How to do Geo-fencing with the FM200

Introduction

The ability to define custom user events for the FM200 unit, allows you to do Geo-fencing for vehicles fitted with GPS units. Geo-fencing is the term used to describe the process of defining geographic zones (customer locations or no-go zones), setting up events to be recorded by the FM200 unit based on those zones and monitoring the vehicle's movement relative to zones using any of the GPS extensions available for the Fleet Manager software. This document describes how to set up a No-Go Zone Entry event, and assumes that the reader has knowledge of setting up user-defined events in the Fleet Manager software and uploading of new configurations to the FM200 unit. A basic understanding of conditional logic and geographic coordinates are also assumed.

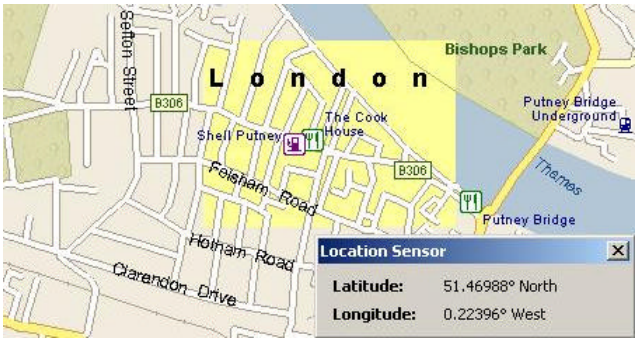
NOTE: For vehicles fitted with an FM200 *Plus* unit and a GPS device, use the new "At Location" parameter to incorporate one or more locations into any event definition. For a more in depth description of Event Configuration, please see the *Event Configuration in the Fleet Manager* document.

Determine the Zone's Grid Coordinates

First, you have to use your mapping software (MapPoint, XMap or Log Viewer) to determine the grid coordinates for your zone. To do this, open the mapping software and locate the coordinate text that displays the geographic coordinates of your cursor location on the map:

- For MapPoint, this is achieved by clicking the Location Sensor item under the Tools menu.
- For XMap, the coordinates are displayed on the right side of the application window.
- For the Log Viewer, the coordinates are displayed in the status bar at the bottom of the Viewer window.

Locate the zone you want to define on the map, and note down the upper left (UL) coordinates of a rectangle that defines the zone:



In our example:

Latitude (UL) = 51.46988° N

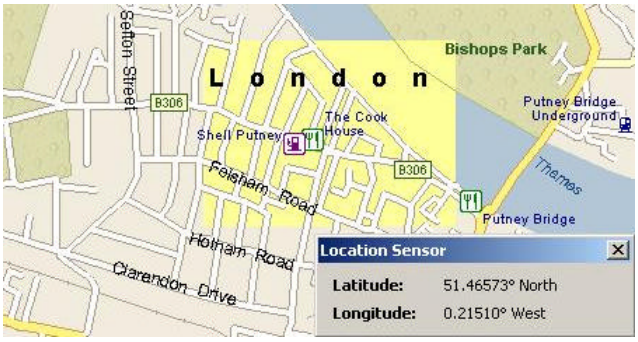
Longitude (UL) = 0.22396° W

Note: You need to record the coordinates in decimal degrees. Coordinates can also be defined in other formats (XMap uses degrees and decimal minutes notation), which you will then have to convert to decimal degrees. Here are some formulas to help you do this:

To convert coordinates in format		To decimal degrees, use formula
X° Y' Z"	(example 12° 13' 14")	X + (Y ? 60) + (Z ? 3600)

X° Y' (example 12° 13.1415')	X + (Y ? 60)
X°	No conversion required

Also note the lower right (LR) coordinates of the rectangle:

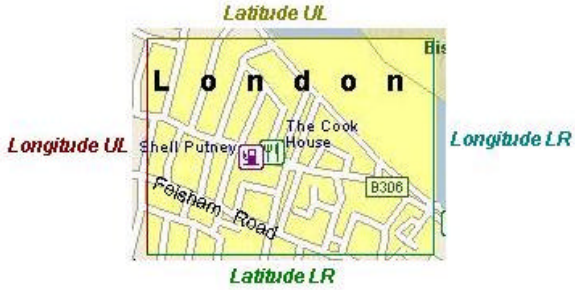


In our example:

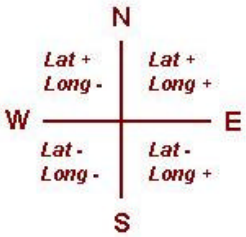
Latitude (LR) = 51.46573° N

Longitude (LR) = 0.21510° W

You have now determined the grid coordinates for your rectangular zone. The result is visualized in the figure below:



One last step before setting up the event, is to determine the sign of the coordinate values. Latitude North and Longitude East is positive and Latitude South and Longitude West is negative:



In our example:

Latitude (UL) = +51.46988°

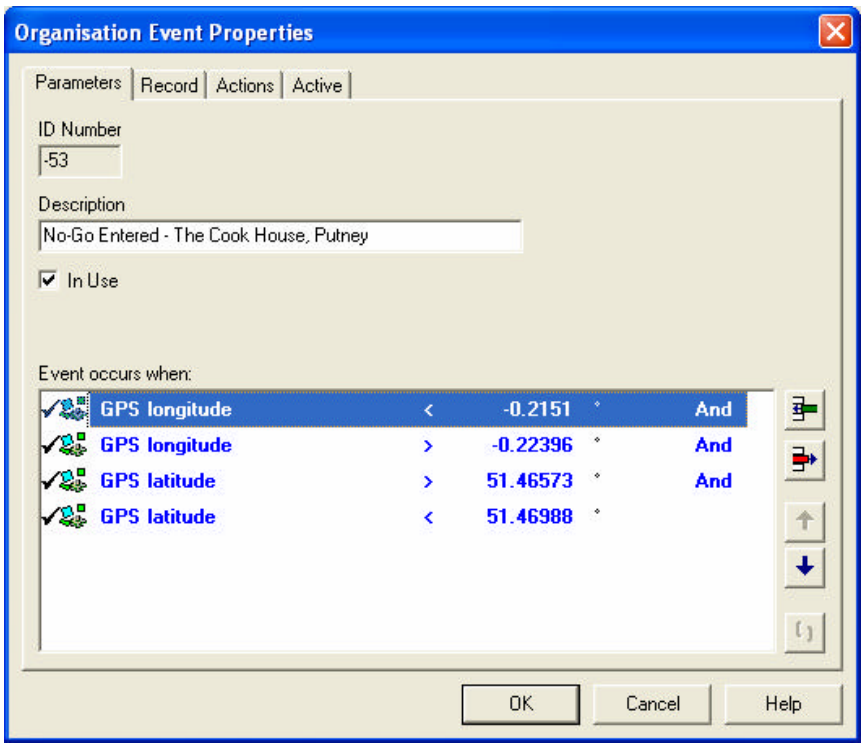
Longitude (UL) = -0.22396°

Latitude (LR) = +51.46573°

Longitude (LR) = -0.21510°

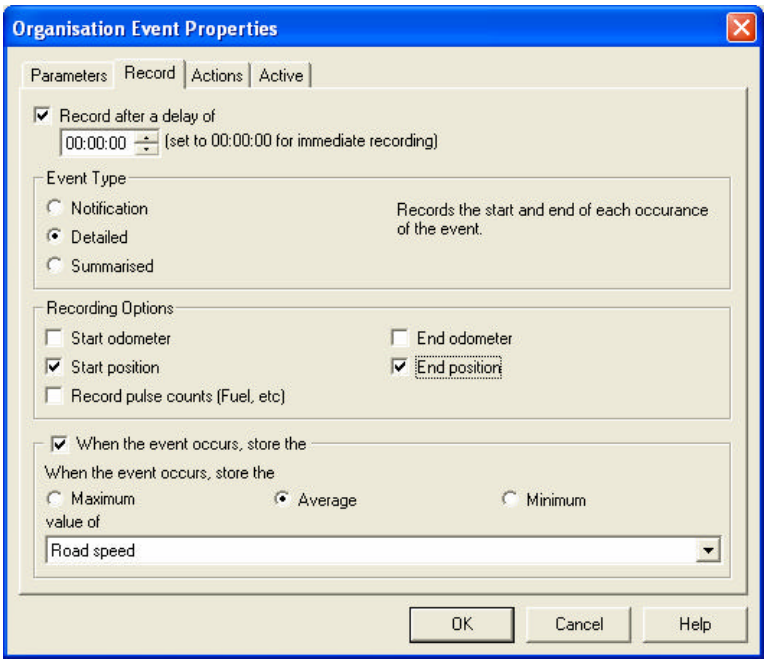
Set up the No-Go Zone Entry event

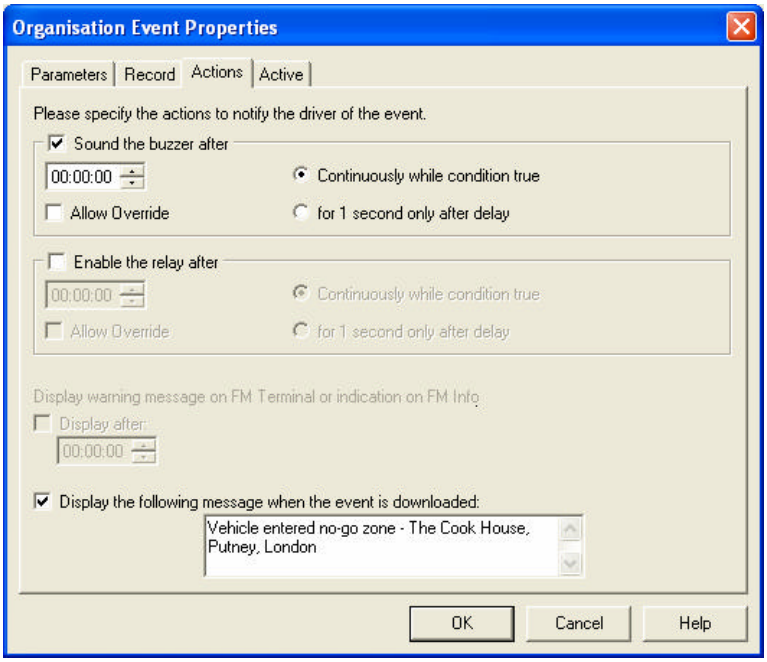
Set up the event as normal, and enter the parameters as indicated below. (Note that -0.22396 < -0.21510)

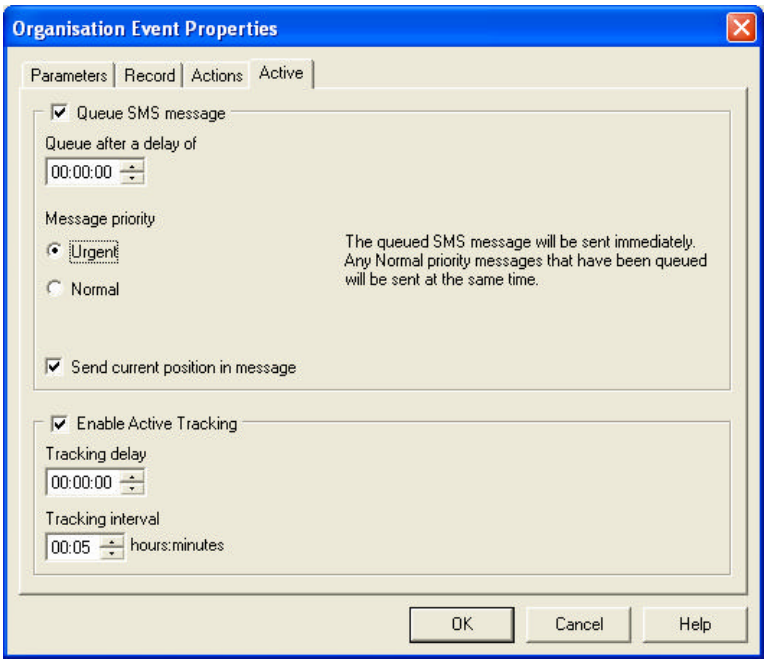


For our example: *This will result in an event being recorded in the FM200 when the Latitude of the vehicle's current position is bigger than 51.46573°+ AND smaller than 51.46988° AND the Longitude of the vehicle's current position is bigger than -0.22396° AND smaller than -0.21510°.*

You can choose to record only the start position (i.e. when the vehicle entered the zone) or both the start and end position (detailed event type only). You can also record a value with the event, sound the buzzer to warn the driver, set Active Tracking and SMS settings, etc. as normal for any user defined event.


Organisation Event Properties
Parameters
Record
Actions
Active
Record after a delay of
00:00:00
(set to 00:00:00 for immediate recording)
Event Type
Notification
Detailed
Summarised
Records the start and end of each occurance of the event.
Recording Options
Start odometer
Start position
Record pulse counts (Fuel, etc)
End odometer
End position
When the event occurs, store the
When the event occurs, store the
Maximum
Average
Minimum
value of
Road speed
OK
Cancel
Help


Organisation Event Properties
Parameters
Record
Actions
Active
Please specify the actions to notify the driver of the event.
Sound the buzzer after
00:00:00
Allow Override
Continuously while condition true
for 1 second only after delay
Enable the relay after
00:00:00
Allow Override
Continuously while condition true
for 1 second only after delay
Display warning message on FM Terminal or indication on FM Info
Display after:
00:00:00
Display the following message when the event is downloaded:
Vehicle entered no-go zone - The Cook House, Putney, London
OK
Cancel
Help



Save your new event and remember to set the event to be “In Use” for the particular vehicle. Now simply download the new configuration to the vehicle and your FM200 unit will start recording events based on the defined geographic zone.