

# WMC Map

## Instruction Booklet Garmin 60 series



**WMC Technology Ltd**

**[www.wheresmycows.com](http://www.wheresmycows.com)**

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# 1. Installing Software

Before you can download your points from your GPS and create your farm map you must install WMC Map and the Garmin GPS drivers. WMC Map is the software application you will use to draw, edit and print your farm map. The Garmin GPS drivers allow your PC and GPS to communicate with each other.

## 1.1 Installing WMC Map

WMC Map requires Microsoft Windows XP or Vista to operate.

This section only applies if you are installing on a Mac:

WMC Map can be installed on a mac computer as long as it is running Microsoft Windows, either from bootcamp or from a program that boots Windows from OS X such as Parallels or VMware Fusion.

If you are running VMware Fusion or Parallels, make sure that all 3D acceleration and effects are enabled, otherwise WMC Map will throw an error until you have enabled them.

Place the WMC Map CD in your CD-ROM drive. The installation process should automatically begin. If it does not begin to install automatically, go to 'My Computer' and browse the CD drive, then double click the 'setup.exe' file.

The installer may ask you to accept license agreements to install various items that WMC Map requires to operate correctly – click 'Accept' to allow it to install these. Once these other items are installed the WMC Map setup will launch, guiding you through a couple of simple steps – you should be able to just click 'Next' a few times and it will install properly.

To start WMC Map, click 'Start' then 'Programs'. There will be a new menu item called "WMC Technology". WMC map is under this menu heading.

## 1.2 Register WMC Map

You will need to register WMC Map the first time you run the software. Registration can be done either online or by phone. We recommend you register online, as we will not always be available to register your PC by phone.

### 1.2.1. How to register online

When WMC Map starts up, it will ask you to select how you would like to register. Click "Register Online".

Type the registration number as it appears on your CD ROM in the box at the top of the registration window. Make sure that your computer is connected to the internet, and then click "Register". Your copy of WMC Map will register and you may then use the software.

### 1.2.2. How to register over the phone

When WMC Map starts up, it will ask you to select how you would like to register. Click "Register Over the phone".

Type your registration number as it appears on your CD ROM in the box at the top of the registration window. Phone us on the number shown, and we will give you the second code needed to register your product.

### 1.2.3. How to get a 30-day trial registration number

If you downloaded WMC Map as a trial, you will have been emailed a serial number along with a link to download WMC Map. If you received a CD that did not have a serial number printed on it, you may click "Get a free 30 day trial online" (making sure that you are connected to the internet) and fill in your details on our website. After you have filled in your details, click on "Get Serial Number". The following page will then give you your serial number. Go back to WMC Map and follow the steps in "1.2.1 How to register online".

### 1.2.4. Ordering a full license online

After trialling WMC Map, you may purchase a full license online.

To do this, when you start WMC Map, making sure that you are connected to the internet, select "Click here to purchase a full version online". Your browser will open to a page where you can select whether you would like to purchase a GPS mapping kit, or simply WMC Map on its own. Click on the "Buy Now" text next to the item you would like to purchase.

The next page will show your order and your contact details should show up. Select which payment method you prefer, then check your contact details are correct. Modify any details if necessary then click on "Continue to next step".

Check your details again, then making sure that you are satisfied everything is correct, click on "Submit Order". An invoice will be emailed to you, and your order will be processed when your payment is received.

You may register WMC map twice before your registration key runs out. You may use these two registrations as you choose, either using one and keeping one spare in case your computer dies and you need to reinstall, or you may install the software on two separate computers.

Should you require another activation due to hardware failure (virus attack, etc) after your two activations are used, you may contact us to reset your activation uses on our licensing server.

## 1.3 Installing Garmin GPS drivers

This section only applies to users who wish to interface with a Garmin handheld GPS. This includes our DO IT YOURSELF GPS FARM MAPPING KIT. If you are drawing your map from an aerial photograph or have had your farm mapped professionally and do not need to set up your computer to interface with a GPS, please skip to section '4. Open Demo Map'.

To allow your computer to download and upload information from your GPS you must first set up the Garmin GPS drivers. **Make sure that your WMC Map CD (Not the Garmin Trip and Waypoint manager CD) is in the computer's CD drive before you begin this procedure.**

### Steps:

1. Do not plug your GPS into your computer until your computer asks you to.
2. Insert your WMC Map CD.
3. In the splash screen that comes up, click on "Install Garmin Drivers". If the flash screen does not come up, follow the steps below:
  - a. Using Windows Explorer, browse your WMC Map CD. If you do not know how to do this, follow the steps below:
    - i. Insert your WMC Map CD if it is not already in your CD Drive. Cancel any installation that comes up, as you should have already installed WMC Map.
    - ii. Click on "Start", then "My computer". Right Click on your CD drive and in the menu that pops up, click "explore".
  - b. You should then see the contents of your WMC Map CD. In those contents is a file called "USBDrivers\_221.exe" (the .exe part may or may not be shown depending on your computer's settings). Double click on the USBDrivers\_221.exe file to begin driver installation.
4. Follow the instructions presented to you by the Garmin driver installation package, plugging in and switching on your GPS when instructed to do so.
5. Follow the instructions presented to you on screen to complete driver installation.

You are now ready to send data between your GPS and PC.

## 2. Setting Up your GPS

This section explains what you need to do when setting up your Garmin GPS60 to record GPS points to begin mapping your farm.

If you have purchased this kit and intend to use a different GPS. You will need to configure it similarly, but the steps taken may differ slightly.

Many of these settings should already be set for you, but you should be aware of how to reset them for the best mapping performance if they are changed.

### 2.1 Getting Started

Please follow the instructions in the GARMIN GPS 60 navigator owner's manual for instructions on:

- Warnings and Precautions
- Installing the batteries
- Learning Key Functions
- The main page sequence

### 2.2 Set GPS mode to normal

There are several modes your GPS can run under: Normal, Battery Saver, GPS Off and Demo. It is important that you have the GPS set to 'Normal' while mapping, as this setting updates your location most frequently, and your points will be more accurate than in Battery Saver mode.

#### To set your GPS to normal mode:

1. Power on your GPS
2. Press **MENU** to get to the main menu screen (you may need to press **MENU** twice to quickly get to the menu screen)
3. Navigate down to 'Setup' and press **ENTR**
4. Press **ENTR** while the 'System' icon is highlighted
5. Make sure that it says 'Normal' beneath the 'GPS' heading (at the top). If it doesn't, press **ENTR** while the 'GPS' heading is highlighted and then select 'Normal' and press **ENTR** again.
6. Press **PAGE** or **QUIT** to exit the system menu.

## 2.3 Set track recording mode

The track recording method should be set to 'Auto' and 'Wrap when full' must be turned off.

### To set the track recording mode steps:

1. Press **MENU** twice to enter the main menu.
2. Using the rocker pad, make sure that 'Tracks' is selected and press **ENTR**.
3. Using the rocker pad, press downwards to highlight 'Setup' and press **ENTR**.
4. If 'Wrap When Full' has a tick next to it, while 'Wrap When Full' is highlighted, press **ENTR** to remove the tick.
5. Make sure that 'Record Method' is set to 'Auto'. If it is not, use the rocker pad to highlight the setting, press **ENTR**. Using the rocker pad highlight 'Auto' then press **ENTR** again.
6. Press **QUIT** twice to get back to the main menu.

## 2.4 Clearing the Memory

Before you start mapping a farm, you need to clear the GPSs memory. This means that no previously saved track logs or waypoints will be loaded onto your computer, which could be confusing when it comes to drawing your paddocks.

### 2.4.1. Clear entire memory

The easiest way to get started is to clear the entire memory at once:

1. Press the **PAGE** button until the trip computer page shows up (the page that shows your speed, elevation, odometer, etc)
2. Press **MENU**
3. With 'Reset.' highlighted, press **ENTR**
4. Using the rocker pad, navigate to 'Select All' then press **ENTR**
5. Using the rocker pad, navigate down to 'Apply' then press **ENTR**
6. Select 'OK' then press **ENTR**.
7. The memory is now clear and you can go straight to section 3 "Recording points".

### 2.4.2. Clear the Track Log

#### To clear the track log:

1. Press the **MENU** button to show the main menu page.
2. Press **ENTR** on the 'Tracks' icon
3. Using the rocker pad, navigate to 'Clear' and press **ENTR**
4. When the confirmation dialog box comes up, use the rocker to highlight 'Yes' and press **ENTR**

### 2.4.3. Delete individual saved tracks

If you are not still in the Tracks menu from the step above;

1. Press the **MENU** button to show the main menu page.
2. Press **ENTR** on the 'Tracks' icon

Then follow these steps to delete each individual saved track:

3. Using the rocker pad, press down to highlight the track you wish to delete
4. Press **ENTR** on the highlighted track you wish to delete
5. Using the rocker pad, highlight 'Delete' and press **ENTR**.

### 2.4.4. Delete waypoints

This will delete ALL waypoints from your GPS. You should have downloaded any points you want to keep to your PC, as waypoints will not be recoverable after they have been deleted. To remove all waypoints:

1. Press **FIND** to show the waypoints menu page
2. With 'Waypoints' highlighted press **ENTR**
3. Press **MENU** then using the rocker pad scroll down to 'Delete' and press **ENTR**
4. Select 'All symbols' and then press **ENTR**
5. Highlight 'Yes' and then press **ENTR**

## 3. Recording points

There are a couple of little tricks to taking points out on your farm that make drawing up your map on your PC easy. The method for easily recording and mapping your farm is outlined below.

### 3.1 Make sure that you start with fresh memory

To make downloading and drawing your farm map easy, you'll only want to download the relevant points that you have taken relating to your farm. The best way to ensure that you only get these points is to delete any existing track logs and waypoints from your GPS before you start. To do this, refer to section 2.4 Clearing the Memory.

Handy tip: Whenever you are moving, the GPS will be adding to the track log. We use the track log to draw lines between waypoints in the order they were taken, which makes drawing your map much easier than just looking at a galaxy of dots on your screen! If you are travelling between paddocks or around a large obstacle, turn off track logging until you reach the place where you wish to start recording again.

To turn the track log on and off follow step 3.2.1

### 3.2 Recording Paddocks

Before you record any points, we recommend that you allow your GPS to "warm up". When you first turn the GPS on, it will begin acquiring satellites. Once it locks on to enough satellites, the accuracy is displayed in the top left hand corner of the screen. Wait until this number gets down to below 10m before you start recording points. The lower the number, the more accurate your mapping will be.

To be able to draw your paddocks on your computer, you will need to record every angle of every fence line with your GPS. We do this by recording waypoints on the angles, and a track log which shows how the angles join together.

When recording a paddock, start at one post (usually by the gate is a good start, but it does not matter where you start) and make your way around the paddock, recording waypoints at all angles around the fence line until you get back to where you started.

Before you record your first paddock, be sure to turn the track log **ON**.

#### 3.2.1. To turn the track log on or off

1. Press **MENU** twice to enter the main menu page.
2. With 'Tracks' highlighted, press **ENTR**.
3. Press the rocker pad left or right to highlight 'On' or 'Off'.
4. Press **ENTR** to make your selection.
5. Press **QUIT** to return to the main menu.

#### 3.2.2. To record a waypoint (angle post)

1. While holding the GPS over the post, press **MARK**. (Tip: we recommend that you hold the GPS over the post for several seconds before pressing **MARK** which will give a more accurate position.
2. Do not worry about naming the waypoint; the GPS will automatically number and increment them for you. Press **ENTR** to store the point.
3. The waypoint is now recorded and you may proceed to the next post along the fence line where you will repeat this process again.

#### 3.2.3. Moving between paddocks

When you move between paddocks, your track log will record where you go. This means that when you download your track log to your PC, you will see the outline of the paddocks, as well as lines through your paddocks where you have changed between them. This is not a problem, and as long as you are aware of the reason for these extra lines they will not cause you any hassles.

There is a method to remove the lines between paddocks by saving each paddock as a separate track log. However, the benefit gained by doing this is outweighed by the extra time involved setting this system up.

We recommend that you simply record all of the angles as waypoints and use the track log as a guide to show how they all join together. After drawing the paddocks in you can then hide the track log and you'd never know the lines between the paddocks ever existed.

When you reach a new paddock, just continue recording waypoints on the posts as you did in the last paddock. Note; it is not necessary to re-record points or fence-lines that you already recorded in the previous paddock.

#### 3.2.4. Finish recording paddocks

When you have finished recording paddocks it is not necessary to save your track log. You can simply turn the GPS off and go home. It will be ready to download your points.

## 4. Open Demo Map

A demonstration map is included when you Install WMC Map. To open the demo map, simply click on 'File' then click 'Open Demo Map'.

## 5. Drawing your farm map (from GPS points or aerial photograph)

Once you have collected enough points with your GPS to start drawing your farm map, you can download them and draw your farm map using WMC Map.

To find WMC Map click on:

Start menu -> Programs -> WMC Technology -> WMCMap -> WMCMap


### 5.1 Opening your farm map file

If you have already started a map and wish to add to or edit it, click on 'File' -> 'Open' and navigate to where you saved the farm map you wish to edit, then open that file.

#### 5.1.1. Create a new farm map

If you are starting a new map, you will need to create a new farm database.

To begin a new farm map:

1. Click on the  'New' button on the toolbar, then click 'Farm' in the drop down list.
2. Fill out your farm details.
3. Select your country from the drop down list. If your country is not shown, select 'Northern Hemisphere' or 'Southern Hemisphere'.
4. Click 'OK'.
5. Now select a place where you would like to save your farm map file.
6. We suggest you browse to 'My Documents' and use a folder called "Map".
7. Double click on the "Map" folder to open it
8. Type a name in the "File name:" text box such as "johns farm map" then press 'OK'.


Your farm map file is now set up and ready to go.

## 5.2 Load an aerial photograph

If you have an aerial photograph from Wheresmycows.com, you may load it in to WMC map and have it appear as a background layer. Generally if we send you a map file we will not include the photograph as part of your file and you will have to import it yourself .

If you would like an aerial photograph of your farm, please contact WMC Technology Ltd (www.wheresmycows.com), and we can tell you if we have photography of your area.

To load an aerial photograph into WMC Map:

1. Insert the WMC Map CD in your computer.
2. Cancel any installation programs that start up.
3. Open "My Computer" from your start menu or desktop.
4. In My Computer, Right mouse click on your CD drive and then click "Explore".
5. You will see a folder called "Map" on the CD. Right mouse click this folder and click "Copy".
6. Browse to "My Documents"
7. Click on "Edit" in the menu across the top of the window. In the drop down edit menu click "Paste".
8. The files have now been copied onto your computer.
9. From WMC Map, open a new or existing farm map then click  ('Import').
10. Browse to the folder containing the files for your aerial photograph (My Documents -> Map), and select your aerial photograph.
11. Press 'OK' and your photograph will load. It may take some time to load, but once it has loaded everything should run quickly from then on.
12. If you do not see your photograph after it has loaded, expand the layers tree (press the '+' button next to your farm name in the top left window) the right click on your photograph layer and click 'Zoom to layer'.

## 5.3 Downloading GPS points

This section assumes you are using a Garmin GSP60 and USB cable as supplied with the DIY GPS mapping kit. If you are using your own GPS, the steps will be similar, but you may need to set up your GPS to interface with your PC. If you are drawing your map from a photograph and do not have a GPS, you may skip this section and move on to section '5.4 Draw your map'.

### Steps to import GPS points

1. Connect your GPS to your PC using the USB cable supplied.
2. Power on your GPS
3. (If the found new hardware wizard comes up, repeat to section "1.3 Installing Garmin GPS drivers"). This has happened because you are using a different USB port to what you initially set the GPS up on.
4. Assuming you have created your farm file (section 5.1) and still have the file open ready to go, click on 'Download from GPS' in the Menu at the top of the screen.
5. Ensure that the GPS type is set to Garmin and port is set to USB and click "Connect to GPS".
6. Make sure that your GPS is connected and switched on and press OK in the warning window that pops up. Your GPS waypoints and tracks will then show up in the window.
7. Be sure to select the waypoint and all tracks, then click 'Insert selected items into map'.
8. Your points and track will now have a heading in your map beneath the name of your farm on the left hand side of the screen (you may need to press the + next to the name of your farm to show the GPS layers you just imported). If you can not see the downloaded points in the main part of the screen, you may need to right-click on one of your layers and select 'Zoom to layer'.

The three common GPS layers created from a download are:

**GPS Lines** Straight lines between waypoints in the order they were recorded.

**GPS Points** Waypoints you have recorded, such as fence angles.

**Track Lines** A track log, showing everywhere you went while recording.


You may show or hide each of these layers by clicking on the checkbox next to the layer name in the tree on the left hand side of the screen. They may also be renamed to something more meaningful to you by right clicking on the layer name and selecting 'rename'.

Note also that you may change the characteristics of each layer, such as point size, point type, line width and colour, and whether waypoint names are displayed. To do this, click on the layer name you want to edit. In the box below the layer tree, a properties box comes up in which you may alter the characteristics of that layer.

## 5.4 Draw your map



### 5.4.1. Drawing paddocks

To draw your paddocks onto your map, you must first create a paddocks "layer".

1. To create a layer; Click on  'New' then 'Polygon Layer (paddock/area)'. A new polygon layer will appear in the layers tree on the left hand side of your page.



2. If you do not see the new polygon layer, you may need to expand the tree by clicking the '+' sign next to your farm name at the top of the tree.
3. It is important to name each layer with a name that describes what that layer is. That way you can easily edit and display or hide layers. To name the layer you just created, right-click on the layer name (New Polygon Layer) then left-click on 'Rename'. You can then change the name. Type "paddocks", as this layer is going to be your paddocks layer. Press 'Enter' to secure the name change.

4. Making sure that the 'Paddocks' layer is highlighted, click on the  'Edit' icon at the top of the page, then click  'Add'. This will enable you to draw your paddocks onto your farm map.

5. Using your track log and Waypoints (If you are drawing from GPS points), you should be able to see where you went on your farm, and work out where the fences should be. If you are drawing from a photograph, you can see where to draw your fences from the photo. You must draw each paddock separately.
6. Drawing paddocks is easier when you have zoomed in to the paddock you wish to draw. To zoom in, hold down the shift key on your keyboard (this temporarily takes WMC Map out of draw mode and into view mode). While holding down shift, move your mouse to where you want to zoom in to and then click and drag upwards to zoom in, or click and drag downwards to zoom out. Right clicking and moving the mouse pans the map. Remember to hold down shift while you zoom or you will start drawing paddocks!
7. To draw a paddock, take your finger off the shift key then click on one of the corner points of the paddock, then move your mouse to the next point along the fence line and click on that corner. Continue to do this until you have clicked on all corners of the paddock. Once you've finished, click back on the first point you used to start drawing your paddock, and the area will fill in a solid colour. Your paddock has been created.

To cancel drawing a paddock part way through, press the "Esc" key on your keyboard or click on the cross in the grey box at the top right hand side of the map window (not the small cross that closes the program though!).

If you make a mistake while drawing a paddock, press backspace on your keyboard to erase the last point you clicked and then click in a new position.

Holding down the 'Ctrl' key while clicking temporarily disables automatic snapping to existing points. This will enable you to click near an existing point without the cursor jumping onto it.

Note, if the paddock does not appear to be filled in a solid colour, check that the 'FillColour' property is not set to white, transparent, or another hard to see colour. To change the colour of the paddock fill, while the paddock layer is selected in the layer tree, click on 'FillColour' in the properties box, and click another colour to change the colour. You may also change other properties including the line colour, text colour, and whether text including paddock names and areas is displayed.

**Handy Hint:** To move around on the map while in edit mode, hold down the shift key while clicking and dragging the mouse.

Shift + left click drag = zoom

Shift + right click drag = pan

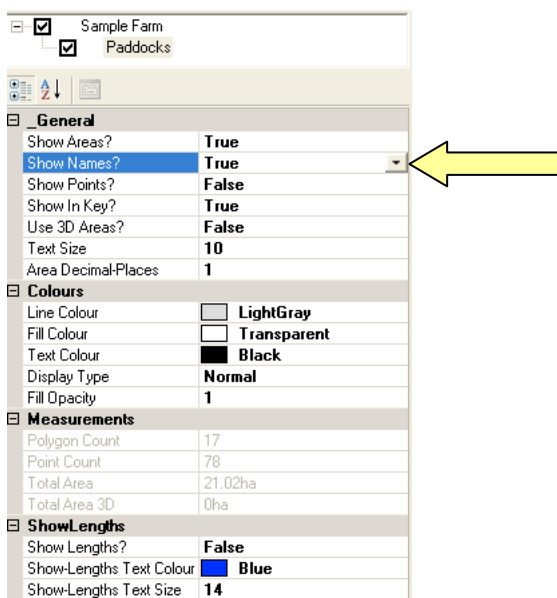
You can then reposition the map and continue drawing

### 5.4.2. Naming paddocks

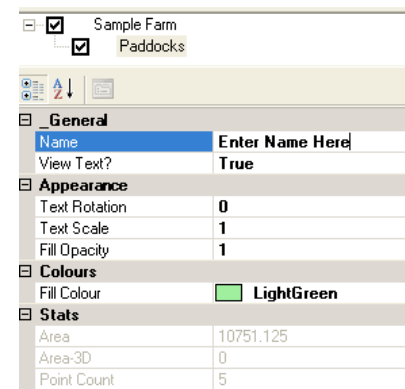
After creating your paddocks, you may want a text name shown in each paddock.

To name paddocks:

1. Click on the layer (in the layer tree on the left hand side of your screen) you want to show names of (eg, paddocks).
2. Make sure that 'Show Names?' is set to 'True' in the properties window.



3. Click on 'Edit' then 'Select' in the menu bar at the top of the screen, then click on the paddock you want to name. The properties box then updates to the properties of that particular paddock.



4. Enter the name for that paddock in 'Name' and press Enter.
  - a. Refer to section 5.5.5 "Rotate text" for instructions on rotating and changing text scale.
5. You may then select and name other paddocks.

### 5.4.3. Displaying paddock areas

WMC Map automatically calculates the area of paddocks as they are created. To display the area of paddocks, click on the paddocks layer then in the properties or that layer change 'Show Areas?' to 'True'. This can also be done by double clicking on 'Show Areas?'. Note the WMC Map trial will show all paddock areas as '0ha'. When you register with a full license the areas will show correctly.



### 5.4.4. Select measurement units

To change measurement units between metric and imperial units click on the 'Edit' menu then scroll down to 'Units'. To the right of units, select imperial or metric.




### 5.4.5. Editing paddocks

After you have drawn your paddocks you may edit them. As you edit the paddock, the size of your paddocks will be continuously updated.

#### To edit paddocks:

1. Select the layer you want to edit, in this case, paddocks.
2. Click on  'Edit', then  'Move'
3. Select a fence line or a corner of two or more fence lines and click and drag to alter the paddock(s).

#### To add angles in a fence line:

1. Select the layer you want to edit, in this case, paddocks.
2. In  'Edit' mode, click on  'Insert'
3. Click in the position on the fence line you would like to create the angle, then use the  'Move' tool to drag the newly created angle around.

You may edit other layers by clicking on the layer name and dragging points around in a similar fashion.

## 5.5 Drawing other features

After you have drawn in all of the paddocks, you may add in any other features you wish. To do this, you may either "draw them in by hand", or go and take more points with your GPS and download them in to your map.

### 5.5.1. Recording other features with your GPS






Clear the memory (explained in section 2.4 "Clearing the Memory"), then go out and record more waypoints or track logs as explained in section 3 "Recording points". You can record creeks, waterlines, tree plantations, trough locations, or anything else you wish to record. You may record features such as creeks as a sequence of points, and individual points such as troughs separately.

### 5.5.2. Drawing lines and points

After downloading your GPS points on your PC, you may draw polygons (bounded objects such as paddocks, buildings, etc), polylines (such as creeks, roads, tracks), and points (such as troughs, power poles, etc).

You must create a new layer for each separate item you want to draw before you can draw it on the map.




#### Steps to drawing features in new layers:

1. Click  'New' at the top left of the screen and create a new layer that corresponds to what you want to draw.
2. Right-click on the new layer you have created, then click 'Rename' to change the name. Type a new name and press Enter.
3. Click on  'Edit' then  'Add' to start drawing. You might find it useful to turn off some previous layers to make it easier to see what you are drawing.
4. To finish drawing a polyline (creek, etc), click on the tick button  in the top right hand corner of your screen. You may click on the cross  to cancel it.
5. Polylines and points can be named the same way that you name polygons.

### 5.5.3. Drawing parallel lines

This feature is only available in polyline layers.






#### If you wish to replicate a line parallel to the original:

1. With your polyline layer selected, click on  'Edit' then  'Add' to start drawing. At the top right of the drawing window click on  (parallel line tool).
2. Click on the original line you wish to replicate, it will then turn pink. Drag the mouse out to where you want the parallel line to be placed and then click to place it. You will notice another pink line with a distance on it telling you how far away you are placing the new line.

### 5.5.4. Drawing Text



To add text notes to your map, you can create a text layer, then place and move text around on your map. You may make several text layers and give them different names.

To create a text layer and add text:

1. Click  'New' at the top left of the screen and then click on 'Text' to create a new text layer.
2. Right-click on the new layer you have created, then click 'Rename' to change the name. Type a new name (such as "Text Notes" and press Enter.
3. Click on  'Edit' then  'Add'. Be sure that your new text layer is also selected by clicking on it in the layers tree.
4. Click in the position you want to place your text.
5. Enter your text in the box provided, then click 'OK'
6. To move your text, click on  'Move' then move your mouse to the centre of your text, then downwards until you see the cursor change to a pen with a black dot next to it  . Click and drag to move your text.

### 5.5.5. Rotate text

If your text does not fit inside a paddock, you may wish to rotate it. To rotate text:

1. Click on the layer that contains the text you wish to rotate (e.g. paddocks layer)
2. Click on the  'Edit' button.
3. Click on the  'Select' tool
4. Click inside the paddock, or on the text you wish to rotate
5. In the properties section (the box below the layer tree box) is a section labelled 'Appearance'. Below 'Appearance' is 'Scale' and 'Rotation'.
  - a. Scale properties can be set between 0 and 1.
  - b. Rotation properties can be set between -360 and 360
6. To change scale or rotation properties, simply click on the property and type in a new number, then press enter. Your text will then update to reflect your changes. Repeat this process until the text looks how you want it.

### 5.5.6. Layer order

When you create a new layer, it is automatically placed at the top of the layer tree. This tree shows the order layers are drawn on the map. Layers that appear higher on the tree than others will appear in front of them. To change the position of a layer on the layer tree, right click on that layer and click one of the move options in the menu that appears.





## 5.6 Save your map.

It is a good idea to save your map frequently while working on it, as well as when you have finished before you close it. Saving is simply done by clicking on the Save button.




## 5.7 Key, scale, north arrow and border

If you have many layers of information on your map, you may want a key and border to make your map look more complete.

### Insert a key:

1. Click on the  'New' button, then click 'Key' in the drop down menu.
2. Move your mouse over the map and your key should appear in the middle of the screen.
3. To move your key, click on the  'Edit' button at the top of the window, then be sure to select the 'Key' layer in the layer tree.
4. Click on the  'Move' button at the top of the screen.
5. Place your mouse over the top item in the key layer and then click and drag to move your key around on the screen. Place it somewhere it will print but not obstruct your map.
6. As you show or hide layers on your map you can update the key by clicking twice on the tick to the left of the Key layer in the layer tree to hide and then show the key. When the key is redrawn it will include what ever layers are currently being displayed on the map
7. You may change the key size, text colour, border colour, thickness and corner radius in the key properties section (below the layer tree section).
8. To enter extra text at the bottom of the key, use the 'Extra Text' property in the key properties.
9. Click the  'View' button, then 'Yes' to "Accept Data Changes?" to confirm your key.






### Insert scale and north arrow:

1. Click on the  'New' button, then click 'Scale' in the drop down menu.
2. Move your mouse over the map and your scale and north arrow should appear in the middle of the screen.
3. To move your scale, click on the  'Edit' button at the top of the window, then be sure to select the 'Scale' layer in the layer tree.
4. Click on the  'Move' button at the top of the screen.
5. Place your mouse over the top left hand corner of the scale layer and then click and drag to move your scale around on the screen. Place it somewhere it will print but not obstruct your map.
6. As you show or hide layers on your map you can update the key by clicking twice on the tick to the left of the Key layer in the layer tree to hide and then

show the key. When the key is redrawn it will include what ever layers are currently being displayed on the map

7. You may change the scale size, text colour, border colour and thickness and corner radius in the key properties section (below the layer tree section).


### Insert a border:

1. Click on the  'New' button at the top of the screen, then click on 'border'
2. When you move your mouse over the map you will see a border appear in the centre of the screen.
3. Click on the  'Edit' button at the top of the screen, then select the 'Border' layer in the layer tree by clicking on 'Border'. Click on the  'Move' button.
4. Drag each corner of the border to make the border surround your map and key. To drag a corner, move the mouse near the corner of the boarder and notice when the cursor changes to a pen with a black dot just below it  when you move the mouse just inside the corner of the border. When you see the cursor change click and drag the corner. Do this for all four corners to place your border in the correct position.
5. You can change the border thickness and colour in the properties section.
6. Click the  'View' button with the picture of a camera on it, then 'Yes' to "Accept Data Changes?" to confirm your border.

## 6. Print your map

To print your map, simply select the layers you would like to print from the tree on the left hand side of the screen. You may like to make the paddocks layer transparent (to save ink) by changing the 'fillColour' to transparent in the properties box (You will have to select the paddock layer, then you will see the properties for that layer).


### To print:

1. Before printing, be sure that you have saved your map.
2. Select the  'print' icon from the menu bar.
3. A blue box representing the boundaries of your page will appear on the screen. If you want to print landscape (page rotated 90°) rather than portrait, click on 'File' then 'Page Setup...'. Select 'Landscape' and click 'OK'. Move your mouse over the map to update the display and show your different page orientation.
4. Move (right mouse button and drag) and zoom (left mouse button and drag) the map until it is displaying how you want it to print on your page.
5. If you would like to preview what the printed sheet will look like, you can click 'File'->'Print Preview'. This will open up a preview window, and after a few seconds your preview should appear. To close the Preview window click the 'Close' button or the 'X' in the upper right corner.
6. Click 'File' -> 'Print' and select your desired printer and printing options, then press 'OK' to print your map.

## 7. Send your map to WMC Technology

For support with your map, or if you want a wall map, whiteboard, or pad of handout maps printed, you may send your farm map to WMC Technology Support.



### **7.1 Send your map to support using your email program:**

1. Open your email program and create a new message
2. Attach your map file.
  - a. Find your map file. If your computer is set to show filename extensions it will end in '.wmc' and should have a wheresmycows logo  for its icon.
3. Write your reason for sending your file in the body of the message (support request, to print maps, etc). If requesting map prints, please state what size maps you'd like printed, whether you'd like them laminated or padded, and the quantity you want.
4. Send your email to [support@wheresmycows.com](mailto:support@wheresmycows.com)

## 8. Upload points to your GPS

After you have drawn your farm map, you may want to upload points back to your GPS so that you can find them in the paddock.

To upload a point:

1. Click the  'Edit' button in the menu bar.
2. Click  'Send To GPS'.
3. Click the point on your map that you would like to upload.
4. Give your waypoint a name and optional comment, then click 'Upload waypoint to GPS'. Follow any further instructions on screen.
5. Your point is now uploaded to the GPS. Repeat this procedure for any other points you wish to find out on your farm.

Some GPS units will let you upload an entire layer at a time from WMC Map

To upload a layer:

1. Right-mouse-click on the name of the layer that you wish to send to your GPS unit
2. Click on "Send to GPS"
3. In the next window that comes up, click on "Upload Layer to GPS".

## 9. Finding your uploaded points out on the farm

Your GPS can be used to find points you have created on your map on your PC out on the farm. To do this you must first upload the points you wish to find out on the farm as explained in section 8.

Steps to finding points:


1. Out in the paddock, power up your GPS and wait for it to initialise and lock on to enough satellites to give you a fix.
2. Press **FIND**.
3. Press **ENTR** with the 'Waypoints' icon selected.
4. Using the rocker pad, scroll to the waypoint you wish to locate. Press **ENTR**.
5. 'Go To' will be highlighted. Press **ENTR**.
6. The map screen will show up, showing a line that looks like a road between your current position and the point you are navigating towards. Use the **IN** and **OUT** buttons to zoom in and out, and the rocker pad to pan around the map.

7. Press **PAGE** to view the compass screen which has an arrow showing you which direction to walk in, and tells you how far you need to walk to find the point.
8. To find another point, simply repeat this procedure from step 2.

## 10. Common tasks

### 10.1 Zoom


Zooming in and out in the view and print modes is achieved by holding down the left mouse button on your target and dragging the mouse up or down.

In  edit mode, you may zoom by holding down the shift key on your keyboard and following the same procedure as above.


You may zoom to show a complete layer on the screen at once by right clicking on the layer on the tree on the left of the screen, then clicking on 'zoom to layer'. This is often handy if you "loose" your map due to zooming too far in, out or elsewhere and can not find it. Simply right-click on the top level of the layer tree, then click on 'zoom to layer'.



### 10.2 Pan

Panning around your map in the view and edit modes is achieved by holding down the right mouse button and dragging the map.

In  edit mode, you may pan by holding down the shift key on your keyboard and following the same procedure as above.

### 10.3 Ruler

The Ruler tool enables you to measure distances and areas on your map. Also, when in ruler mode, when you hover over a GPS point, the latitude, longitude and altitude of that point will be displayed at the bottom of the screen. To use the ruler tool click on the  Ruler

'Ruler' tool when in  View or  Edit mode. You can then click on a point to start your measurement from. A pink line is drawn from this starting point to the current mouse position. Clicking again will continue the line and you can carry on adding segments to your measurement.

Associated with this pink line are three measurements which can be viewed in the properties area:



Distance - the total length of pink line (in metres)

Distance3D – when measuring between GPS points, this value is the distance between points incorporating change in elevation.

Circumference - the total length of the pink line plus the length from the end of the line back to the start position (if you drew 3 sides of a square, it would give you the total circumference of that square).

Area - the total area enclosed by the 'Circumference'.


AltitudeChange – Measures the change in altitude between two GPS points. (Measures the change between the last two clicked points).

Once you have finished with your measurement or want to start a new one, you can use the  'Tick' or  'Cross' button in the top right corner of the display to remove the pink line.

### 10.4 Send shapes between layers

Occasionally when you are drawing, for some reason you may draw a polygon in the wrong layer (e.g. you might complete a shape that becomes a 'building' because the building layer is selected when you wanted it to be a paddock in the paddocks layer.

Rather than having to delete the shape and then re-draw it in the correct layer, you can send the shape to another layer. To move a polygon from one layer to another do the following:

1. Make sure the layer you want to move the shape from is selected
2. Click on the  Send To Layer button at the top of the screen.
3. Click on the polygon that you want to send from one layer to another.
4. A window will pop up asking you to select which layer you want to move the shape to. Select the layer you want to move it to and then click "OK"
5. You then have the option to delete to original polygon. In most cases you will want to delete the original so click on "Yes".
6. You have now successfully moved the polygon from one layer to another.

### 10.5 Show lengths of lines in polygon or polyline layer

Click on the polygon or polyline layer in the layer tree that you wish to show the lengths of individual sides for.

Change the "Show Lengths?" property in the properties area to "True"

### 10.6 Download the latest version of WMCmap

The latest version of WMCmap is available on [www.wheresmycows.com](http://www.wheresmycows.com)

If you go to [www.wheresmycows.com](http://www.wheresmycows.com) and click on the 'Support' link, then 'Software updates' you can download and install the latest version on your PC.

# 11. Advanced Operations

These operations assume a general familiarity with WMC Map and WMC Map's common operations. You may need to refer to earlier parts of this booklet if you are not very familiar with WMC map.

## 11.1 Subdividing or re-fencing Paddocks

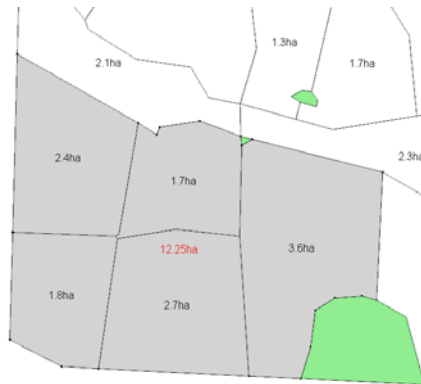
You may have mapped your farm with the idea of subdividing paddocks or re-fencing in mind. This can be accomplished in one of several ways. We have created a step by step guide for you to follow to make subdividing and re-fencing easy. From here on we will call it 're-fencing':

In this section, we will work through an example to show how to re-fence the five paddocks in the lower left corner of the image on the right into three equal sized paddocks.



1. Calculate the total area that you wish to split up.
  - a. Create a new polygon layer and label it "Areas to re-fence".
  - b. Draw a polygon around the boundary of the area you are going to subdivide. This will give you the area that you wish to subdivide. You can then figure out how many fields/paddocks you want in that area and what size they are going to be.




2. Change the "Text Colour" of the "Areas to re-fence" layer to red or something other than the colour of the paddock text so that you can see the total area that you are going to re-fence. Change the "Area Decimal-Places" property to '2' to get a more accurate area figure to divide into how many paddocks you desire.



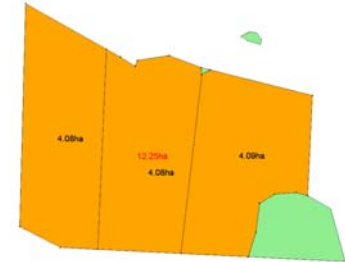
3. By this stage you should have something similar to the image to the right. The gray area (12.25ha) is the area that we wish to subdivide. This layer is below the paddock layer and we can see the existing paddocks over the gray area.
4. In this example we wish to divide the 12.25ha into three equally sized paddocks of about 4.08ha each.

5. In the layer that you wish to create your subdivided polygons in (generally your "paddocks" or "fields" polygon layer), use the  Move move tool or  Add add new polygons in to draw your subdivided areas.

- a. To make it easier to view what you are doing, right click on your polygon layer that you are drawing your new fields in and then click "Move to top". This will bring the layer to the front so that you can view it. Make sure that you have the layer "Fill Colour" set to "Transparent" in the properties section.

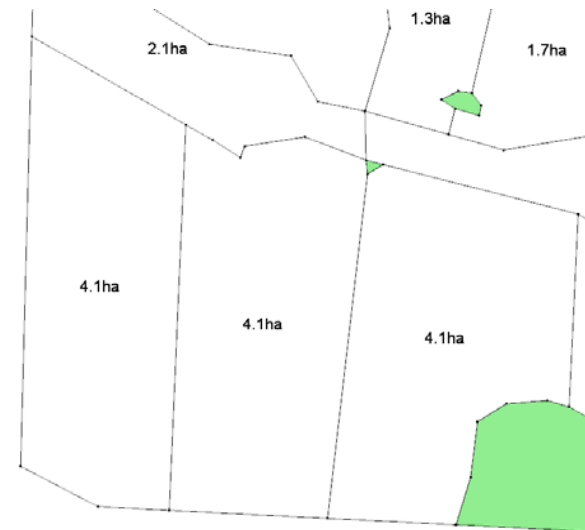
6. Using the  Move move tool, drag the corners of the polygons around to get your field the desired size.

7. The image to the right shows the fences moved to give the desired size (4.08ha) paddocks. It may be necessary to insert points in lines to create new bends when moving polygons around to suit.



8. Turn off the "Area to re-fence" layer by deselecting the checkbox next to the layer name.

9. Change the fill-colour back to transparent



At the end you should see your re-fenced paddocks similar to the image above. You can then upload new corner points to your GPS as explained in section '8 Upload points to your GPS'.

## 11.2 Calculate 3D surface area of paddocks

Instead of using a 2D planar area, in hilly areas there will actually be more surface area in a paddock than a planar area calculates. You can use your GPS and WMC Map to calculate the surface area of an entire polygon layer. To do this you need both a polygon layer (usually your paddock layer) and a set of points containing altitudes for WMC Map to calculate the surface area from.

To create your 3D surface area:

1. Draw up your paddocks and map as you would normally.
2. Clear your GPS memory, then go out and mark waypoints in the area that you wish to calculate a 3D surface area for. To do this we recommend taking points at the top and bottom of hills and valleys, and where ever the slope changes. To mark points, you simply press **MARK** then **ENTR**. There is no need to label your points. The more points you take, the more accurate the 3D area will be.
3. Download your altitude waypoints into WMC Map as you would normally.
4. It is a good idea to rename your new points "Altitude points" or something similar so that you do not get mixed up and select the wrong layer for WMC Map to use in it's calculation.
5. Now is a good time to save your work.
6. 'Right mouse click' on the layer that you want to create a 3D surface area for (EG, paddocks).
7. Select "Calculate 3D areas".
8. Select your altitude points layer to include in the calculation by clicking the checkbox next to the name, then click OK.
9. At this stage WMC Map may take a while to calculate the 3D surface areas. Don't worry, this is normal. Just wait for it to finish and you will be able to continue working like normal.
10. If you now click on your polygon layer for which you just created a 3D surface area calculation, you will see in the properties under the Measurements section that there is now a "Total Area" and a "Total Area 3D" property.
11. If you change the "Use 3D Areas?" property to true, the areas displayed in the paddocks will be the 3D surface area that you just calculated.
12. Save your project to retain these areas.

## 11.3 Move entire Layer

Due to the inherent inaccuracy of handheld GPS over time, you may find that if you record some paddocks one day, then go back and record them again next month, the whole paddock could have shifted by a few metres. This could also be a problem if you record some paddocks, then later go back and record more to find that they do not line up. To get around this problem, we have created the "Move entire layer" tool.

To use the Move Entire Layer tool to line up your paddocks:

1. When you are recording points, mark a waypoint on an existing point that you recorded last time. Eg, a trough or angle post.
2. Download the new points as you would normally.
3. When the points are downloaded, right click on the new layer you want to move, and then select "Move Entire Layer".
4. Type in the amount by which you want to move your points in each direction (for left or downwards, type a negative sign before the number. The unit is metres).
5. Click 'OK' and your entire layer will move by this amount. You may need to have several tries at moving the layer before you get it exactly where you want it.

Handy tip: Before moving the layer, use the measure tool to find out how far in each direction you need to move the layer.

## 11.4 Merge Layers

Sometimes you might want to merge several layers into one (eg, if you have taken several sets of GPS points that you wish to combine). To merge layers:

1. Right click on the layer that you want to merge your layers into.
2. Select 'Merge Layers into this'
3. Check (click on) the white box next to any layers that you want to merge into the layer that you right clicked.
4. Press 'OK'
5. After the layers are merged, you will be asked if you wish to remove the layers that you merged into the first layer. Select 'Yes' or 'No' depending on whether you wish for the layer to stay as a separate layer.

## 11.5 Export to shapefile or dxf (autocad)

If you have another farm management program such as FarmKeeper, P-Plus or Concepts Rural Suite, you may export your map from WMC Map and import it directly into your farm management program. Each layer is exported as a shapefile or dxf, which will load directly into other farm map or GIS software.

To export a shapefile or dxf:

1. Right-click on the layer you wish to export
2. Click 'Export' then in the submenu 'Export to Shapefile' or 'Export to dxf'.
3. If you choose to export to dxf, you will need to specify if you want to export your points with easting/northing (NZ Map Grid) or lat/long coordinates.
4. Select a location to save your file and type a name, then press OK.
5. Your layer has now been exported as a shapefile or dxf and you may import that file from your farm management program.

## 11.6 Export to Tumonz

Tumonz mapping software covers the whole of New Zealand. To export your farm map and then import it into Tumonz:

1. Right-click on the layer you wish to export
2. Click 'Export' then in the submenu 'Export to GPX'.
3. Select a location to save your GPX file and type a name, then press OK.
4. Your layer has now been exported as a GPX file and you may import that file from your Tumonz.

Import in Tumonz:

1. From Tumonz click on 'Tools' then 'GPS manager'
2. Click on 'Load and Save Files'
3. Select and open the file you exported in the steps above.
4. Expand the track or point tree on the left side of the window so that it shows all of your shapes in the file you imported.
5. Click on the first shape, then hold down the shift key and click on the last one to select them all.
6. Right mouse click on one of the selected items.
7. In the menu that pops up, go to 'Map' then click on 'Copy item to user map objects'.
8. Your file has now been imported into Tumonz and you may change it into a set of polygons or perform other operations with it.

## 11.7 Export and Import KML (Google Earth)

Exporting to KML files allows you to view all or part of your farm map in Google Earth.

If you do not have the Google Earth software installed on your computer it can be downloaded from the Google Earth website ([www.earth.google.com](http://www.earth.google.com)). Once you have installed Google Earth just double click the exported KML file to view your layer.


### 11.7.1. View in Google Earth:

1. Right-click on the layer you wish to export
2. Click 'View in Google Earth'.
3. Select a location to save your KML file and type a name, then press OK.
4. Your layer has now been exported as a KML file. If you have Google Earth installed on your computer it will automatically start up and display your exported layer.
5. Note: Some graphics cards have issues trying to display Google Earth at the same time as WMC Map. If you run into trouble, we suggest exporting a KML file using the method below, then closing WMC Map before you view your map.

### 11.7.2. Export KML File:

1. Right click on the layer you wish to export.
2. Hover the mouse over "Export".
3. Click "Export to Google Earth (KML)"
4. Select a location to save your KML file and type a name, then press OK.
5. Your layer has now been exported as a KML file.

### 11.7.3. Import KML File:

1. Save a KML file that you have created in Google Earth. NOTE: When saving your file check that it is not saving a KMZ file which is the Google Earth saving default. Be sure to select KML in the save dialog box.
2. From WMC Map, open a new or existing farm map then click  ('Import').
3. Browse to the folder containing your KML file, and select your KML file to import.
4. Press 'OK' and your file will load.
5. If you do not see your data after it has loaded, expand the layers tree (press the '+' button next to your farm name in the top left window) the right click on your imported layer and click 'Zoom to layer'.

## 11.8 Custom point images

Have you tried importing points and selecting the 'trough' point type in the points properties? You can create up to 20 custom point types to insert into your maps.

To create a custom point you must save an image as a windows bitmap (.bmp) file using a program such as 'paint' (found under the accessories section in your start menu).







Save your images as custom1.bmp, custom2.bmp, etc in

'C:\Program Files\WMC Technology\WMCmap\textures\texture'

You will then be able to use your .bmp image as a point type by selecting that custom point from within WMCmap.

## 11.9 Centre-pivot irrigators

WMC Map allows you to draw full circle and part-circle center-pivot irrigators.

1. Click on the  'New' button at the top of the screen, then click on 'Centre-Pivot Layer'
2. You will notice a new layer called "New Pivot Layer" appears at the top of the layer tree. Click on the text that says "New Pivot Layer" to make it selected (it will turn blue).
3. Click on  'Edit' then  'Add'.
4. Click in the position you want to place the center of your pivot. (You can move it later, so don't need to place it too accurately to start).
5. A window will appear asking you to enter some information about your irrigator.
  - a. Enter a start angle of 0 and end angle of 360 to draw a full circle pivot.
  - b. Enter wheel track radii (distance from center) to draw in wheel tracks. Enter radius and then click on "Add value". Repeat this process for each tower.
    - i. A handy tip is to put a wheel track at 2m (or 7') so that you can see where the centre-point of your pivot is.
  - c. Sprinkler tracks and endgun radius is optional.
  - d. Click OK to create your irrigator.
6. To move your irrigator, click on  'Move' then move your mouse to the centre of your pivot, then downwards until you see the cursor change to a pen with a black dot . Click and drag to move your irrigator.
7. To modify the specs of your irrigator, click on  'Select' and then click on the centre of the irrigator you wish to edit.