

Configuring TSC2/Survey Controller for RTK over internet - connecting to a GNSS receiver

This Technical Tips document provides instructions for configuring the Trimble TSC2 data collector running Survey Controller software to obtain RTK reference-station data from an internet-accessible GNSS receiver.

If you are going to obtain RTK reference-station data via an NTRIP (Networked Transport of RTCM via Internet Protocol) caster, please refer to the Inland GPS Technical Tips document titled [Configuring TSC2/Survey Controller for RTK over internet – connecting to an NTRIP caster](#).

It is presumed that the TSC2 already has an internet-protocol (IP) connection to the internet via a Bluetooth-enabled mobile phone. The separate Inland GPS Technical Tips document titled [Configuring TSC2/Survey Controller for RTK over internet – establishing IP connection](#) provides the necessary instructions for that part of the configuration process. The TSC2 used in preparing this document was running Survey Controller Ver 12.46. If you are using a different version the screens and options may be slightly different.

The steps to complete the configuration are -

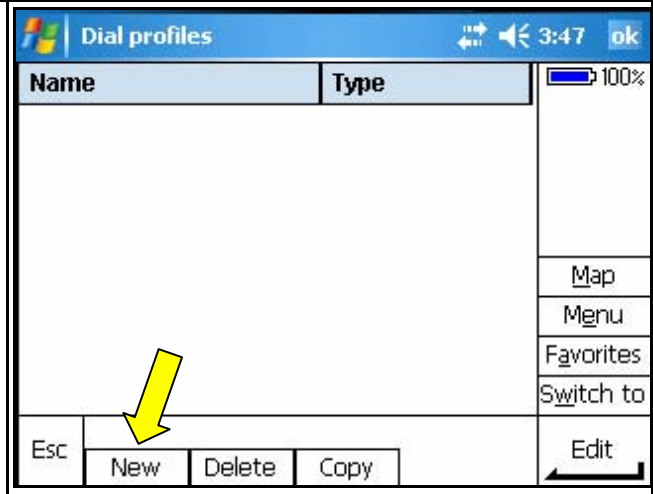
3A. Creating a dial profile that will connect to the RTK reference-station GNSS receiver

On the TSC2, start the Survey Controller software.

From the main Survey Controller menu (where you see the six icons), tap the **Configuration** icon, and then tap **Dial profiles**.

The **Dial profiles** window will appear as shown at right.

Tap the **New** button at the bottom of the screen to get to the first page of the **Edit dial profile** dialog shown in the next row.



For this document the dial profile was named **NetRS CMR+** because the reference-station receiver is a Trimble NetRS and the desired port provides data in the CMR+ format.

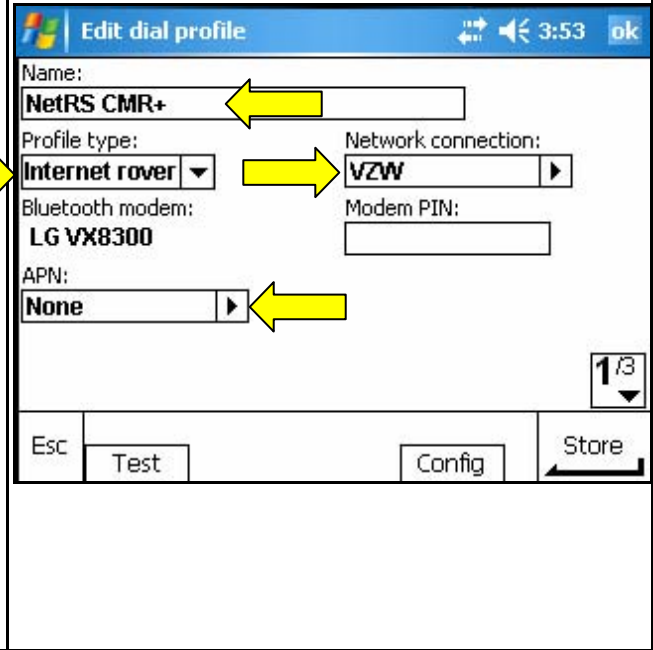
In the **Profile type:** field, select **Internet rover**.

At **Network connection:**, select the internet connection created earlier. The name of the **Bluetooth modem:** used for the internet connection should appear automatically.

If required, enter the **Modem PIN:** provided by your mobile-phone carrier to unlock the modem.

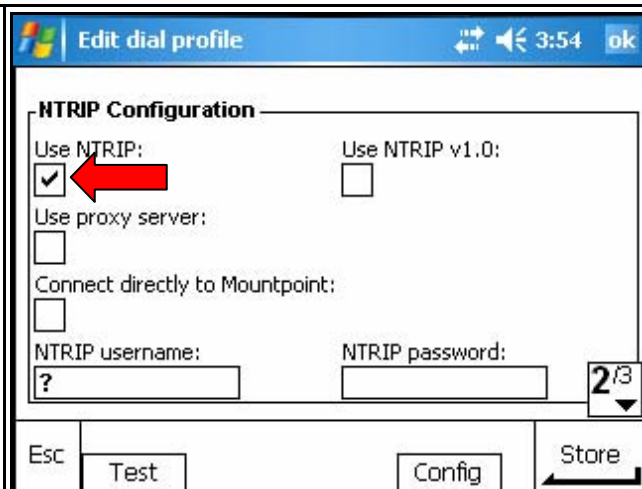
The **APN:** field is where you would enter an access-point name if required by your mobile-phone carrier. Tap the right-pointing arrow if you need to enter that information. Verizon does not require an access-point name, so for this document the **None** option was selected.

Tap the **1/3** button to advance to the next page.



If the second page appears as at right (default), uncheck **Use NTRIP:** because we will be connecting to the reference-station receiver instead of going through an NTRIP caster.

Since there will now be fewer settings there will only be two pages in the **Edit dial profile** dialog, as shown in the next row.



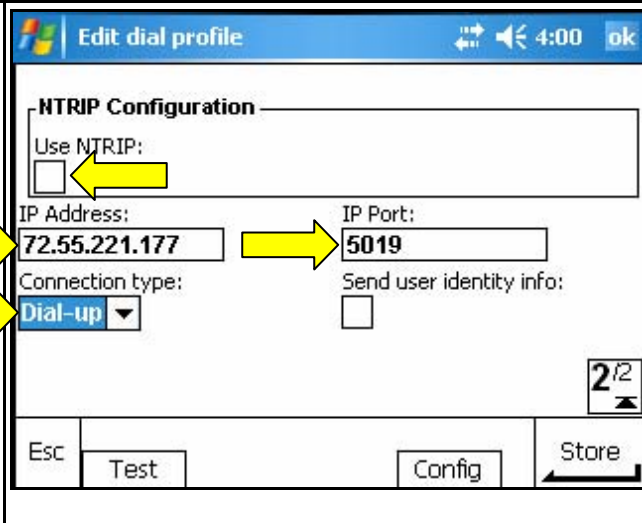
Enter the appropriate information in the **IP Address:** and **IP Port:** fields.

For this example we are using a receiver at the Inland GPS office in Cody, Wyoming. You are welcome to use this information for testing, but ultimately you need to enter the IP address and port for the receiver you wish to use.

For **Connection type:** select **Dial-up.**

Tap **Store** to save the dial profile.

The Survey Controller Ver 12.46 Help document says the **Test** button only works for GPRS connections. Try it if you wish – it does seem to produce some information that may be useful in troubleshooting.



4A. Creating a survey style to utilize the internet-accessible reference station

This document will not attempt to provide detailed instructions on survey styles, but rather will only point out the settings that are changed from situations where the reference station broadcasts through a radio modem.

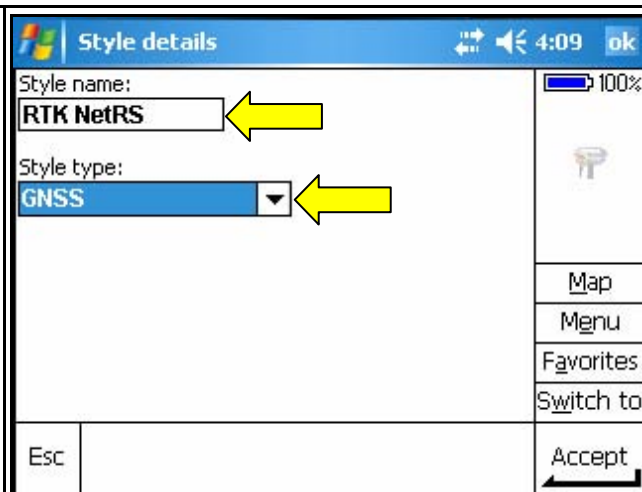
You may elect to copy one of your organization's established survey styles and modify per the information that follows.

From the Survey Controller main menu (with the six icons) tap **Configuration**, and then tap **Survey Styles**.

Either tap the **New** button to start a new survey style from defaults, or tap the **Copy** button to copy an existing survey style.

For this document, the **Style name:** will be **RTK NetRS** and the **Style type:** will be **GNSS**. (If you copy an existing survey style the style type will be the same as the original survey type and you will not be prompted for that information.)

Tap the **Accept** button to get to the screen from which you can edit the various parts of the survey style.



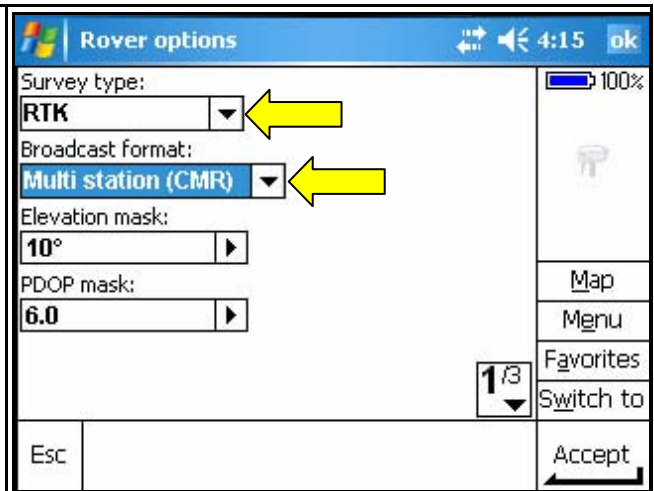
Tap on **Rover options** to open the first page of the **Rover options** dialog.

At the **Survey type:** field select **RTK**.

At the **Broadcast format:** field select **Multi station (CMR)** (**CMR**).

Make the remaining settings on this and the other pages of the **Rover options** dialog as appropriate for your equipment and preferences.

Tap the **Accept** button to return to the listing of the survey-style elements.



Tap on **Rover radio** to open the **Rover radio** dialog.

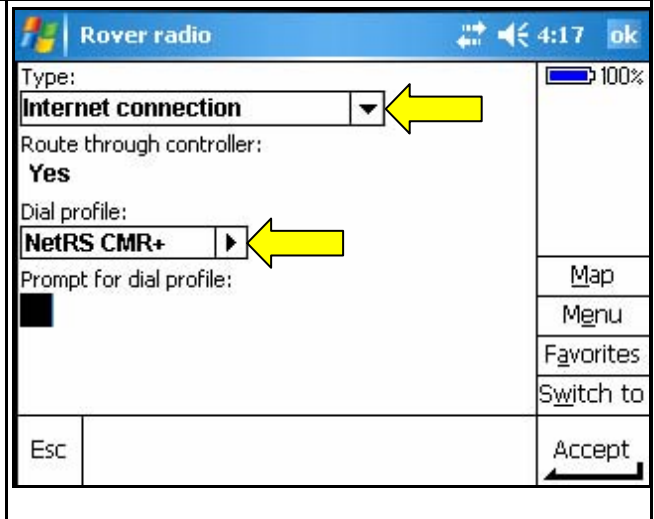
Set **Type:** to **Internet connection**.

The next two lines should confirm that the data will be routed through the controller.

At the **Dial profile:** field, tap the right-pointing arrow and select the dial profile created under Step 3A above.

If you have multiple dial profiles you may wish to check **Prompt for dial profile:** but since in this document we have only one dial profile we will leave that unchecked.

Tap the **Accept** button, and then tap the **Store** button to save this survey style.

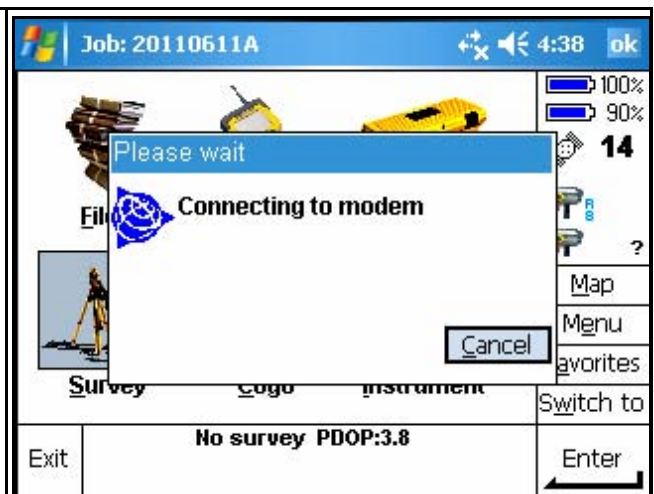


5A. Using the survey style that utilizes the internet-accessible reference station

Simply proceed as you normally would, but select the survey style created in Step 4A above and then click **Start survey**.

In the process of preparing this document, the progress screen at right and the progress screens in the next two rows appeared as Survey Controller made the connection to the reference-station receiver.

It may help to watch the mobile-phone screen to see if it is waiting for a response from you.

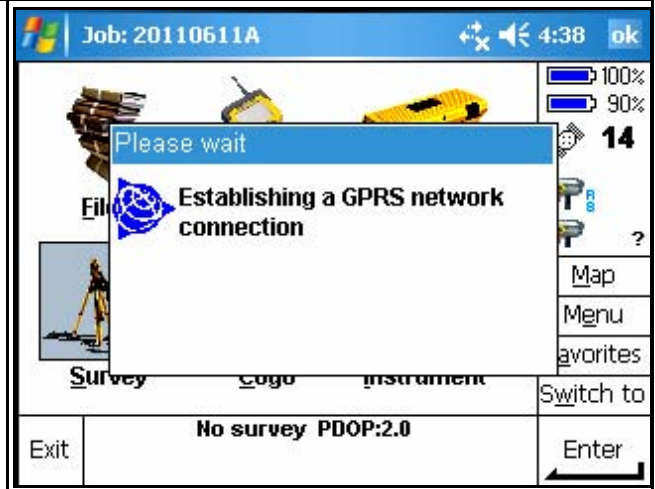


The second progress screen -



The third progress screen.

Inland GPS cannot offer any explanation why this screen says **Establishing a GPRS network connection** when we are establishing a dial-up connection.



When the connection to the reference-station data is established the icon pointed by the yellow arrow at right appears where you are probably accustomed to seeing the radio-modem icon.

This icon indicates that a real-time survey is running and that the rover is receiving streaming reference-station data via an internet connection.

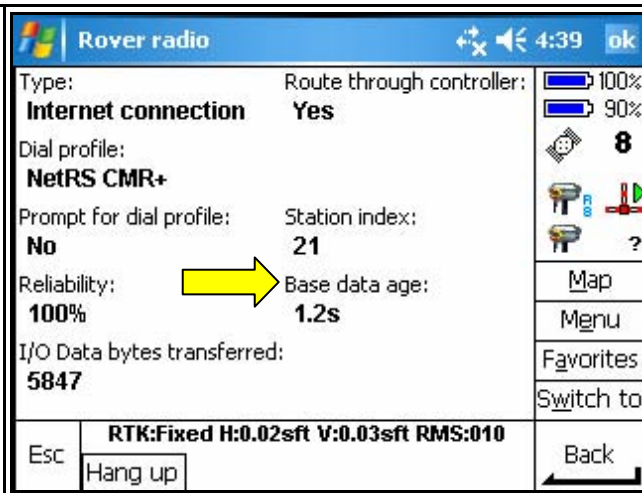
A red X over this icon indicates that the reference-station data is not arriving at the rover.



Tap the connection icon pointed by the yellow area in the previous row to bring up the screen shown at right.

Of particular interest is the **Base data age**:

You can also get the same screen when using a base radio modem – it would be a good idea to have an idea of the relative base-data age normally experienced with various connection methods, especially if you are doing a lot of stakeout work.



Other considerations –

User authentication at Trimble NetRS?

All attempts to date have been unsuccessful when the IP port on the Trimble NetRS GPS receiver is set with the **Require Client Authentication** option checked. Inland GPS has concluded that the available client software does not work with that authentication method. Please advise Inland GPS if you learn anything that indicates otherwise.