



# SAFEDISPATCH V7.0 TETRA WHITE PAPER

2015

**safemobile**

*A premier client-hosted radio dispatch and data application, designed with a wide range of intelligent features to meet all professional two-way communication needs*

# SAFEDISPATCH SOLUTIONS

## Communications That Work For You

### CONNECT YOUR BUSINESS

SafeDispatch v7.0 is designed with our customers' business requirements in mind. Our goal is to unleash the power of your radios to provide enhanced reporting, better operation efficiency and increased flexibility within your communication systems.

### MANAGE AND MONITOR

SafeDispatch v7.0 is the premier client-hosted software application that provides customers with the ability to effectively manage and monitor their organization's mobile assets and personnel using TETRA digital radio systems as well as cellular-based GPS units.

### HOST AND MANAGE PRIVATELY

SafeDispatch v7.0 enables our customers to host and manage the entire software application privately, on their own computer. Therefore, no costs are associated with online applications. There are no monthly recurring fees or data charges as seen with other cellular data options, saving customers thousands of dollars annually.

### LOOK INSIDE

The solution provides a rich graphical user interface in a sleek modern design that is easy for the dispatcher to use, and is available currently in 14 different languages. SafeDispatch is enhanced with a variety of location enabled features that offer real-time 24/7 critical information about your mobile assets around the world, automatically displaying vehicle and unit positions using Google® mapping engines. The application also easily integrates with Openstreet Maps, ESRI ArcGIS and any raster or vectorial tab-formatted private maps. We work with our customers to provide the mapping solution that best fit their needs to help them monitor their assets effectively.

### PERFECT FIT FOR ANY NETWORK, MARKET OR ENTERPRISE

The modular features make our application the perfect tracking tool for the mobile assets and personnel of any business, in any market.

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*Police Departments, Service and Installation, Electrical and Plumbing, Delivery Services, Fire Departments, Public Works, Mining, Trucking Services, Public Transportation Services, Airport Security Systems, Student Transportation, Livery Services, Hospitality Chains, Healthcare Networks, Oil & Gas, Manufacturing, Retail, Maritime Ports, State and Local Governments, Utilities, and more!*

# SAFEDISPATCH SOLUTIONS

## Modernize Your Dispatching With the Right Tools

SafeDispatch v7.0 provides a complete end-to-end solution and the benefits lie within the seamless integration of its modular components with your Tetra® radio system. You can pick only what you need or deploy all of the modules together in one robust system.



SafeDispatch™ v7.0 will allow you to assess the components of a job or project, determine which tools in the suite are the most appropriate, then combine their power to complete your mobile tasks with less effort.

- ✓ Access critical fleet information
- ✓ Improve your field communications
- ✓ Enhance your reporting abilities



### ***Text Messaging Suite:***

Text communication between radios and dispatchers with individual and group messaging

### ***GPS Suite:***

Real-time AVL, GPS speed and heading, Historical playback, Geo-Fencing, and Landmarks

### ***Enhanced Reporting Suite:***

Comprehensive data interpretation in a wide variety of reports



# SAFEDISPATCH SOLUTION

## SafeDispatch Application Details



The system is composed of three main applications, two auxiliary apps and a postgres database:

### MAIN APPLICATIONS

- Application Server – The central app that connects all others to the database and each other
- Gateway – Connects the system with the TETRA® radios
- SafeDispatch – Dispatching Application

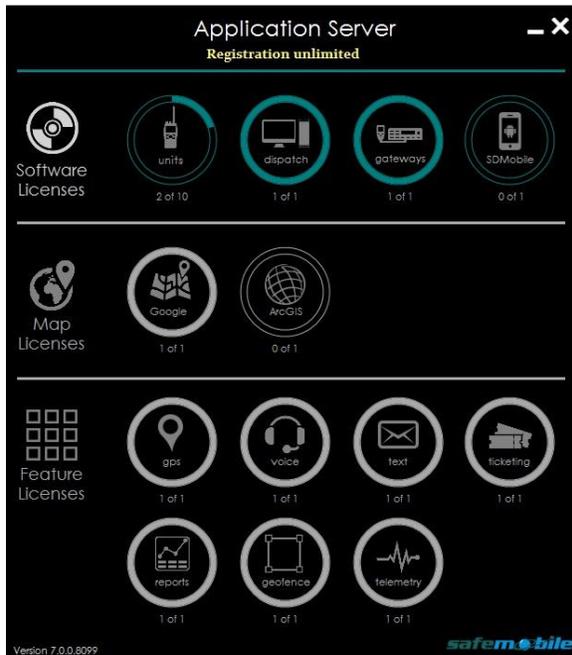
### AUXILIARY APPLICATIONS

- Subscriber and User Manager – Used for system set up
- SafeMobile Updater – Used to keep the system up-to-date by downloading and installing the latest updates from SafeMobile's servers

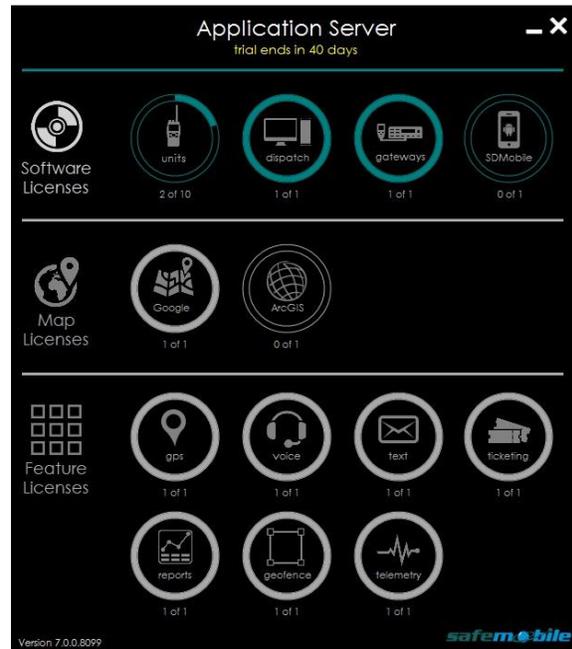
### APPLICATION SERVER

This app is the central app that connects all others to the database and each other. In order for SafeDispatch v7.0 to work properly, the Application Server Program MUST run simultaneously. The Application may be minimized in your toolbar once launched. App server must be installed on the same PC where the database is installed.

# SAFEDISPATCH SOLUTIONS



Application server with dongle connected



Application server with no dongle connected

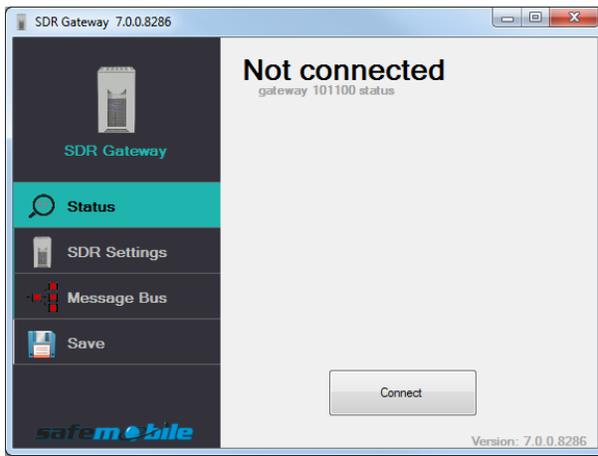
## GATEWAY FOR CONTROL STATION

This app connects the system with Tetra<sup>®</sup> radios. SafeDispatch can have more than one Gateway app installed on different PC's. All the communication between the Gateways and the Application server is done through UDP multicast protocol. So if more than one PC is used in the SafeDispatch then all the PC's must be connected in a LAN with multicast enabled.



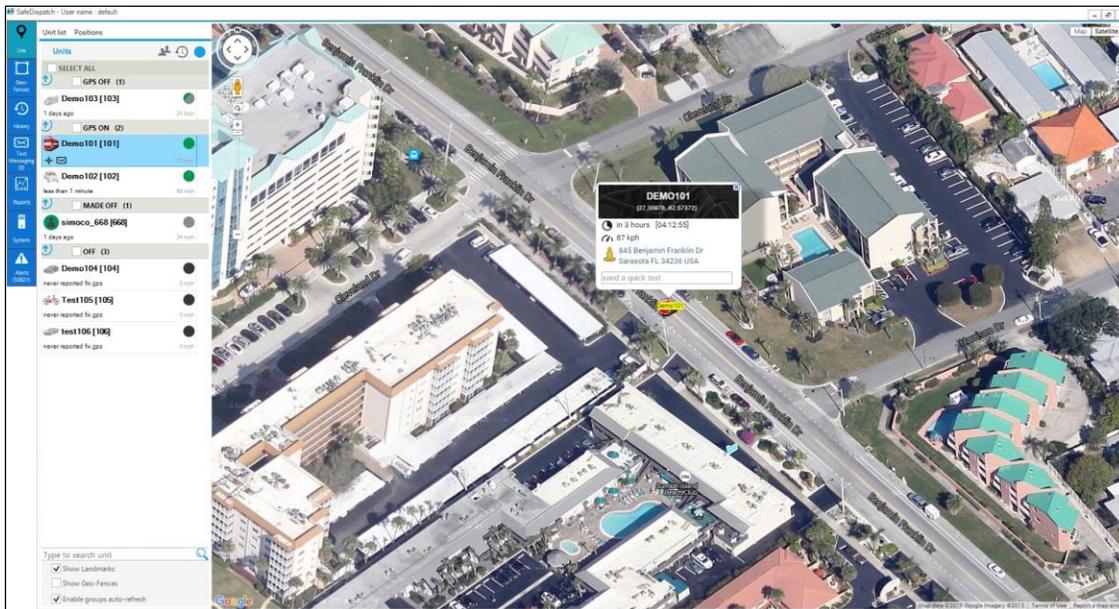
# SAFEDISPATCH SOLUTION

## GATEWAY FOR DIRECT CONNECTION TO INFRASTRUCTURE



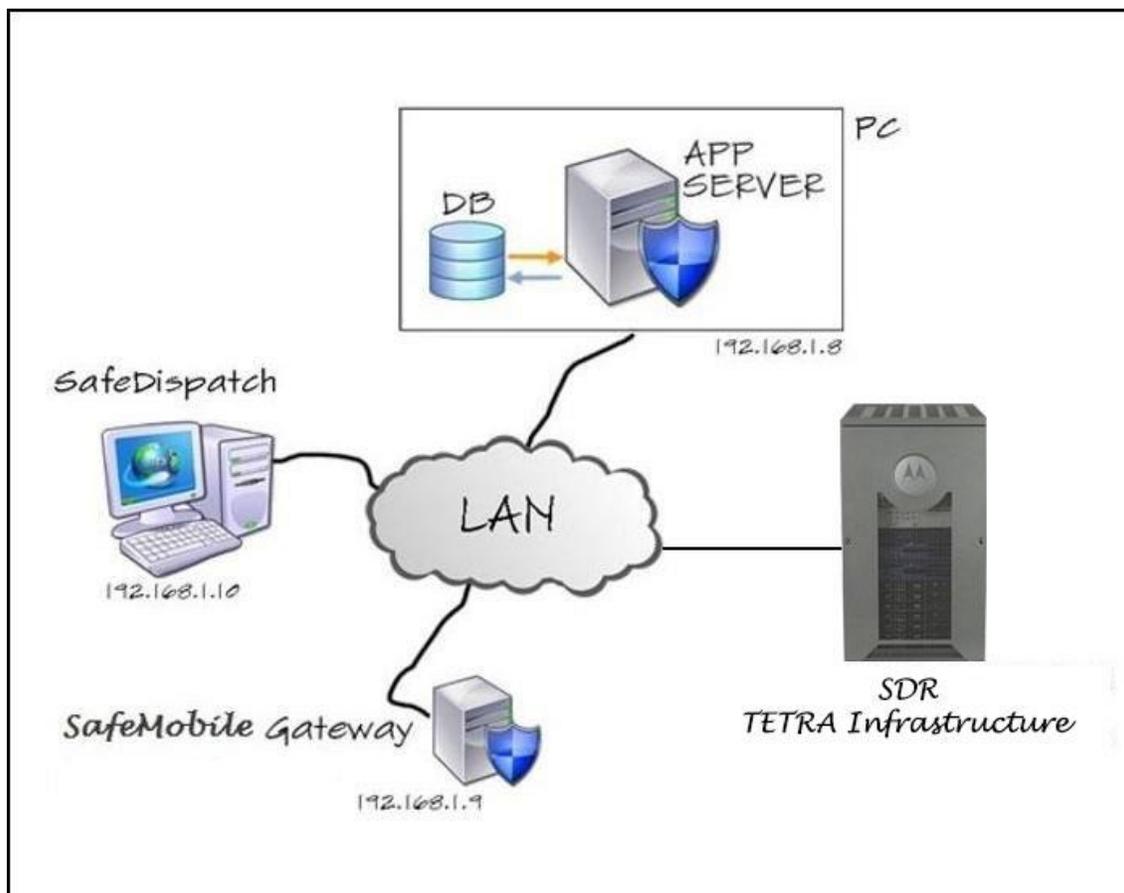
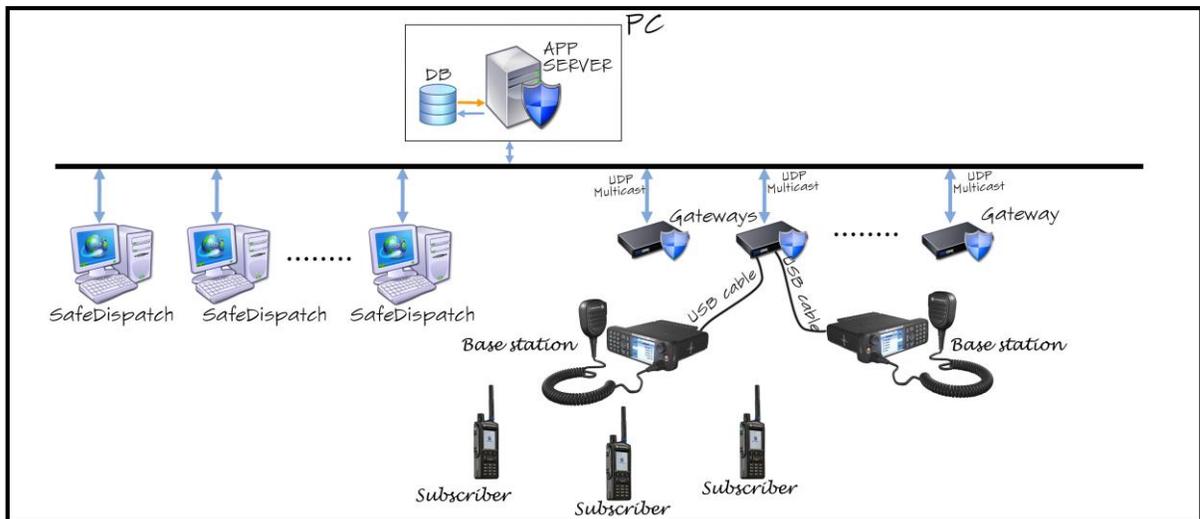
## SAFEDISPATCH

SafeDispatch v7.0 dispatchers interact with the Application Server as well as the Gateways through UDP multicast. All the PC's in the system must be capable of using UDP multicast.

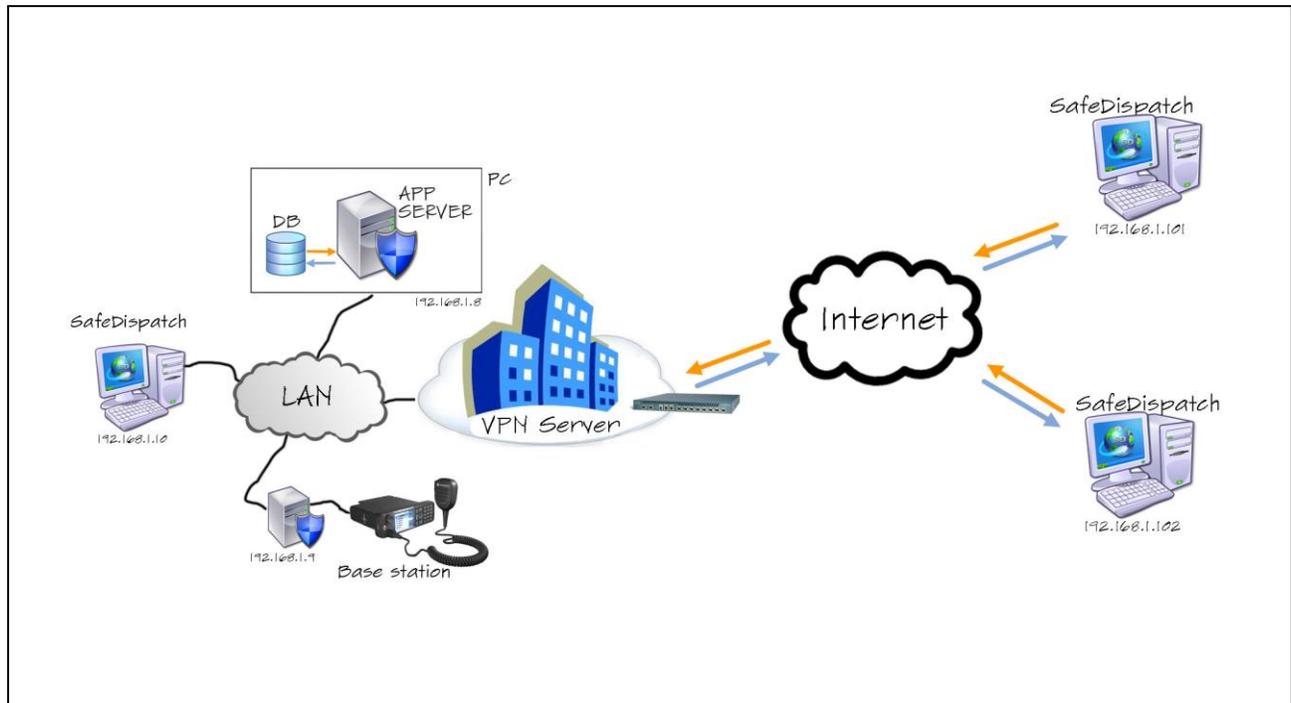


# SAFEDISPATCH SOLUTION

An example of a basic SafeDispatch consists of 1 Application server, 1 Gateway (connected to 2 Tetra® radios -> 1 is used as a base station and one is used as a subscriber), with 1 dispatcher.



# SAFEDISPATCH SOLUTION



An example of data (GPS) transfer through the system:

1. Subscriber radio acquires fixed GPS position and send it, through air waves, to the base station radio. Base station radio is the one attached to the PC.
2. Base station radio sends this message to the PC through the serial cable.
3. The Gateway App processes this message and sends it to the application server and all Dispatchers through the UDP multicast.
  - 4a. Application server adds this message to the database for future history reports.
  - 4b. Dispatcher applications show the location of the subscriber on the map.

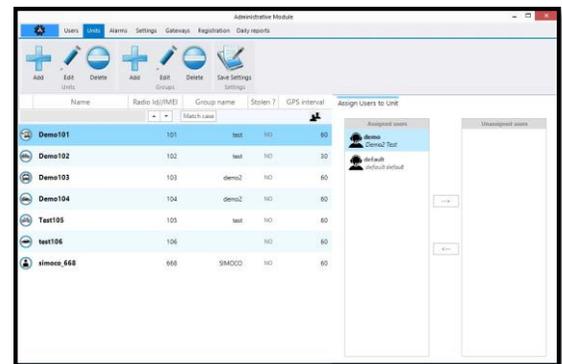
# SAFEDISPATCH SOLUTIONS

## Auxiliary Application Details

### SUBSCRIBER AND USER MANAGER

This application is used for system setup. Here the system administrator can configure the system.

- Add/ Edit Dispatchers and Gateways as per dongle setup
- Add/ Edit Users and Subscribers
- Configure the Base Station Radios



### SAFEMOBILE UPDATER

This application is used to keep the system up-to-date by downloading and installing the latest updates from SafeMobile servers.

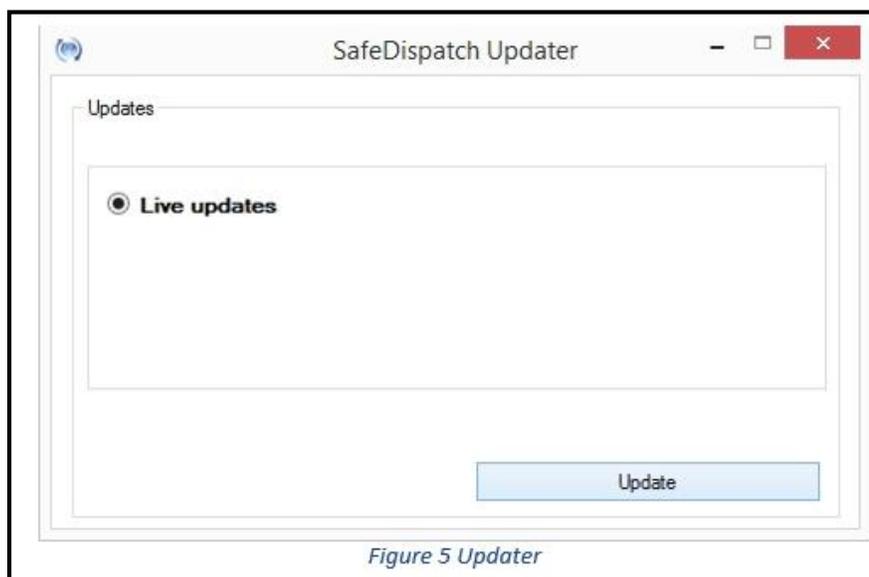


Figure 5 Updater

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## AUXILIARY APPLICATION SYSTEM REQUIREMENTS

The maximum number of TETRA® base stations in a system is 16.

### Minimum System Requirements:

- Intel Core i5 processor
- 4GB RAM Memory
- 500GB free Hard Disk Space
- Windows 7 Professional x86 /x64
- 2 USB ports (one for convertor, one for dongle)
- 1 USB serial converter

In case of Direct Connection to SDR we need only one USB Port for the dongle and LAN Connection for the SDR.

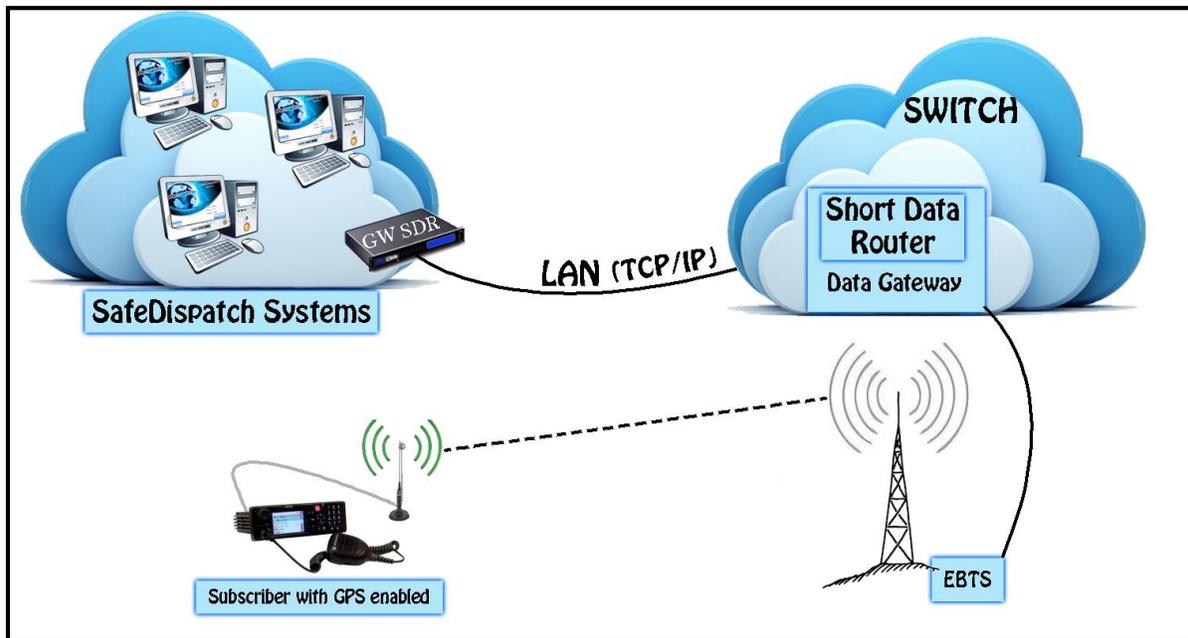


# SAFEDISPATCH SOLUTION

## System Overview

SafeDispatch contains server software that works together with TETRA<sup>®</sup> radio systems to manage dispatchers, subscriber radios, and to store data.

SafeDispatch connects to the subscriber radios using the TETRA<sup>®</sup> Gateway, through the Control Station radio(s), via SDR cables to your computer or directly to the infrastructure as it show in below diagram.



## Hardware Requirements

Before you begin installation of SafeDispatch v7.0 your TETRA® Radios and your PC should be properly configured. You should have the following connected:

### PC WITH INTERNET ACCESS AND USB to serial convertor PORT AVAILABILITY

**NOTE: If your computer is running a Windows 7, 8, 10 operating system, you MUST ensure that the User Account Controls are turned off. When using one of the mentioned version of Windows, the Firewall MUST be disabled.**

In the event that you require the Firewall to remain active, please contact your SafeMobile Sales Person, communicate with SafeMobile Tech Support to establish your necessary work-around.

### CONTROL STATION RADIO(S)

**NOTE: Depending on your radio system size, you may need more than one control station. They are provided by your Channel Partner and are connected with a custom USB cable to your PC.**

### USB serial convertor to CONTROL STATION CABLE

NOTE: The USB serial converter is not sent by SafeMobile. You need to buy the serial data cable 1022 from Motorola website.

### USB REGISTRATION DONGLE

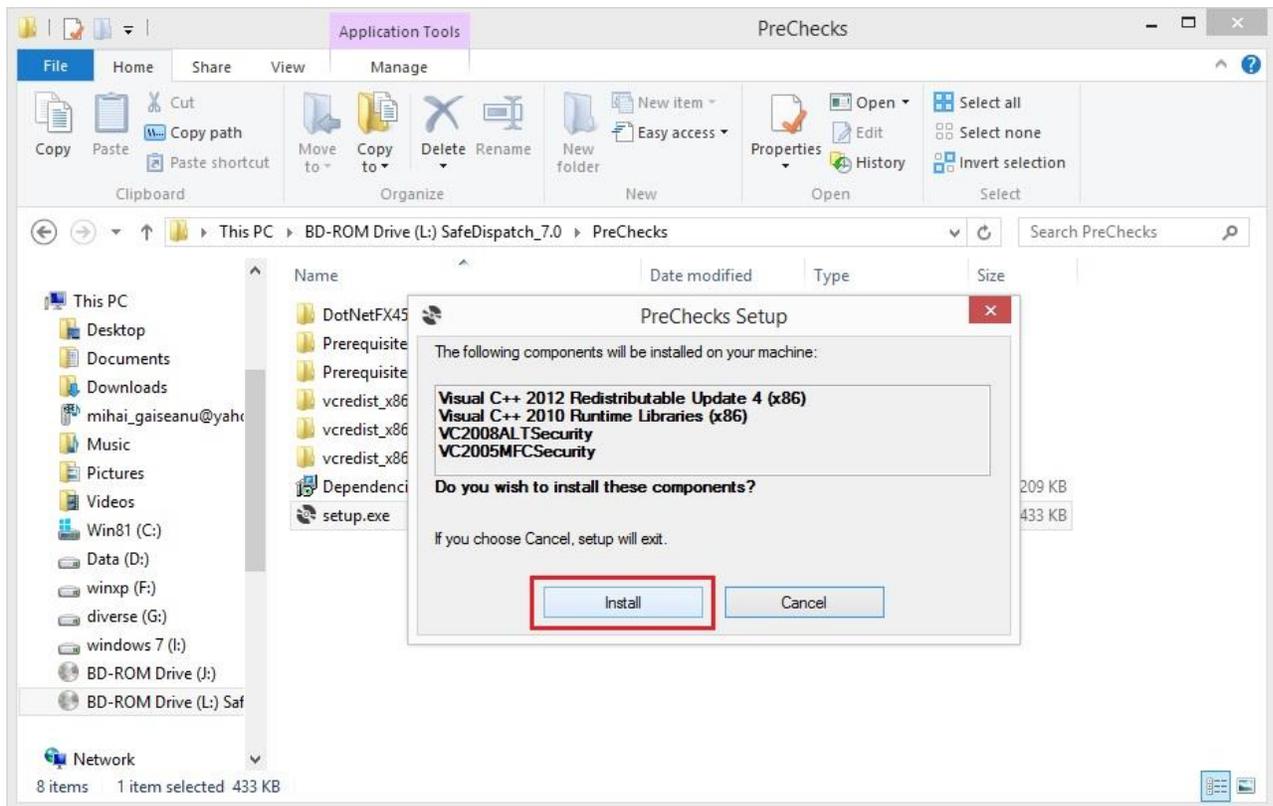
NOTE: One Dongle is included with the Software Package purchase.

In case of Direct Connection, we need just LAN connection to the SDR.

# SAFEDISPATCH SOLUTIONS

## Install Prerequisite Software

Inside the SafeDispatch v7.0 kit CD, run PrechecksSetup



Follow the onscreen instructions of the Setup program.

# SAFEDISPATCH SOLUTIONS

## How SafeDispatch Works

- The hardware units are either hard-wired into vehicles or are carried by your personnel.
- The GPS module inside the hardware unit receives messages from geo-stationary satellites and computes the unit's physical position on the earth via its longitude and latitude.
- The unit monitors changes in status and takes regular positional samples and stores them in its internal memory. The unit gathers and continuously records information like position, speed, and the status of its inputs.
- Once the memory becomes full or the unit is instructed to send, the stored information is sent to a dispatcher using the selected wireless communication network.
- SafeDispatch receives messages and translates them into meaningful information to the customer through various electronic maps.



## Technical Features

- Full Monitoring: GPS, Text Messages, ARS
- Mapping Options: Google, Openstreet, ESRI, Customer provided maps (raster or vectorial formats)
- Access to the Radio Network via PC: Multi-user access to Radio Server
- Channel Supported: Digital
- Automation Features: Scheduled Text Messages, Email Gateway
- ☐ TX Passive: The Passive Transmit feature enables dispatchers to queue messages in a situation where a message must be transmitted but the channel is currently busy. The dispatcher records a message on a busy channel and then SafeDispatch broadcasts this message as soon as the channel becomes available.

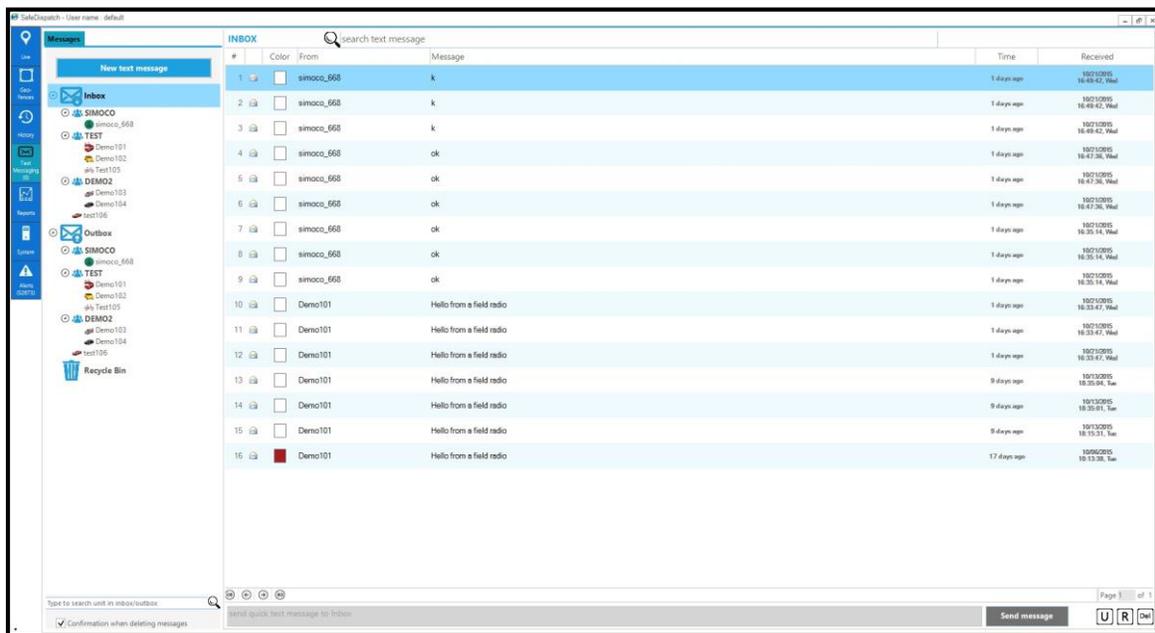


# SAFEDISPATCH SOLUTIONS

## Features of SafeDispatch

### TEXT MESSAGING SUITE

- New, enhanced text messages window
- Two-way text communication between radios and dispatcher
- Quick text messages
- Set pre-defined messages to send at a scheduled time
- Search option to find previous texts
- Define colors for each message for user-set grouping
- Send email messages to radios from any computer



# SAFEDISPATCH SOLUTIONS

## GPS (LIVE MAP) SUITE

Enhanced with a variety of location-enabled features including Geo-fencing and Landmarks

### GPS/ AVL Location Features:

- Current units location
- Speed and heading details
- Preconfigured polling intervals/ Reset GPS trigger
- Location history and routes with auto playback
- Subscriber status (radio online/ offline, GPS online/ offline, Alarms)
- Regions: Geo-fencing and Speed Control policies
- Landmarks: display additional objects on the map (70 icons – pin or classic type)
- Send quick text message directly from mapping interface

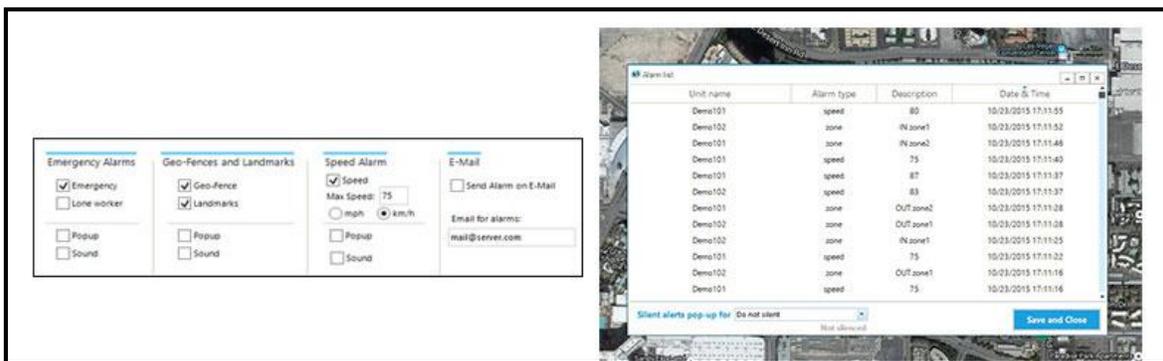
### GEO-FENCING AND GEO-FENCE ALARMS

The Geo-fencing Suite in SafeDispatch allows you to establish specific zones on the map. These geographical areas help identify when a unit travels to a defined area. (I.e. Delivery routes, city limits, campus or property lines)

The Geo-Fencing mapping area also interacts with Google Maps or other mapping options to display the location of your Geo-fences on the map.

You can generate a Geo-Fences report based on the regions added on the map and add rules for entering and leaving the defined area. (Geo-Fencing Policy)

In the Administrative Module, dispatchers can set up how SafeDispatch notifies of new alarms on screen.



- Color code your Geo-fences, layer one over another if needed
- Set Geo-fence with speed parameter for control policy alarms
- Address look up or enter coordinates to create starting points
- Manual editing/ adding of the Geo-fence points at a click
- More than 25 colors available to customize your zones

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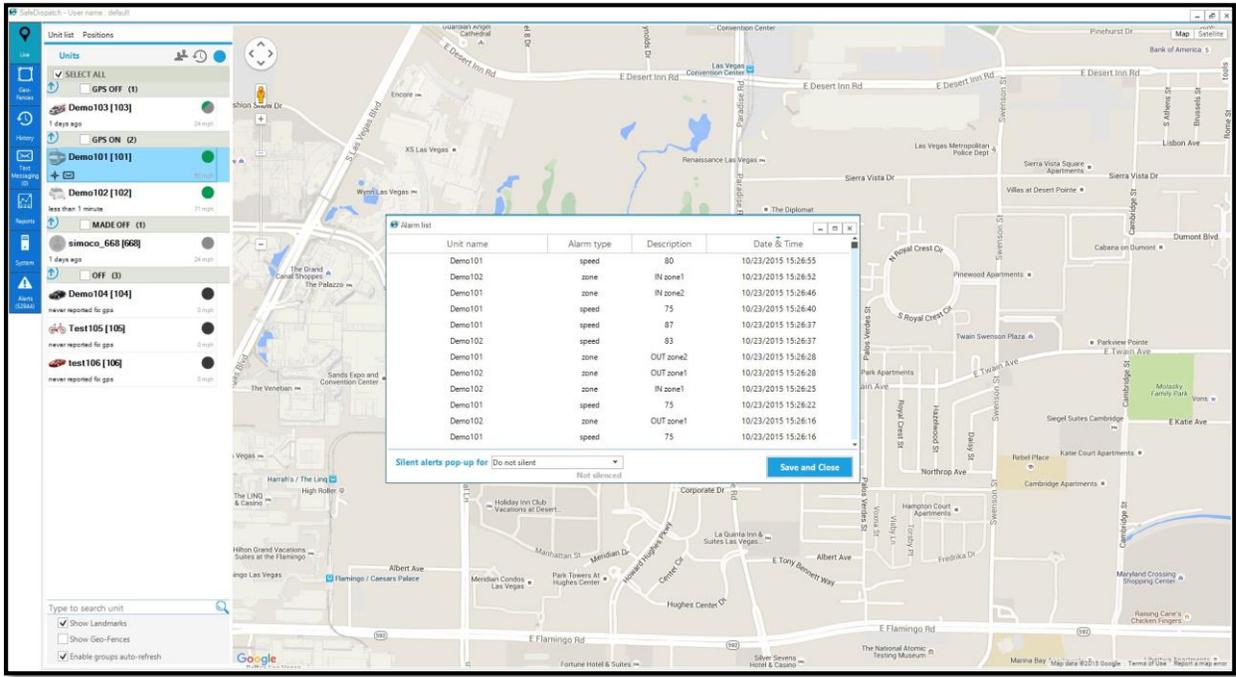


For real-time monitoring, the dispatcher needs additional information regarding the radio user's position such as, speed and direction headed. With SafeDispatch, dispatchers can check the speed of vehicles if the radio unit is installed or being used inside of a vehicle.



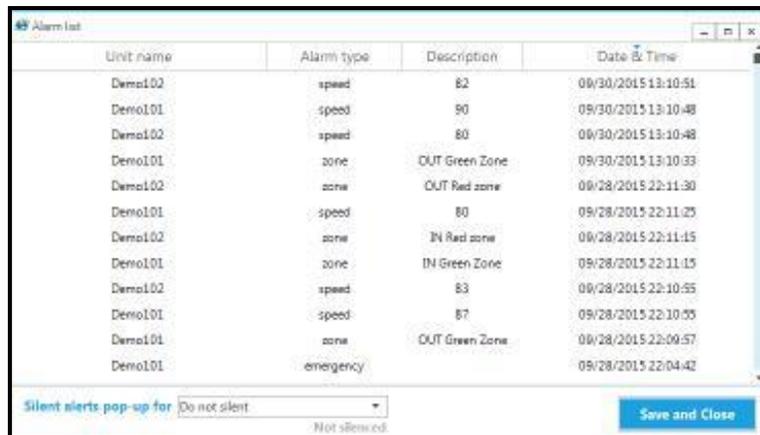
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## ALARMS



The application generates Alarms in the following events:

- Geo-fencing/ Landmarks policy: when a subscriber leaves a region or a particular location, the system sends a message and generates an alarm signal for the dispatcher
- Speed Policy: when and where defined speed limits have been exceeded
- Emergency situations that have arisen: the dispatcher can set a time interval in which a communication with the radio station user is expected in TETRA® Customer Programming Software (CPS)



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## ENHANCED REPORTING SUITE

Numerous GPS based reports generate within SafeDispatch, providing data and analytics that customers need to effectively manage their work flow and daily operations. The latest report design offer charts within and can be scheduled to run at any time. Copies can also auto-email to any address provided to the system.

**Speed Alarm Report**

| Unit name | Speed (Km/h) | Time  | Date       | Address or (LAT, LNG)        |
|-----------|--------------|-------|------------|------------------------------|
| Demo101   | 75           | 15:29 | 10/23/2015 | LAT:27.3041 , LNG:-82.57079  |
| Demo101   | 75           | 15:29 | 10/23/2015 | LAT:27.30503 , LNG:-82.57136 |
| Demo101   | 80           | 15:29 | 10/23/2015 | LAT:27.30588 , LNG:-82.57091 |
| Demo101   | 75           | 15:29 | 10/23/2015 | LAT:27.30904 , LNG:-82.57305 |
| Demo101   | 87           | 15:29 | 10/23/2015 | LAT:27.30978 , LNG:-82.57372 |
| Demo102   | 83           | 15:29 | 10/23/2015 | LAT:27.32854 , LNG:-82.58386 |
| Demo101   | 75           | 15:29 | 10/23/2015 | LAT:27.3041 , LNG:-82.57079  |
| Demo101   | 75           | 15:29 | 10/23/2015 | LAT:27.30503 , LNG:-82.57136 |
| Demo101   | 80           | 15:29 | 10/23/2015 | LAT:27.30588 , LNG:-82.57091 |
| Demo101   | 75           | 15:28 | 10/23/2015 | LAT:27.30904 , LNG:-82.57305 |
| Demo102   | 83           | 15:28 | 10/23/2015 | LAT:27.32854 , LNG:-82.58386 |
| Demo101   | 87           | 15:28 | 10/23/2015 | LAT:27.30978 , LNG:-82.57372 |
| Demo101   | 75           | 15:28 | 10/23/2015 | LAT:27.3041 , LNG:-82.57079  |
| Demo101   | 75           | 15:28 | 10/23/2015 | LAT:27.30503 , LNG:-82.57136 |
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| Demo102   | 83           | 15:27 | 10/23/2015 | LAT:27.32854 , LNG:-82.58386 |
| Demo101   | 75           | 15:26 | 10/23/2015 | LAT:27.3041 , LNG:-82.57079  |
| Demo101   | 75           | 15:26 | 10/23/2015 | LAT:27.30503 , LNG:-82.57136 |
| Demo101   | 80           | 15:26 | 10/23/2015 | LAT:27.30588 , LNG:-82.57091 |
| Demo101   | 75           | 15:26 | 10/23/2015 | LAT:27.30904 , LNG:-82.57305 |
| Demo101   | 87           | 15:26 | 10/23/2015 | LAT:27.30978 , LNG:-82.57372 |
| Demo102   | 83           | 15:26 | 10/23/2015 | LAT:27.32854 , LNG:-82.58386 |
| Demo101   | 75           | 15:25 | 10/23/2015 | LAT:27.3041 , LNG:-82.57079  |
| Demo101   | 75           | 15:25 | 10/23/2015 | LAT:27.30503 , LNG:-82.57136 |
| Demo101   | 80           | 15:25 | 10/23/2015 | LAT:27.30588 , LNG:-82.57091 |
| Demo101   | 75           | 15:25 | 10/23/2015 | LAT:27.30904 , LNG:-82.57305 |
| Demo101   | 87           | 15:25 | 10/23/2015 | LAT:27.30978 , LNG:-82.57372 |
| Demo101   | 75           | 15:25 | 10/23/2015 | LAT:27.3041 , LNG:-82.57079  |

10/23/2015 3:30:29 PM      OBSERVATION: In this report you have only alarm ALREADY generated.      1

Speed Alarms, Geo-Fence Alarms, Landmark Alarms, TETRA On/ Off, Emergency Alarms, All Alarms, Unit (s) History, End-Of-Day, Idling, Stops, Fleet, Text Messages with Location

# SAFEDISPATCH SOLUTIONS

## Benefits of SafeDispatch

### STREAMLINE, INTEGRATE AND INCREASE PRODUCTIVITY

The pressure to save money year-over-year is persistent at all companies. Business owners worldwide currently face real challenges for their commercial fleets and personnel:

- Overall Expenditures – Reduction initiatives
- Fuel Price Instability – Maximizing fuel consumption against rising operating costs
- Driver Safety – Reducing preventable accident rates
- Implementing “Green Fleet” environmentally and energy efficient initiatives
- Increasing employee productivity

### SAVE TIME AND MONEY

SafeDispatch is designed with one primary goal; to save business owners’ time and money! Fleet tracking systems save companies over \$5000.00 USD, per employee, per year! Customize your SafeDispatch solution to meet your daily business challenges and start saving now.

### EFFICIENT FLEET MANAGEMENT

By implementing SafeDispatch, you will immediately see a significant reduction in employee overtime costs, driver downtime, reduced maintenance costs, lost or stolen assets, and more. All of these challenges directly affect your bottom line. Plus, improving and streamlining your operations allow for increased satisfaction and expansion of your customer base!

### PRODUCTIVITY STRATEGIES

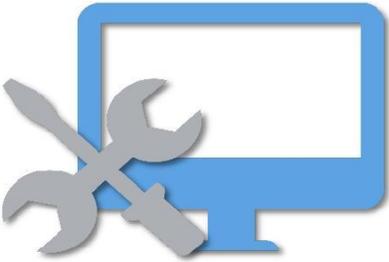
As a comprehensive fleet and asset tracking solution, SafeDispatch can be used to improve worker’s safety, fraud detection, route efficiencies, or reduce operating costs such as mileage and fuel consumption.

SafeDispatch will also increase your profits and performance, provide immediate and reoccurring cost savings, expand your communications, service, delivery times and advance your customer’s satisfaction.

# SAFEDISPATCH SOLUTIONS

## Contact Information

To receive more information or for further assistance, please contact the following representatives:

| TECHNICAL<br>SUPPORT   | SALES<br>SUPPORT   | MARKETING<br>SUPPORT  |
|--|--|---|
|  <p data-bbox="219 903 511 976">Adrian Chiriac<br/>support@safemobile.com</p> |  <p data-bbox="625 903 966 1008">Paulina Labudova – EMEA<br/>David Rodriguez – USA, LACR<br/>sales@safemobile.com</p> |  <p data-bbox="1039 903 1347 976">Shayna Thompson<br/>marketing@safemobile.com</p> |

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