

eztracker@trbo™
Simple MOTOTRBO™
Fleet Tracking and messaging

Administrators Guide

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CONFIDENTIAL

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1 INTRODUCTION

eztracker@trbo™ is a simple fleet tracking and messaging application that monitors in real time the location of radios and displays them using Google Maps. It can store locations for later playback and send text messages to individual or a group of radios.

eztracker@trbo™ is intended to be running on a Microsoft Windows PC with access to the internet and tethered via the standard USB programming cable to a MOTOTRBO mobile radio used as a control station. This radio can simultaneously act as a traditional base station and operated for voice calls using the microphone connected to the radio. In addition, eztracker@trbo™ can also support a second control station for conventional GPS revert operation to offload the GPS reporting to a data channel.

eztracker@trbo™ only displays active radios that have registered their presence, thus reducing confusion with others that are turned off or out-of range.

It is intended to be very easy to install and intuitive to operate, requiring minimal or no training.

2 MAIN FEATURES

eztracker@trbo™ supports the following capabilities:

- Support for single radio (one slot) or dual radio configuration with GPS revert (two slots)
- Support MOTOTRBO conventional, IP Site Connect and limited Capacity Plus deployments
- Direct USB to radio interface for MOTOTRBO signaling
- MOTOTRBO ARS services for individual radio presence
- MOTOTRBO GPS services for location reporting
- MOTOTRBO TMS services for text messaging
- Locations displayed using Google Maps with optional live traffic information
- Support for maps, satellite, hybrid and terrain views
- Maps can be zoomed and panned
- Maps refresh is limited to a programmable time to reduce internet access
- Freeze map refresh
- Active list of radios
- Radio aliasing
- Global and individual radio reporting
- Immediate location reporting
- Highlighting on the map of selected radio
- Location recording and playback to Excel-compatible CVS format
- Text messaging to individual radios or a talkgroup (group of radios)
- Log of all messages with reply and forward
- Application can be automatically started with Windows

3 INSTALLATION

An eztracker@trbo™ system is very easy to install:

- configure the radios
- install the MOTOTRBO RNDIS driver on the PC
- connect the control station radio to the PC via the USB programming cable
- install the application

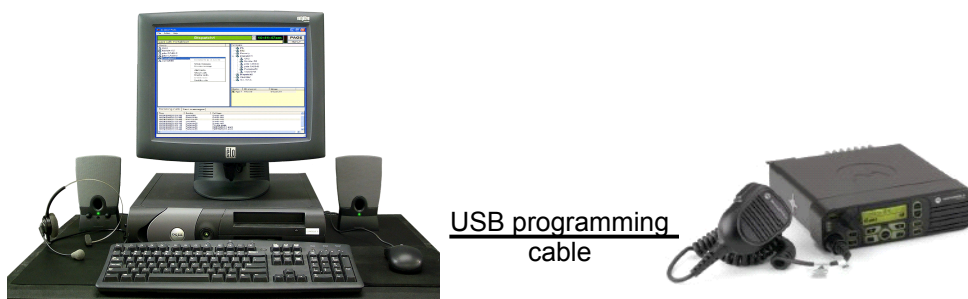
To configure eztracker@trbo™ run it and:

- Enter the activation code if provided, If not it will run in demonstration mode
- Open the File | Settings window
- Select the radio(s) connected to the PC. If also using a second control GPS revert control station, check the “GPS revert channel” option” and select the second radio.
- Set the coordinates of the center of the map. Click on “Convert Street Address to coordinates” open a browser to a site that generates latitude and longitude based on a street address. Cut and paste the coordinates to the application settings
- Recommended: procure a free Google Maps developer code and enter it to display live traffic information and information windows. The code can be obtained from <http://code.google.com/apis/maps/signup.html>.
- Click on “Apply” to save the settings.

Now turn on the subscriber units (e.g. a portables) and they will be displayed within 15 seconds in the users list. Within a couple minutes the radios start reporting GPS coordinates and their icon is displayed on the map.

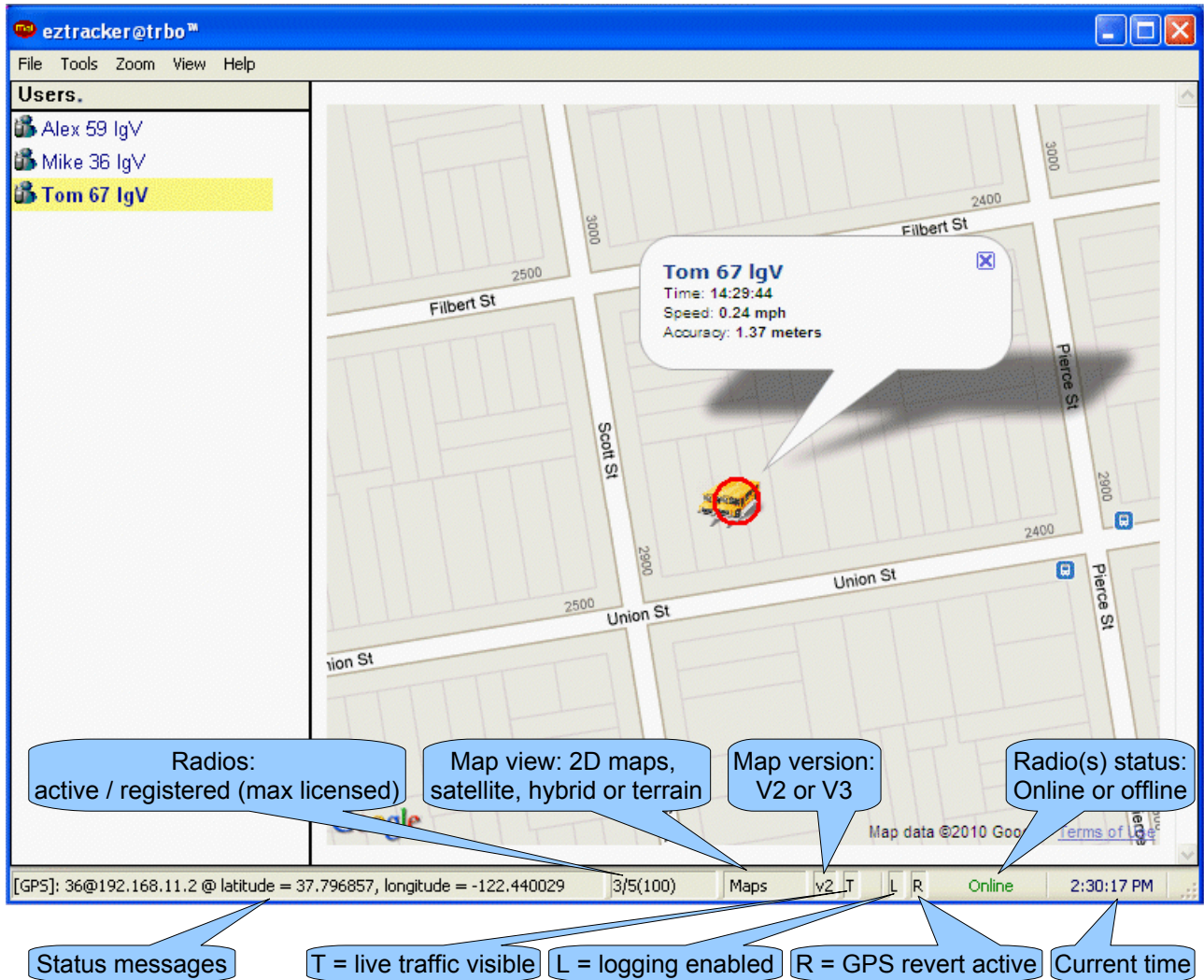
Once a radio has registered, go to “File | Radio Aliases” and change the name of the radio from a number (the radio ID) to a name. You can also change the GPS reporting interval time for the specific radio.

The figure below shows a typical setup:



4 OPERATION

The following is the screenshot of the application.



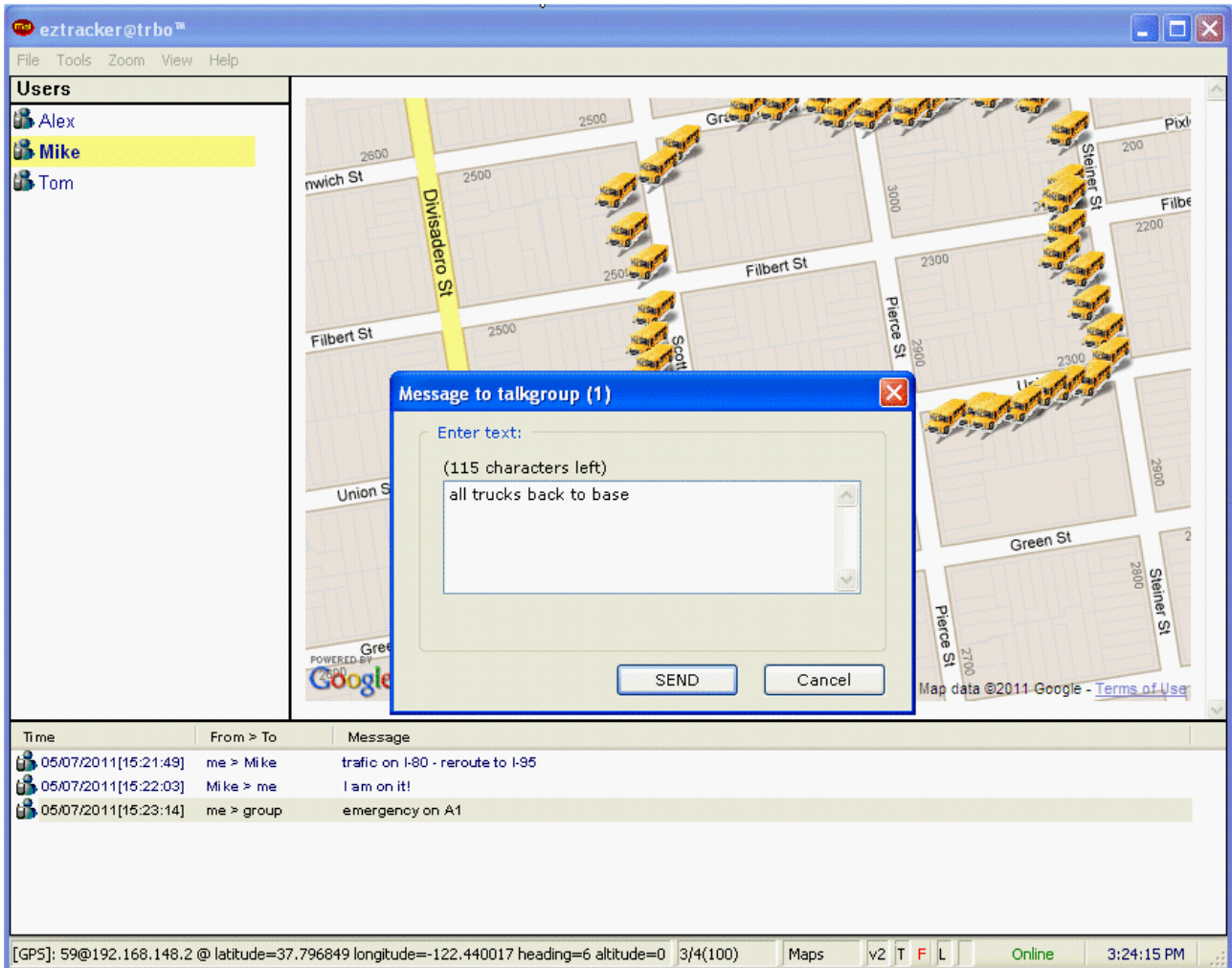
The list on the left indicates all the active radios. Selecting one of them will place a red circle around its icon on the map.

The map displays the icons of all the radios that are active and are sending GPS coordinates. In order to reduce the number of times that the map is updated, a timer limits the refresh time interval to 2 seconds (the default value can be changed in the registry).

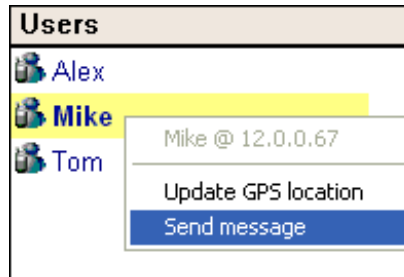
When using V2 of the Google Maps (need developer code), it is possible to also:

- display the live traffic overlay
- display an information window with location, speed and accuracy of the coordinates reading

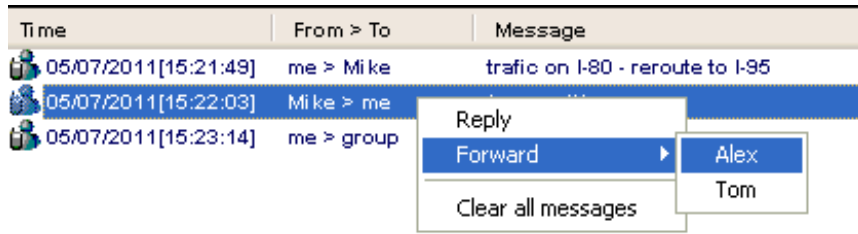
The screenshot below shows the text messages log and the dialog for typing a message:



To send a message to a specific radio, just right-click on the name and select "Send message".

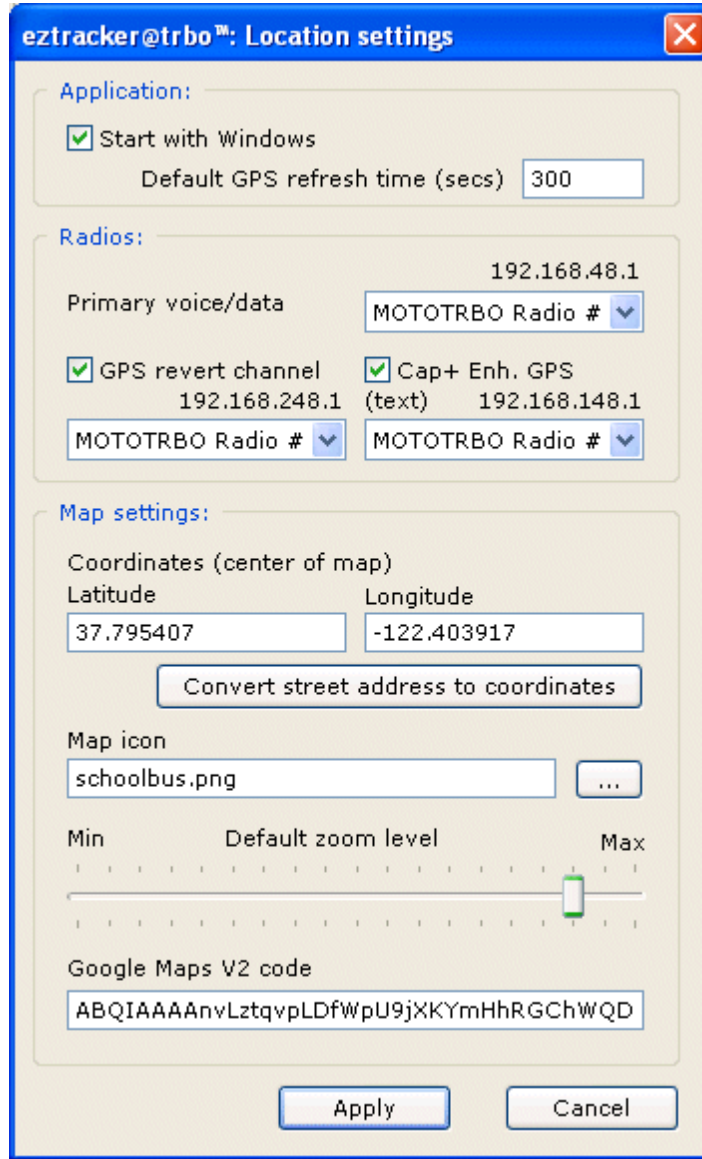


To reply or forward a message, right-click on the message in the log:



NOTE: the message log is automatically saved and reloaded when the application starts.

5 CONFIGURATION



5.1 Application

- Start with Windows: automatically starts the program when Windows starts

5.2 Radios

- Primary voice/data: set the main radio device
- GPS revert channel: check to enable the second control station for GPS revert and set the radio
- Cap+ Enh. GPS: check to enable support of Enhanced GPS in a Capacity Plus system

5.3 Maps Settings:

- Latitude and Longitude: set the coordinates in WGS-84 format

- Convert street address to coordinates: press this button to open the browser at a site that converts street addresses to coordinates
- Map icon: click on the “...” button to select the appropriate icon. Choose a name that does not end with an “H”, e.g. “schoolbus.png”, not “schoolbusH.png”.

NOTE: when creating new images make sure that the size is 32 x 32 pixels, the bit depth preferably 16 colors and background transparency is enabled. A second highlighted image also needs to be created with the name ending in “H”.

- Default zoom level: set to min for less detail and a map for wider coverage.
- Google Maps V2 developer code: this can be procured at <http://code.google.com/apis/maps/signup.html>.

6 RADIO PROGRAMMING

eztracker@trbo™ requires the following MOTOTRBO radio services:

- ARS
- GPS

For CPS programming use the following parameters in expert mode:

<i>Page/Feature</i>	<i>Control Station</i>	<i>Subscriber Unit</i>
General		
ID	16448250 conventional / 64250 trunked (Capacity Plus)	<any>
GPS	un-checked	checked
Accessories		
Cable type	Motorola	<default>
Network		
Network address	192.168.20.1 (main radio) 192.168.30.1 (GPS revert radio)	<default>
Forward to PC	checked	un-checked
ARS Radio ID	<blank>	16448250 or 64250 (see above)
TMS Radio ID	<blank>	16448250 or 64250 (see above)
Channels		
ARS	un-checked	checked
Compressed UDP data (recommended)	checked	checked
GPS revert (as required)		Select the GPS revert channel
Admit criteria	Color code free	Color code free
In call criteria	Follow admit criteria	Follow admit criteria
Data calls confirmed	Checked	Checked

NOTE: the above are just an example of programming. For more detailed information, including using GPS revert, please refer to the Motorola MOTOTRBO system planner and related Motorola training.

7 REQUIREMENTS

The radios required are:

- Control station: Motorola MOTOTRBO XPR4xxx (LCD or GPS not necessary)
- Remote radios: Motorola MOTOTRBO XPR4x50 or XPR 6x50 (LCD not necessary)

Use the standard Motorola “Mobile & Repeater Rear Programming Cable” (part # PMKN4010_) cable to connect the PC to the control station.

8 COORDINATES LOGGING

Location of individual radios is saved to comma-separated value files (.CSV) that can be read using any text editor, Microsoft Excel or any imported database program.

The columns reported are as follows:

- Date: dd/mm/yyyy
- Time: hh:mm:ss
- Latitude: WSG-84 format
- Longitude: WSG-84 format
- Speed: in miles per hour * 100
- Accuracy of the reading: in meters * 100
- Heading: in degrees
- Altitude: in feet

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