July, 2016

# *MobileMapper 50 Frequently Asked Questions*

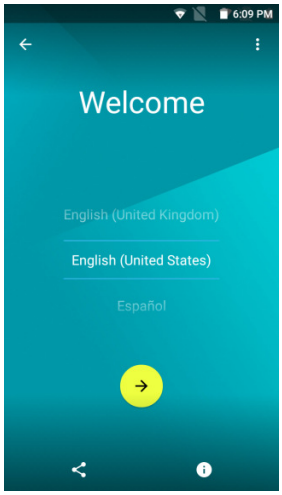
## How do MobileMapper 50 series handhelds differ from a consumer-grade smartphone with GNSS?

MobileMapper 50 series handhelds are designed for professional data collection and all-day use in the field. They are IP67 rugged to protect against water and dust penetrating the unit, with covered ports (USB, headset, external antenna) to avoid collecting dirt, and are drop-tested to 1.2 m (4 ft). Unlike most consumer smartphones, where GNSS performance is a secondary consideration and will often only work when network connectivity is available, the MobileMapper 50 series handhelds have been carefully tuned to maximize GNSS and SBAS performance in the field, providing 1 to 2 m accuracy real time as well as post-processing capabilities. Finally, most consumer smartphones are designed for occasional GPS use only; their batteries cannot sustain continuous use for a full day's field work. In contrast, MobileMapper 50 series handhelds have replaceable battery options (3100mAh or 4800mAh), allowing for all-day operation.

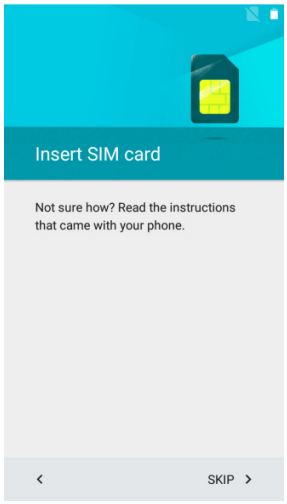
## Start up

When starting the MobileMapper 50 for the first time the sequence could be quite long. This is standard Google startup process and you should wait until all those phases are completed. At some points you will be offered to skip, this could allow to reduce overall boot time. Again all those steps are only necessary first time you boot the device or after a reset to factory. Google impose to register any new Android device and then during this process you will be asked to register a google account (it could be your existing google account). But it is needed to run this process in a place you have internet coverage (preferably WiFi) as the amount of information loaded by Google could be big.

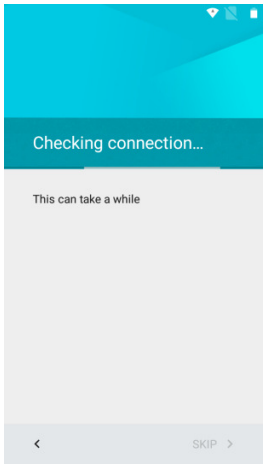
After the splash screen you will be invited to select the operating system language. Note that once selected this language will be the one of any applications installed on the device.




Then you will be asked to enter a SIM card, even on a WiFi only version. In that case or if you do not have SIM card available, or prefer to connect to WiFi (which is recommended)  you can press skip




Then you will have to select a WLAN network. Connection checking could “take a while” or more clearly several minutes.

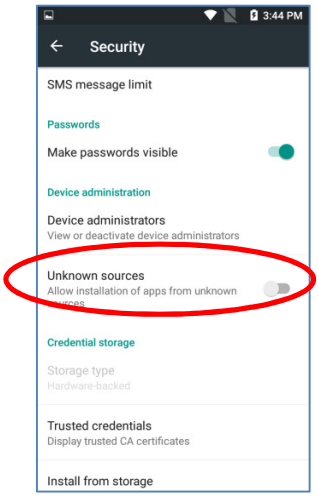



Finally you will have to enter or create a google account. This is mandatory in Google device start up process.

## Loading an application on MobileMapper 50.

MobileMapper  is Google certified so can access all the Google Mobile Services including Google play form where you can down load any applications.

When loading an application just by copying an apk file on the device, you will be prompted to allow installation from an “unknown source” , as it is not coming from official google play store. In case you are not prompted you should go in settings/security and check the  “Unknown source” setting. See below



## How can I do a reset on MobileMapper 50?

There are two kinds of reset available on MobileMapper 50

Reset to Factory:

In case you want to recover initial configuration you can do a “Reset to Factory”, In Settings/Back up and reset, select Factory data reset

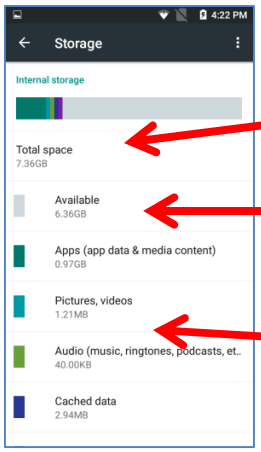
This reset will erase all information stored on your device and you will have to run again first start up process to start your device.

HW reset:

If the device is frozen and you cannot switch it off/on you can press the reset button at the bottom of the device close to USB connector. A sharp tool is needed to press the micro switch. The MobileMapper 50 will reboot , all data stored in memory are kept.

## Memory size available

On MobileMapper 50 as any other Android device the Operating System is installed in the storage memory. This is why available memory space for user data is lover that the memory size. MobileMapper 50 4G has 16 GB of storage memory and the Wifi version has 8 GB but as you can see on example below the available space is lower than 8GB.




Total Space is the memory space available for user data (so memory capacity menus size of the Operating system)

Available is the Memory Space available so remaining free on the memory

Then you will find detailed list of what is currently installed (applications) or stored (pictures...) on your device

## What are the different versions of MobileMapper 50?

MobileMapper 50 is available in two versions:

- MobileMapper 50 _ 4G
- MobileMapper 50 _ Wifi

Differences between two versions are:

| | **Wi-Fi version**<br><br>**p/n 107705-00** | **4G version**<br><br>**p/n 107705-10** |
|---|---|---|
| **MobileMapper 50** | 2 GB RAM/8 GB Storage memory<br><br>8 MP rear camera<br><br>Standard capacity battery (3100mAh)<br><br>Wi-Fi only | 2 GB RAM/**16** GB storage memory<br><br>**13** MP rear camera<br><br>Enhanced capacity battery (**4800mAh). With special battery door**<br><br>Wi-Fi<br><br>**4G LTE (data and voice)**<br><br>**E-compass** |

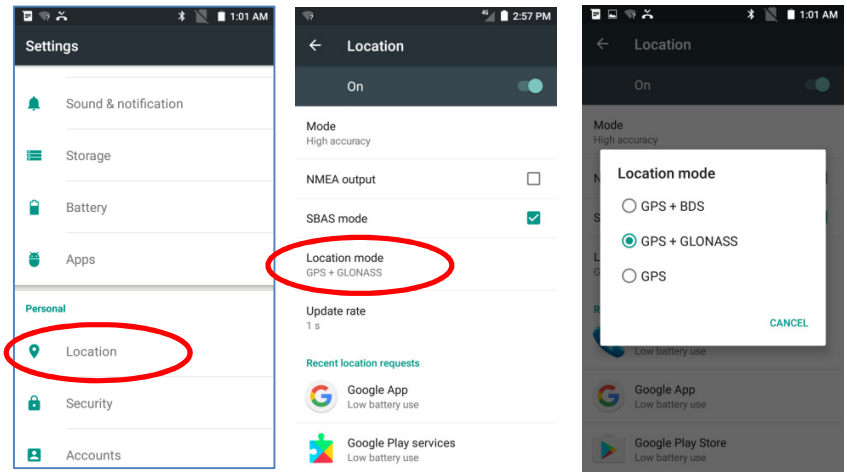
| | | |
|---|---|---|
| | | **NFC** |

## Can I change the language used by the MOBILEMAPPER 50 handheld?

Yes; the “Settings” Menu allows you to personalize the language and keyboard language of the device. You can choose from Afrikaans, German, English (UK/US), Spanish, French, Italian, Portuguese (Portugal/Brazil), Greek, Russian, Korean and Chinese (simplified/traditional), Japanese.

## What are MobileMapper 50 GNSS settings?

MobileMapper 50 real time performance is much better than standard consumer Android smart phones. MobileMapper 50 supports 3 different GNSS configurations which can be defined through the following menu:

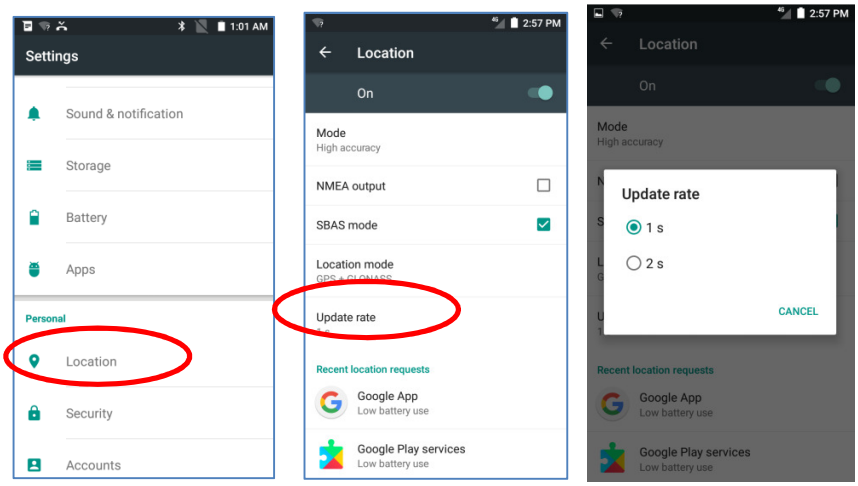



The configurations available are GPS only, GPS+Glonass, GPS+Beidou. This addition helps to improve accuracy performance in shaded conditions compared to GPS only products.

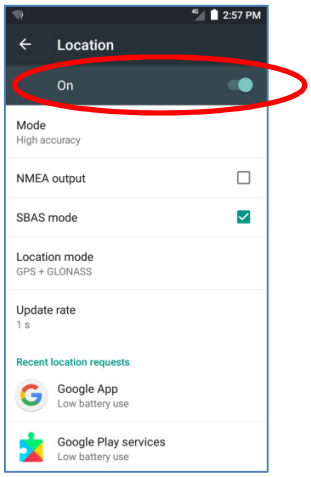
MobileMapper 50 offers also the possibility to adjust the position update rate to 1 or 2s. Slowing down the update rate of the position to 2s helps to optimize the battery life of the receiver.

At the same time applications using GNSS such as GIS applications will have a faster refresh if the update rate is set to 1s.

## How to adjust position update rate?




Once you have selected the desired update rate, switch off/on the location service to apply the modification:




## What is MobileMapper 50 GNSS accuracy performance?

In Typical/Standard conditions, open sky, no obstructions of multipath with minimum 7 satellites in view and SBAS corrections

Real Time accuracy: < 1.5m RMS

Post processing: < 0.8 m RMS

## What are the applications available in SpectraPrecison to be used with MobileMapper 50?

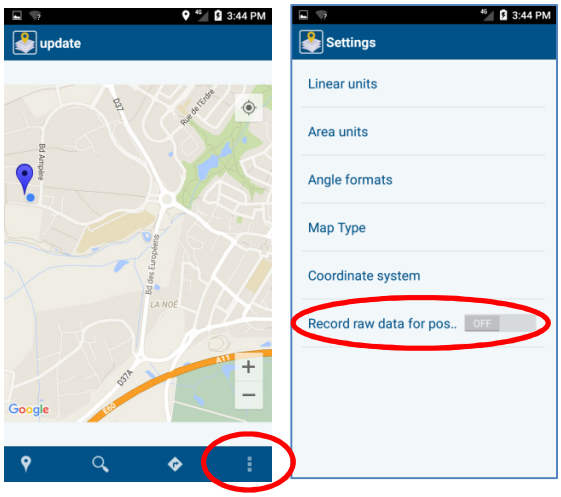
Spectra Precision has 2 Android apps which can be used with MobileMapper 50. None of them are available on google Play and can only be downloaded from www.Spectraprecision.com web site. The activation of the application requires a license to be purchased and will be activated through POPN process. As soon as purchase is registered the customer is receiving an email with POPN code (Proof of Purchase Number). With this code it will be possible to activate the application. Without POPN the application offer limited demo modes.

For GIS, a new MobileMapper Field application running on Android and supporting main GIS functionalities including coordinate transformation, post-processing, This application can also be used with 3rd party devices combined with Space app and high end GNSS receiver.

For Survey , a new Survey application, Survey Mobile for basic surveys. This application will control SP60 and SP80 and will run on MM50 or any other Android device (from 4.3 version). Survey Mobile

## How to do post processing with MobileMapper 50?

In order to record MobileMapper 50 raw data and be able to post process a GIS job, you need to use MobileMapper Field for Android application. In the application enter settings menu and switch “record raw data to ON.



In this configuration every GIS job will be associated to a raw data file: CRW file.

Then  transfer all the job files including the CRW to MobileMapper Office to post process

## What are the features and benefits of the Android operating system?

The benefits of Android OS are numerous and some of the features offered make it a perfect mobile operating system for professional users. Starting with the integrated Google applications and easy access to hundreds of thousands of applications via Google Play, the ability to perform multitasking (Android devices can run many applications, for example using Navigation software to get you to a work site, using data collection software to collect data once you arrived). The Ease of Notification, with missed calls, SMS, or email, there will be a notification on the Home Screen. And finally, the availability of so called "Widgets" on the home screen, that allow for quick information at a glance or easy access to a variety of settings. And specifically for our geospatial business the possibility to use Google Maps.

## What is the benefit of being Google certified?

MobileMapper 50 is Google certified, meaning that it has been officially tested by google and certified to run the Google Mobile Services. **Google Mobile Services** are the applications and services provided by Google in order to enhance the user's mobile experience. Google Mobile Services are distinct from Android; they remain under a completely "separate license" from Google. They include:

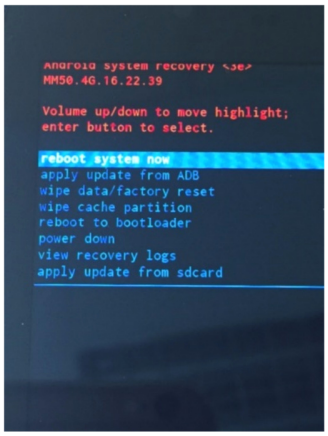
- G mail
- Chrome
- Google +
- Google Maps
- YouTube
- Google Docs
- Google Translate
- Waze

Being certified MobileMapper 50 can also access Google play store to download any application.

## What are recovery menu and fast-boot modes of MobileMapper 50?

On Android devices when you switch on the device by  pressing Power and Volume Up you enter in what is called "recovery menu". This menu should be used carefully and is mainly used for reset to factory. All recorded information will be lost after reset. It is not recommended to use this reset function without

calling Spectra Precision support. In case you entered this menu by mistake, you can return to normal mode by making sure “reboot system now” is selected (using volume up/down) and press power to exit and boot normally.




Power + volume down is special fastboot mode. If you press these keys the device will appear to be frozen.

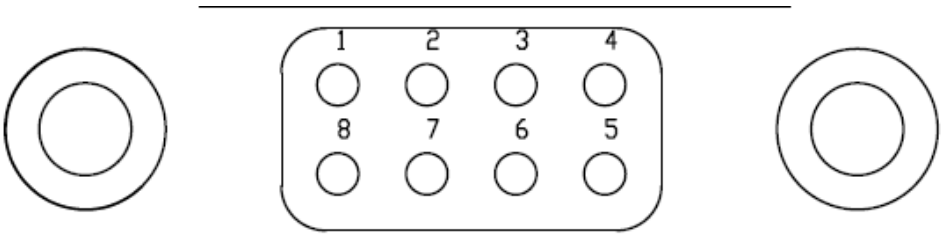
**In any case avoid to activate those modes and be careful not to press volume keys at the same time as power on.**

## Is it possible to use MobileMapper 50 4G version with a standard battery?

MobileMapper 50 cellular version comes with an extended battery of 4800 mAh (compared to the standard one which is delivered with the WiFi version and which capacity is 3100 mAh). Battery are interchangeable and Cellular version can work with a standard battery. This change will require to change as well the battery cover. In that case the battery life of the device will obviously be impacted.

## What is the pogo connector at the back of MobileMapper 50?

Pogo connector is offering access to serial, USB and power , in order to connect external devices. So far we are not offering any external device for MobileMapper 50.




| Pin NO | Pin name | Description |
|---|---|---|
| 1 | RX-RS232 | Phone UART Serial input, RS-232 logic |
| 2 | TX-RS232 | Phone UART Serial output, RS-232 logic |
| 3 | DM/GPIO | USB DM or GPIO; If GPIO mode, GPIO 1.8V logic |
| 4 | DP/GPIO | USB DP or GPIO; If GPIO mode, GPIO 1.8V logic |
| 5 | GPIO | GPIO 1.8V logic |
| 6 | USB_ID | IF low, The device will start in OTG Mode, default is high |
| 7 | VDD (5V) | Default is closed, controlled by software |
| 8 | GND | GND |

## Why MobileMapper 50 battery door is not so easy to open?

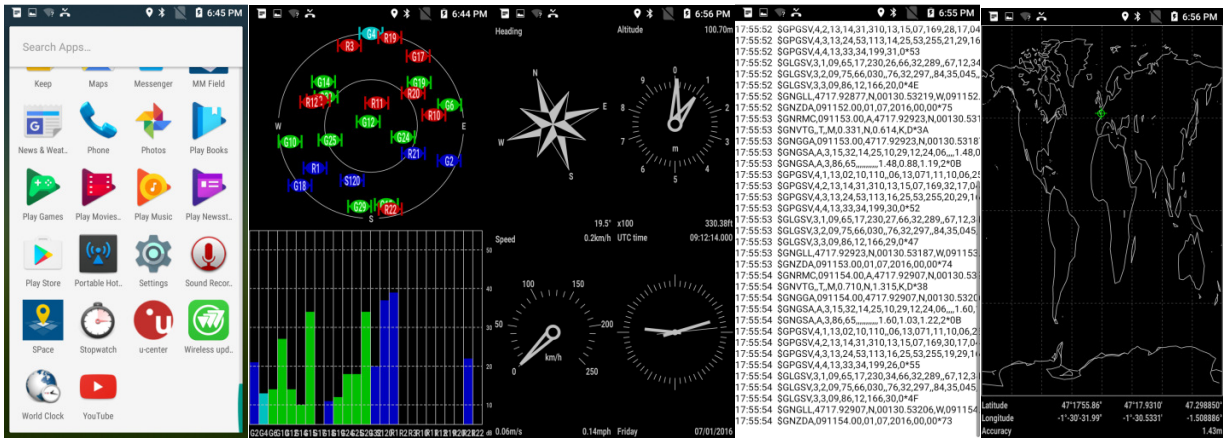
MobileMapper 50 is dust and water proof, IP67. This specification requires specifically the battery door to be extremely sealed when closed. This is why it could be hard to open. It is recommended to use a soft tool to open and to close it by starting to place the bottom hooks in the two holes and then pressing from bottom to top on each side to make sure the closing is perfect.

## How to have battery life % indication on MobileMapper 50?

By default only battery icon is displayed on MobileMapper 50. It is possible to add % indication of remaining battery power be going to Settings/ Status bar and check Show battery percentage.


## Where is the satellite sky plot MobileMapper 50?

U Center application is available on MobileMapper 50 and provides satellite views as well as worldwide map and NMEA viewer



## Cellular Modem Questions (MobileMapper 50 4G model only)

### What can I use the MobileMapper 50 handheld's 4G LTE cellular modem connectivity for?

The internal 4G broadband cellular modem of the Trimble MobileMapper 50 4G model allows you to connect to the Internet or directly to an IP address, using a supported cellular wireless network. The most common internet application is to connect to your organization's network remotely to access work orders, enterprise data, maps, or share data or information from the field. MobileMapper 50 supports also cellular voice features.

### Can I make phone calls with the MobileMapper 50 series handhelds?

Yes, the Trimble Mobilemapper 50 4G model supports voice calls over the cellular network, or you can also use VOIP (Voice Over Internet Protocol). You can use either the integrated speaker or a wireless (Bluetooth) headset to listen and talk during a call. Note that the Wi-Fi only model does not support voice calls over the cellular network. Caution: VOIP calls consume a high amount of network bandwidth and might not be cost-effective when compared to regular cellular voice calls.

### Can I send and receive text messages with a MobileMapper 50 series handheld?

Yes, the MobileMapper 50 4G model supports text messaging.

### Will using the voice call capability degrade the accuracy of my GNSS data?

No, the voice call capability will not degrade the accuracy of your GNSS data. It is recommended however that you pause/stop GNSS logging or close the feature before taking a call to avoid moving the GNSS antenna while capturing a feature.

### What happens to my Internet connection when I take or make a voice call? Is software still able to send and receive data?

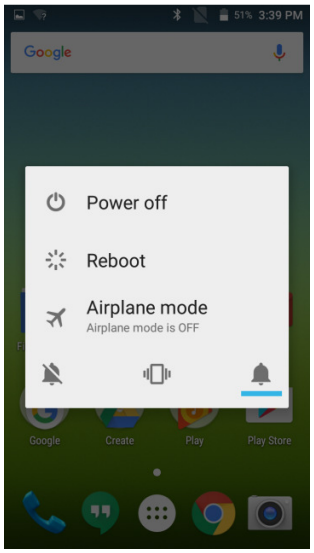
The MobileMapper 50 4G model can still send and receive data during a voice call when supported by the wireless carrier. If the wireless carrier does not support this feature, packet data connections are put on hold while you are on a voice call.

## Can I use a Bluetooth headset for voice calls?

Yes, the MobileMapper 50 4G model is compatible with Bluetooth headsets.

## Do MobileMapper 50 series handhelds have a flight mode for use in an aircraft?

Yes. MobileMapper 50 series handhelds have an explicit “Airplane Mode” that can be enabled to turn off the Wi-Fi and Bluetooth radios and the cellular modem in the 4G version. This mode is accessed by pressing power off.




Alternatively in the same pop up screen, to perform a full power down of the device, select Shutdown.