MobileMapper Field & Office Software for MobileMapper™ 6

Getting Started Guide

Includes Instructions
For Post-Processing Option

English

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Ashtech - ZAC La Fleuriaye - BP 433 - 44474 Carquefou Cedex - France Phone: +33 (0)2 28 09 38 00, Fax: +33 (0)2 28 09 39 39.

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(9) any damage due to accident, resulting from inaccurate satellite transmissions. Inaccurate transmissions can occur due to changes in the position, health or geometry of a satellite or modifications to the receiver that may be required due to any change in the GPS. (Note: Ashtech GPS receivers use GPS or GPS+GLONASS to obtain position, velocity and time information. GPS is operated by the U.S. Government and GLONASS is the Global Navigation Satellite System of the Russian Federation, which are solely responsible for the accuracy and maintenance of their systems. Certain conditions can cause inaccuracies which could require modifications to the receiver. Examples of such conditions include but are not limited to changes in the GPS or GLONASS transmission.).

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Introduction

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MobileMapper Field is a user-friendly software program intended for mobile, general-purpose GIS applications.

MobileMapper FIeld is provided on a CD. The auto-run file allows you to easily install the program on your receiver from an office computer.

With MobileMapper Field, GIS data collection starts with the creation of a job (a *.map or *.dxf file).

Then you need to add or create layers, i.e. profiles through which you can define the types of 2D or 3D features you would like to log (points, lines or polygons), as well as their attributes (including images -JPG files- and sound tracks -WAV files). MobileMapper Field will save layers as separate SHP (+ associated SHX and DBF files), MIF or CSV files for a *.map job, or directly in the job file for a DXF job.

The coordinate system attached to a job is defined when adding the first layer. If it's a new layer, you will need to define the coordinate system by yourself. If it's an existing layer, the job will inherit the coordinate system earlier defined for that layer. The purpose of defining a coordinate system is twofold:

- Allowing your receiver to show your current position in the chosen coordinate system. These coordinates will appear at the bottom of the map screen.
- Allowing your receiver to log the coordinates of each feature in that coordinate system. These coordinates will be saved to the corresponding layer.

The map screen will view all the features you log, based on the graphic conventions you choose for each layer. It will also help you navigate to existing features if necessary.

A background map can also be viewed on the map screen to help you locate the different features that can be found in your working area. Selecting a background map is part of the choices available in the software settings menu.

Data files can easily be downloaded to an office computer using the USB data cable provided with your receiver.

With the raw data logging option enabled and unlocked, the receiver will continuously log raw data files so that later you can enhance the accuracy of all your feature positions through post-processing using MobileMapper Office software.

Installing MobileMapper Field

This section describes how to install MobileMapper Field from the CD provided, using an office computer.

If Windows XP (or older OS version) is used on your computer, you first need to install Microsoft Active Sync on your office computer.

If Vista is used, you don't normally need to install an additional program on your computer. However, if the installation of the MobileMapper Field software fails, you will have first to install Windows Mobile Device Center and then resume the installation of MobileMapper Field.

The latest versions of ActiveSync and Device Center can be downloaded from http://www.microsoft.com/windowsmobile/activesync/default.mspx at no cost. ActiveSync 4.5 and Device Center 6.1 can be installed directly from your MobileMapper Field CD.

If you are upgrading MobileMapper FIeld, Ashtech recommends you first uninstall the previous version of MobileMapper Field from the receiver using **Start**>**Settings**>**System**>**Remove Programs**.

Installation Procedure

- Connect the receiver to your office computer using the USB data cable provided.
- Turn on the receiver.
- Insert the MobileMapper Field CD in your office computer. This automatically starts the setup file stored on the CD.
- Click on the **Install MobileMapper Field** option. This starts the MobileMapper Field Setup Wizard.
- Click **Next>**.
- Keep the default settings and just click **Next>**.
- Confirm installation by clicking **Next>** again. The wizard starts copying the installation files to the receiver. At the end of this phase, a message window appears asking you to check your mobile device screen to see if additional steps are needed to complete the installation.
- Click **OK**, then **Close** to complete installation on computer side.
- The receiver asks you to confirm the location where to install MobileMapper Field ("Device" is the default choice).

- Tap **Install** at the bottom of the screen. The CAB file is being installed. Wait until installation is complete. A message should then appear indicating successful installation.
- Tap **ok** to close the installation window. The installation phase is now complete. The MobileMapper Field option can now be seen from the start screen.

Entering the Activation Code

You will not be able to use MobileMapper Field until you enter an activation code. This code can be seen on the adhesive label placed on the MobileMapper Field CD box. This code was generated from the serial number you provided to Ashtech when ordering the software. To enter the activation code:

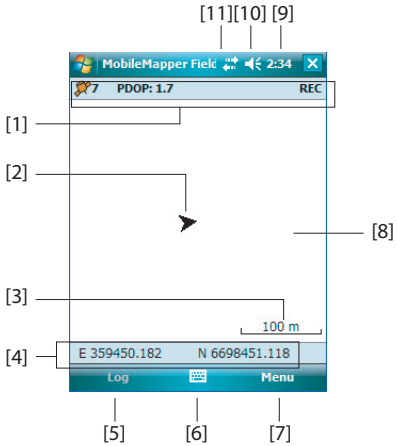
- Tap on the "MobileMapper Field" line on the start screen. A message is displayed showing the serial number of your receiver and a blank activation code field.
- Type your activation code in the blank field.
- Tap **ok** to validate the code entry. If the "serial number/ activation code" pair matches, then MobileMapper Field is normally started right after tapping **ok**.

Getting Started With MobileMapper Field

Launching MobileMapper Field

From the Start screen, tap **Start**>**MobileMapper Field** or tap **MobileMapper Field** on the Today screen. The main MobileMapper Field window is described below.

Description of the MobileMapper Field Main Window



- [1]: Number of satellites currently used in position computation; current value of PDOP; “DGPS” when the receiver is operating in SBAS differential mode; and “REC” if the raw data logging option is unlocked and active. This information line will not appear until the receiver can determine its own position.
- [2]: This symbol shows your current position. The long axis of the symbol points in your last walking direction.
- [3]: Current zoom setting. The current value of scale is provided, based on the currently selected unit.
- [4]: Current position of the receiver (no coordinates displayed if the receiver has not determined its position yet).
- [5]: Log button. Use this button to log features. The button is grayed until GPS positions are computed and a layer is added to the open job. You can use either the on-screen Log button or the LOG key on the keyboard to access the Log function.

- [6]: Button used to show or hide the virtual keyboard. When the keyboard is displayed, the up arrow on the right of the button allows you to change keyboard settings or options.
- [7] Menu button. Gives access to the MobileMapper Field function menu. You can use either the on-screen Menu button or the MENU key on the keyboard to show or hide the function menu.

Menu Option	Function
Pause	Use this option to pause the current feature logging.
Stop	Use this option to stop the current feature logging.
Layers...	Use this option to add, modify or remove layers.
Find...	Use this option to find a feature previously logged in the open job.
Go To...	Use this option to let MobileMapper 6 guide you to the selected target (a feature name or any coordinates).
Zoom In	Increases the scale of the map view by one step.
Zoom Out	Decreases the scale of the map view by one step.
Job	Gives access to job-related functions: New, Open (and Properties if a job is already open).
Options	Allows you to access the following settings: Units, Antenna, Recording, Map, View, E-compass, Filter and External Devices.
Status	Gives access to three tabs describing the current GPS reception status, in digital (Position) or graphical (Satellites, Signal) form.
About	Displays the installed version of MobileMapper Field.
Exit	Quits MobileMapper Field.

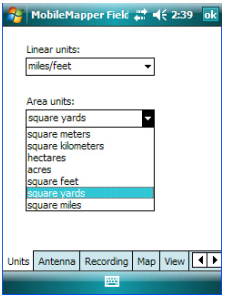
- [8]: Area showing a map of the working site (map screen).
- [9]: Current time
- [10]: Volume setting
- [11]: Connectivity status.

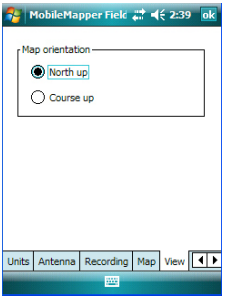
Dragging the Map on the Screen

Use one of the following two methods.

- Press the ESC key to move the triangle symbol representing your current position back to the center of the map screen. Following this action, the whole screen is updated to reflect the map shift.
- Drag the stylus in the desired direction.

Setting Units, Antenna Height, PDOP Max. Background Maps and View Options





1. Tap **Menu>Options...**. A new screen is displayed on which you can choose the measurements units:
   - **Distance units**: Choose between kilometers/meters or miles/feet.
   - **Area units**: Choose between square meters, square kilometers, hectares, acres, square feet, square yards or square miles.
2. Tap on the **Antenna** tab and then enter the vertical distance you will maintain between the top of the receiver (where the GPS antenna is) and the ground while executing the job. This value has to do with your own size since you will be holding the receiver in your hand throughout the job. Enter the distance value according to the selected linear unit. This setting makes sense only for 3D jobs. It can be ignored for 2D jobs
3. Tap on the **Filter** tab and then enter the maximum permitted PDOP value. All measurements collected with a current PDOP greater than this value will be made invalid (default: 100).
4. Tap on the **View** tab located at the bottom of the screen. A new screen is displayed allowing you to orientate the map:
   - **North Up**: Map orientation is fixed. The top of the map screen will always give the North direction.
   - **Course Up**: Map orientation will change as you walk. The map will rotate in order to have your course always orientated upward on the map screen. This option cannot be used if a georeferenced background map is displayed.
5. For background maps, see *Adding Background Maps on page 17*
6. Tap **ok** to validate all your choices.

Minimizing the MobileMapper Field Window

Tap  in the upper-right corner of the map screen.

To re-open the MobileMapper Field window, either tap on “MobileMapper Field” on the Today screen or the icon at the bottom of the Today screen.

Saving MobileMapper Field Settings

To save the MobileMapper Field settings you changed during your work session (including activation code entry), first use the **Menu**>**Exit** option to quit MobileMapper Field and then switch to suspend mode through a short press on the Power button. Only then can you shut down the receiver and be sure all your settings have been properly saved.

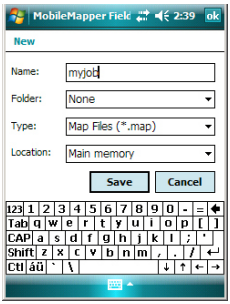
Quitting MobileMapper Field

Use the **Menu**>**Exit** option to quit the program.

Caution! Tapping  in the upper-right corner of the screen only minimizes the MobileMapper Field window and so does not fully exit the program.

Creating a New Job

During your First MobileMapper Field Session



After entering the activation code, MobileMapper Field displays the map screen. Do the following to create a new job.

1. Tap **Menu**>**Job**>**New...**
2. Enter the following parameters:
   - **Name**: Enter a name for your job using the virtual keyboard.
   - **Folder**: Choose a folder and storage location where to store the job file you are creating (see also **Location** parameter below).

     The **None** option stands for either the "My Documents" folder in the main memory, or the root folder of the storage card. Any other option available from the drop-down menu can only be a sub-folder of the "My Documents" folder in the main memory, or the root folder of the storage card.

     If you want to use a special folder to store your job files, first create it using File Explorer. You can only create new folders in the "My Documents" folder or on the storage card.
   - **Type**: For the job file format, choose between "Map files (*.map)", the native MobileMapper Field format and "DXF File (*.dxf)", which is a standard format for vector files.

     A *.map job is just an "envelope" text file containing the definition of the coordinate system used as well as the filenames of all the layers that are part of the job (layers are held in separate files). The features you will log through that job will be saved to the corresponding layer files.

     In contrast, a DXF job only consists of a single file, not only containing the definition of the coordinate system used, but also all the layers created for the job. The features you will log through that job will also be saved to the DXF file.
   - **Location**: Choose the storage medium where to store the job file. You can choose between "Main memory" (resident memory) or "Storage Card" (if there is an SD card inserted in the receiver).

3. Tap **Save** to create the job file. What you then get on the screen depends on the format (map or dxf) you chose for the job. See *Creating New Layers on page 10* for more details.

   After you have saved a new job, the software closes the currently open job and opens the new one instead.

Subsequent Uses of MobileMapper Field

The next time you launch MobileMapper Field, the program will open the job you last opened.

If this job is no longer present in the receiver, then a message will warn you that the program has been unable to open any job. You will then have to create a new job or open an existing one.

Opening an Existing Job

- Tap **Menu**>**Job**>**Open...**. MobileMapper Field browses all the folders in search of all the *.map jobs stored in the receiver. A new window then opens listing all these jobs. To list all the DXF jobs stored in the receiver, select the DXF extension from the **Type** combo box.
- After you have found the job you wish to open, tap on its name in the list. This opens the job and takes you to the map screen where you can see the features already logged in the different layers.

Viewing the Properties of the Open Job

- Tap **Menu**>**Job**>**Properties**. MobileMapper Field then displays a two-tab window. The first tab provides the job's name, type and location (folder). The second one views the properties (projection and datum) of the coordinate system used in the job.
- Tap **ok** or press ESC to return to the map screen.

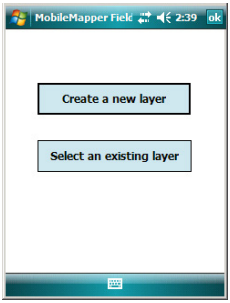
Creating New Layers

Introduction

Creating a layer consists of defining a specific profile for features you would like to log in the field. The layer creation process will be different depending on whether you chose “MAP” or “DXF” for the job format:

- MAP format: Each layer is held in an individual file. The layer format can be either “SHP”, “MIF” or “CSV”.
  - An SHP layer can only contain a single type of feature. When creating a new layer, you should first indicate if it is created to hold 2D/3D point, 2D/3D line or 2D/3D polygon features.
  - A MIF layer can contain any type of feature (point, line or polygon).
  - A CSV layer can only support point features.
- DXF format: Each layer is embedded into the file and can contain any type of feature (point, line or polygon).

Attaching Layers to a Map Job

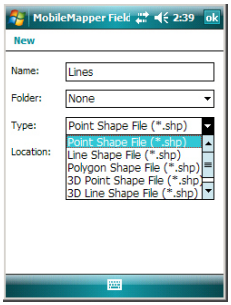


Here are the two different contexts in which you can create a new layer to be attached to a Map job:

- With a job open in the current MobileMapper Field session, you tap **Menu**>**Job**>**New...** to create a new *.map job for which the program will ask you directly to add new layers, either by creating new ones or by selecting existing ones.
- With a job open in the current MobileMapper Field session, you tap **Menu**>**Layers...** and then you tap on the **Add** button.

From the screen displaying the **Create a new layer** button, do the following:

1. Tap the **Create a new layer** button.
2. Enter the following parameters:
   - **Name**: Enter a name for the layer using the virtual keyboard. The name of the layer should depict the type of features you will collect with this layer (e.g. Points, Lines, Areas, etc.).



- **Folder**: Choose a folder where you want to store the layer you are creating. This choice should be made in conjunction with the choice of the storage medium (see **Location**).

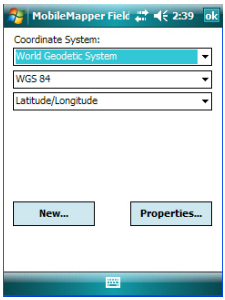
  The **None** option stands for either the "My Documents" folder in the main memory, or the root folder of the storage card. All other options available in the drop-down menu will be a sub-folder of the "My Documents" folder in the main memory, or the root folder of the storage card.

  If you want to use a special folder to store your layers, first create it using File Explorer. You can only create new folders in the "My Documents" folder or on the storage card. **It is highly recommended to create layers in the same folder as the job file using these layers. Observing this rule will simplify the download procedure.**
- **Type**: Choose the type and/or format of the layer you want to create:

  SHP layer: Depending on your choice the layer will hold 2D/3D points, 2D/3D lines, or 2D/3D polygons.

  MIF layer (can hold any type of feature).

  CSV layer (point feature type only).
- **Location**: Choose the storage medium where you want to store the layer. You can choose either "Main memory" (resident memory) or "Storage Card" (if there is an SD card inserted in the receiver).



3. Tap the **Save** button to proceed. If you are defining the second or next layers, go directly to step 5. If you are defining the first layer in the open job, the program will first ask you to define a coordinate system for the job:
   - First field: Choose the country you are working in. You may also choose a worldwide system such as UTM or Worldwide Geodetic System.
   - Second field: The number of options available in this field depends on the selected country. Select the datum that is suitable for your job.

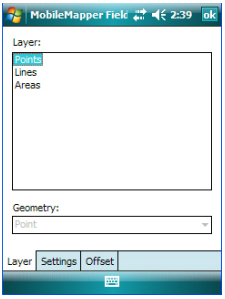
     See also *Coordinate Systems on page 32*.
   - Third field: The number of options available in this field depends on the selected country. Choose a projection that is suitable for your job. Select Latitude/Longitude for no projection.
4. Tap **ok**.

5. The program now asks you to define the properties of the layer. The table below summarizes the different properties you should define for the layer, according to its type.

Properties	2D or 3D Point	2D or 3D Line	2D or 3D Polygon	Mif layer	Csv layer
Symbol	•			•	•
Color		•	•	•	
Style		•		•	
Fill			•	•	
Attributes	•	•	•	•	•
Label	•	•	•	•	•
Scale	•	•	•	•	•

   For more information on layer properties and how to define attributes, see *Layer Properties on page 13*.

6. Tap **ok** when you are finished with the properties of the layer. A message then asks you whether you want to add a new layer.
7. Add as many layers as necessary, using the above procedure.



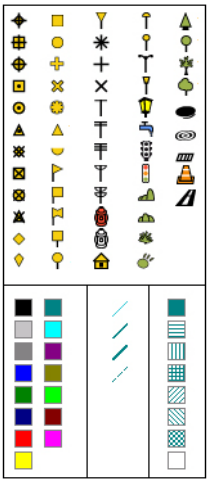
Very Important! As long as you do not log a feature through a given layer, you can still add new attributes to the layer but once a feature has been logged, no more changes, apart from those linked to the appearance you give to the features on the screen, are allowed in the layer.

Adding Layers into a DXF Job

The procedure is quite similar to attaching a layer to a Map job. Among the similarities are first the prior necessity to define a coordinate system for the job and second, the availability of the same viewing options and attributes for the features you will log through a given layer (see *Attaching Layers to a Map Job on page 10* for the details).

But unlike Map jobs where layers are separate files, DXF jobs cannot use or re-use layers that are external to the job. With DXF jobs, you can only create one or more new layers within the job, right after defining the coordinate system. Another difference lies in the absence of an assumed feature geometry in a layer, which means all types of features, whether points, lines or polygons, can be logged through the layer.

Layer Properties



Symbol

57 different symbols are available to represent a point feature on the map screen.

Color

15 different colors are available to represent a line feature or the contour of a polygon feature on the map screen.

Style

The line style (thin, medium, thick or dash) is used to represent a line feature on the map screen.

Fill

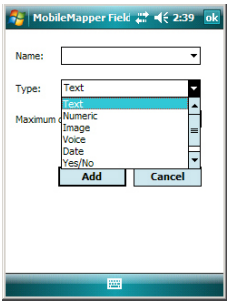
Eight different patterns are used on the map screen to fill the area covered by a polygon feature.

Attributes

Attributes are an important part of a layer since they are designed to hold specific information (other than position) that you want to collect for each feature.

There is no limit in the number of attributes you can create in a layer.

Each attribute is defined by a name (22 characters max.) and a type. There are eight different attribute types of attributes, as summarized below.



Attribute Type	Purpose	Additional Information Needed
Text	Entering comment, etc.	Maximum number of characters.
Menu	Choosing an option (menu item) that suits the attribute for the visited feature.	All possible menu items for this attribute.
Image	Attaching a picture taken with the built-in camera to the visited feature.	-
Voice	Recording voice comment	-
Numeric	Entering a number.	Max. number of digits and decimal places.
Date	Entering the current logging date (mm/dd/yy).	-
Time	Entering the current logging time (hh:mm:ss)	
Yes/No	Choosing “Yes” or “No” in response to the statement suggested by the attribute name for the visited feature.	-

NOTE: For best quality voice recording, see *Voice Setting on page 49*.

Some useful attributes with preset names are displayed for each layer type (see table below). It's up to you whether or not to create them.

Attribute Name	Attribute Type	Point Layer	Line Layer	Polygon Layer	MapInfo layer
Picture	Image	•	•	•	•
Sound	Voice	•	•	•	•
Length	Numeric		•		
Perimeter	Numeric			•	
Area	Numeric			•	

Using "Length" allows the program to automatically assign the length of a line as one of its attributes. The length of the line is computed as you walk along the line. The result of the computation only appears after you have stopped logging the line, when you review all its attributes. The same is true with the "Perimeter" and "Area" attributes for a polygon.

Very Important! Once created, the attributes of a layer cannot be deleted or modified. If you are creating a new layer and make a mistake in defining one of its attributes, then you will have to delete the layer and re-create it.

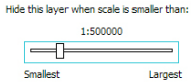
Adding attributes to a layer:

- From the **Attributes** tab of the layer properties window, tap the **Add...** button.
- Enter a name for the attribute using the virtual keyboard.
- Select a type for this attribute. If applicable, set the additional one or two parameters.
- Tap on the **Add** button. This takes you back to the **Attributes** tab where is now listed the attribute you have just created.
- Resume the previous four steps until all the attributes have been created.

Label

This setting is used to select the label you want to see on the map screen, next to the features collected through that layer. The label can only be one of the attribute values pertaining to the feature. Choosing "None" means there won't be any label displayed.

Scale

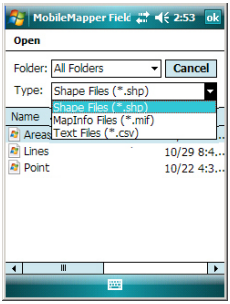


This setting is used to display or hide the layer on the map screen, depending on the current scale value used. The scale property of the layer operates as a threshold, which will order the layer to be hidden if the scale value on the map screen is less than this threshold.

Showing/Hiding Features on the Map Screen

- Tap **Menu**>**Layers...**
- Enable or clear the check box placed before each layer name to respectively show or hide the layer on the map screen. Showing a layer means showing all the features logged in that layer.

Adding Existing Layers to a Map Job



- Open the job in which to add layers, using **Menu**>**Job**>**Open...**.
- Tap **Menu**>**Layers**. A new window opens listing all the layers currently attached to the map.
- Tap on the **Add...** button
- Tap in the **Type** field and select "*.shp", "*.csv" or "*.mif". MobileMapper Field browses all the folders in search of all the layers of that type stored in the receiver.
- Select the file you want to add to the job as a layer. This opens a new window showing the viewing options, attributes and scale defined for this file.
- Tap **ok**. This takes you back to the screen showing all the layers attached to the job, including the new layer you've just selected.
- Tap **ok** to return to the map screen. The new layer is now available for feature logging.

  NOTE 1: Adding an existing layer to a new job as the first layer in this job will cause the layer's coordinate system to definitively become the coordinate system attached to the new job.

  NOTE 2: Attempting to add a layer that is incompatible with the coordinate system used by the job will cause a warning message to be displayed. You can however override the message and ask MobileMapper Field to add this layer. In this case, be aware that the layer will contain positional information based on different coordinate systems. It will be your responsibility to identify which coordinate system is used in the description of each feature.

Adding Background Maps

Background maps are raster files that can be displayed on the map screen to help you better locate the different features found in the working area.

In order to be used in MobileMapper Field, a background map must be in image format (BMP, GIF, GeoTIFF, JPG or JP2) and properly georeferenced.

Georeferencing may have been done earlier using a third-party tool.

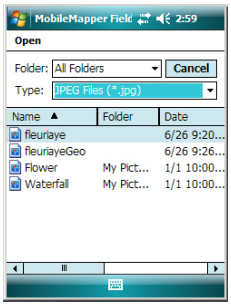
Georeferencing can also be done after adding the background map. This can be done in two different ways:

1. You know the coordinates of the reference points used to georeference the image. You will have to tap successively on each of these points on the map. For each point, you will have to enter its coordinates.
2. You go to the field and stand successively on each reference point used to georeference the image. (You should choose reference points that can easily be spotted both on the map and in the field.) You will have to tap successively on each of these points on the map. Each time, the receiver will automatically fill in the corresponding fields on the screen with the computed coordinates of your current location.

MobileMapper Field may accept several background maps, each holding a different geographical area. All logged features will always appear over the background map.

- Tap **Menu**>**Options** and then on the **Map** tab.
- Tap on the **Add...** button
- Tap in the **Type** field and select the format of the file containing the background map:
  - Bitmap (bmp)
  - GIF (gif)
  - GeoTIFF (tif)
  - JPEG (jpg)
  - JPEG2000 (jp2)

  MobileMapper Field then browses all the folders in search of all the image files stored in the receiver meeting the current **Type** selection.
- Select the name of the image file you want to add. This automatically adds the file to the list of background maps. A message will warn you if you are attempting to add an

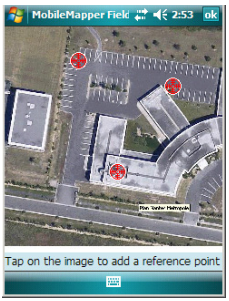


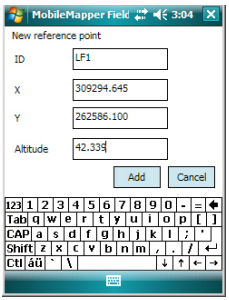
already georeferenced background map that uses a coordinate system different from the one used in the open job.

Like layers, each of the added background maps can be shown or hidden on the map screen. Set accordingly each of the check boxes placed before the names of the background maps (cleared= hidden, ticked= shown).

- Tap **ok** to return to the map screen. Note that the map screen will show the background map(s) only after the receiver can compute a position. Remember you may also have to press the ESC button so that the map screen can show the location of the first logged feature.

Georeferencing an Image File





Georeferencing an image file means defining at least three reference points giving the position of the image in space.

Defining a reference point means entering its precise X-Y-Z or Lat-Lon-Height coordinates depending on the coordinate system used in the currently open job.

The larger the number of reference points you define, the more evenly distributed these points over the entire image, the better the georeferencing of the image.

To georeference an image, do the following after adding it to the list of available background maps:

- Select the name of the background map from the list.
- Tap on the **Modify** button.
- Find the point on the image for which coordinates are known. Adjust the zoom setting and drag the stylus on the image if necessary.
- Tap on the point location and then enter its ID and coordinates. If you are currently standing at that location and the receiver delivers a valid GPS position, you don't need to enter any coordinates. The receiver will do that for you.
- Tap **Add** to enter and complete the definition of this point.
- Resume the previous three steps until all the reference points have been defined. Each point on the map is represented by a red circle. If this happens, you can always delete a bad point by double-clicking on it and tapping on the **Delete** button.

- Tap **ok** to complete the georeferencing process. This takes you back to the screen showing the list of background maps.

More about Background Maps

- The background map will be displayed only when it is geographically close to the computed GPS position and the zoom is set properly.
- For large background maps, you may have to zoom in several times before the map screen can start viewing details of the background map.
- If a background map is not properly georeferenced, the background map will never appear on the map screen, and the reference points you incorrectly created on the background map will all be deleted. Try again, this time with correct point location and coordinates.
- **It is highly recommended to place the original image file used to create the background map in the same folder as the job file using it. Observing this rule will simplify the download procedure.**
- When georeferencing an image, the original image file is unchanged and three new files are created:

Created files	Designation
<image filename>.prj	Coordinate system used
<image filename>.xxw	Auxiliary data. “xx” in the extension stands for the first two letters in the extension of the original image file (e.g. “JP” for a jpg file)
<image filename>.<image file extension>.ref.txt	Coordinates of reference points and coordinate system used.

When the original image file is in TIF format, some of these three files may not be created.

Logging New Features

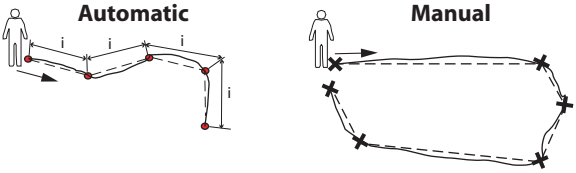
Introduction

For each new feature you log in the field, MobileMapper Field allows you to set the following parameters, just before it actually starts logging the feature:

- On the **Layer** tab, you can choose:
  - The name of the layer corresponding to the feature you want to log (from the list of layers found in the job).
  - For MIF layers, and for those contained in a DXF job, the geometry (i.e. point, line or polygon) of the feature. This field is preset for CSV layers (points exclusively) and for SHP layers.
- On the **Settings** tab, you can set:
  - The position averaging time at the end of which the coordinates of a point feature will be logged. The longer the averaging time, the better the precision you get for each of your points. This implies staying still on the point throughout the averaging time.
  - The automatic or manual vertex logging mode for a line or polygon feature:

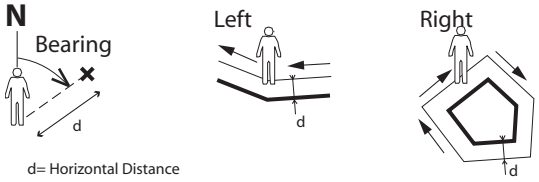
    In **Automatic** mode, the receiver automatically picks up the position of each of the points (●) as you keep walking along the feature. The logging rate *i* is preset and represents either the time elapsed or the distance traveled.

    In **Manual** mode, you stop at each of the vertices (✖), on which the receiver computes a position averaged over *n* seconds

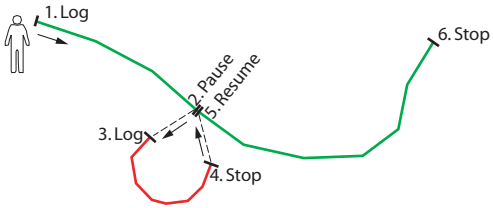


Continuous lines show actual paths traveled. Dotted lines show features, as logged.

- On the **Offset** tab, you can set:
  - The bearing and horizontal distance if you wish to offset a point feature.
  - The direction (left or right) and horizontal distance if you wish to offset a line or polygon feature.



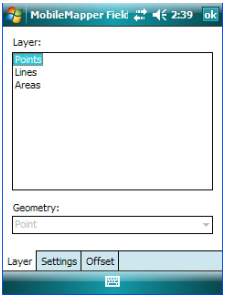
MobileMapper Field also allows the logging of two features to be run concurrently ("double logging"). This can be done through the appropriate use of the Pause/Resume/Stop functions. Double logging is useful to reduce both the time spent logging features and the distance walked in the field.



MobileMapper Field allows you to delete a logged feature directly from the map screen showing the location of this feature.

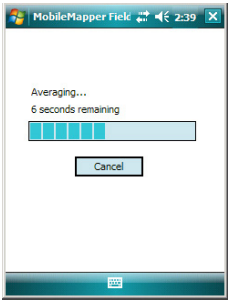
NOTE: You may need to tap on the ESC button after logging your first feature so that map screen can show the location of the feature. By doing this, you will place the feature at the center of the map screen.

Prerequisites



- The receiver is on and MobileMapper Field running.
- A Map job is used, which contains three SHP layers: a point layer named “Points”, a line layer named “Lines” and a polygon layer named “Areas”. All layers are set to be seen on the map screen.
- The units used have been set to meet your requirements.
- The reception status is good (number of satellites>6, PDOP<3)

Logging a Point Feature

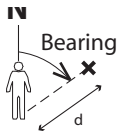


- Stand near the point you want to log.
- Tap **Log** (or press the LOG key). A menu appears listing all the layers in the job.
- Tap on the point layer name (“Points” in our example).
- Tap on the **Settings** tab and check or change the averaging time expressed in seconds. As the last chosen averaging time is prompted by default, you may not have to view this tab every time you log a new point feature.
- To log the point with an offset, tap on the **Offset** tab and enter the following parameters (for no offset, just check that the horizontal distance is 0 on this tab and proceed to the next step):
  - **Bearing**: This field is filled automatically either from the GPS compass, the E-compass if this option is activated in **Menu**> **Options**> **E-compass**, at the time you access the **Offset** tab, or from the range finder, if there is one (see below).

    If the E-compass is used, a valid measurement will be made if you take care to hold the receiver horizontally in the direction of the point feature, before you start logging the feature.

    If neither theE-compass nor a range finder is used, then the GPS compass can provide this value by default. A valid measurement will be made if you take care to steadily walk in the direction of the point feature before you start logging the feature.
  - **Horizontal Distance** field: Distance to the point feature.

    If a range finder is used, tap on the **Read Range Finder** button once the range finder can provide valid



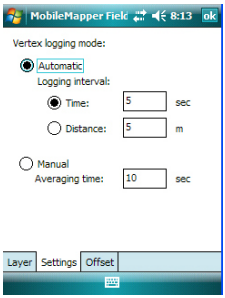
d= Horizontal Distance

measurements. This action will automatically fill in the **Bearing** and **Horizontal Distance** fields.

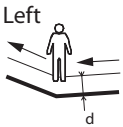
If no range finder is used, type an estimate of the horizontal distance directly in the field using the keyboard. The better you estimate the distance, the better the collected position.

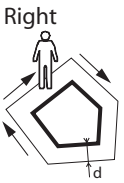
- Tap **ok**. MobileMapper Field instantly starts logging the point. Wait for the end of the averaging process while holding the receiver still and keeping an eye on the progress bar. MobileMapper Field then automatically switches to the attribute list. Note that the computed coordinates of the point feature are displayed at the end of the list of attributes.
- Define each attribute for the point (see *Entering Values for Attributes on page 24*).
- Tap **ok** to return to the map screen, which now shows the location of the point according to the representation defined in the layer properties.

Logging a Line or Polygon Feature



- Stand at the beginning of the line or polygon you want to log.
- Tap **Log** (or press the LOG key). A menu appears listing all the layers in the job.
- Tap on the desired layer name (“Lines” or “Areas” in our example).
- Tap on the **Settings** tab and check or change the vertex logging mode. As the last chosen mode is prompted by default, you may not have to view this tab every time you log a new line or polygon feature. Choose one of the options below:
  - **Automatic**: Selecting this option means the receiver will automatically log points along the line or polygon at regular intervals of time or distance. Enter the desired value for this interval, either in seconds or meters.
  - **Manual**: Selecting the option means you are only interested in logging the vertices of the line or polygon, and not points regularly distributed along the feature. Enter the position averaging time, in seconds, that you wish to spend on each vertex.
- To log the line or polygon with an offset, tap on the **Offset** tab (otherwise skip this step) and enter the following parameters (for no offset, just check that the horizontal distance is 0 on this tab and proceed to the next step):





d= Horizontal Distance

- **Direction**: this parameter tells the program whether the real feature is on your left or right.
- **Horizontal Distance** field: Horizontal distance perpendicular to the line or polygon feature.

  If a range finder is used to measure this distance, tap on the **Read Range Finder** button once the range finder has got a valid measurement. This will automatically fill in the field.

  If no range finder is used, type an estimate of the horizontal distance directly in the field using the keyboard. The better you estimate the distance, the better the collected positions.

- Tap **ok**. MobileMapper Field instantly starts logging the feature.

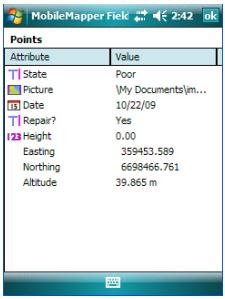
  If you have selected the automatic vertex mode, start walking along the feature. You will then see a line being drawn on the screen as you walk.

  If you have selected the manual vertex mode, the receiver will assume you are standing on the first vertex and so it will log this vertex according to the chosen averaging time. You will then have to walk to the next vertex and then select **Menu**>**Resume** to log the position of the second vertex, etc.
- When you arrive at the end of the feature, tap **Menu** and select **Stop**. MobileMapper Field then automatically switches to the attribute list.
- Define each attribute for the line or polygon (see *Entering Values for Attributes on page 24*).
- Tap **ok** to return to the map screen, which now shows the location and shape of the feature according to the representation defined in the layer properties.

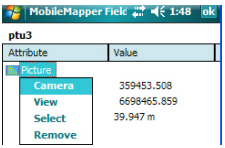
Entering Values for Attributes

Depending on the type of the attribute, you will have to perform the following:

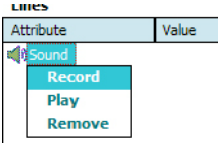
- For a text attribute, type your text using the virtual keyboard and then tap **ok**.



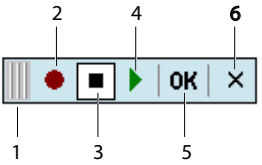
- For a numeric attribute, type your number using the virtual keyboard and then tap **ok**.
- For an image attribute, the following menu is displayed:



  - **Camera**: Runs the camera utility so you can take a picture. For more information on using the built-in camera, see the *MobileMapper 6 Getting Started Guide.*
    NOTE: Picture attributes are saved as JPG files in the same folder as the layer they belong to. The file naming convention used is *Img#.jpg* where # is the picture number (1, 2, 3, etc.). The picture number is ascribed in chronological order, with no reference to any other file.
  - **View**: Allows you to view the picture assigned to the attribute.
  - **Select**: Allows you to display a slide show of all the pictures taken so you can choose which one to assign to the attribute.
  - **Remove**: Allows you to disconnect the selected jpg file from the picture attribute. This does not delete the picture itself, which is still present in the slide show.
- For a voice attribute, the following menu is displayed:



  - **Record**: Opens the recorder bar from which you can start, then, stop recording a voice message as an attribute of the current feature.



1: Drags the recorder bar.
2: Starts voice recording.
3: Pauses voice recording.
4: Plays back voice recording.
5: Stops voice recording.
6: Closes the recorder bar

– **Play**: For check purposes, select this function to play back the voice message you've just recorded (equivalent to "4" button on recorder bar)
– **Remove**: Select this function to delete the existing voice message. You will use this function when you wish to record a new voice message for the current feature.

NOTE: Voice attributes are saved as WAV files in the same folder as the layer they belong to. The file naming convention used is *Sound#.wav* where # is the record number (1, 2, 3, etc.). The record number is ascribed in chronological order, with no reference to any other file.

- For a date attribute, the current date is automatically assigned. To change the date, tap on the Date attribute and select the new date from the displayed calendar and then tap **ok**.
- For a "Yes/No" attribute, the default choice is "No". Tap on the attribute name to change the setting and then tap **ok**.

Using the Pause/ Resume Function

While logging a line or polygon, you may want to pause data logging because external events require that you do so or you want to start the logging of a second feature (double logging feature) (see *Double Logging on page 27*). Follow the instructions below.

- Tap **Menu**>**Pause** to pause data logging.
- Later when you are ready to resume data logging, go back to where you left the line or polygon, tap **Menu**>**Resume** to continue the data logging as you walk along the feature.

Double Logging

While logging a line or polygon, you may want to log another feature found along the way, whether a point, a line or a polygon. Follow the instructions below.

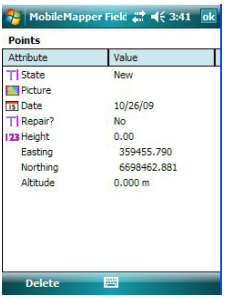
- Tap **Menu**>**Pause** to pause the data logging of the feature in progress.
- Move to the second feature you want to log.
- Tap **Log**, select the layer of the second feature, make the necessary settings and log this feature as you would in the usual case.
- Tap **Menu**>**Stop** when you are finished with the logging of the second feature.
- Go back to where you left the first feature.
- Tap **Menu**>**Resume** to continue with the logging of the first feature.
- Tap **Menu**>**Stop** when you are finished with the logging of the first feature.

More about Feature Logging

- The number of point features that can be logged in a session is only limited by the memory capacity of the storage medium used.
- Up to 10,000 points can be logged in a single line or polygon.
- When logging a long line or polygon, MobileMapper Field will automatically save the data to a temporary file every 10 minutes of data logging.

  If a power failure occurs while logging a line or polygon, the feature is automatically saved before the power failure. Because line and area features are saved automatically every 10 minutes of actual logging, if a power failure occurs unexpectedly and you have been logging a line or polygon feature for the last 15 minutes, then most probably only the first 10 minutes of the feature will be saved.
- If MobileMapper Field fails to save a feature because there is not enough memory left, you can still delete unnecessary files and try again. Follow the instructions below when this happens.
  - Minimize MobileMapper Field
  - Run File Explorer
  - Delete unnecessary files
  - Return to MobileMapper Field and stop logging the feature. The feature will normally be saved if enough memory space has been cleared.

Deleting Features

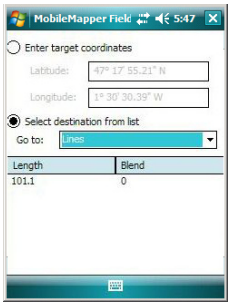


For some reason or other, you may want to delete a feature, whether a point, a line or a polygon. This is possible from the map screen showing the location of the feature:

- Through zoom and drag operations, adjust the view of the map screen in order to see the location of the feature.
- Tap on the feature. This opens a new window showing the properties of the feature.
- Tap on the **Delete** function shown in the lower bar. The feature is deleted immediately from the corresponding layer, without prior confirmation, and its location removed from the map screen.

Revisiting Features

Going Back to a Feature



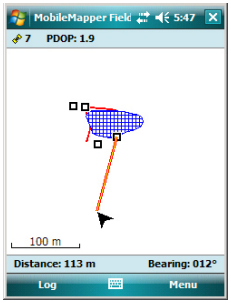
- Tap **Menu**>**Go To**.... The receiver allows you to go back to a feature according to one of the following two methods:
  1. **Enter target coordinates**: Choose this option if you want to go back to a point feature for which you know the coordinates (latitude/longitude or Easting/Northing (X/Y) depending on the coordinate system used in the map file). After you have entered the two coordinates, tap **ok**. This takes you back to the map screen.
  2. **Select destination from list**: Choose this option if you want to go back to a feature stored in the open map.

     First of all, you have to select the layer the feature belongs to. Use the **Go to** drop-down menu to make this choice. As a result, the screen lists all the features contained in that layer. Features are listed from the nearest to the farthest from your current location. Select the desired one simply by tapping on its name. This takes you directly back to the map screen.

  Whatever the method used, you can now see, on the map screen, a yellow/red segment connecting your current position to the feature.

  For a line or polygon, MobileMapper Field will draw a segment between your current position and the point in the line or polygon the nearest to you.

  In the lower bar, you can read the distance and the bearing to the feature.



- Walk in the direction indicated on the screen until you reach the feature.

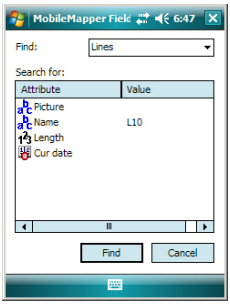
Editing a Feature

When the map screen displays the feature you want to edit and you know which changes need to be made to its attributes, do the following.

- Tap on the feature symbol.
- When you see a bold orange line surrounding the feature, release the stylus. The program then displays the list of attributes pertaining to the feature.
- Edit the attributes that need changes and then tap **ok**.

Find Feature Function

MobileMapper Field allows you to search for a particular feature you logged in a map. MobileMapper Field will ask you to indicate the layer it belongs to, and optionally, the known value of one or more of its attributes. As a result, MobileMapper Field will list all the features meeting your requirements.



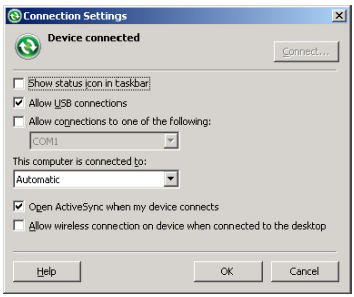
- Tap **Menu**>**Find...**. MobileMapper Field displays one of the layers present in the map as well as the names of the different attributes attached to that layer.
- In the **Find** field, select the layer type of the feature you are searching for.
- Optionally, tap on each of the attributes for which you want to define a specific search criterion and then enter it.
- Tap on the **Find** button to start the search. MobileMapper Field will list all of the features in the map which meet the search requirements.

  From this list you select the desired feature and see where this feature is located on the map screen. In addition, by selecting **Menu**>**Go To...**, MobileMapper Field will give you the option of navigating to this feature.

Upload/Download Functions

Using the USB data cable provided with MobileMapper 6, you can exchange data between MobileMapper 6 and your office computer.

With Vista running your computer, no particular settings are required. With Windows XP (or older), use the following settings in ActiveSync to make the connection automatic at MobileMapper 6 power up:



Use the procedure below to copy files from one unit to the other:

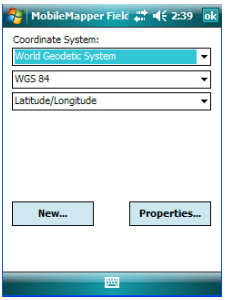
- Connect the MobileMapper 6 to your office computer using the USB data cable.
- Turn on MobileMapper 6.
- Wait until the connection is active.
- Do the following, depending on the OS used in your computer:
  - (Vista) In the auto-run window that opens, choose the option to explore the mobile device
  - (Windows XP or older) In the ActiveSync window, click **Explore**.
- From either of these windows, you can copy any file from MobileMapper 6 to any folder on your office computer, or the other way around, using the usual copy, paste and browse functions.

  A good practice is to have all the files used in a job (i.e. job file, layers, image files, sound files, all the files relevant to the background map used) to be saved to the same folder on the receiver. Apart from the raw data files, which are in a separate folder, downloading a job to MobileMapper Office will then only consist of copying the entire folder to the office computer.

Coordinate Systems

When creating a new DXF job or when creating a layer as the first layer in a new *.map job, MobileMapper Field asks you to define a coordinate system.

Choosing a Coordinate System



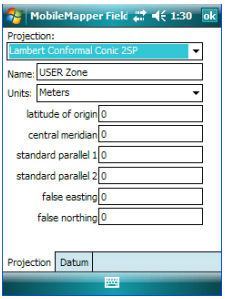
Proceed in this order:

1. Choose the World Geodetic System or the country where your field operations will take place
2. In the field just underneath, choose the datum used
3. In the field just underneath, choose the projection used.

The **Properties...** button at the bottom of the screen allows you to view the properties of the selected datum and projection.

The **New...** button at the bottom of the screen allows you to create a user system (datum + projection).

Defining a User System



- Tap on the **New** button.
- Select the type of projection you wish to use in your coordinate system. Depending on that choice, you will have to enter a certain number of parameters.

  Remember every time you create a new projection and you have to enter the latitude and longitude of origin, or the central meridian, these must be expressed in degrees with eight decimal places (ddd.dddddddd). On the other hand, false eastings and false northings should always be expressed in meters, even if a different unit has been selected in the **Units** field on the same screen.
- After you have named and defined your new projection and datum, just tap **ok** to save the new system and choose it as the system used in the current job. This will take you back to the coordinate system selection screen on which you will now be able to see how the new USER coordinate system has been defined (new projection and datum names displayed in the second and third fields respectively).

Viewing the Properties of the Coordinate System Used in a Job

- Tap **Menu**>**Job**>**Properties**.
- Tap on the **Coordinate System...** tab. The screen now shows the non-editable settings for the coordinate system used in the map. Tap on the **Properties** button to read the details of the datum and projection used in the coordinate system.

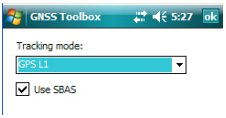
GNSS Toolbox

GNSS Toolbox is a software application that is separate from MobileMapper Field. It is used to control and monitor GNSS reception in MobileMapper 6.

From the Start screen, tap on the **GNSS Tool Box** icon or tap on **GNSS Tool Box** on the Today screen. This opens the tool box main menu in which four options are listed:

- GNSS Settings
- GNSS Status
- Reset
- About

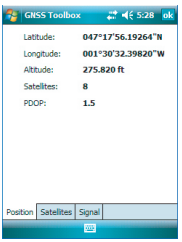
GNSS Settings

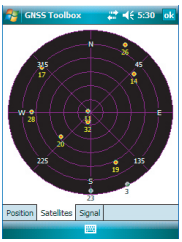


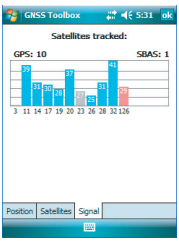
- Open the **GNSS Tool Box** and double-tap on **GNSS Settings**. This opens a new window where you can make the following settings:
  - **Tracking mode**: Only GPS L1 is available with MobileMapper 6.
  - **Use SBAS** check box: Check this box to enable SBAS reception. When this box is cleared, SBAS reception is disabled.
- Tap **ok** to confirm your choices and return to the GNSS Tool box main menu.

GNSS Status

- Open the **GNSS Tool Box** and double-tap on **GNSS Status**. This opens a three-tab window.







The default **Position** tab shows the three coordinates of the current position, as computed by the receiver, as well the number of satellites used, the current PDOP value and the position computation mode used.

The unit used to express the current altitude (meters or feet) depends on the region (language and country) you selected in **Start**>**Settings**>**System** tab>**Regional Settings**.

- The **Satellites** tab displays a polar diagram showing the locations in the sky of the tracked satellites.

- The **Signal** tab shows the signal level for each of the tracked satellites. Green-blue bars indicate satellites used in position computation. Grey bars only indicate satellites being received but not used. Red bars on the right indicate the SBAS satellites that are currently used.

  GPS satellites are numbered from 1 to 32. Usually, SBAS satellites are numbered from 120 to 138.

Reset

- Open the **GNSS Tool Box** and double-tap on **Reset**. A message directly asks you if you want to reset the receiver now. Use this option only if you think the receiver is not working properly.

Post-Processing Option and MobileMapper Office

Unlocking the Post-Processing Option in the Receiver

When you purchase the post-processing option, Ashtech delivers an activation code specific to your receiver so you can unlock this option in the receiver. Follow the instructions below the first time you want to use the post-processing option:

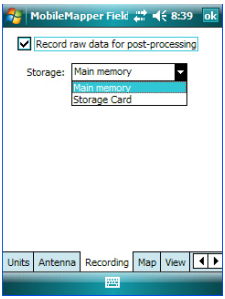
- Tap **Menu>Options**.
- Tap on the **Recording** tab.
- Enable the **Record raw data for post-processing** option.
- Tap **ok**. A new screen is displayed showing the serial number of your receiver and a blank activation code field.
- Type the activation code provided by Ashtech in the blank field.
- Tap **ok** to validate the code entry. If the "serial number/ activation code" pair matches, then the option is unlocked instantaneously. The receiver will start logging raw data as soon as the reception conditions are good. Remember also that the **Record raw data for post-processing** setting remains unchanged through all the subsequent power cycles of the receiver, until you decide to change it.

Logging Raw Data

Here are a few key points that will help you understand how the raw data logging function operates in your receiver.

- A single raw data file is created per working session, independently of the number of jobs you open and close during that session.

  (A working session is defined as the period of time during which MobileMapper Field is run uninterruptedly, with the **Record raw data for post-processing** option on).



- With the **Record raw data for post-processing** option on, raw data logging will start automatically when enough satellites are received (>3). Raw data logging is effective when "REC" is displayed in MobileMapper Field's status bar (see *Description of the MobileMapper Field Main Window on page 4*).

  NOTICE. It is a good practice to wait about 1 minute from the time at least 4 satellites are received and the PDOP is less than 3 before you start logging your first feature. (You don't need to be static during this wait time). The amount of extra raw data will advantageously be used in MobileMapper Office to secure the post-processing of your features.

- If you select “Main Memory” as the location where to store raw data, raw data files will be saved to *My Windows Mobile-Based Device\My Documents\GPS Raw Data*. If you select “Storage Card”, they will be stored in *My Windows Mobile-Based Device\Storage Card\GPS Raw Data*.
- Raw data files are named as follows:

  nnnnyymmddss.grw

  Where:

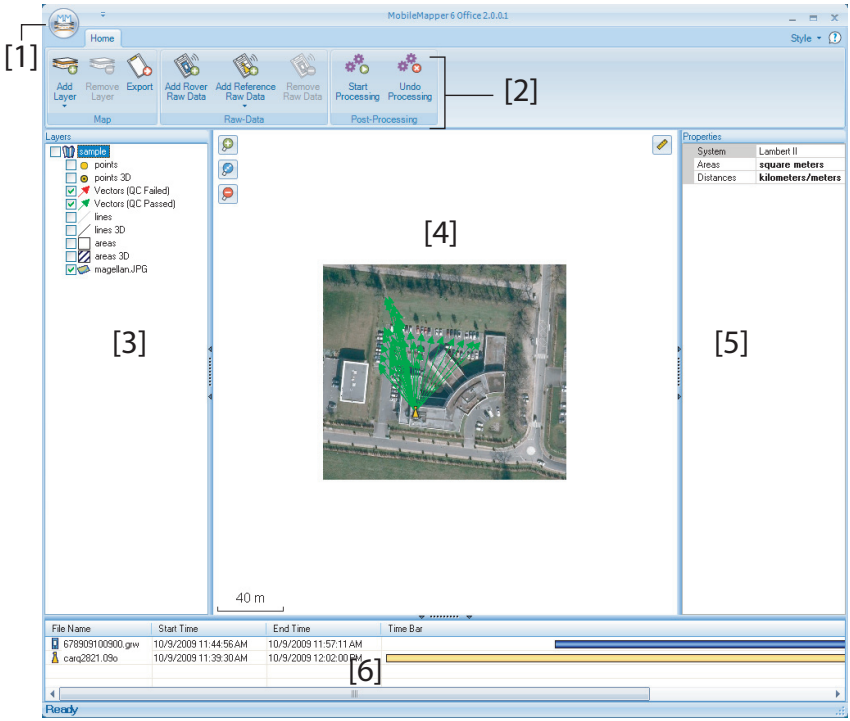
Parameters	Description
nnnn	Last four digits of the receiver serial number
yy	Last two digits of year (“08” for 2008)
mm	Current month number (1-12)
dd	Current day number (1-31)
ss	Session number, starting from 00. May consist of more digits, if necessary.
grw	File extension

  NOTE: The coordinate file created during a work session uses the same naming convention. Only the extension is different (”crw” instead of “grw”).
- During raw data collection, even if you are not logging any feature but just moving from one feature to another, remember you should keep holding the receiver at an angle of 45° above the horizontal.
- Never switch the receiver to suspend mode while collecting raw data (this would end raw data collection). If you want to save battery power while collecting data, you may turn off the screen backlight using the Backlight icon on the MobileMapper Today tool bar. However, if you are also using the e-compass while collecting raw data, remember the backlight setting must be left unchanged. It must stay as was set when you last calibrated the e-compass (see also *Recommendations for E-Compass Calibration on page 47*.
- Always collect raw data for at least 10 minutes, including for those projects where GIS feature collection can be completed in less time. Remember the more you collect raw data for a given project, the better the results of the post-processing will be.

Post-Processing With MobileMapper Office Software

To install MobileMapper Office on your computer, please refer to *Installing MobileMapper Office Software on page 50*. Then follow the procedure below to enhance the accuracy of all your feature positions.

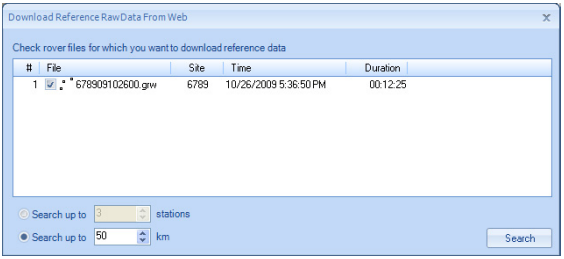
- Using the data transfer procedure (see *Upload/Download Functions on page 31*), copy the following field data files from MobileMapper 6 to a folder of your choice on the computer:
  - *.map files
  - *.shp files
  - img*.jpg files
  - sound*.wav files
  - *.grw file (raw data file). It is your responsibility to know which raw data file is associated with your project.
  - *.crw file relevant to the downloaded *.grw file.
- Run MobileMapper Office on your computer. The main window looks like this:



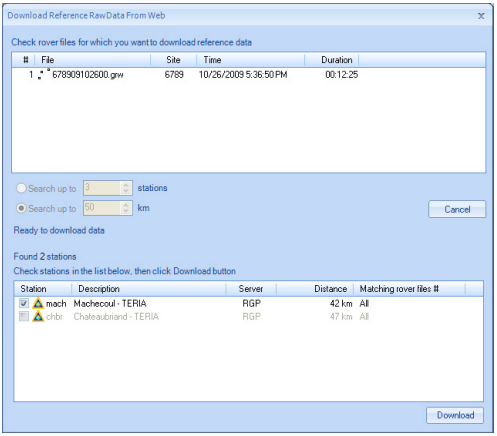
The different areas are described below:

- [1]: Open/Create Map button
- [2]: Menu bar
- [3]: MAP filename and Layers list
- [4]: Map screen showing the content of the open job, Also includes zoom buttons on the left and a distance tool button on the right.
- [5]: Depending on what is currently selected in area [3], [4] or [6], this area shows job properties (coordinate system and units used), layer attributes and appearance, or raw data file properties (observation time span, etc.). When selecting a feature on the map screen, the sound and image attributes pertaining to the feature can be heard and viewed by clicking on the three dots button after the file path in the corresponding field. Clicking on this button will start your computer's default editor used for respectively WAV and JPG files.
- [6]: Observation times covered by the raw data files added to the project. A green bar stands for a MobileMapper 6 raw data file, and a yellow bar, for a base raw data file.

- Click  and select **Open**. Browse to the folder containing your field data files.
- Select the Map file and click **Open**. MobileMapper Office shows the content of the project in areas [3], [4] and [5] (see screen above).
- Click on **Add Rover Raw Data**. Select the raw data file corresponding to the project (from the same folder as previously) and click **Open**. MobileMapper Office imports the GRW file and then shows the file properties in areas [5] and [6]:
- Assuming you are working with a third-party reference station, click successively on **Add Reference Raw Data** then **From Web**. A new window then opens in which you have to indicate how you wish to search for the reference station you will use for post-processing your job.



- Choose one of the following two search criteria:
  - **Search up to x stations**: Specify a preset number of stations you want to list before choosing one. All the listed stations will be the closest to your working area, but there is no range limit for these stations.
  - **Search up to x km**: Specify a limit of distance between your working site and the stations. The shorter the distance, the better the raw data from the station, but the smaller the number of stations that can potentially be used.
- Click **Search**, then wait until the search is complete. At the end of the search, MobileMapper Field lists the stations meeting the search request.
- Select the most suitable reference station, mainly according to the distance (baseline) to that station.



- Click **Download**. MobileMapper Office imports the base raw data and then show its properties in areas [5] and [6].

NOTE: Ashtech does not guarantee 100% quality results when using raw data files from reference stations that are situated beyond 200 km (125 mi) from your working area.

- Click on **Start Processing**. MobileMapper Office post-processes the different files present in the project. At the end of the post-processing, the map screen graphically displays the post-processed, more-accurate position of each GIS feature.

  Additionally, MobileMapper Office adds a vector layer into the project. Each feature in the layer can be edited individually. Vector attributes include useful quality information about vector determination.

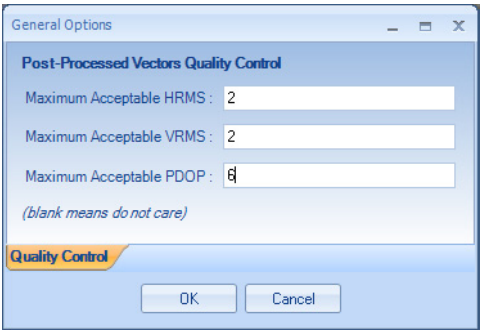
  The post-processed SHP files are automatically updated with the new positions and then saved. Beforehand, backup files (<layer_name>.bak.shp) are created preserving the original content of the <layer_name>.shp files. Being also SHP files, backup files can be added to the project as layers, allowing you to compare the results of the post-processing against the original positions of your features.

NOTE: DXF job files, MIF and CSV layers are not supported in this version of MobileMapper Office.

Quality Control in Post-Processing

You can place a quality control filter through which MobileMapper Office will rate the post-processing results according to your own requirements. Following the post-processing of your job, MobileMapper Office will associate the resulting vectors to two different layers: one containing the vectors that passed the quality control (green vectors), and a layer containing those that failed (red vectors).

- Click  and then on the **Options** button located in the lower-right corner of the pop-up window.
- Enter your three quality control settings, i.e. the maximum permitted values for HRMS, VRMS and PDOP. (see screen example below).



- Click **OK** to confirm your filter settings.

  All the vectors for which the HRMS, VRMS and PDOP are less than those specified here will pass the quality control whereas all the others, if any, will fail.

  Note that the quality control filter is applicable to all the jobs you open in MobileMapper Office, until you modify the filter settings. To remove the filter, you just need to set the three fields blank and click **OK**.

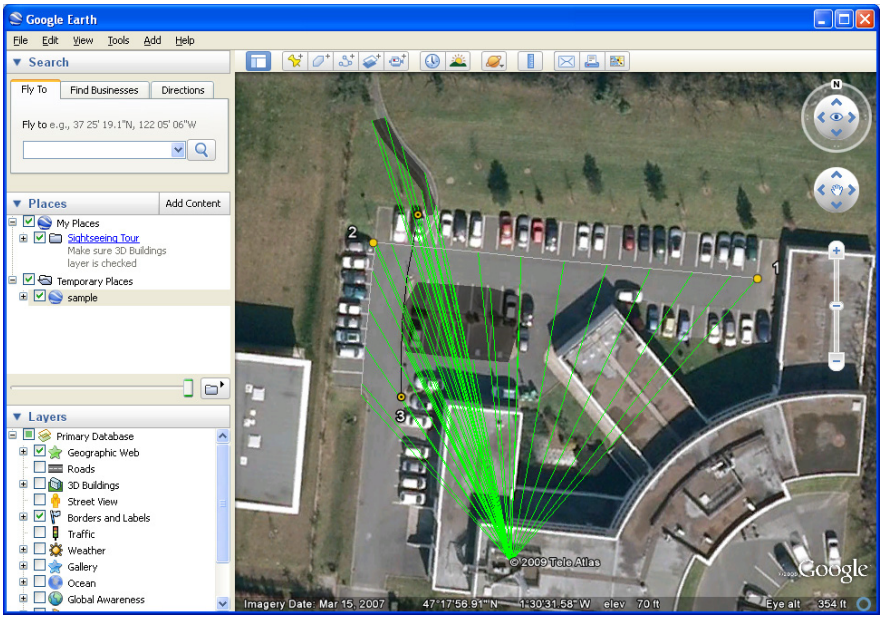
  Note also that the PDOP characterizes each point when it was logged (the PDOP is re-calculated by MobileMapper Office, based on the content of the job file). In contrast, the HRMS and VRMS are part of the post-processing results and characterize the post-processed positions.

Export Function

MobileMapper Office can export the visible layers from the open job to two different formats:

- ASCII format (*.csv). Each selected layer will result in a separate csv file.
- Google Earth format (*.kml). All the selected layers will be merged into a single kml file.

  Opening a kml file from the Google Earth initial view will cause the Earth representation to be gradually rotated and zoomed in to show the exact location of the features held in the kml file.



Follow the instructions below to export layers:

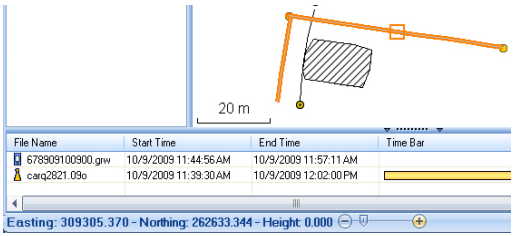
- Open your job.
- Make visible the layers you want to export (turn on the corresponding check boxes). As background maps will not be exported, they can stay visible in the job
- Click on  and then select the format and destination of the file(s) generated by the Export function.
- Click **Save** to complete the Export sequence.

More About MobileMapper Office

- **Undo Post-processing**: If the post-processing results do not meet your expectations, you can reverse to the original SHP files by selecting the **Undo Processing** command.
- **Zoom settings**: In addition to the zoom buttons in the menu bar and on the map screen, MobileMapper Office offers another useful way of adjusting the zoom setting. Double-click on a feature in the map screen. This takes the feature to the center of the map screen. You can then adjust the zoom setting around the feature, which stays at the center of the screen, using the mouse wheel (turn forward to zoom in, turn backward to zoom out).

- **Viewing the background map**: Use **Add Layer>Select Existing**. In the Open dialog box, choose "Raster file" as the file type and then select the background map file from the job folder. Click **Open**. There may be a message warning you about the coordinate system used by the background map, if different from the one used in the job. Note that background maps are seen as layers in the job.
- **Status Bar**: The status bar is located at the bottom of the main window. Whatever the feature selected on the map screen, the status bar displays the coordinates of the selected point.

  For a line or polygon feature, the status bar additionally shows a sliding bar allowing you to move the cursor on the map screen from one point to the next or previous point using respectively the "plus" or "minus" button at the two ends of the sliding bar.



  The location of the cursor on the sliding bar is representative of the position of the selected point in the line or polygon.
- **Layer Editor**: MobileMapper Office also allows you to edit SHP files in a way much similar to MobileMapper Field's Edit/Create Layer function.
- **Measuring a distance on the map screen**:

  Click on  . This changes the shape of the mouse cursor. Then dragging the mouse cursor over the map screen will continually display the field distance from the point where you started dragging to the current point.

Click on that button again to stop using the measuring tool. This will cause the cursor to recover its original shape.

- **Adding base raw data from a file**: This function is convenient when the useful base raw data files have already been downloaded from the Internet or if they come from a reference station that is not connected to the Internet, like for example an Ashtech ProMark3 base. In either case, click on **Add Reference Raw Data**>**From File** and select the base raw data files.
- **Removing a layer from a map**: Select the layer in area [3] on the screen and press the Del key or click on **Remove Layer**.
- **Recommendations on folders**: Ashtech recommends you store all the files pertaining to a project in the same folder. By doing this, you will be able to open your Map files equally in your receiver and MobileMapper Office software without losing a single SHP layer.

E-Compass & External Device

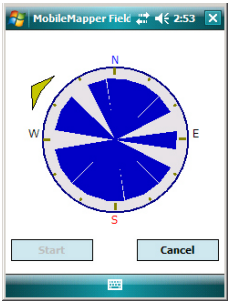
Enabling/Disabling the E-Compass

- Tap **Menu>Options**.
- Tap on the right-arrow button several times until you unveil the **E-compass** and **External Devices** tabs.
- Tap on the **E-compass** tab.
- Set the **Use electronic compass to determine orientation** button to enable or disable the E-compass. The compass calibration is described in the section below.

Calibrating the E-Compass

Calibrating the E-compass is a two-step process during which you are asked first to rotate the receiver anticlockwise in horizontal position and then turn the unit upside down until a beep is heard.

This procedure should be run with the receiver powered from its internal batteries rather than an external power source.



- Tap on the **Calibrate** button.
- Read the instructions and then tap on the **Start** button.
- Wait until the arrow outside of the compass starts rotating slowly clockwise. Rotate the receiver anticlockwise in order to maintain the arrow in your direction. You will have to perform three to five rotations until the inside of the compass is completely dark blue. Try to be as accurate as possible as this will speed up the calibration process.

  Note that the arrow momentarily stops every 30 degrees or so before continuing its rotation.
- When the inside of the compass is all dark blue and after the arrow has come back to the South direction, a message asks you to proceed with the last step of the calibration.
- Tap **ok** in the message window and turn the receiver upside down on a horizontal surface. Wait a few seconds until a beep can be heard.
- Put the receiver the right way up. A message on the screen indicates that the calibration is complete and successful.
- Tap **ok** in the message window. This takes you back to the **E-compass** tab of the **Options** screen.
- Tap **ok** to return to the map screen.

Recommendations for E-Compass Calibration

The E-compass being a very sensitive sensor, Ashtech recommends you adhere to the following recommendations.

- Calibration should always be performed:
  - Outdoor, not indoor.
  - On a flat horizontal surface, not in your hands.
  - From within MobileMapper Field rather than from within MobileMapper Today.
  - In the same operating conditions (i.e. same backlight level, with/without SD card) as those you will work in later when you collect your GIS data.

    For screen backlight, this means the two options controlling the backlight function on the **Battery Power** tab of the **Settings** window must be cleared for the calibration phase, but also as long as you need to use the e-compass. (The **Settings** window is accessible from the third icon on the MobileMapper Today toolbar or through **Start>Settings>System** tab**>Brightness** icon)
- During calibration, make sure all compass sectors become dark blue.
- Always recalibrate the E-compass in the following cases:
  - After changing the batteries.
  - Whenever you suspect the E-Compass to deliver incorrect values.

E-Compass Vs. GPS Compass

In fact, the receiver has two compasses:

- The *e-compass*. which can be used independently by MobileMapper Field and MobileMapper Today. It can even be used by both at the same time.
- The *GPS compass*, **which is the default compass used by MobileMapper Field when the e-compass is not activated**. (The GPS compass information is a by-product of the GPS position computation.)

Follow the recommendations below to know which compass should be used, depending on what you are doing:

- Measuring bearings with the E-compass requires that the receiver be held in horizontal position. On the other hand, the GPS sensor requires that the receiver be held at an angle of 45° from the horizontal. A good compromise is therefore to orientate the receiver 20 to 25° from the horizontal. If the bearing measurement is most important to you, you can temporarily place the receiver horizontal until you get a valid bearing measurement.

- Using the E-compass is recommended for static occupations (lines/areas in vertex mode and points). The GPS compass is recommended for trajectories (lines/areas logged in automatic time or distance mode).
- E-compass readings stabilize after a few seconds. When logging a point feature after a walking period, please hold the receiver horizontally and wait a few seconds before starting logging the feature.
- **Tagging a picture file with bearing information**: After taking the picture, you should hold the receiver horizontal for a few seconds before saving the picture. This will allow the E-compass to deliver a valid bearing measurement.

Setting an External Device

After establishing a Bluetooth connection with the external device used in conjunction with your receiver, do the following:

- Tap **Menu>Options**.
- Tap on the right-arrow button several times until you unveil the **External Devices** tab.
- Tap on the **External Device**s tab.
- In the **Type** field, select the name of your external device (3M Dynatel Locator or LTI TruPulse 360).
- Set the virtual port number and baud rate used to let your receiver communicate with this device.
- Tap **ok** to enter your settings and return to the map screen.

Voice Setting

For best quality voice recording, you need to change the default voice sampling setting as follows:

- From the **Start** button, select **Programs**.
- Double-tap the **Notes** icon. If this action directly opens a note file, please close it before proceeding.
- Tap **Menu**>**Options**.
- Tap on the **Global Input Options** hyperlink.
- Tap on the **Options** tab.
- Select “44,100 Hz, 16 Bit, Mono (86 KB/s)” from the **Voice recording format** drop-down list.
- Tap **ok** to enter the new setting.
- Tap **ok** then ☒ twice to return to the map screen.

Installing MobileMapper Office Software

- Insert the installation CD in your computer. Wait until the welcome screen is displayed.
- Click on **Install MobileMapper Office**. The installation program starts analyzing the configuration of your computer.
- The installation program may ask you to install one or several Microsoft applications on your computer. If this happens, please accept. These are:
  - Microsoft .NET Framework 2.0
  - Microsoft Visual C++ Runtime Libraries
  - Microsoft Windows Installer 3.1
- The installation program then installs MobileMapper Office.
- At the end of the installation, MobileMapper Office is automatically launched.

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Getting Started Guide

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