MobileMapper® Field Android

User Guide

SOFTWARE END USER LICENSE AGREEMENT (EULA)

(TNL - TEBV)

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2.4. License Restrictions.

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3.Payment. Unless a Software has been made available by Trimble at no charge, You shall pay all fees associated with the Software licensed and any services purchased hereunder as set forth in the applicable Order Form. All payments shall be made in the currency specified in the applicable invoice within thirty (30) days of your receipt of such invoice, unless otherwise specified in writing by the Trimble Supplier. Except as expressly set forth herein, all fees

are non-refundable once paid. You shall be responsible for all taxes, withholdings, duties and levies arising from the order (excluding taxes based on the net income of the Trimble Supplier). Any late payments shall be subject to a service charge equal to 1.5% per month of the amount due or the maximum amount allowed by law, whichever is less.

4. Term of Agreement

4.1.Term. This Agreement is effective as of the Effective Date and expires at such time as all license and service subscriptions hereunder have expired in accordance with their own terms (the "**Term**"). Either party may terminate this Agreement (including all related Order Forms) if the other party: (a) fails to cure any material breach of this Agreement within thirty (30) days after written notice of such breach; (b) ceases operation without a successor; or (c) seeks protection under any bankruptcy, receivership, trust deed, creditors arrangement, composition or comparable proceeding, or if any such proceeding is instituted against such party and not dismissed within sixty (60) days. If You have entered into a separate written agreement with Trimble which governs the Software and that agreement is terminated, then this Agreement automatically terminates and You shall no longer have any right to use the Software. Termination is not an exclusive remedy and the exercise by either party of any remedy under this Agreement will be without prejudice to any other remedies it may have under this Agreement, by law, or otherwise. For clarity, even if You have entered into an Order Form with a Trimble distributor or reseller, Trimble is a third party beneficiary to that Order Form and has the right to terminate this Agreement as set forth in this Section 4 (Term of Agreement).

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11. General.

11.1. Assignment. This Agreement will bind and inure to the benefit of each party's permitted successors and assigns. Trimble may assign this Agreement to any Affiliate or in connection with a merger, reorganization, acquisition or other transfer of all or substantially all of Trimble's assets or voting securities. You may not assign or transfer this Agreement, in whole or in part, without Trimble's written consent. Any attempt to transfer or assign this Agreement without such written consent will be null and void. If You obtain such consent from Trimble, You shall permanently assign or transfer all of your rights under this Agreement, provided You retain no copies and You transfer all of the Software (including all component parts, the media and printed materials, any upgrades, and this Agreement), and the recipient agrees to the terms of this Agreement. If the Software portion is an upgrade, any assignment or transfer must include all prior versions of the Software.

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11.4. Attorneys' Fees and Costs. The prevailing party in any action to enforce this Agreement will be entitled to recover its attorneys' fees and costs in connection with such action.

11.5.Notices and Reports. Any notice or report hereunder shall be in writing. If to Trimble, such notice or report shall be sent to "Trimble Navigation Limited, 935 Stewart Drive, Sunnyvale, California 94085, U.S.A." to the attention of "General Counsel – Legal Notice". If to You, such notice or report shall be sent to the address You provided upon placing your order or at the time the Software has been first made available to You. Notices and reports shall be deemed given: (a) upon receipt if by personal delivery; (b) upon receipt if sent by certified or registered U.S. mail (return receipt requested); or (c) three (3) business days after being sent by a reputable international courier requiring signature for receipt, addresses to the party at its notice address. Either party may change its notice address by written notice to the other.

11.6. Amendments; Waivers. No supplement, modification, or amendment of this Agreement shall be binding, unless executed in writing by a duly authorized representative of each party to this Agreement. No waiver will be implied from conduct or failure to enforce or exercise rights under this Agreement, nor will any waiver be effective unless in a writing signed by a duly authorized representative on behalf of the party claimed to have waived.

11.7. Entire Agreement. This Agreement is the complete and exclusive statement of the mutual understanding of the parties and supersedes and cancels all previous written and oral agreements and communications relating to the subject matter of this Agreement. No provision of any purchase order or in any other business form employed by You will supersede the terms and conditions of this Agreement, and any such document issued by a party hereto relating to this Agreement shall be for administrative purposes only and shall have no legal effect. Notwithstanding the foregoing, if You have entered into a separate written license agreement signed by Trimble for use of the Software, the terms and conditions of such other agreement shall prevail over any conflicting terms or conditions in this Agreement.

11.8. Independent Contractors. The parties to this Agreement are independent contractors. There is no relationship of partnership, joint venture, employment, franchise or agency created hereby between the parties. Neither party will have the power to bind the other or incur obligations on the other party's behalf without the other party's prior written consent.

11.9. Force Majeure. Neither party shall be liable to the other for any delay or failure to perform any obligation under this Agreement (except for a failure to pay fees) if the delay or failure is due to unforeseen events, which occur after the signing of this Agreement and which are beyond the reasonable control of the parties, such as strikes, blockade, war, terrorism, riots, natural disasters, refusal of license by the government or other governmental agencies, in so far as such an event prevents or delays the affected party from fulfilling its obligations and such party is not able to prevent or remove the force majeure at reasonable cost.

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11.11. Third-Party Software. If designated in the Documentation, the Software may contain or be provided with certain Third-Party Software (including software which may be made available to You in source code form). Such Third-Party Software is not licensed hereunder and is licensed pursuant to the terms and conditions indicated in the Documentation and/or on the Third-Party Software conditions ("**Third-Party License**"). Except as may be set forth in the Third-Party License, neither Trimble nor Trimble Suppliers offer any warranty in connection with any Third-Party Software and neither Trimble nor Trimble Suppliers shall be liable to You for such Third-Party Software.

11.12. Official Language. The official language of this Agreement is English. For purposes of interpretation, or in the event of a conflict between English and versions of this Agreement in any other language, the English language version shall be controlling.

11.13. Reservation of Rights. Trimble reserves all rights not expressly granted by this Agreement.

If an executed agreement exists between You and Trimble at any time regarding the Software, the terms of that agreement shall supersede the terms of this Agreement in its entirety. Thus, if You enter into a separate written agreement with Trimble regarding the Software, that agreement (not this one) will control your use of the Software; and further if that agreement is terminated, You will not have the right to use the Software under the terms of this Agreement after termination. Notwithstanding the foregoing, pre-printed terms and conditions on your Order form shall not supersede this Agreement.

Trimble Navigation Limited, 935 Stewart Drive, Sunnyvale, CA 94085, U.S.A

English

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Introduction

English

MobileMapper Field is a field software application used to collect GIS data.

Before you can log GIS data with MobileMapper Field, you need to create a *job* and at least one *layer*.

The basic piece of GIS data you can collect with MobileMapper Field is called a *feature*. While collecting a *feature*, you will typically have to enter values for its *attributes*.

Every time you want to log a new *feature*, you will first need to select the *layer* in which the *feature* will be saved. See all definitions below for more details.

Software Installation

All languages are provided in a single installation package. When starting installation, the interface language is selected automatically based on the Android device's system settings. So you should first go to Settings > Language & Input, and select the language you wish to use in MobileMapper Field.

- Download the installation file (an apk file) from Spectra Precision website.
- Copy the file to any folder on your Android device.
- Touch the apk file to start installing MobileMapper Field Android.
- The first time you start the application, you will be asked to enter the POPN (Proof-Of-Purchase Number). You should have received this number by now since it was emailed to you when you purchased MobileMapper Field Android.

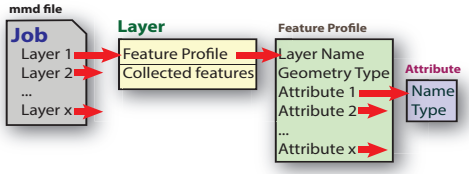
  If you don't have a POPN, you may however install and run the software for a limited period of time (30 days) by clicking on the **Start Trial** button.

  The trial mode is only intended for evaluation purposes. In trial mode, you are not allowed to use the Export and Import functions and all the jobs you create cannot be re-opened in a fully registered MobileMapper Field. On launching MobileMapper Field after the trial period has expired, you will be prompted to register.

NOTE: You will need another POPN to activate raw data collection in a MobileMapper 50. This POPN will be asked when attempting to enable this function. So make sure you have purchased this option as well if you intend to collect raw data files with your MobileMapper 50.

Jobs

A *job* is a file containing all the layers used in a campaign of GIS data collection. These layers include all the features collected through them.



Jobs are binary files using the “mmd” extension. Each “mmd” file has its own “mmd-Journal” file counterpart.

Layers

A layer first provides a *feature profile* through which you can collect a certain category of features and second, it’s a container for all the features collected through it.

A layer therefore contains the following information:

1. A *feature profile*, which is defined by:
   - A layer name
   - A *geometry type*
   - A number of *attributes,* which provide all sorts of information useful to describe every collected GIS data. (See *Attributes on page 3*.)

   The *feature profile* is the only information present in the layer when creating a new layer. The layer is then said to be empty.
2. As you will be collecting data, each and every feature collected through this layer will be saved to that layer.

It is your responsibility to create layers, each of them describing a particular category of features you will encounter in the field. Attributes should be chosen to meet the specific requirements of your data collection campaigns.

Examples of layers: “Trees” (geometry type: point), “Overhead cables” (geometry type: line), “Ponds” (geometry type: polygon).

Examples of attributes: For the “Trees” layer for example:

- “Variety”: May be a text-type attribute for free entry, or a menu-type attribute, for example with options “Elm”, “Oak”, “Pine”, etc.
- “Size”: A numeric or decimal attribute.
- “Picture 1”: Allows you to create a picture of the tree as one of its attributes.

- "Last visited": "Date" attribute
- "Disease": "Yes/No" choice attribute
- etc.

Features

As already mentioned, a *feature* is defined as the basic piece of GIS data you can collect with MobileMapper Field.

Collecting a feature implies that you first choose the layer in which to store it. By making this choice, you confirm that the geometry type of the feature you want to collect matches that of the layer's feature profile and you accept to provide input for all the prompted attributes (see below).

When collecting a point feature, MobileMapper Field will automatically save the position computed at the feature's location as an additional attribute to the feature. (The position is computed in real time by the built-in GNSS receiver or by an external GNSS receiver connected to MobileMapper Field).

When collecting a line or polygon feature, MobileMapper Field will log several positions as you walk along that line or polygon. Position logging will take place in manual or automatic mode (see *Setting the Logging Mode for Lines & Polygons on page 16*).

Later when processing features, position attributes will be displayed for each feature, together with all the other attributes.

Attributes

Attributes fall into two different categories:

- *User-defined* attributes. There are seven different types:
  - Text
  - Numeric
  - Decimal
  - Date
  - Yes/No
  - Menu
  - Submenu (see Appendix, *Submenu Attribute on page 25*)

  To create a new *user-defined* attribute, you need to name it, choose the type (see above) and possibly make it mandatory.

- *Predefined* attributes. The list of available *predefined* attributes depends on the type of geometry chosen for the layer (see table below).

Predefined Attribute	Point	Line	Polygon
Picture 1	•	•	•
Picture 2	•	•	•
Picture 3	•	•	•
Picture 4	•	•	•
Time	•	•	•
HRMS (1)	•		
VRMS (2)	•		
Length (3)		•	
Perimeter			•
Area			•

(1): Estimation of horizontal position accuracy
(2): Estimation of vertical position accuracy
(3): Expressed in the chosen unit (See Settings)

For both *user-defined* and *predefined* attributes, you will be prompted to provide input for each and every feature you will collect in the field. For those *user-defined* attributes with the **Mandatory** option active, field operators will imperatively have to provide input.

As mentioned earlier, position is an *implicit* attribute for all types of feature, i.e. it is added automatically without you to ask (see *Features on page 3*).

Creating your First Job

With no job created yet in MobileMapper Field, the following icons can be seen in the title bar:

- Touch 
- Enter a file name and touch **OK**.

  That's it!

Creating Your First Layer and its Attributes

After creating a new job, or after opening an existing, empty job:

- Touch  in the title bar.
- Touch  .
- Enter a name for the layer.
- Choose a geometry type for the layer (Point, Line or Polygon).
- Touch **OK**. MobileMapper Field then prompts you to define the attributes specific to the layer. (MobileMapper Field cannot create a layer without an attribute so you need to enter at least one attribute.)
- Enter your first *user-defined* or *predefined* attribute. For a *user-defined* attribute, choose a name, a type and possibly make the attribute mandatory (see also *Attributes on page 3*). Then touch **OK**. For a *predefined* attribute, just choose the desired one from the list. MobileMapper Field then shows the list of attributes you've just created.
- Touch  again to add a second attribute, following the same procedure as above. Create as many attributes as necessary.

  NOTE: When adding attributes to a new layer, and as long as you do not validate the definition of the layer, you may still modify or delete any of the layer's attributes:

  – To modify an attribute, touch its name in the list of attributes and edit its definition.

  – To delete an attribute, just hold a finger pressed on the attribute name until the menu bar turns yellow. A trash can icon is displayed in this bar:  . Just touch it to delete the selected attribute.

Attributes may be modified or deleted before completing the creation of a layer.

Layers may be deleted from a job.

- Touch when you are done with attributes. This takes you back to the layers list where you can now see the name of the newly created layer.
  NOTE: You may delete any layer from the job: Just hold a finger pressed on the layer name until the menu bar turns yellow. A trash can icon is displayed in this bar: . Just touch it to delete the selected layer.
- From there, you may touch to create a new layer.

NOTE: After a layer has been created in a job, you can create new layers directly from the menu located in the title bar:

- Touch , select **Layers** then touch .

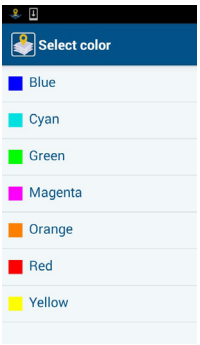
Showing/Hiding a Layer

You can ask MobileMapper Field to show or hide any of the layers part of your job.

- Touch and select **Layers**. MobileMapper Field lists the names of all the layers found in the open job.
- Set the slide button corresponding to the layer you want to show or hide: Touch **Hide** to make all the features pertaining to that layer invisible on the map view, or touch **Show** to make them visible.

Defining Layer Color

You can change the color of each of the layers added to a job.



- Touch and select **Layers**. MobileMapper Field lists the names of all the layers found in the open job.
- Touch a layer name and then select a new color for the layer. This takes you back to the layers list where you can see that the selected color is now associated to the layer.

After choosing a color for a layer, all features stored in this layer are shown on the map screen with the same color.

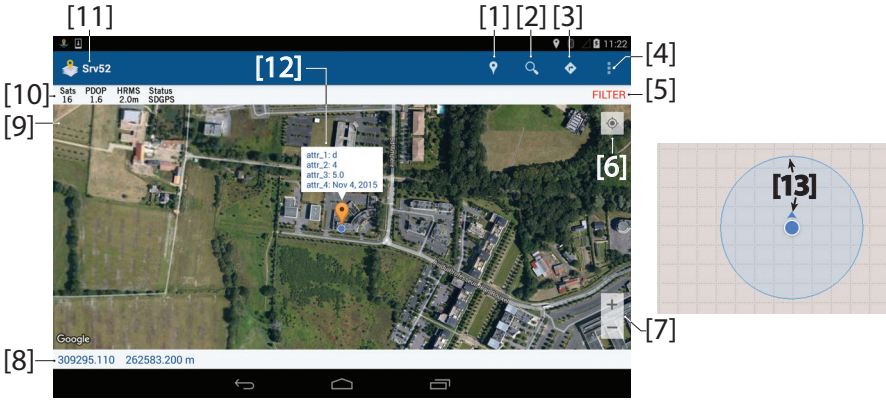
Creating a Job from another Job

You can create a new empty job using the currently open job as a template.

When you do this, MobileMapper Field copies all the layers from the open job to the new job, but deletes all the features stored in these layers (which then become empty layers).

Follow this procedure to create a job from another job used as a template:

- Open the job you want to use as template.
- Touch  then **New**.
- Name the new job and touch **OK**. Then the message "**Use current job as a template?**" is displayed.
- Touch **Yes**. The new job is then created and opened in MobileMapper Field (and the project used as template is closed).



Map View

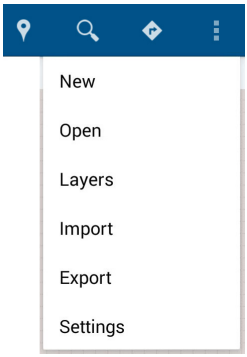
With a job open in MobileMapper Field and after a few features have been collected, the map view looks like the one above.

- **[1]**: "Log feature" function.
- **[2]**: "Search feature" function.
- **[3]**: "Go to/Update feature" function.
- **[4]**: Main Menu (see *Main Menu on page 9*).
- **[5]**: "FILTER" is reported here only when the current value of position accuracy is less than the expected value (see *Setting the Position Filter on page 15*).
- **[6]**: Touch this button to move the last computed position to the center of the screen, causing the map view to be updated accordingly.
- **[7]**: Zoom settings.
- **[8]**: Coordinates of current position.
- **[9]**: Compass icon. Shown only after giving the map a certain angle using two fingers on the screen to rotate the map. Touch this icon to bring the North direction back to normal (i.e. oriented upward).
- **[10]**: Number of satellites used and current value of HRMS (+PDOP and position status if a MobileMapper 50 is used).
- **[11]**: Name of open job.
- **[12]**: Touch a logged feature to read its attributes.
- **[13]**: Current position occupied by the GNSS receiver (small blue circle). A second, light-blue, half-transparent circle, concentric to and bigger than the first one, shows the extent of the uncertainty on the computed position, directly tied to the displayed value of HRMS.

NOTE: An Internet connection is needed to allow MobileMapper Field to get from Google the map that suits the working area. The time for MobileMapper Field to display the map will depend on how fast your Internet connection is.

Main Menu

(The menu is as described below after at least one job has been created in MobileMapper Field.)



New Use this function to create and name a new, empty job. "Empty" means the job does not contain any layer.

A new job can be created using the currently open job as a template (see *Creating a Job from another Job on page 7*).

Open Use this function to open an existing job. MobileMapper Field lists all the jobs found in the mobile device's **Download** folder. Just touch a job name to open it.

NOTE: When starting MobileMapper Field, the job that was left open at the end of the previous session is automatically re-opened in MobileMapper Field.

Layers This function is available if the job contains at least one layer. In that case, a window opens listing all the layers found in the job.

Touch to create a new layer (see *Creating Your First Layer and its Attributes on page 5*). If the open job is new or still empty:

- First touch in the title bar.
- Then touch to create a new layer. The new layer will automatically be saved in the job.

Import Use this function to import an existing layer to the open job. MobileMapper Field will list all the layers found in the mobile device's **Download** folder. Select the layer you want to import to the job. Typically, you will import layers provided from outside. These may also be layers exported from another job created on the same device.

Please note that a layer can be imported only if the corresponding four files (prj, shp, shx and dbf files) are all present in the **Download** folder.

IMPORTANT: Importing a layer implies copying both the feature profile and all the previously collected features stored in this layer. If you want to import empty layers, create a new job from a job containing the layers you are interested in (see *Creating a Job from another Job on page 7*).

Export Use this function to export the open job with all its layers. The table below lists the different types of files generated through the export function, depending on the selected export format.

Export to:	2D/3D Shape Files	MapInfo MIF Files	CSV Files
File generated for the job	<job_name>.map	<job_name>.map	<job_name>.map
Exported layers	All types	All types	Point type only
Files generated for each layer	<layer_name>.mnd	<layer_name>.mnd	<layer_name>.mnd
	<layer_name>.drw	<layer_name>.drw	<layer_name>.drw
	<layer_name>.dbf <layer_name>.prj <layer_name>.shp <layer_name>.shx	<layer_name>.mid <layer_name>.mif	<layer_name>.csv

Be aware that only point-type layers can be exported to "CSV" format.

Once exported, all layers can be found in a subfolder located in the **Download** folder. The subfolder is named after the exported job.

NOTE: This subfolder is created when taking a picture, starting raw data recording or exporting a job.

Exporting a job is the normal procedure to follow after data collection so you can subsequently process the collected features in MobileMapper Office. To process the job as a whole (i.e. with all its layers included), open the <job_name>.map file in MobileMapper Office.

Settings

- **Linear Units**: Choose the distance unit (meters, feet or US feet).
- **Area Units**: Choose the area unit (square meters, square kilometers, hectares, acres, square feet, square yards or square miles).
- **Angle formats**: Choose a format for angles:
  - **00.00000000°**: Angles expressed in degrees and fraction of a degree.
  - **00°00'00.0000"'**: Angles expressed in degrees, minutes, seconds and fraction of a second.
- **Map Type**: Choose the aspect of the map displayed in the background:
  - **Hybrid**: The map combines the satellite and normal views.
  - **Normal**: The map shows the normal map view.
  - **Satellite**: The map shows the satellite view.
  - **Terrain**: The map shows certain details of the area.
- **Coordinate system**: Choose the coordinate system in which feature positions will be expressed. This choice is made in four steps:
  - Country: Specify the country where you are using MobileMapper Field. This allows MobileMapper Field to make a pre-selection of the datums and projections (see the two fields below) available for this country.
  - Datum: Choose a datum from this list.
  - With/without projection: Choose a projection from this list. For "no projection", select "Latitude/Longitude".
  - Geoid: Choose a geoid from this list (or "Ellipsoid" for "no geoid").

  Use  to create a custom coordinate system.

  Use  to view the properties of the currently selected coordinate system.
- **Record raw data**: (Visible only if MobileMapper Field is run on a Spectra Precision MobileMapper 50). Use the ON/OFF switch to enable or disable raw data recording.

  Recording raw data with MobileMapper Field requires that you first purchase this option from Spectra Precision. On making the purchase, you will receive a POPN by email.

  The first time you select the **Record raw data** function in MobileMapper Field, you will be requested to enter the

POPN. And only then will you be allowed to use this function.

When raw data recording is in progress, the following icon will be continuously displayed in the Android status bar until you disable the recording:

The recorded raw data file will then be found in the <map_name> subfolder, in the Download folder. Its name will be:

XXXXYYMMDDZZ.urw

Where:

XXXX: Unique number generated by Android from Android ID number and Device ID number

YYMMDD: Year, month, day

ZZ: Session number in day (01, 02, 03, etc.)

Another file, related to the raw data file, is also created when exporting a job. This file links the vector files (SHP, MIF, CSV) to the raw data file. It uses the same naming convention as the raw data file, but has a different extension (crw):

XXXXYYMMDDZZ.crw

The crw file is used when post-processing a job with MobileMapper Office.

IMPORTANT; The recorded raw data can only be those from the MobileMapper 50's embedded GNSS receiver. MobileMapper Field is not designed to collect raw data from any other external GNSS receiver. In other words, when MobileMapper Field is used with an external GNSS receiver (e.g. SP60 connected through SPace), the **Record raw data** function is disabled.

Before Starting Your First Job

A Few Important Details To Know

Take some time reading the few notions introduced below. This will allow you to use MobileMapper Field in the best possible way:

1. **Antenna height**: If you are only interested in 2D positions, the antenna height may be left equal to "0". Remember however that positions are always collected as 3D positions. When exporting your data to SHP format, you can however choose to export them as 2D positions.
2. **Position Averaging**: You should ask yourself whether you want to get the most accurate positions possible for each and every point feature you will collect in the field.

   To optimize the accuracy of these positions, you should stay at standstill for a certain time on each of the points you will be occupying. This will allow MobileMapper Field to refine the feature position by averaging all the positions it will compute successively over this period of time. The time during which the position is averaged is called **Averaging time** and is fully user-controlled.

   – If you don't need optimized position accuracy or/and you want to be quick at collecting features, then you should set **Averaging time** to "0". In that case, features are logged quasi-instantly, picking the last position computed as the feature position.

   – If you need optimized position accuracy, set **Averaging time** to a value other than "0". If you choose "10" for example, that means MobileMapper Field will ask you to stay still for 10 seconds on the point before the averaged point position is available.

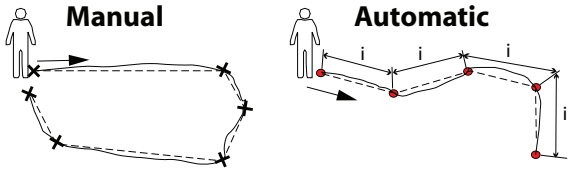
     In that case you will then need to touch  at the end of the averaging time to save the feature and all its attributes (including averaged position).

3. **Position Accuracy Criterion**: You may prevent MobileMapper Field from saving features if position accuracy is not better than a certain level. This level is called **Position filter**.

   MobileMapper Field will warn you when the value of position accuracy is below this level (a warning message is reported on the screen + the term "FILTER" shows up in red characters in the accuracy bar).

   The **Position filter** setting applies to all types of features: points, lines and polygons.

4. **Logging Mode**: Collecting a line or polygon feature requires that you choose a logging mode.



Continuous lines show actual paths traveled. Dotted lines show features, as logged.

Two options are possible (see also the above diagram):

– *Manual*: As you walk along the line or polygon, you decide when you want MobileMapper Field to pick up positions.

  This logging mode is suitable for any feature having a regular shape, for which only the positions of vertices are enough to accurately describe the feature's size and location.

  If you choose this mode, you must provide a value for the **Averaging time** parameter (see above).

– *Automatic*: As you walk along the line or polygon, MobileMapper Field will automatically pick up instant –therefore non-averaged– positions at regular intervals of time or distance (see **Log by** parameter).

  If you choose this mode, you must specify the time or distance interval MobileMapper Field should work from (see **Logging interval** parameter).

5. **Nesting**: While logging a line or polygon, you may want to log a point feature found along the way.

   In this case, collecting this other feature is called "nesting" (also called "double-logging"), which means logging a new point while being still logging the line or polygon.

Note that the values of **Averaging time**, **Antenna Height**, **Position Filter**, **Log by** and **Logging interval** you choose will be kept unchanged until you decide to use another value for each of these parameters.

Setting the Antenna Height

Accessing the antenna height setting is possible in the following context:

- Open a job.
- Touch and choose any of the available layers.
- Touch and select **Antenna height**.
- Enter the value of antenna height, expressed in the chosen unit, and then touch **OK**.

Setting the Averaging Time for Point Features

Accessing the averaging time setting is possible in the following context:

- Open a job.
- Touch and choose any of the available point-type layers.
- Touch and select **Averaging time**.
- Scroll the field up or down until you get the desired value (in seconds) between the two horizontal blue lines and then touch **OK**.

Setting the Position Filter

Accessing the position filter setting is possible in the following context:

- Open a job.
- Touch and choose any of the available layers.
- Touch and select **Position filter**.
- Enter the desired value of position filter, expressed in the chosen unit, and then touch **OK**.

Setting the Logging Mode for Lines & Polygons

- Open a job.
- Touch  .
- Select a layer, of the line or polygon type.
- Touch  and select **Logging mode**.
- Select the desired mode (**Automatic** or **Manual**) and touch **OK**.

If you have selected “Manual”, there is no additional setting required. If you have selected “Automatic”, choose a suitable logging interval:

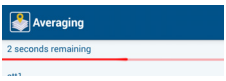
- Touch  and select **Log by**.
- Select the type of logging interval you wish to use (**Time** or **Distance**) and touch **OK**.
- Touch  and select **Logging Interval**.
- Scroll the field up or down until you get the desired value of time (in seconds) or distance (in the chosen unit) between the two horizontal blue lines and then touch **OK**.

Logging Points

First make sure your GNSS receiver is on and delivering a valid position.

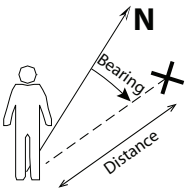
General Case

- Stand next to the point feature you want to log.
- Touch .
- Select the layer where to store the point.
- Unless already done, touch and set successively the following parameters: **Averaging time**, **Antenna height** and **Position filter** (see also *Before Starting Your First Job on page 13*).
- Then as prompted on the screen, enter the different values of attributes specific to the point.
- Touch .
  If you chose an averaging time equal to "0", the point feature is saved quasi-instantly with all its attributes (see also *Before Starting Your First Job on page 13*).



  If you chose an averaging time other than 0, stay at standstill until MobileMapper Field has finished averaging the position (progress bar shown on top of the screen as a thin, red horizontal line). Then touch to save the feature and its attributes (including averaged position) to the layer.
- If you now need to collect a new point feature the same type as the one you've just collected, you may use the **Repeat feature** function to save time (see *Collecting Features of the Same Type on page 21*).

Logging an Offset Point



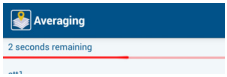
- Stand at some distance from the inaccessible point you want to log.
- Touch .
- Select the layer where to store the point.
- Unless already done, touch and set successively the following parameters: **Averaging time**, **Antenna height** and **Position filter** (see also *Before Starting Your First Job on page 13*).
- Touch and select **Offset**.

- Enter the bearing, distance and possibly vertical offset (if 3D position is required) to the inaccessible point. Use external means to make these measurements.

  Vertical offset refers to the height deviation between your current position and the inaccessible point.
- Touch .
- As prompted, enter the different attributes qualifying the point.
- Touch .

  If you chose an averaging time equal to “0”, the point feature is saved instantly with all its attributes (see also *Before Starting Your First Job on page 13*).

  If you chose an averaging time other than 0, stay at standstill until MobileMapper Field has finished averaging the position (progress bar shown on top of the screen as a thin, red horizontal line). Then touch to save the feature and its attributes (including averaged position) to the layer.



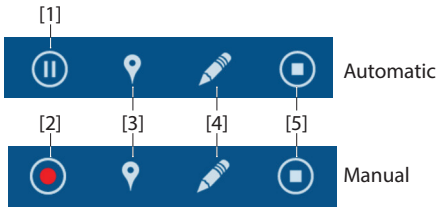
- If you now need to collect a new feature the same type as the previous one, you may use the **Repeat feature** function to save time (see *Collecting Features of the Same Type on page 21*).

Logging Lines or Polygons

General Case

First make sure your GNSS receiver is on and delivering a valid position.

- Stand next to the start of the line or polygon you want to log.
- Touch .
- Select the layer where to store the line or polygon.
- Unless already done, touch and set successively the following parameters: **Logging mode**, **Antenna height**, **Position filter** and **Log by** + **Logging Interval** or **Averaging time** (see also *Before Starting Your First Job on page 13*).
- Enter the different attributes qualifying the feature. This may be done at any time during the logging (choose the moment that's the most convenient to you). See below.
- Touch to start logging the feature.
- Start walking along the line or polygon. Depending on the chosen logging mode, the title bar will be one of the following two:

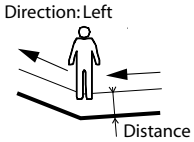


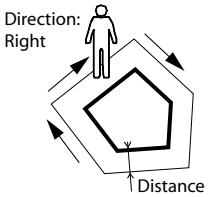
Follow the instructions below to complete the logging.

- **[1]**: Touch this icon to pause logging (MobileMapper Field stops logging positions at regular intervals of time or distance).
- **[2]**: Touch this icon to log a position manually, which will be part of the line or polygon you are currently collecting. Depending on the value of **Averaging time**, the position will be averaged or not (see also *Logging Points on page 17*).
- **[3]**: Allows you to log another point feature while a line or polygon feature is being logged (nesting).
- **[4]**: Touch this icon to enter the feature attributes. This can be done at any time while logging the line or polygon.

– **[5]**: Touch this icon when arriving at the end of the line or polygon feature to complete the logging of the feature.

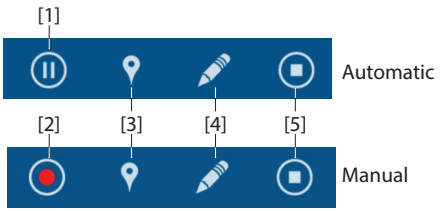
Logging an Offset Line or Polygon





First make sure your GNSS receiver is on and delivering a valid position.

- Stand at some distance from the inaccessible line or polygon you want to log.
- Touch .
- Select the layer where to store the line or polygon.
- Unless already done, touch and set successively the following parameters: **Logging mode**, **Antenna height**, **Position filter** and **Log by** + **Logging Interval** or **Averaging time** (see also *Before Starting Your First Job on page 13*).
- Touch and select **Offset**.
- Enter the direction (right or left) and distance to the inaccessible line or polygon. Use external means to make these measurements.
- Touch .
- Enter the different attributes qualifying the feature. This may be done at any time during the logging (choose what's the most convenient for you). See below.
- Touch to start logging the feature.
- Start walking along the line or polygon, taking care to comply with the offset (direction and distance) you have just entered. Depending on the chosen logging mode, the title bar will be one of the following two:



Follow the instructions below to complete the logging.

– **[1]**: Touch this icon to pause logging (MobileMapper Field stops logging positions at regular intervals of time or distance).

– **[2]**: Touch this icon to log a position manually, which will be part of the line or polygon you are currently collecting. Depending on the value of **Averaging time**,

the position will be averaged or not (see also *Logging Points on page 17*).

- **[3]**: Allows you to log another point feature while a line or polygon feature is being logged (nesting).
- **[4]**: Touch this icon to enter the feature attributes. This can be done at any time while logging the line or polygon.
- **[5]**: Touch this icon when arriving at the end of the line or polygon feature to complete the logging of the feature.

Collecting Features of the Same Type

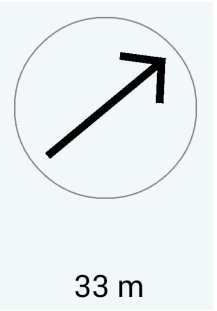
When you have to collect successively several features of the same type, you may advantageously use the **Repeat feature** function to reduce the number of clicks you have to do between two features. As you walk away from the last collected feature, heading for the next one (of the same type), just do this:

- Touch  and select **Repeat Feature**. This takes you directly to the log screen where you can enter the attributes of that new feature and log it once you stand there. For most attributes, MobileMapper Field will prompt as default values those that were saved for the previous feature.
- Repeat this action as long as you need to collect similar features.

Revisiting Features to Update the Values of their Attributes

Being able to easily revisit features in the field allows you to update the values of their attributes.

- Open the job containing the features to revisit.
- Touch (Go to function).
- Select the layer containing the feature or features to revisit. MobileMapper Field lists all the features stored in the layer.
- Select one in the list. MobileMapper Field then displays the direction to follow and the distance still to go before you reach the feature (this implies your GNSS receiver can compute a valid position from where you currently are. To get a valid direction –as indicated by the arrow– you need to walk).



- Head for the feature. Once you get there and you know which attributes should be updated, do the following:
- Touch and make the necessary changes.
- Use or to select the next feature to go to:
  - selects the previous feature in the list.
  - selects the next feature in the list.
- Then repeat the same steps as above until all the concerned features have been revisited.

Search Function

You can use this function to search for a particular feature stored in the job, based on a specific value of one of its attributes, or on a combination of specific values of some of its attributes. Note that picture, time, HRMS, VRMS, length, area and perimeter attributes cannot be involved in a search.

- Touch  in the title bar.
- Select the layer containing the type of feature you are looking for. MobileMapper Field then lists the attributes pertaining to the layer.
- For the concerned attribute(s), enter the value(s) you are looking for.
- Touch  again. Mobile Mapper Field then shows the result of your search, which is the feature, or features, meeting your search criteria.

  If you touch any of the listed features, MobileMapper Field will spot this object on the map view. You can view the information attached to this feature or even delete the feature, but you cannot modify the feature.

Processing Features in MobileMapper Office

Use MobileMapper Office to process the features collected with MobileMapper Field.

- In MobileMapper Field, open the concerned job and export all its layers to SHP files using the **Export** function.
- Copy all the files resulting from the export to your office computer. These files were saved to the **Download** folder on your mobile device, under a sub-folder named the same way as the job itself.

  Each set of files corresponds to a particular layer exported from the job. Each set consists of the following files:
  - <layer_name>.shp
  - <layer_name>.shx
  - <layer_name>.dbf
  - <layer_name>.prj

  The sub-folder also contains the project file, which should also be uploaded to the office computer:
  - <job_name>.map

- Open the *<job_name>.map* file in MobileMapper Office. This file contains the description of the coordinate system you selected for the job and keeps the list of all the layers used while running the job.
- Process the layers. You need to add rover and base raw data files to do this.

Appendices

Using a Range Finder

You may need a range finder when collecting GIS data, and more especially when collecting offset features.

MobileMapper Field allows you to control a range finder through a Bluetooth connection.

Turn on the range finder and activate Bluetooth in this equipment. Then do the following:

- Open a job.
- Touch  and select a layer.
- Touch  and select **Connect rangefinder**. MobileMapper Field then automatically starts scanning for new Bluetooth devices.
- Select the range finder's Bluetooth device and then let MobileMapper Field establish the Bluetooth connection with the range finder.
- To get data from the range finder, you first need to perform a measurement, and then open the Offset screen in MobileMapper Field. When you perform a measurement, the range finder will return the message "Offset measured", meaning that MobileMapper Field has well received the measurement.

  The range finder will provide bearing and distance to any point, and distance to any line or polygon.

When you are finished with the range finder, touch  and select **Disconnect rangefinder**.

Submenu Attribute

A submenu is similar to a menu, but with the following differences:

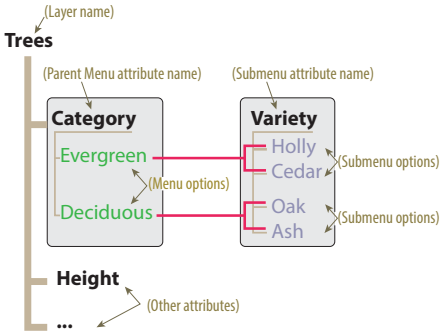
- A submenu attribute can only be created just after creating a menu attribute, to which it will necessarily be related.

  To create a submenu, just ask for the creation of a new menu attribute right after creating a menu attribute (the parent menu). The message "**Create submenu?**" will then be displayed. If you tap "**Yes**", then you will be prompted to create a submenu attribute.

- In a submenu you need to create sub-options for each of the options defined in the parent menu.

  Example (see also diagram below): In a layer named "Trees", you create a menu attribute named "Category", in which the possible options are "Evergreen" and "Deciduous".

  You then create a submenu attribute named "Variety". Because it's defined as a submenu, MobileMapper Field will prompt you to create sub-options for each of the "Category" menu options. For example, you may create "Holly" and "Cedar" as sub-options for "Evergreen", and "Oak" and "Ash" as sub-options for "Deciduous".



That way, the field operator will only be allowed to choose between "Holly" and "Cedar" if the category of a visited tree is "Evergreen", or "Oak" or "Ash" if the tree category is "Deciduous".

Geotagging a Picture Taken With MobileMapper 50

When adding a picture attribute, you will be prompted to launch the embedded camera.

After doing so, and if you are using a MobileMapper 50, you will need to drag the screen from left to right to have access to the camera settings menu, in which you will then see the geotagging option. Activate this option if you want to allow MobileMapper 50 to add geolocalization information to any of the photos you will take.

After activating this option, dismiss the camera settings menu, whose icon will then stay permanently visible on the screen, as if you had run the camera application from Android.

NOTE: The very first time you power on your MobileMapper 50, you will normally be asked whether you wish to tag your photos with the locations where they were taken. If you answer “Yes”, you won’t have to go through the above procedure.

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