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Trimble GPS Protocol

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External link: <http://caboscience.org/>

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Protocol status: In development

We are still developing and optimizing this protocol

Created: December 02, 2019

Last Modified: April 08, 2020

Protocol Integer ID: 30470

Keywords: trimble gps protocol, trimble gp, trimble gps with the ntrip centimeter, canadian airborne biodiversity observatory, level precision subscription from cancel, standardised protocol, precise location, level precision subscription, protocol, ntrip centimeter

Abstract

Here we describe the standardised protocol used by the **Canadian Airborne Biodiversity Observatory** (CABO) to use the Trimble GPS with the NTRIP centimeter-level precision subscription from Cansel to record the precise location of a plot (corner or center) or a plant.

Materials

Equipment		
new equipment		NAME
Trimble Catalyst GPS, NTRIP precision subscription		BRAND
-		SKU

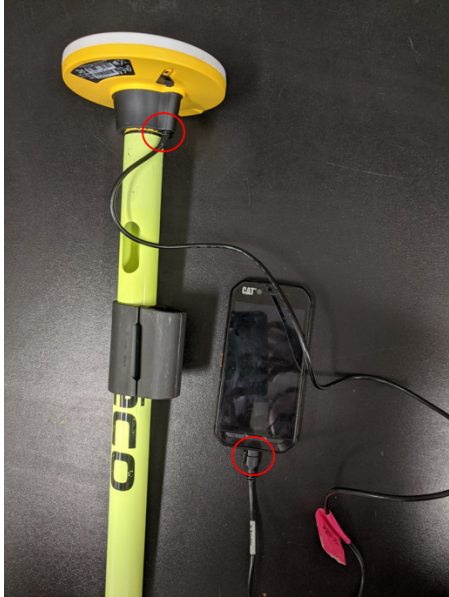
Equipment		
new equipment		NAME
CAT S41 Field cellphone		BRAND
-		SKU
https://www.catphones.com/en-us/cat-s41-smartphone/		LINK

Before start

Ensure you are subscribed to a centimeter-level correction service (e.g.: Cansel).

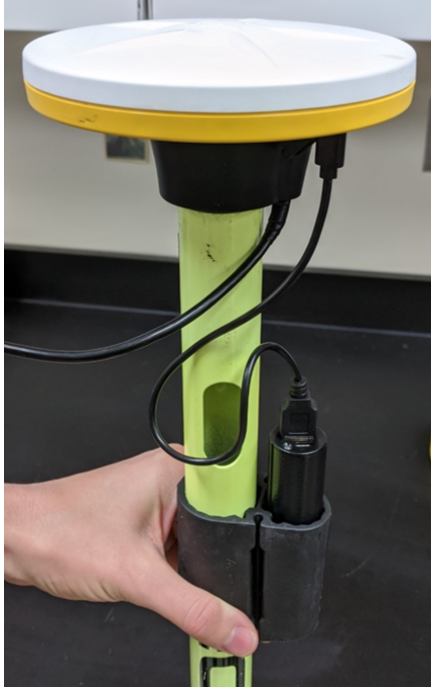
GPS Connection

- 1 Connect the Trimble antenna to your field cellphone, by plugging the cable coming out of the antenna into your cellphone charging port.

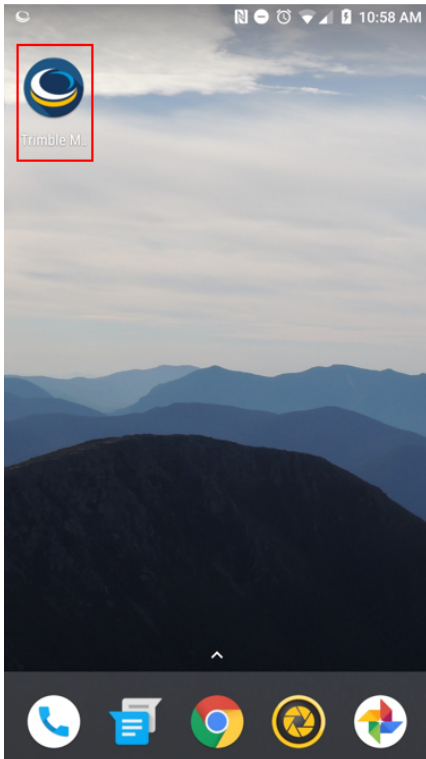


- 2 Connect the external battery to the Trimble antenna, by plugging the USB port into the battery and the micro USB port into the antenna. Place the battery in its mount.

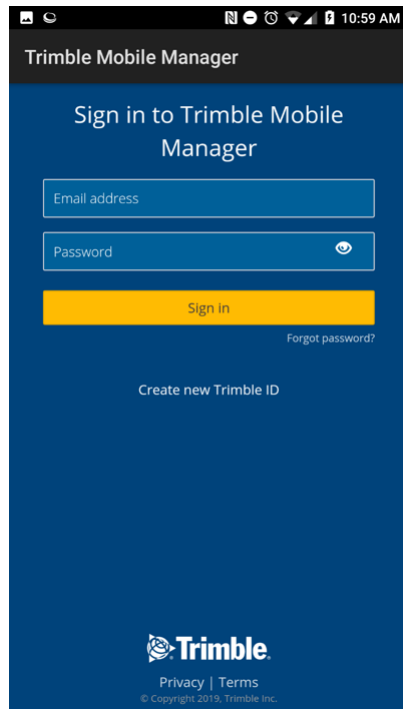




- 3 Open the *Trimble Mobile Manager* app on your fieldwork cellphone.



4 Sign in.

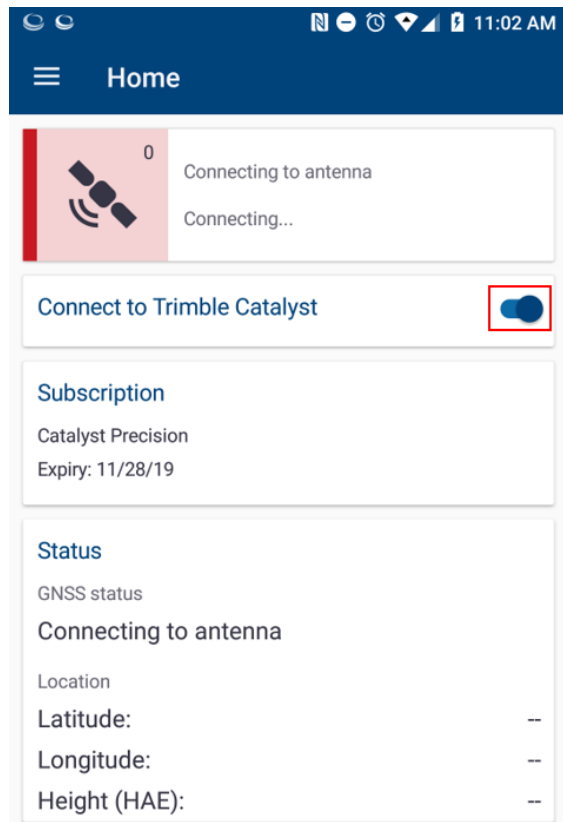


The following screen will show up.

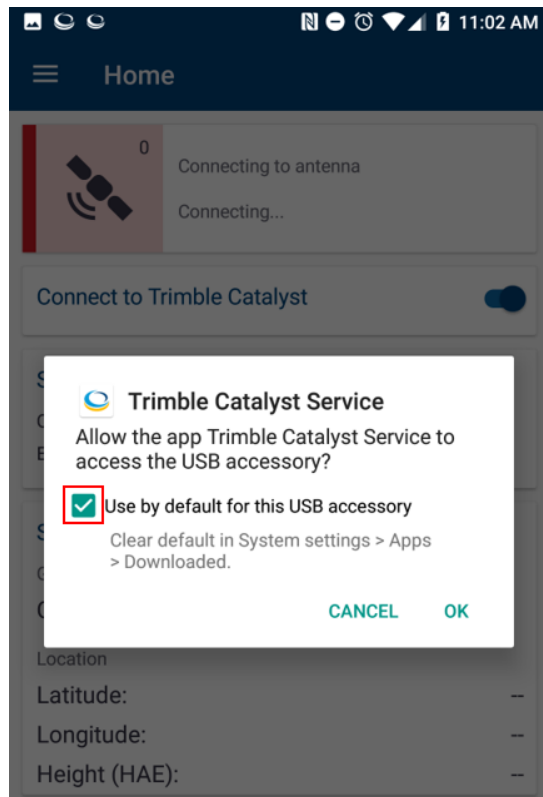
5 Slide the Connect to Trimble Catalyst button.



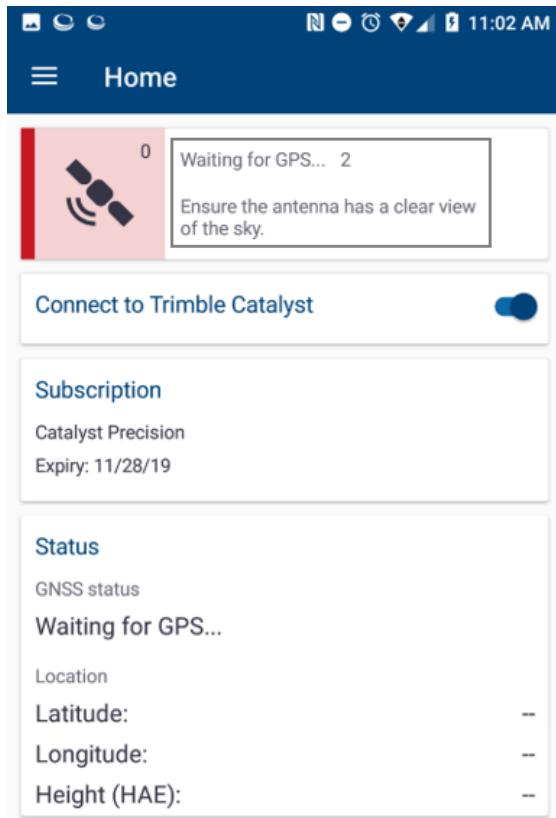
The image shows a mobile application interface with a dark blue header bar containing a menu icon and the word "Home". The status bar at the top displays various icons and the time "10:59 AM". The main content area is divided into three sections: 1. A top section with a satellite icon and the text "Not connected". 2. A middle section titled "Connect to Trimble Catalyst" with a toggle switch that is currently turned off; this toggle switch is highlighted with a red rectangular box. 3. A bottom section titled "Subscription" showing "Catalyst Precision" and an expiry date of "11/28/19". Below this is a "Status" section showing "GNSS status" as "Not connected" and "Location" details: "Latitude:", "Longitude:", and "Height (HAE):", each followed by two dashes "--".



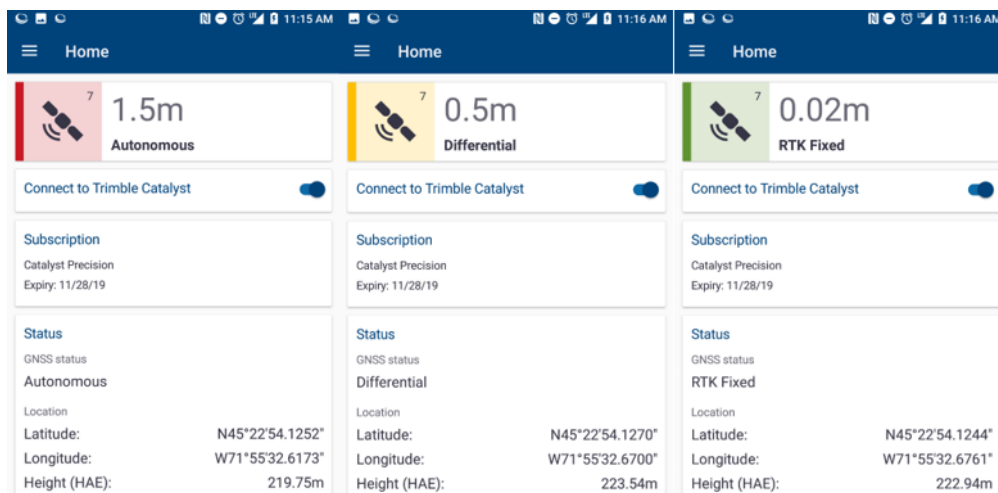
- 6 If the following screen shows up (it does not systematically), tick the Use by default for this USB accessory box.



- 7 The app searching for GPS signal will show this screen.

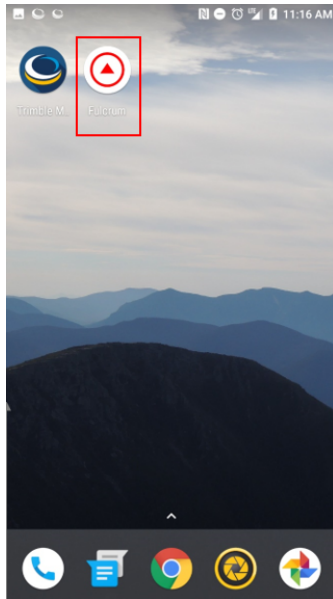


8 Wait for the precision to go down.



Point Recording

9 Open the *Fulcrum* app on your fieldwork cellphone.



- 10 In *Fulcrum*, go to the plot or tree record you want to georeference precisely, then go under Location.



Plots ✓

Location

Latitude (degrees)

45.3805348

Longitude (degrees)

-71.926556225

Horizontal Accuracy (m)

15.7125

Altitude (m)

230.2

Vertical Accuracy (m)

Current GPS Information
Latitude: 45.3817007
Longitude: -71.9257452
Horizontal Accuracy: 0.02
Altitude: 222.94

Update Location with GPS

UPDATE LOCATION WITH GPS

GPS informations updated from Corners

- 11 Watch the value of Horizontal Accuracy and wait for it to stabilize.

Note

DEFINITION OF A GOOD PRECISION:

In forest environments, under a canopy with no leaves (i.e., after leaf fall), the precision can be under 30 cm.

In the best conditions in an open environment, the precision can get down to 2 cm.



Plots ✓

Location

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45.3805348

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Vertical Accuracy (m)

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Latitude: 45.3817007
Longitude: -71.9257452
Horizontal Accuracy: 0.02
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Update Location with GPS

UPDATE LOCATION WITH GPS

GPS informations updated from Corners

- 12 Once the Horizontal Accuracy is stable at a good precision, click Update Location with GPS. You'll see the values next to Latitude, Longitude, Horizontal Accuracy and Altitude update.

Plots

Location

Latitude (degrees)	45.3805348	i
Longitude (degrees)	-71.926556225	i
Horizontal Accuracy (m)	15.7125	i
Altitude (m)	230.2	i
Vertical Accuracy (m)		i

Current GPS Information
 Latitude: 45.3817007
 Longitude: -71.9257452
 Horizontal Accuracy: 0.02
 Altitude: 222.94

Update Location with GPS

UPDATE LOCATION WITH GPS

13 Save your record.

Plots

✓