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Trimble GPS Protocol

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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.

EXTERNAL LINK

<http://caboscience.org/>


MATERIALS TEXT



Trimble Catalyst GPS, NTRIP precision subscription

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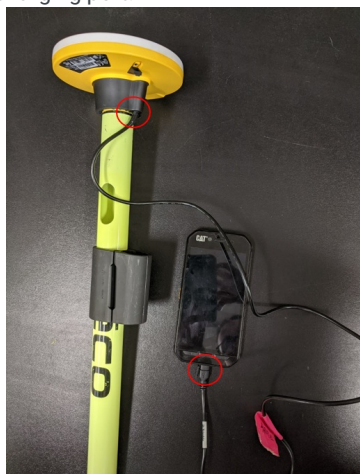
CAT S41 Field cellphone - 

BEFORE STARTING

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

GPS Connection

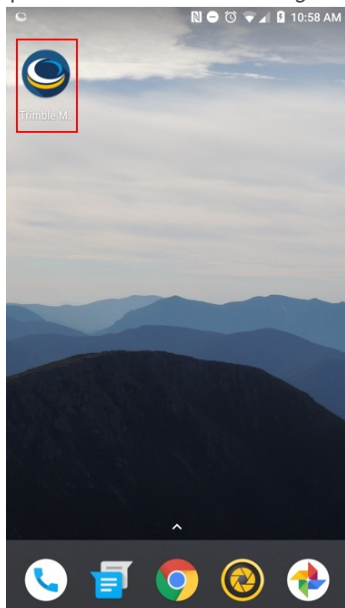
- 1 Connect the Trimble antenna to your field cellphone, by plugging the cable coming out of the antenna into your cellphone charging port.



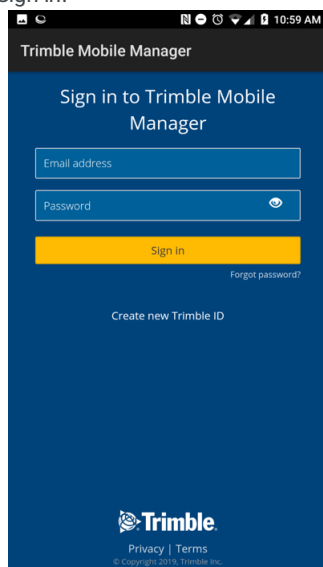
- 2 Connect the external battery to the Trimble antenna, by plugging the USB port into the battery and the micro USB port into the antenna. Place the battery in its mount.



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

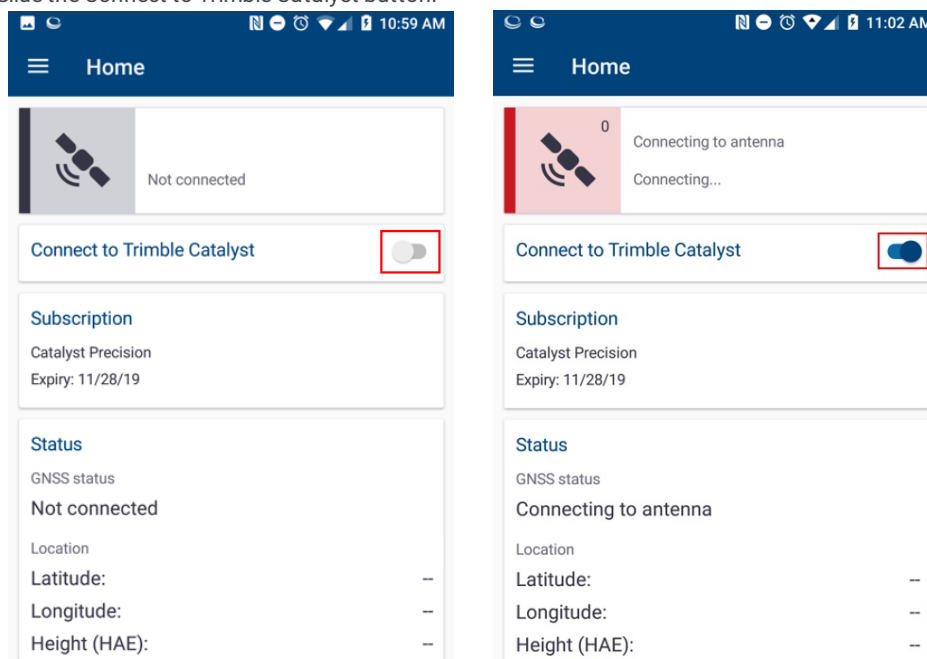


- 4 Sign in.

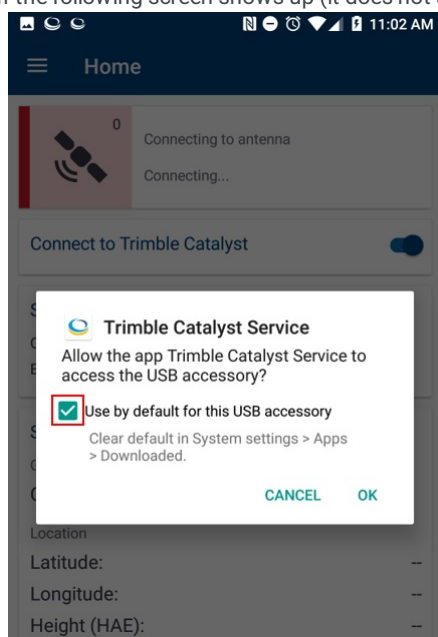


The following screen will show up.

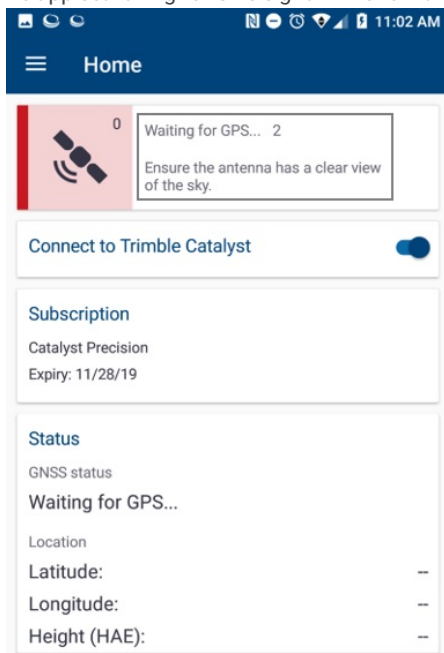
- 5 Slide the Connect to Trimble Catalyst button.



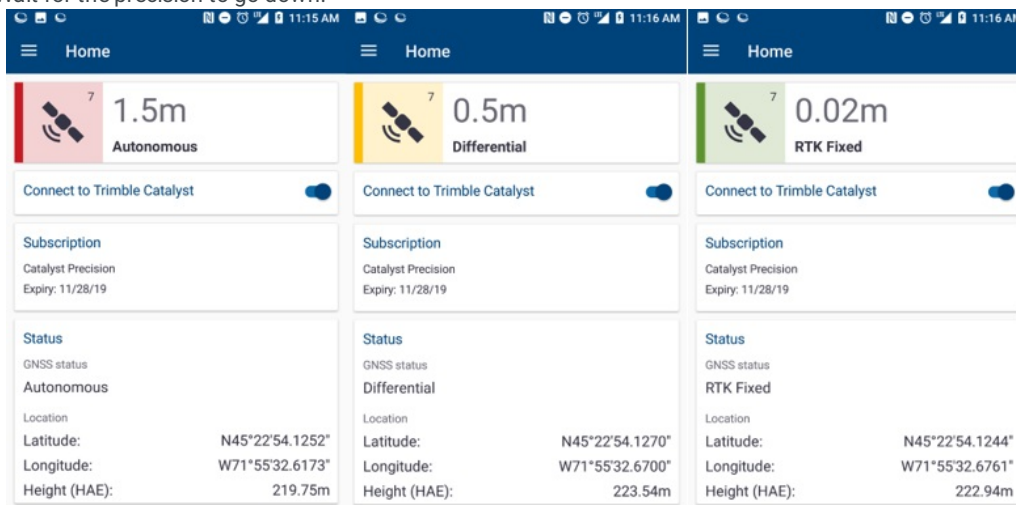
- 6 If the following screen shows up (it does not systematically), tick the Use by default for this USB accessory box.



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

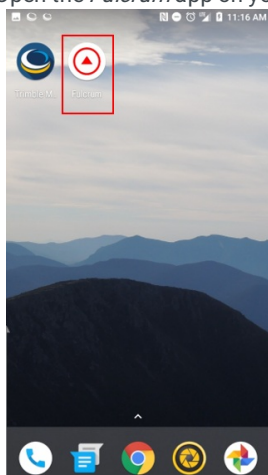


- 8 Wait for the precision to go down.



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.

A screenshot of the 'Location' settings screen in the Fulcrum app. The screen has a white background with a black header bar at the top that says 'Plots'. Below the header, there is a section titled 'Location' in a black box. Under this section, there are several input fields with labels and information icons (i in a circle). The fields are: 'Latitude (degrees)' with the value '45.3805348', 'Longitude (degrees)' with the value '-71.926556225', 'Horizontal Accuracy (m)' with the value '15.7125', 'Altitude (m)' with the value '230.2', and 'Vertical Accuracy (m)'. Below these fields, there is a section titled 'Current GPS Information' which displays: 'Latitude: 45.3817007', 'Longitude: -71.9257452', 'Horizontal Accuracy: 0.02', and 'Altitude: 222.94'. At the bottom, there is a button labeled 'UPDATE LOCATION WITH GPS' and a text line 'GPS informations updated from Corners'.

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



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.


11:16 AM


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

- 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.

The screenshot shows the 'Plots' screen of the Trimble GPS Protocol app. At the top, there's a status bar with various icons and the time 11:16 AM. Below the status bar, the word 'Plots' is displayed. A table titled 'Location' contains the following data:

| Field | Value |
|-------------------------|---------------|
| Latitude (degrees) | 45.3805348 |
| Longitude (degrees) | -71.926556225 |
| Horizontal Accuracy (m) | 15.7125 |
| Altitude (m) | 230.2 |
| Vertical Accuracy (m) | |


Below the table, there's a section titled 'Current GPS Information' with the following values:

Latitude: 45.3817007
Longitude: -71.9257452
Horizontal Accuracy: 0.02
Altitude: 222.94

At the bottom, there's a button labeled 'UPDATE LOCATION WITH GPS' which is highlighted with a red box.

- 13 Save your record.

The screenshot shows the 'Plots' screen of the Trimble GPS Protocol app. At the top, there's a status bar with various icons and the time 11:17 AM. Below the status bar, the word 'Plots' is displayed. In the center, there's a red box around a checkmark icon, indicating that the record has been saved successfully.

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