select the option,</p> <p><b>(•) Using GPRS/CDMA Internet Connection</b></p> <p>Select F6 Next</p>	 <p>The screenshot shows the 'RTK Rover Wizard' interface. The title bar includes signal strength, battery, and location (2D 20.1217 ft, 1D 38.8137 ft). The main text asks 'How is the device connecting to the internet?'. There are two radio button options: 'Using dial-up Internet connection' (unselected) and 'Using GPRS/CDMA Internet connection' (selected). At the bottom, there are 'Back' and 'Next' buttons.</p>
<p><b>Step 11-</b></p> <p>From the <b>RTK Rover Wizard</b> Enter the APN for your Internet connection</p> <p><b>Enter the APN value</b> The APN is required if using SIM card,</p> <p>For AT&amp;T: isp.cingular or broadband For T-Mobile: epc.tmobile.com Select F6 Next</p>	 <p>The screenshot shows the 'RTK Rover Wizard' interface. The title bar includes signal strength, battery, and location (2D 16.0832 ft, 1D 26.6550 ft). The main text asks 'Enter the APN for your Internet connection.' Below this is a text input field labeled 'APN' containing the text 'isp.cingular'. A note below the field states 'This information can be obtained from your Internet provider.' At the bottom, there are 'Back' and 'Next' buttons.</p>
<p><b>Step 12-</b></p> <p>From the <b>RTK Rover Wizard</b> Additional optional Internet connection settings, panel</p> <p>Leave these options Unchecked,</p> <p>Select F6 Next</p>	 <p>The screenshot shows the 'RTK Rover Wizard' interface. The title bar includes signal strength, battery, and location (2D 15.0274 ft, 1D 28.9102 ft). The main text asks 'Additional optional Internet connection settings.' There are two checkboxes: 'Use static IP address for Internet connection' (unchecked) and 'Use user ID &amp; password for Internet connection' (unchecked). At the bottom, there are 'Back' and 'Next' buttons.</p>
<p><b>Step 13-</b></p> <p>From the <b>RTK Rover Wizard</b> A RTK server is required. What would you like to do?</p> <p><b>(•) Create a new server</b></p> <p>Select F6 Next</p>	 <p>The screenshot shows the 'RTK Rover Wizard' interface. The title bar includes signal strength, battery, and location (2D 16.3314 ft, 1D 30.6360 ft). The main text asks 'A RTK server is required. What would you like to do?'. There are three radio button options: 'Create a new server' (selected), 'Select a server' (unselected), and 'Edit a server' (unselected). At the bottom, there are 'Back' and 'Next' buttons.</p>

**Step 14-**

From the **RTK Rover Wizard**  
Enter new server details

**Server name: MA CORS RTN**  
**Address: 64.28.83.185**  
**Port: 10000**  
**Use NTRIP with this server [✓]**  
**Enter your NTRIP user ID**  
**Enter your NTRIP password**

Select F6 Next

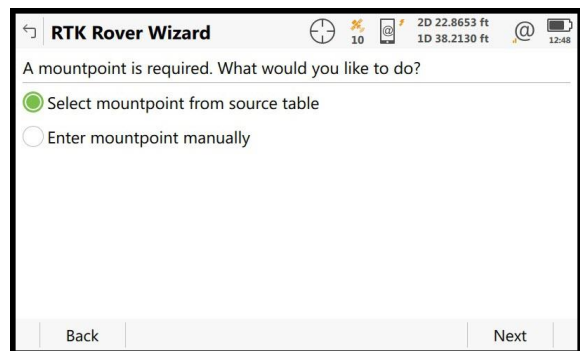


**Step 15-**

From the **RTK Rover Wizard**  
A mountpoint is required.  
What would you like to do?

**(•) Select mountpoint from source table**

Select F6 Next

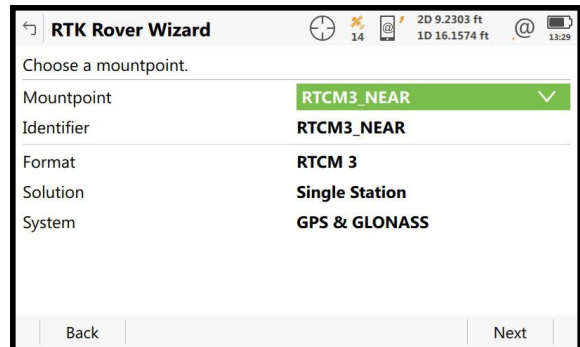


**Step 16-**

From the **RTK Rover Wizard**  
Choose a mountpoint.

From the **Mountpoint** drop-down menu, Browse the list, **select a Mountpoint**, The Identifier, Format, Solution and System details, describe the Mountpoints, or RTK Data Product.

Select F6 Next



**Step 17-**

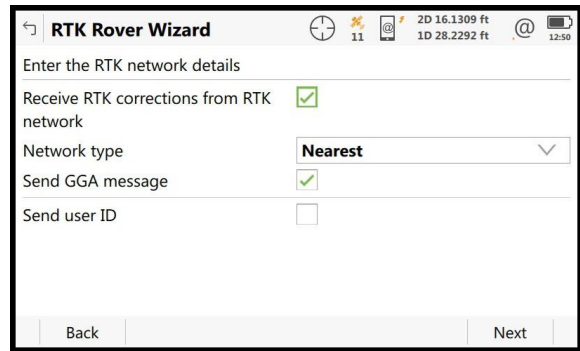
From the **RTK Rover Wizard**  
Enter the RTK network details

**Receive RTK Corrections from RTK [√] network**

**Network type [Nearest ]**

If you selected a **Nearsite** Mountpoint, You **MUST** select/match the **Network type: [ Nearest ]**

Select F6 Next



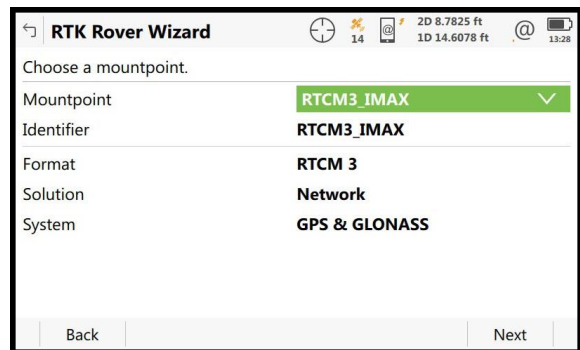
The Network type **Nearest** = Single Baseline RTK Corrections from the Closest Network RTK Base, Based on the RTK Rover’s position.

**Step 18- (Other mountpoint options)**

From the **RTK Rover Wizard**  
Choose a mountpoint

From the **Mountpoint** drop-down menu, Browse the list, **select a Mountpoint**, The Identifier, Format, Solution and System details, describe the Mountpoints, or RTK Data Product.

Select F6 Next



**Step 19-**

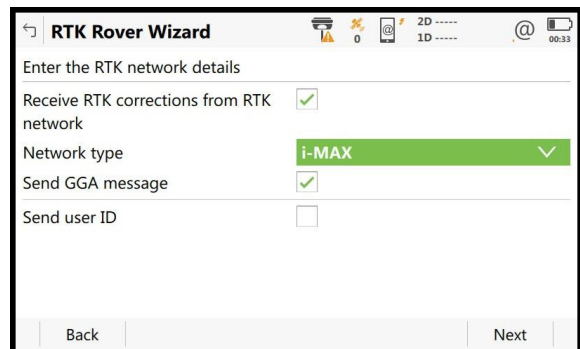
From the **RTK Rover Wizard**  
Enter the RTK network details

**Receive RTK Corrections from RTK [√] network**

**Network type [ i-MAX ]**

If you selected a **i-MAX** Mountpoint, You **MUST** select/match the **Network type: [ i-MAX ]**

Select F6 Next



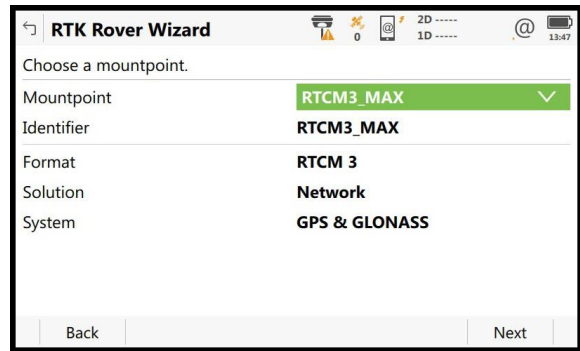
The Network type **i-MAX** = Network RTK Corrections from Multiple Network RTK Base Stations, based on your RTK Rover’s position. The Network RTK Server computes these **i-MAX** RTK Corrections, sends them to the Network RTK Rover.

**Step 20- (Other mountpoint options)**

From the **RTK Rover Wizard**  
Choose a mountpoint

From the **Mountpoint** drop-down menu, Browse the list, **select a Mountpoint**, The Identifier, Format, Solution and System details, describe the Mountpoints, or RTK Data Product.

Select F6 Next



**Step 21-**

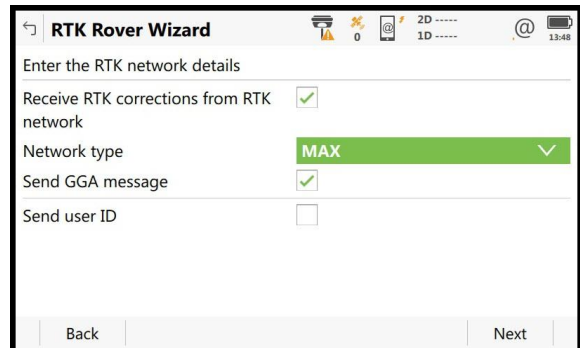
From the **RTK Rover Wizard**  
Enter the RTK network details

**Receive RTK Corrections from RTK [√] network**

**Network type [ MAX ]**

If you selected a **MAX** Mountpoint,  
You **MUST** select/match the **Network type: [ MAX ]**

Select F6 Next



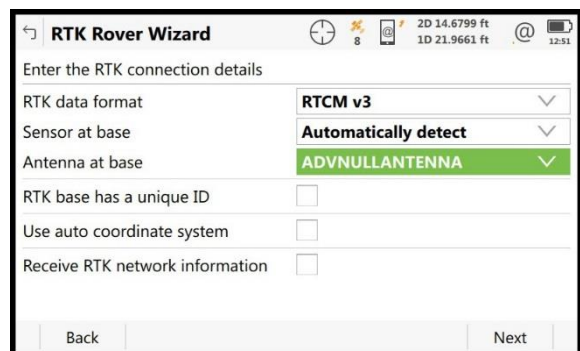
The Network type **MAX** = MAX Network  
RTK Corrections from Multiple Network RTK Base Stations, based on the RTK Rover's position.  
The RTK Rover computes the MAX Network solution.

**Step 22-**

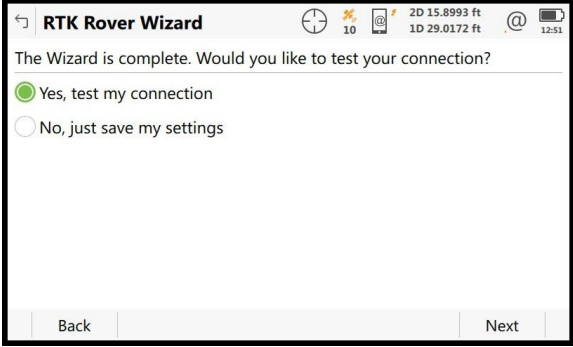
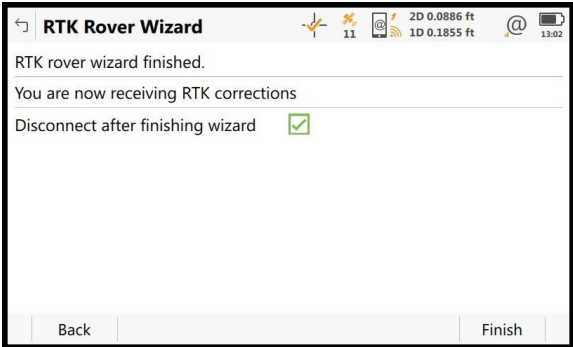
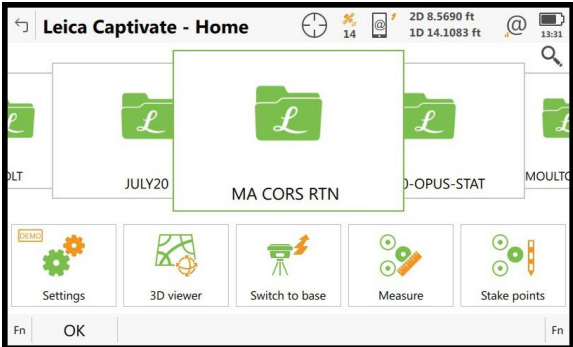
From the **RTK Rover Wizard**  
Enter the RTK Network details

RTK data format [RTCM v3 ]  
Sensor at Base [ Automatically detect ]  
**Antenna at Base [ADVNULLANTENNA ]**

Select F6 Next





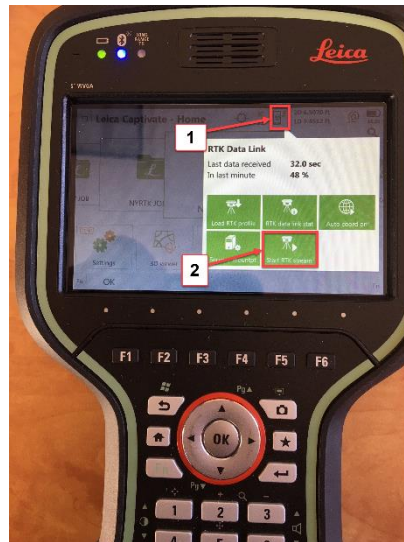
<p><b>Step 23-</b></p> <p>From the <b>RTK Rover Wizard</b> The Wizard is complete. Would you like to test your connection?</p> <p><b>(•) Yes, Test my connection</b></p> <p>This tests/verifies the New Servers IP Address, Port and User’s Credentials...</p> <p>Select F6 Next</p>	
<p><b>Step 24-</b></p> <p>From the <b>RTK Rover Wizard</b>, <b>RTK rover wizard finished</b></p> <p>Select <b>F6 Finish</b></p>	
<p><b>Step 25-</b></p> <p>The User is returned to the Captivate Main Menu</p>	
<p>.</p>	

**Step 26-**

To Start the RTK Data Stream,

- (1) **Using the Stylus, Tap on the Cellphone icon on the Top-Row Task Bar,**
- (2) Then Select/Tap **Start RTK Stream,**

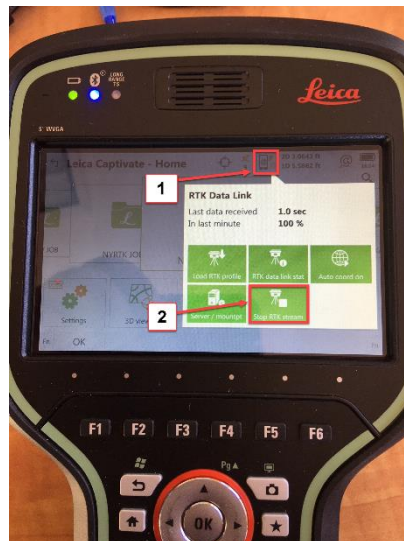
This will Start the RTK Data Link, the RTK Rover will iterate from an Autonomous/Navigated GNSS Solution to a RTK Float Solution, then to a RTK Fixed Solution, so the RTK user can Start Measuring, or Staking Out Points



**Step 27-**

To Stop the RTK Data Stream,

- (1) **Using the Stylus, Tap on the Cellphone icon on the Top-Row Task Bar,**
- (2) Then Select/Tap **Stop RTK Stream,** This will stop the RTK Data Link.



If you need technical assistance configuring the Internet Connection; configuring the Cellular Modem Device in the Leica CS20 Data Controller, or the Cellular Modem device in the Leica GS16 GNSS receiver; there are PDF Quick Guides available on the MTS Blog page, that provide detailed instructions for Configuring the Data Controller, or GNSS Receiver’s internal Cellular Data Modems using AT&T GSM/GPRS cellular network, or Verizon Wireless CDMA cellular Networks for Network RTK Rovers.

[blog.mainetechnical.com](http://blog.mainetechnical.com)

Filename: GS16-CS20-RTK Rover Wizard\_MACORS Quick Guide\_Rev1.2