



Find'n'Secure™

Automatic Tracking & Security Software





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Please check up for updated version of user manual at: <http://www.findnsecure.com/downloads.html>

Use of Google API

Find'n'Secure software uses Google API. Use of Google API is governed by the Terms and Conditions as described in the Google Maps API signup page (<https://developers.google.com/maps/documentation/business>)

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INTRODUCTION

GPS TRACKING SYSTEM

The Global Positioning System (GPS) is a satellite-based navigation system made up of a network of 24 satellites placed into orbit by the U.S. Department of Defense. GPS was originally intended for military applications, but in the 1980s, the US government made the system available for civilian use free of cost. Initially the highest quality signal was reserved for military use, while the signal available for civilian use was intentionally degraded ("Selective Availability"). Selective Availability was ended in 2000, improving the precision of civilian GPS from about 100m to about 20m. GPS works in any weather conditions, anywhere in the world, 24 hours a day.

GPS satellites circle the earth twice daily and transmit signal information. GPS receivers use the information to calculate the user's location by the method of triangulation. Basically, the GPS receiver compares the time a signal was transmitted by a satellite with the time it was received. The time difference tells the GPS receiver how far away the satellite is. The receiver must lock on to the signal of at least three satellites to calculate a 2-D position, the latitudinal and longitudinal position, and track movement. Using four or more satellites, the receiver can determine the user's 3-D position, the latitude, longitude, and altitude. Once the position has been determined, the GPS unit can calculate other information such as speed, track, trip distance, bearing and more.

GPS TRACKING UNIT

A **GPS tracking** unit is a device that uses the Global Positioning System to determine the precise location of a vehicle, person, or any other asset to which it is attached and to record the position of the asset at regular intervals. The recorded location data can be stored within the tracking unit, or it may be transmitted to a central location data base, or internet-connected computer, using a cellular (GSM/CDMA), radio, or satellite modem embedded in the unit. This allows the asset's location to be displayed against a map backdrop either in real-time or when analyzing the track later, using customized software.

COMMON USES

Most common application of GPS tracking system is applied for tracking of moving objects, such as, vehicles. Vehicle tracking systems are commonly used by fleet operators for fleet management functions such as routing, dispatch, on-board information and security. Other applications include monitoring driving behavior, such as an employer of an employee, or a parent with a teen driver. Vehicle tracking systems are also popular in consumer vehicles as a theft prevention and retrieval device. Police can simply see the vehicle in real-time over the tracking system and locate the stolen vehicle.

Remote controlling of the vehicle through GPS tracking system is also possible. In such a case owner of the vehicle can give commands to the tracking unit for various operations like blocking the engine or cutting fuel supply to engine etc.

GPS personal tracking system is commonly used for tracking of persons, pets etc. You can keep track of your loved ones in real time using a completely accurate and totally reliable GPS software package via the internet so you know exactly where your kids, parents, pets, asset are at any given point in time.

FIND'N'SECURE®

Embarc Information Technology Pvt. Ltd., a leading provider of GPS tracking and security system from India, aims at offering innovative and cost effective tracking and security solutions comprising of hardware as well as software.

GPS tracking technology is best suited for fleet management. It is a unique way for companies and individuals to monitor and control their cars, jeeps, trucks and other vehicles to their precise details by sitting in the office.

Find'n'Secure® GPS tracking system will enable you to monitor the movements of your employees, drivers, vehicles or any other asset accurately. With Find'n'Secure® vehicle tracking system in your company's fleet of vehicles, you will find a smart way of fleet management by tracking your vehicles.

Whether you own one truck or a fleet of thousands of vehicles, our highly skilled GPS fleet consultants will assist you in selecting the right type of vehicle tracking system that will give an edge to your company.

CHAPTER 1

ADMINISTRATION

In this chapter we will take a walk-through of Find'n'Secure® from an administrator's point of view. We will start with the login and then proceed to all the detailed steps required for proper functioning of the software.

Newly installed software on the server is by default provided with an administrator account with the username 'admin' and password 'admin'. It is important for you to change the password of the admin account on first login; otherwise it may result in a security breach for your software.

In this Chapter as well as the Chapters that follow, we shall be making use of the domain 'trackv4.findnsecure.com', you should replace this domain with your own domain to perform the exact steps.

- Open web-browser and go to the URL <http://trackv4.findnsecure.com>
- Enter username **admin**
- Enter Password **admin**
- Select your preferred language
- Select your preferred time zone
Time zone GUI utility with magnetic mouse pointer helps you in fast selection of the time zone as shown in Figure 1: Time zone Utility
- Click **Sign In**

ADMINISTRATOR HOME

Once all the above steps have been performed, you will be presented with the homepage for administrator panel, as shown in Figure 2: Administrator Home

Administrator home comprises of three groups, named: System Information, Trackers Information, and Backup History. Apart from these groups it has a navigation menu and a few other additional details. The top-left corner of the page displays the last login time for the administrator user. In the center of the page, current time on your system is shown. There will be a warning shown, if your computer time is incorrect, in which case you should immediately correct

your system time. Right hand side of the page shows the current weather conditions at the location written underneath. You may change to a desired location by clicking on the 📍 icon beside location, changing the location, and hitting return.

Now, let us go through the three groups and then we will explore all the menu options available on this screen.

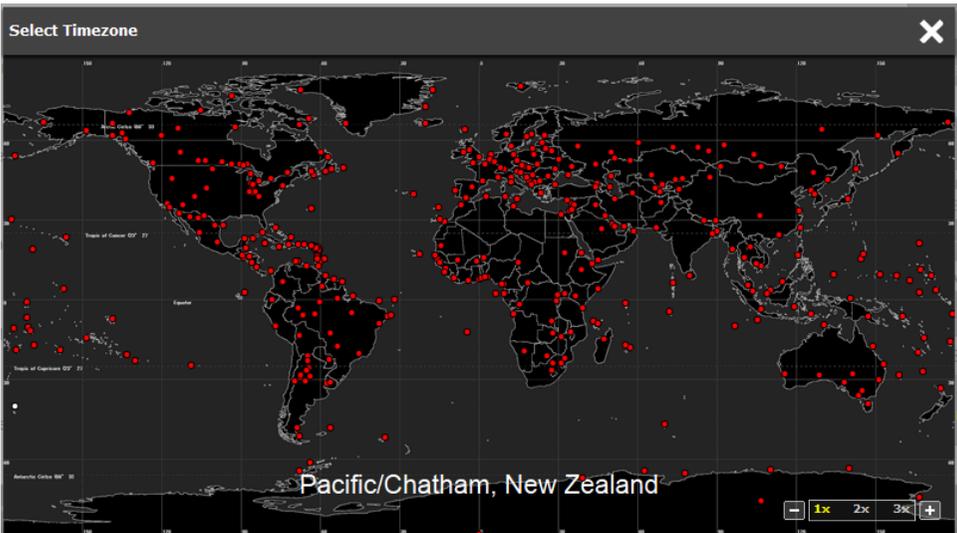


Figure 1: Time zone Utility

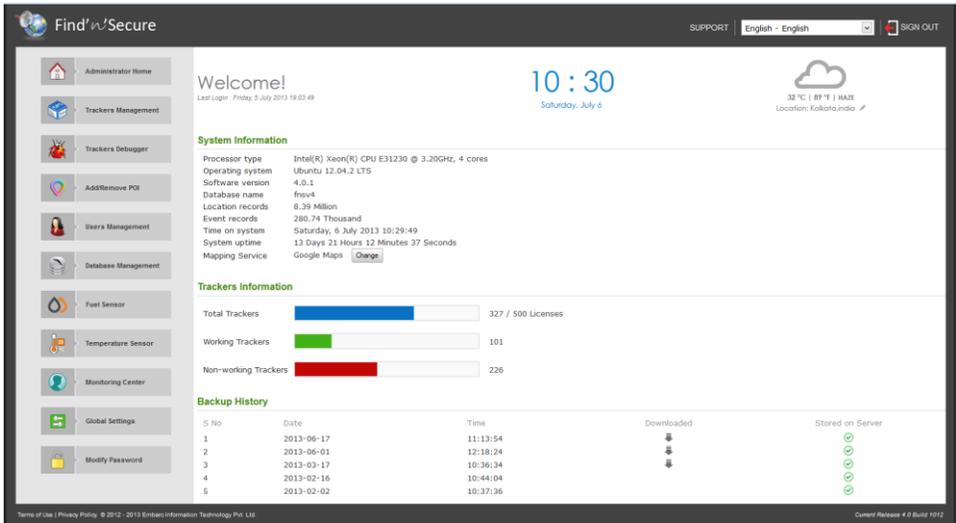


Figure 2: Administrator Home

SYSTEM INFORMATION

System Information shows detailed information about the server hardware and software.

Processor type: Processor name, model number, clock frequency and number of cores present in the processor.

Operating System: Name and version of operating system installed on the server.

Software version: The current version of Find'n'Secure software installer.

Database name: Name of the database in which location and event records for Find'n'Secure software are stored.

Location Records: The number of location records currently stored in the database.

Event Records: The number of event records currently stored in the database.

Time on system: Current time on system.

System uptime: Time elapsed after last server restart.

Mapping Service: Current default mapping service. The mapping service can be changed from Google Maps (default) to OpenStreet Maps, using the Change button beside the current mapping service.

These statistics come in handy, when analyzing database load on the server and provides an overview of database health to the administrator.

TRACKERS INFORMATION

This group consists of three graphs, each of which provides details on the number of trackers and licenses issued on the server.

Total Trackers: The total number of trackers currently associated with the server. Beside the total number of trackers, the total number of licenses available is also mentioned. If you need more detailed information about the trackers working on the server, you can click on the graph, drawn for total trackers, which in turn redirects to a new page showing all trackers, graphically organized according to tracker model.

Working Trackers: Total number of working trackers, i.e. trackers which are sending data to the server.

Non-working Trackers: Total number of non-working trackers. These trackers are not sending data to the server.

BACKUP HISTORY

Whenever database backup is performed using the software, its log is created and displayed in this table. This is helpful in recalling when last backup of the database was performed.

You'll be able to see different signs in 'Downloaded' and 'Stored on Server' column, depending upon whether the database backup was downloaded or stored on server or both. It is recommended to always download the database backup.

TRACKERS MANAGEMENT

In this section we'll learn how to add/remove/modify trackers on your server. This page is divided into two sections, left hand side of the page lists all existing trackers associated with the server and right hand side presents a Tracker Card to add new trackers and modify existing ones. Throughout this manual you'll note that we have followed a similar two column layout for managing existing information and adding new data.

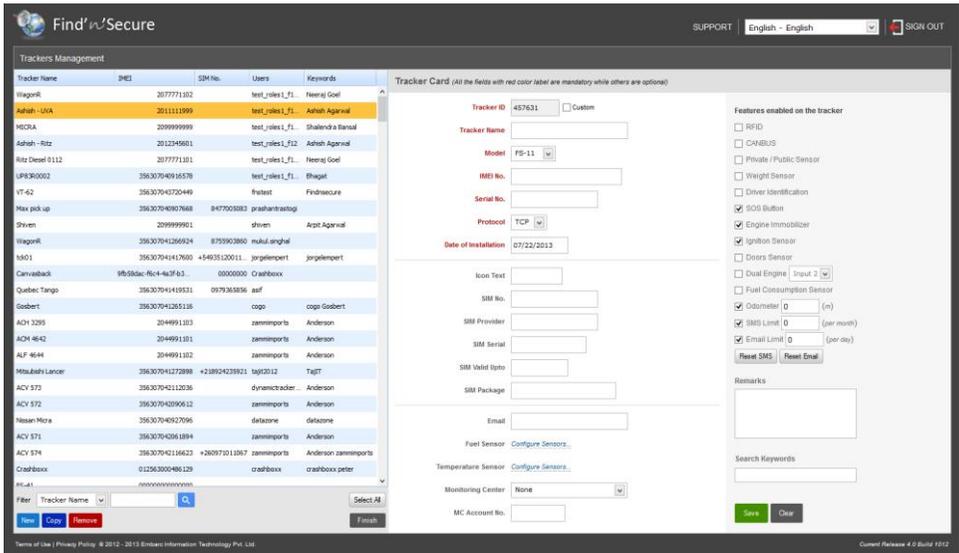


Figure 3: Trackers Management

If you have existing trackers associated with your server and wish to modify one of those, click on that tracker row to fill up all related information in the right hand side card. Various filter options are available to find a tracker in the list. You may wish to filter trackers using Tracker ID, Tracker Name, IMEI, SIM Number, Users, and Keywords. To apply a filter, select an appropriate filter from the drop down list and then start typing your filter criteria in the text box beside it. You'll see the list filter out instantly.

Once you have selected an existing tracker or are willing to create a new one, you may proceed to the right section of the page 'Tracker Card'. It is important to fill up this form with careful understanding otherwise the server will not be able to identify your tracking devices and you will not be able to view trackers reporting on the server. There are many debugging tools which may be used for troubleshooting in case you don't see data on your server; we will visit them at the end of this chapter to help you in resolving issues.

Field Name	Description
Tracker ID	Software uses Device ID or IMEI number to identify device and perform related tasks. Device ID is always a unique number on the server. Custom ID: In certain circumstances you might need to use a custom device ID, such as, adding an already configured unit
Tracker Name	Name by which the tracking device is represented when

	the user logs in to the software
Model	Various make/models of the tracking devices are supported by the software. Select the correct type as per the tracker to be configured. You can get an updated list of the trackers supported by Find'n'Secure® from support@findnsecure.com
IMEI No.	IMEI number provided with the tracking device. This number is provided at the time of device purchase and may also be written on the device itself.
Serial No.	Serial Number of the tracker. This number is provided at the time of device purchase and may also be written on the device itself.
Protocol	Communication protocol on which this device is set TCP/UDP
Date of Installation	Date on which this device is being installed into the vehicle or handed over to the user.
Icon Text	The tracking icon can have a custom text, if required. If no value is specified the trackers are marked using a default numbering scheme
Date of Purchase	Date on which the tracker was purchased. This can be useful in keeping track of warranty provided.
Tracker Expiry	Date on which the tracker should expire. After a tracker expires, it is not visible anywhere in User Panel, except on the list of expired trackers. Note: The user will receive appropriate e-mails notifying expiry of the tracker
SIM No.	The number of the SIM card, installed in the tracking device
SIM Provider	Name of the service provider which issued the SIM card
SIM Serial	The serial number of the SIM card, this number is provided by the service provider at the time of purchase
SIM Valid Up to	Date of validation expiry of the SIM card, if applicable
SIM Package	The package that might be applicable on the SIM card
Email	All alerts from the tracker will be sent to this email ID
Fuel Sensor	Click on 'Configure Sensors...' to enable up to five fuel sensors. Each fuel sensor should be associated to an input on the device and a fuel profile (we'll visit the section on creating fuel profiles, later in this manual)
Temperature Sensor	Click on 'Configure Sensors...' to enable up to five temperature sensors. Each temperature sensor should be associated to an input on the device and a temperature profile (we'll visit the section on creating

	temperature profiles, later in this manual)
Monitoring Center	Select the name of Monitoring Centre, if applicable.
MC Account No.	Specify the account number of Monitoring Centre, if applicable
Features	<p>You must enable the features that will be provided along with this device to enable software to recognize the inputs and process them accordingly.</p> <p>RFID: Enable/Disable the use of RFID</p> <p>CANBUS: Enable/Disable the use of CANBUS</p> <p>Private/Public Sensor: Enable/Disable Private/Public use</p> <p>Weight Sensor: Mark if you need to use a weight sensor with this device.</p> <p>Driver Identification: Check to enable driver identification. Please note, there must be an iButton or RFID associated with the tracker, to use this feature.</p> <p>SOS Button: Check if an SOS Button is required to be used with this device.</p> <p>Engine Immobilizer: Check to use an engine immobilizer.</p> <p>Ignition Sensor: Check if ignition sensor is provided. <i>Note</i>, please do not check this feature, if ignition wire is not connected properly or not connected at all.</p> <p>Doors Sensors: Check to use doors sensor with this device.</p> <p>Dual Engine: Check to use dual engine. Specify the device input on which second engine is connected.</p> <p>Fuel Consumption Sensor: Check to use fuel consumption sensor.</p> <p>Odometer: Check to use and specify current value of odometer in the vehicle.</p> <p>SMS Limit: Specify the maximum number of SMS messages that can be sent per month for this device. '0' for unlimited.</p> <p>Email Limit: Specify the maximum number of Email messages that can be sent daily for this device. '0' for unlimited.</p> <p>Reset SMS: Reset the SMS counter to the value specified in the SMS Limit field.</p> <p>Reset Email: Reset the Email counter to the value specified in the Email Limit field.</p>
Remarks	Specify additional remarks for this tracker
Search Keywords	Type in a few words which will uniquely identify this

	tracker, while searching at various locations in the Find'n'Secure software.
--	--

Once the form has been filled up completely; click on 'Save' button to add tracking device to the software. The tracker will be added to the list on the left hand side, immediately.

DEVICE ID AND IMEI NUMBER

In the previous section we have seen creation of basic accounts and adding tracking units. Adding a new tracker to the software depends on the type of the hardware you have purchased and basic requirements of that tracker. Some trackers are solely configured using the device ID such as FS-41 whereas some trackers are configured using their IMEI numbers such as belonging to the group FS-2x units. Each tracking unit is accompanied with an instruction manual which guides you how to setup the unit with the software. It is possible to make use of the hybrid collection of trackers with the software. It is very important to set the tracking unit properly in order to allow the software to recognize the hardware units correctly. In case you are unable to configure the units or confused about the hardware, you can always get in touch with our customer support team which will guide you on specific hardware models.

REMOVE TRACKER(S)

If you do not wish to use a tracker(s) anymore, you may completely remove them from the server. To remove tracker(s), select a single tracker or multiple trackers from the list of existing trackers and click on the 'Remove' button on bottom left.

Caution! Removing trackers from the server will destroy all data present in the database and this is an irreversible process.

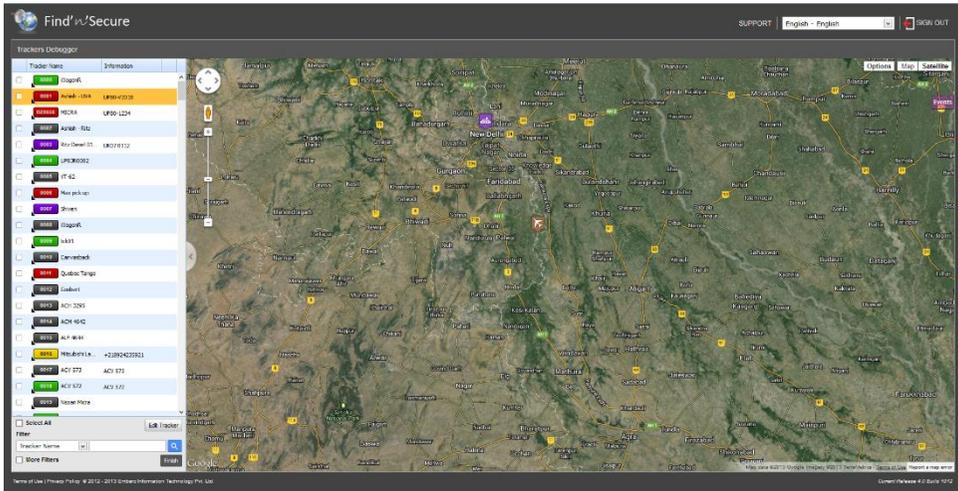
CREATE TRACKER COPY

As the name of this option suggest it creates a new tracker with identical information as the selected tracker. To copy a tracker select a tracker, from the list of existing trackers and click the 'Copy' button on bottom left.

After you have added/removed/modified a tracker, you can click the 'Finish' button to go back to Administrator Home page.

TRACKERS DEBUGGER

The trackers debugger tool can be used to view all trackers associated with the server in live mode. You will be able to view all location changes and events taking place on all of the trackers.



Find'n'Secure consists of a trackers list on the left and map on right hand side. The list of trackers supports facilities for selecting, searching and filtering of the trackers present in the account.

FILTERS

Trackers can be filtered in two modes:

1. Basic Filters
2. Advanced Filters

BASIC FILTERS

To apply basic filter on trackers, select type of filter you wish to apply and then type in a few characters in the filter textbox. This will immediately filter trackers in the list and only those trackers satisfying the filter criteria are displayed.



Figure 4: Basic Filters

Basic filters can be applied on the following fields:

- Tracker ID
- Tracker Name
- IMEI
- SIM No.
- Keywords
- Registration Number
- Model

ADVANCED FILTERS

To view Advanced Filters, click the **More Filters** checkbox. A Filters window will be displayed, as show in Figure 5: Advanced Filters

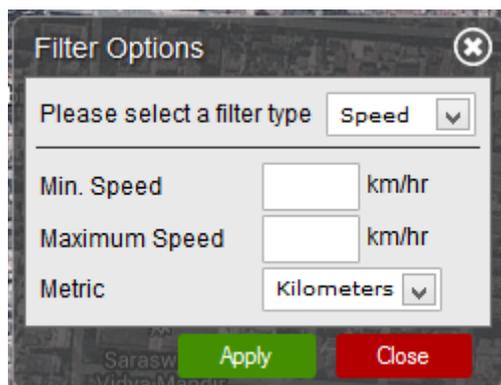


Figure 5: Advanced Filters

Advanced Filters can be applied on the following fields:

- **Speed** Filter trackers according to the minimum and maximum speed limit specified.
- **Status** Filter trackers by their current status. Possible states are Working, Moving, Stopped, Idling, No Data, and GPS Invalid.
- **Latitude/Longitude** Specify the latitude, longitude, and radius of the area in which the tracker should be present. Trackers near this address within the proximity of circle specified by the radius will be shown in the list.
- **Address** Specify the address and radius of the area in which the tracker should be present. Trackers near this address within the proximity of circle specified by the radius will be shown in the list.

Once you have prepared the filter criteria, click on the apply button to apply filters. You can move the filters window to a desired location on the screen, or close it. Please note that closing the filters window will not remove the filters

applied. To remove filters, uncheck the **More Filters** checkbox, as shown in Figure 6: More Filters



Figure 6: More Filters

TRACKERS LIST

Tracker Explorer shows the list of the trackers which you have installed in various vehicles or name of people holding the personal trackers or for whatever reason you is using the trackers.

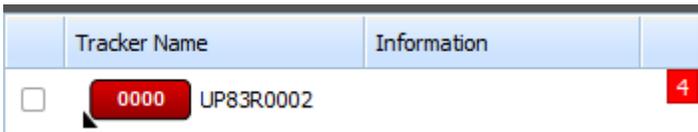


Figure 7: Tracker in Trackers List

Figure 7: Tracker in Trackers List shows a tracker in trackers list. Each tracker has a map placement checkbox, Tracker Name, Information, and events number. When the map placement checkbox is checked the tracker is displayed on the map otherwise it is only displayed in the list and events number is updated each time an event occurs. Every tracker is assigned a unique number e.g. 0000 in Figure 7: Tracker in Trackers List. This number is useful while identifying the tracker when multiple tracker icons are displayed. These tracker icons can also use a Custom Icon Text, which can be changed only by the Administrator.

COLOR OF A TRACKERS' ICON

The color of tracker icon determines the current status of the tracker. Possible states for status of a tracker are:

Color	Description
	Tracker is currently moving
	Tracker is stopped
	Tracker is idling - Ignition status is ON while no movement registered in the vehicle.

	Tracker is working, but GPS fix is not valid
	Server has not received data from the tracker since past 24 hours

Next to the tracker icon is the tracker name, which can be changed by the user at any time. In the Information column, the user can view some detail about the tracker, e.g. for Vehicle Trackers the license plate number of the vehicle will be displayed. Finally, on the right hand side you will see events count. Whenever an event is generated on a tracker, the event counter increases, showing the total number of events occurred since the time of login. If no event occurs on a tracker the events count is not displayed.

	Tracker Name	Information	
<input type="checkbox"/>	 0000	UP83R0002	
<input type="checkbox"/>	 0001	WagonR	
<input type="checkbox"/>	 James	James A6x	
<input type="checkbox"/>	 0002	iPhone	

Figure 8: Events Count

In Figure 8: Events Count you can see 4 inside the red rectangle on the right side; this states that 4 events have been generated since the time of login on the tracker UP83R0002.

GROUP VIEW

Initially when Map View page is loaded, group mode is shown. In group mode all the trackers are shown on the map collectively and updated as they move and their status icons change depending on their current status. Multiple trackers in Group View can be seen in Figure 9: Group View.

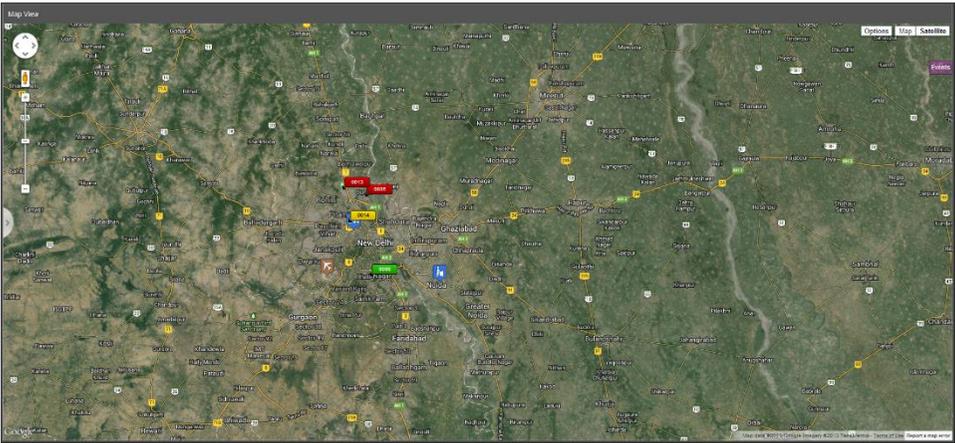


Figure 9: Group View

Figure 9: Group View is a standard representation of Google® map. We will discuss some standard features of the maps here. For detailed learning you may visit <http://maps.google.com>

Bar on the left side of the map marked with + and - sign are used for adjusting up the zoom level. On the top-right side you can see three options available namely Options, Map, and Satellite.

Type	Description
Map	Only map of the region without any satellite images will be displayed. If your internet connection is slow speed one, it is recommended to select this mode as it requires less data to be transferred to your computer
Satellite	Satellite imagery can be viewed in this mode, with or without labels
Options	These are custom options provided by Find'n'Secure software

You can zoom in the map towards the tracker by scrolling mouse near the tracker on your map. You can also hover the mouse pointer over the tracker icon on the map, to reveal its **Information**.

TRACKERS CLUSTERS

When all trackers are selected at once, using the **Select All** button below the trackers list, clustering of trackers is enabled. When trackers are very close to

each other or zoom level of the map is low, then those trackers will form a cluster, with a number indicating number of trackers in that cluster. As you zoom in on a cluster the trackers, further away will break free. This will continue until a specific zoom level (i.e. 17) is reached, where all trackers will pop out of the cluster.

If you do not wish to zoom one by one and just see the separated trackers instantly, you can click the cluster, which will automatically zoom in and ungroup the trackers.

The cluster icon color changes with the number of trackers it contains and follows the scheme given below:

Number of trackers in cluster	Color
< 10	Blue
> 10 & < 100	Yellow
> 100	Red

If you do not wish to view clusters in group mode, you can select trackers one by one from the list, instead of selecting all trackers at once.

Also, when in cluster mode, you can remove some trackers by unchecking the desired trackers from the trackers list.

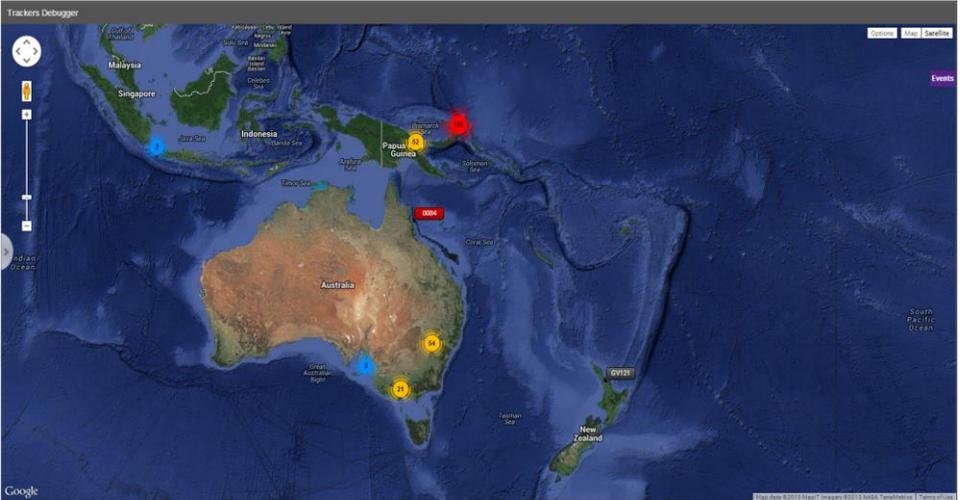


Figure 10: Markers Cluster

MAP INFO-BOX

Tracker icons on the map are clickable and upon clicking them you see various details of the tracker for quick accessibility and unique geo-coding mechanism.

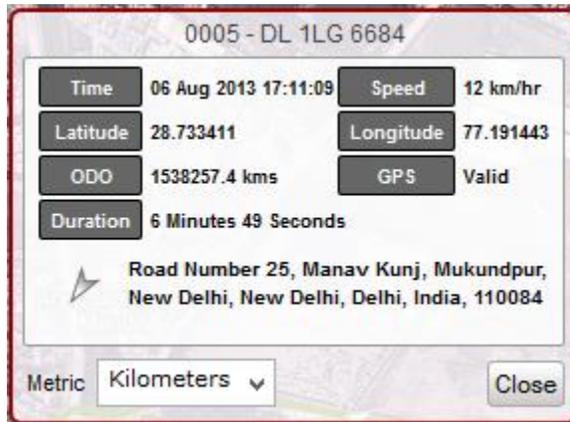


Figure 11: Map Info-box

As you can see in Figure 11: Map Info-box, it contains all the essential details of the vehicle as described below:

Property	Description
Unique ID	This ID is assigned by the GUI to identify the

	tracker on the map. If an Icon Text is specified, it is displayed instead of GUI generated ID. In Figure 11: Map Info-box the above clipart it is 0005
Tracker Name	Besides Unique ID is the name of the tracker
Time	Displays the last known reporting time of the device
Speed	Speed registered at the time of reporting
Latitude	Latitude of the location where location of the vehicle was registered
Longitude	Longitude of the location where location of the vehicle was registered
ODO	Current odometer value of the vehicle, if enabled
GPS	Status of GPS fix Possible Values: Valid/Invalid
Duration	Duration since which the vehicle is in current state
Location	Direction and the location of the vehicle.  Currently stopped  Movement Direction
Metric	Convert the metric system used in the window

SNAIL TRACK VIEW

Clicking on any of the trackers present in the trackers list activates snail track view. Snail Track View is the complete analysis of the particular tracker in real-time. When you click on any of the tracker, the right pane of the browser window is loaded with the individual mode as shown in Figure 12: Snail Track View.

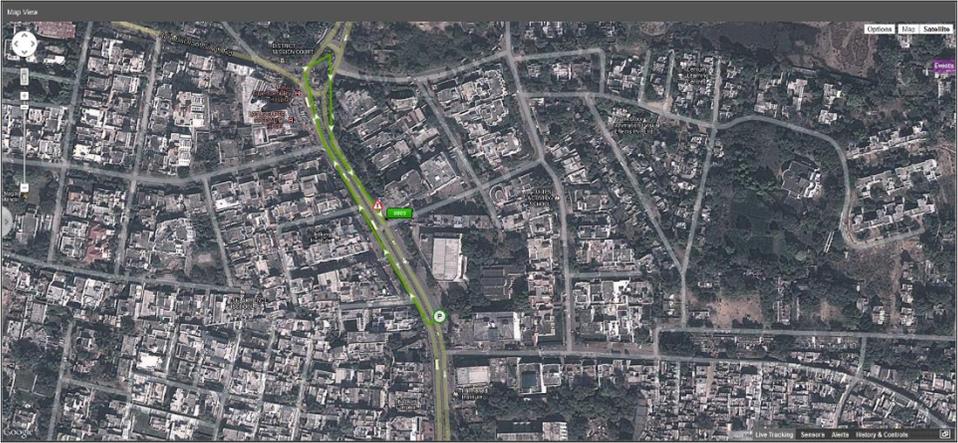


Figure 12: Snail Track View

In this view, snail plotting is automatically enabled and you can see the track on which the tracker is moving. If this tracker is installed inside a vehicle and ignition detection is enabled then you will see the plotting from the place its ignition was turned ON.

The plotted lines can be switched to Segmented Mode, by checking Segmented Mode option in the options drop down on right hand side of the map. In segmented mode, hovering mouse over the lines displays the direction, time, and speed of the tracker. Tracking lines are color coded and each consecutive point has alternate shades to easily identify the points of reporting. The line colors can be changed as described in section **Error! Reference source not found..** A sample color configuration is given as follows:

Color	Description
Green	0 - 80 Kilometers/Hour
Yellow	80 - 100 Kilometers/Hour
Red	> 100 Kilometer/Hours

MAP ICONS NOMENCLATURE

Icon	Description
	Marks the start point of the journey
	Alert sent by the device

INFORMATION PANEL

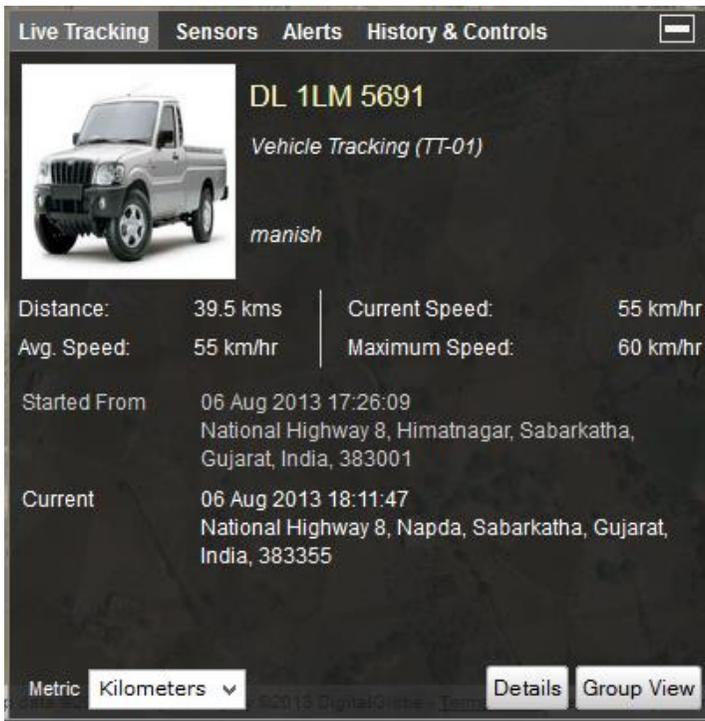


Figure 13: Information Panel

As shown in Figure 13: Information Panel, this panel is divided into four major sections:

LIVE TRACKING

This panel shows the basic details about the tracker. Following properties of the vehicle can be viewed in this panel.

Property	Description
Photo	The picture uploaded for this tracker/vehicle
Tracker Name	Name of the tracker is shown beside the photo

Field of Application & Tracker Model	<p>This property describes the field of application of the tracker, e.g. Vehicle Tracking, Personal Tracking, etc.</p> <p>Also, the model of this tracker is displayed next to it.</p>
Information	<p>Information related to this tracker is displayed here, if available.</p> <p>e.g. for Vehicle Tracker, license plate number will be displayed</p>
Driver Information	<p>Displays Name and ID of the driver associated with the vehicle.</p> <p>Note: Driver information will be shown, only if it is enabled</p>
Distance	Distance covered by the tracker from the starting point
Current Speed	Current speed of the tracker
Average Speed	Average speed for the current trip
Maximum Speed	The maximum speed achieved during the current trip
Started From	Date, Time, and location of the starting point of the tracker
Current	Date, Time, and location of the current position of the tracker
Metric	Change the metric related values in this panel
Details	Click the button, to display tracker

	card, used to edit information of this tracker
Group Mode	Switch from Individual Mode to Group Mode

SENSORS

This panel displays the sensors enabled for this tracker. e.g. fuel sensor, temperature sensor, RPM Sensor and battery sensor (personal tracking). The software supports up to five fuel and temperature sensors, one RPM sensor, and one battery sensor.

Note: These features are available only in the specific models of the hardware

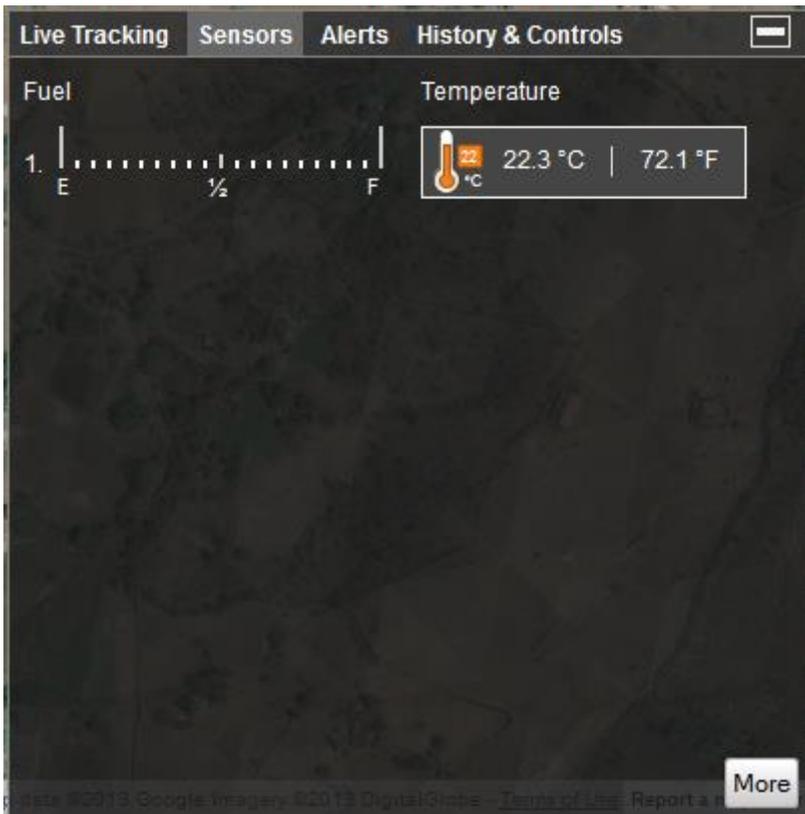
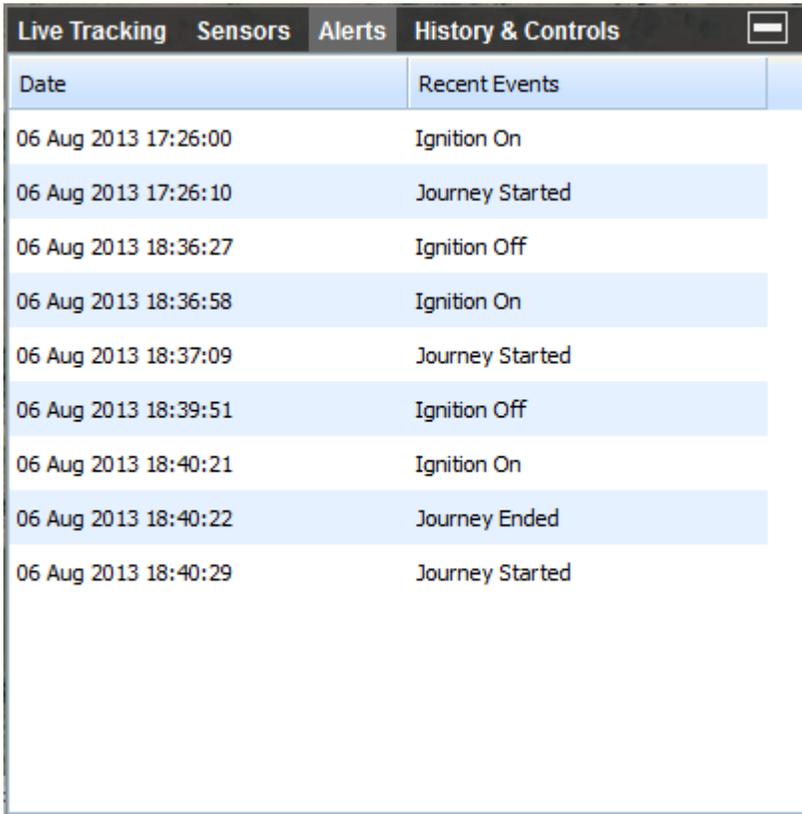


Figure 14: Sensors

ALERTS

This shows all the events and alerts occurring on the device. Left side of the table shows date and time while right side displays the name of event that occurred on the tracker.



Date	Recent Events
06 Aug 2013 17:26:00	Ignition On
06 Aug 2013 17:26:10	Journey Started
06 Aug 2013 18:36:27	Ignition Off
06 Aug 2013 18:36:58	Ignition On
06 Aug 2013 18:37:09	Journey Started
06 Aug 2013 18:39:51	Ignition Off
06 Aug 2013 18:40:21	Ignition On
06 Aug 2013 18:40:22	Journey Ended
06 Aug 2013 18:40:29	Journey Started

Figure 15: Alerts

Whenever any event occurs on the tracking unit, it is notified to the user by the following three methods:

1. Tracker tab in the Tracker Explorer is appended by a red color rectangle indicating the total number of events occurred
2. Alert window pop's up
3. Email sent to the group user and as per the settings of the tracker.

HISTORY & CONTROLS

This panel provides convenient options to view the history of your tracking unit and if your hardware supports output commands then you can control the unit

from your desktop or laptop itself e.g., by blocking the engine, locking the door or blowing the horn to attract public attention in case of theft etc.

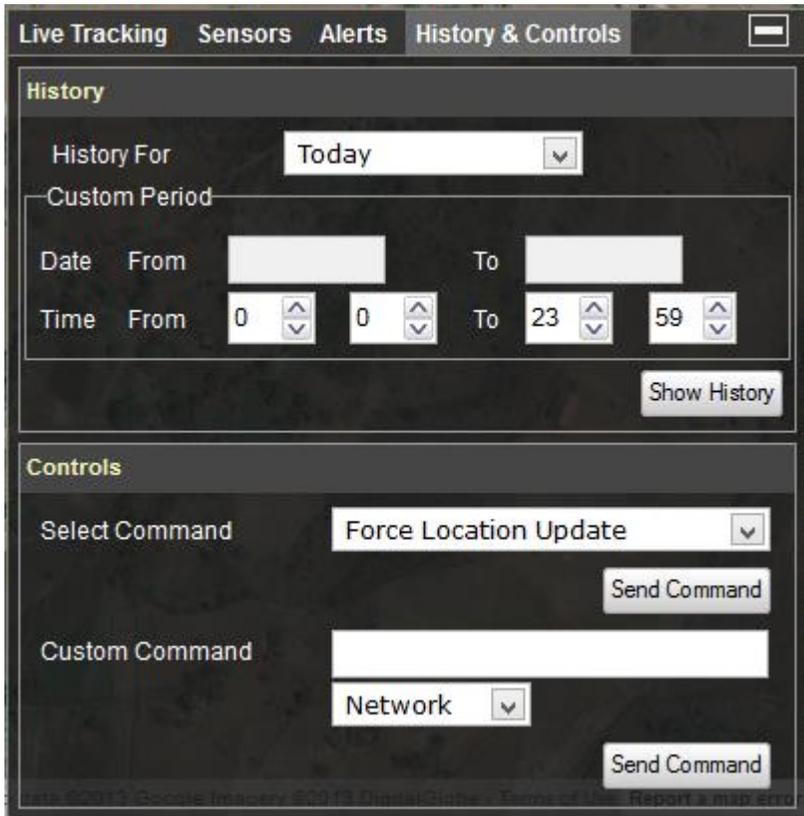


Figure 16: History & Controls

HISTORY

Quick combo-box templates allow you to see the history of the tracker quickly with the options of Today, Yesterday or Custom. Sometimes history of a particular tracker is quite complicated and understanding it may be a daunting task. In such cases, we provide a filter which enables you to make the selection of the time for which you wish to see the history.

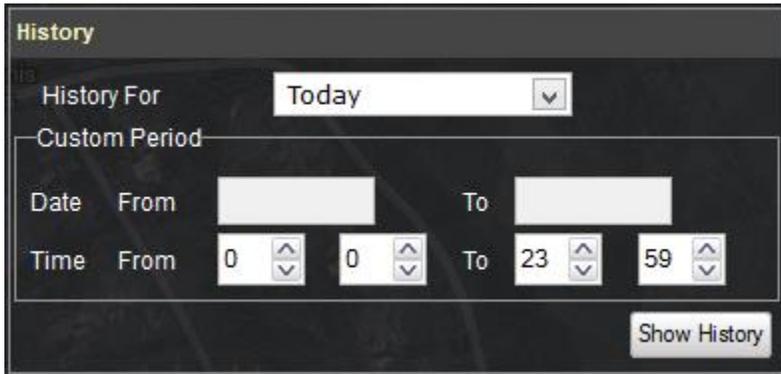


Figure 17: History

Let us show you an example of a complicated history and a simplified version of it. Figure 18: History - 24 Hours shows history for a complete day whereas Figure 19: History - 1 Hour shows the history between 17:00 to 18:00 HRS.

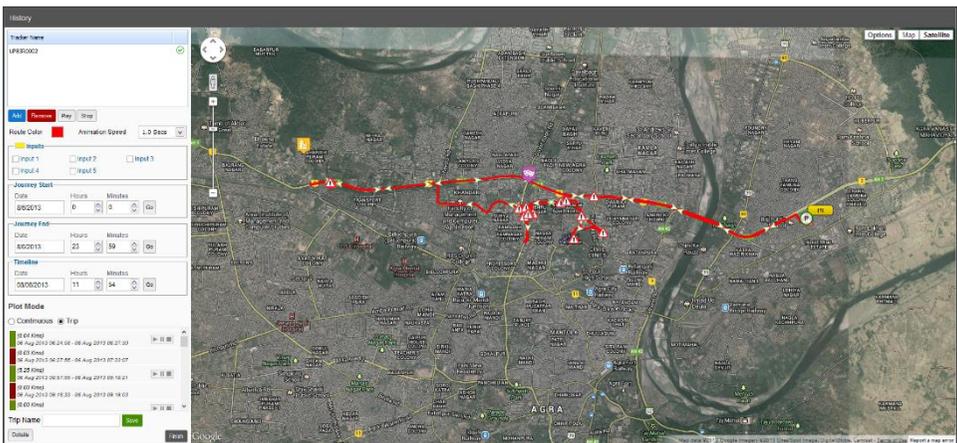


Figure 18: History - 24 Hours

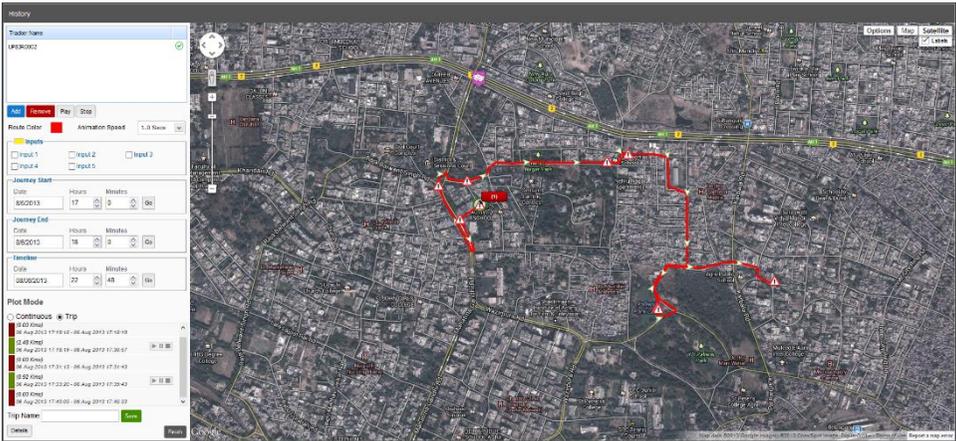


Figure 19: History - 1 Hour

Thus you will find that complicated history (Figure 18: History - 24 Hours) can be easily broken down into segments using time.

HISTORY OPTIONS

The left hand side of this page displays options for the history shown on the map. You may add any number of trackers that are available, to compare histories of multiple trackers at any point of time by clicking the 'Add' button below the trackers list. Various options for history configuration are described as:

Tracker Name ✓

Demo 1

Add
Remove
Play
Stop

Route Color Animation Speed 1.0 Secs ▼

Inputs

Input 1 Input 2 Input 3

Input 4 Input 5

Journey Start

Date 12/11/2013 Hours undefin ▲▼ Minutes undefin ▲▼ Go

Journey End

Date 12/11/2013 Hours undefin ▲▼ Minutes undefin ▲▼ Go

Timeline

Date 12/11/2013 Hours 5 ▲▼ Minutes 30 ▲▼ Go

Plot Mode

Continuous Trip No Filter ▼

(0.00 kms)	11 Dec 2013 00:00:13 - 11 Dec 2013 00:09:13	
(0.00 kms)	11 Dec 2013 00:09:21 - 11 Dec 2013 00:09:21	▶ ■
(0.00 kms)	11 Dec 2013 00:09:34 - 11 Dec 2013 00:14:04	
(3.30 kms)	11 Dec 2013 00:14:18 - 11 Dec 2013 00:28:56	▶ ■
(0.00 kms)		

Trip Name Save

Details
 More Filters
Finish

Figure 20: History Options

Property	Description
Trackers List	List of trackers added for viewing history <ul style="list-style-type: none">  History is being fetched  History is available and is loaded 1. History is not available and not loaded
Add	Click this button to add more trackers to History
Remove	Select a tracker from the list and click this button to remove tracker from History
Play	Play selected tracker's history Note: Multiple trackers can also be selected by Crtl/Shift clicking. To stop map panning while history is playing, use the Panning option provided in map options on top right.
Stop	Stop playing selected tracker's history
Route Color	Color used to plot history on map
Animation Speed	Control speed of History playing
Inputs	If you wish to enable coloring of the track for which specified input was ON you can select the input and the color
Journey Start	Modify the start date and time of history
Journey End	Modify the end date and time of history
Timeline	Specify the time on which to locate the position of the tracker. The tracker icon will move to the nearest position at that time.
Plot Mode	Choose the plotting mode Continuous Shows the complete history for the period Trip Shows trip wise history of the period. Options to play/pause/stop are available for each trip Note: Trip wise history depends on the availability of ignition sensor
Trips Filter	This filter allows you to view either moving trips only, stopped trips, or both trips simultaneously
Trip Name	Change the name of a selected trip
Details	Show additional details of tracker at this location

More Filters	Additional filters for continuous trips, explained in detail in section More Filters
--------------	--

HISTORY INFO-BOX

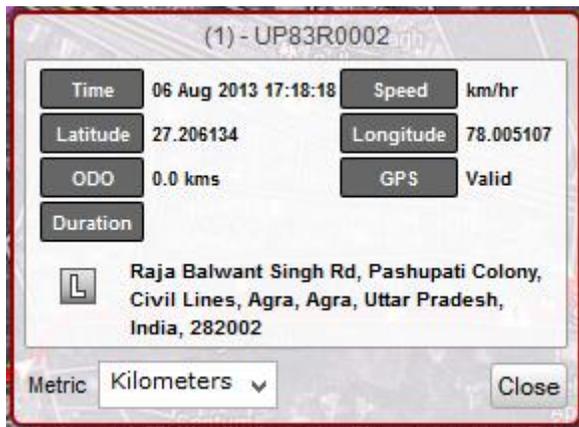


Figure 21: History info-box

Clicking on the tracker icon on map pops up the History Info-box, as shown in Figure 21: History info-box. This window has the same properties as the info-box shown in Map View (Figure 11: Map Info-box).

POIs can also be added quickly just by double clicking any location on the map. This is very convenient when you need to mark a historical location as POI.

MORE FILTERS

These filters can be applied to data when the trip is of continuous type.

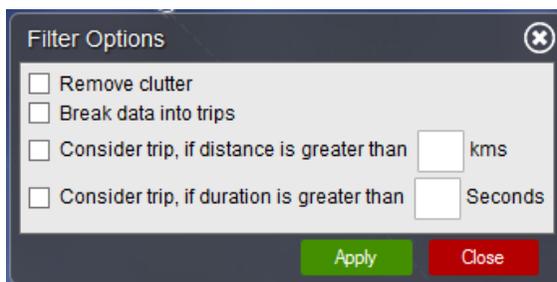


Figure 22: More Filters

The function of each filter is described below:

Filter	Description
Remove Clutter	Removes clutter from the map, caused by incorrect lines created by invalid data
Break data into trips	Break continuous data into trips
Consider trip, if distance is greater than 'x' kms	<p>This filter automatically breaks data into trips and makes sure that a trip is not considered as moving if the distance travelled is less than the distance provided</p> <p>Note: The distance provided should be in kilometres</p>
Consider trip, if duration is greater than 'x' seconds	<p>This filter automatically breaks data into trips and makes sure that a trip is not considered as moving if the duration of travel is less than the duration provided</p> <p>Note: The duration provided should be in seconds</p>

DETAILS PANE

The details pane displays journey details for the current history.

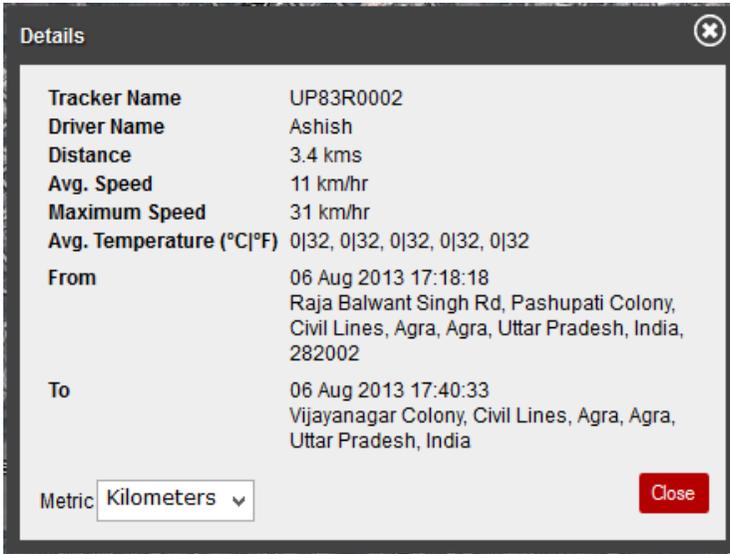


Figure 23: History Details

To Exit from History module, click the **Finish** button. You will be redirected back to **Error! Reference source not found..**

CONTROLS

Vehicle tracking units may contain functions for controlling the vehicle. Some standard operations are given as follows:

- Force Location Update
- Horn Blow
- Horn Stop
- Lock Doors
- Unlock Doors
- Block Engine
- Unblock Engine

All these operations can be controlled via web-interface if your tracking device supports them. However, the operations listed above may change with the model of tracking device.

There are two options to send commands.

1. **Predefined commands** To send predefined commands follow the steps below:
 - Select the command you wish to send from the drop down box.
 - Choose desired channel of transmission, i.e. Network, SMS
 - Click Send Command
2. **Custom commands** To send custom commands follow the steps below:
 - Type in the command¹ you wish to send, in the **Custom Command** textbox.
 - Choose desired channel of transmission, i.e. Network, SMS
 - Click Send Command

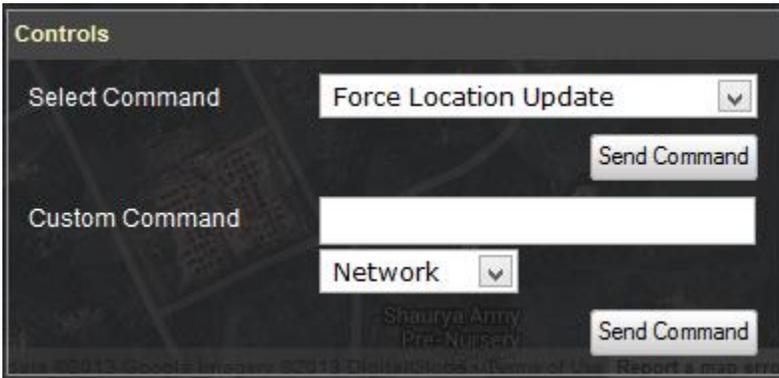


Figure 24: Controls

TRACKER DETAILS

The **Tracker Details** pane consists of all the information related to the use of tracker. To view this pane, you may either double-click over the tracker in the Trackers List or by click the **Details** button in the Live Tracking panel, as shown in Figure 13: Information Panel.

There are three sections in the **Tracker Details** pane, as shown in

1. Basic Information
2. Alerts
3. Reminders



Figure 25: Tracker Details

¹ If you do not know custom commands for this device, please refer to Device's User Manual or contact our customer support.

BASIC INFORMATION

This section consists of basic information about the tracker. The user can modify any of these properties² at their own will.

Figure 26: Basic Information

Property	Description
Tracker ID	Unique ID of the tracker, allotted by the system
Photo	Upload an image related to the tracker
Tracker Name	Name of the tracker as seen in the Trackers List
Description	Description about the tracking device

² Tracker ID property cannot be changed. It is automatically generated by the system and is a unique ID to identify the tracker. Also, note that the user may not be permitted to change any of these properties if specified by the Administrator.

Field of Application	Field in which this tracker is being used, you can select from one of the following: <ul style="list-style-type: none"> • Vehicle Tracking • Personal Tracking • Asset Tracking • Offender Tracker
Tag Message	If RFID scanner is being used by this tracker for identification purpose, tag message will be appended with the tag ID
Fuel Tank Capacity	Comma separated capacities of up to five fuel tanks, in liters
Compute fuel while ignition is OFF	Check to compute fuel while ignition if off
Odometer	Clicking this button displays an Odometer Tuning window, as explained in section Odometer Tuning
Others	<i>Optional</i> and for information purpose

ODOMETER TUNING

As you must be aware that the distance computed by GPS, over time is not cent percent similar to the actual distance covered by the vehicle. So, from time to time, when a variation is found in odometer values, you can sync the computed value of the odometer to the actual value, using this module. This module also displays a date-wise list of values of the odometer. These values cannot be modified, but can be removed and added for any date.



Figure 27: Odometer Tuning

To add new value of odometer, enter the new value, choose metric, date, time, and click the **Add** button on the right. If you enter a wrong value, or wish to remove a previously entered value, select those rows in the list below the click the **Remove** button.

ALERTS

You can configure multiple emails and SMS numbers to which the desired alerts can be sent. You must separate multiple emails and SMS using **semicolon (;)**

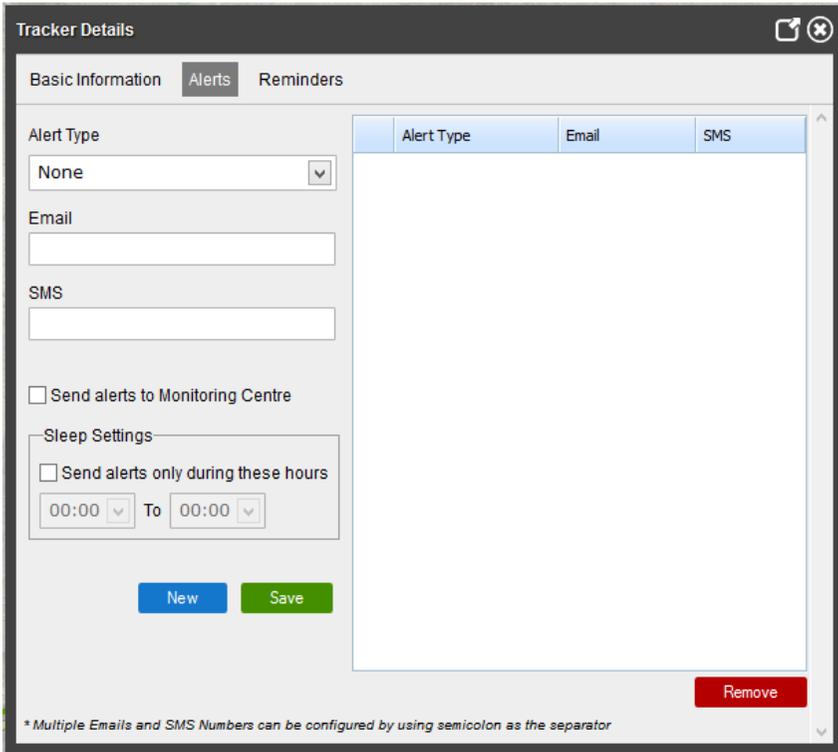


Figure 28: Alerts

REMINDERS

You can add various types of reminders to the tracker for performing maintenance operations on the vehicle. Reminders can be set based on the following:

1. **Distance:** Whenever mentioned distance is completed by the tracker an email is dispatched to the group head. This feature is very useful when you need to be alerted after vehicle has completed certain distance like fuel change or tires change. You can choose an appropriate metric system, using which you wish to enter distance.
2. **Date:** Notification email is sent on **Reminder Date** as soon as **End Date** is reached.
3. **Engine Hours:** Whenever a vehicle completes specified **Engine Hours** on selected **Input**, a notification email is sent.

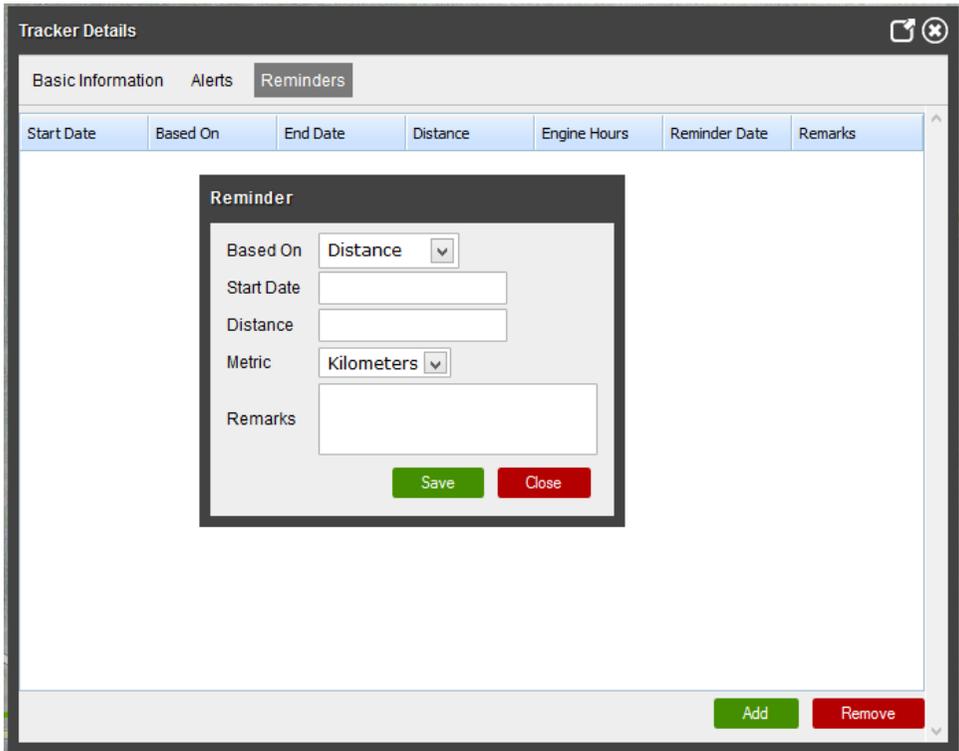


Figure 29: Reminders

EVENTS

An events button is displayed on the right hand side of the map. When you click this button a **Recent Events** window is displayed. This windows lists all the events which have occurred on all the trackers, since the time of login. You can double click on any tracker event in this list, to quickly start Snail Track View of that tracker.

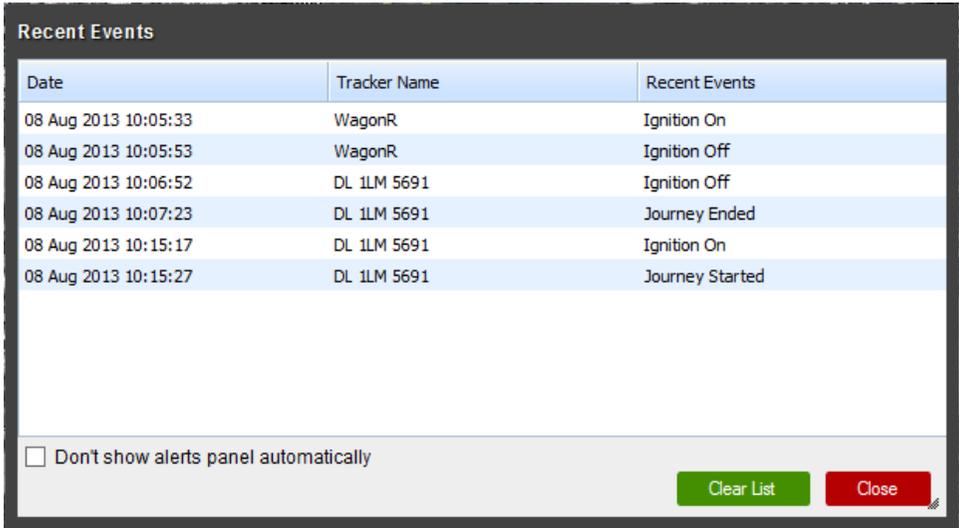
To clear all previous events listed in this window, you may click the **Clear List** button. This will remove all existing events from the list and new events will be added as they are generated.

To close this window, you may click the **Close** button.

This window is shown automatically, whenever an event is generated. The window hides itself after a few seconds. If you require the window not to pop up every time an alert is generated, you can check the **Don't show alerts panel automatically** checkbox. This will result in the window not being

displayed automatically, but only when you click the **Events** button on right hand side of the map.

This window is movable and resizable, so you can adjust the size and place it at a convenient location on your screen if you are monitoring events on a number of trackers.



The screenshot shows a window titled "Recent Events" with a table of event data. At the bottom, there is a checkbox labeled "Don't show alerts panel automatically", a green "Clear List" button, and a red "Close" button.

Date	Tracker Name	Recent Events
08 Aug 2013 10:05:33	WagonR	Ignition On
08 Aug 2013 10:05:53	WagonR	Ignition Off
08 Aug 2013 10:06:52	DL 1LM 5691	Ignition Off
08 Aug 2013 10:07:23	DL 1LM 5691	Journey Ended
08 Aug 2013 10:15:17	DL 1LM 5691	Ignition On
08 Aug 2013 10:15:27	DL 1LM 5691	Journey Started

Figure 30: Recent Events

FULL SCREEN MAP VIEW

To have a better viewing area on the map, you can hide the Trackers List to display map on full screen. On right hand side of trackers list, a button to hide the list is displayed, as shown in Figure 31: Hide Trackers List Button.



Figure 31: Hide Trackers List Button

Click the button to hide the list, and click the button again to bring the list back to original state.

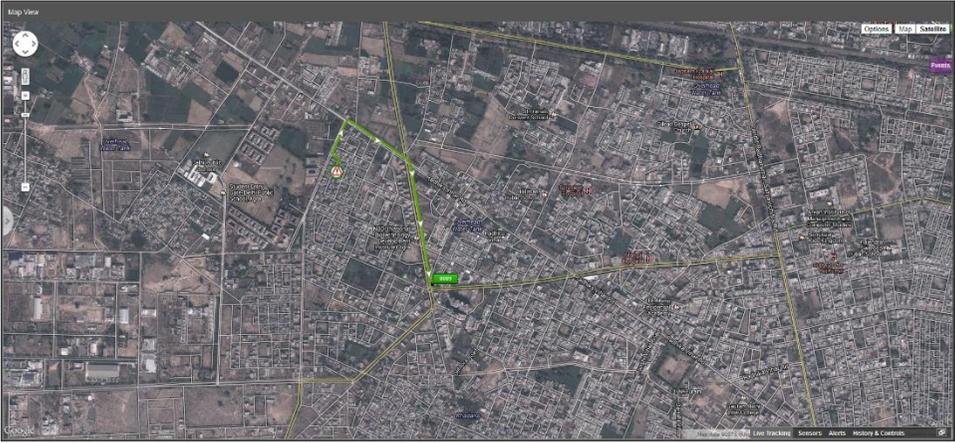


Figure 32: Full Screen Map

QUICK POI

A POI can quickly be added by double clicking on the map at the location where a POI is required. When you add a POI, a POI details window is displayed, which contains information about this POI. The latitude, longitude, and description are automatically filled. You can fill in the remaining required fields and click on **Save** button to add this POI. If you change the POI type, the POI icon changes accordingly. POI color only applies to **Default** type POIs, and is displayed as it is changed.

If you want to refine the POI position, you can drag the POI and drop it to the new appropriate location. As soon as the POI is dropped, the filled in latitude, longitude, and description are updated.

Once the POI is saved, you cannot edit/modify its information from here. You'll need to go to **Error! Reference source not found.** to modify information associated with this POI.

However, you can remove this POI by clicking on the POI icon and clicking the **Remove** button thereafter.

MAP OPTIONS

In top right corner of the map, an **Options** button is displayed. It consists of a number of features, which you can enable/disable.

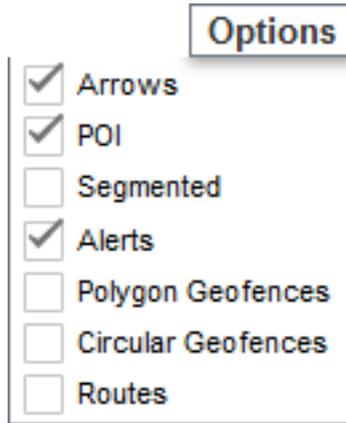


Figure 33: Map Options

Option	Description
Arrows	Show/Hide arrows on path plotted in Snail Track View
POI	Show/Hide POIs
Segmented	Switch from non-segmented plot mode to segmented mode, as described in section Snail Track View. Note: Non-segmented is much faster than segmented mode and should be preferred.
Alerts	Show/Hide alert icons from map, while in Snail Track View
Polygon Geofences	If the selected tracker has a polygon geofence associated with it, it can be shown on the map by checking this option.
Circular Geofences	If the selected tracker has a circular geofence associated with it, it can be shown on the map by checking this

	option.
Routes	If the selected tracker has a path associated with it, it can be shown on the map by checking this option.

DEBUG LOG

The debug log window is a unique feature of this module. This window displays detailed information about the current state of the device. The number of features displayed in this window will vary on the feature availability of the device. This log will be very helpful while debugging problems when the device has been installed and is working in the field.



Figure 34: Debug Log

EDIT TRACKER

If you need to edit details of a tracker instantly while debugging, you may use this feature. Select a tracker you wish to modify, and then click the 'Edit Tracker' button on bottom left. This will open the tracker card in a new window, where you may edit the tracker details and 'Save' all the changed information.

ADD / REMOVE POI

Using this module, you can add/modify/remove multiple Points of Interest (POIs). These POIs are helpful in identifying a location on map and add that desired location to the geocoding database.

ADD POI

To add a new POI, navigate to the location of interest using the search tool, on top right hand corner. Double click on the desired location on the map and a window titled 'Edit Place mark' will pop up, as shown in Figure 35: Edit Place mark.

Figure 35: Edit Place mark

This window contains the latitude & longitude of the location that was double clicked on. If you change this latitude and longitude to some other location you can click on the 'Fill Address' button to fetch address for this new location. Following are the fields in this window:

Field	Description
Latitude	Latitude on which POI should be added. By default it is

	the location where mouse was double-clicked
Longitude	Longitude on which POI should be added. By default it is the location where mouse was double-clicked
Radius	Radius of the circular area in which this POI is applicable
Color	Color of the default icon
Type	Icon type to be used on the map
Keywords	Keywords to search POI
Short Name	Name of this location which is shown when mouse is hovered on its icon
Description	Description for this location
Metric	The metric system used to specify radius
Fill Address	Fetch address from the specified latitude and longitude
Save	Add new location on the map
Remove	Remove this POI from the database. Note that a POI once removed cannot be undone
Cancel	Cancel the add/modify operation and closes the window

MODIFY POI

To modify an existing POI, locate the POI in the list on left hand side. When you select the POI, that you wish to modify, you'll be able to see the POI icon placed on the map. Click on that icon to display the 'Edit Place mark' window as shown in Figure 35: Edit Place mark. In this window, you can make the desired changes and click the 'Save' button when done, so that all changes are stored successfully.

REMOVE POI

There are multiple methods to remove a POI:

1. Remove single POI by choosing from list
2. Remove single POI using 'Edit Place mark' window
3. Remove multiple POI by selecting from list

To remove a POI, select the POI from the list of existing POIs from the list on the left hand side. Click the 'Remove' button to remove the selected POI. You may also click on the POI icon, of the selected POI, on the map; thereby displaying the 'Edit Place mark' window. In that window you'll be able to see the 'Remove' button on the bottom left. Click that button to remove the selected POI. It is also possible to select multiple POIs from the list by pressing the Ctrl or Shift button on the keyboard and then selecting the desired POIs using the mouse. After you have selected all POIs that should be removed, click the 'Remove' button below the list. This will remove all the selected POIs.

UPLOAD POI LIST

If you need to add multiple POIs all at once, you can prepare upload the POIs' list using this feature. To create a POI list, you first need to download the POI format, using the 'Download POI Format' button on the bottom left. There are detailed instructions in the download package on how to create a POI file for uploading on the server. Once you have created the POI file, following the appropriate methods, you are ready to upload that file to the server. Click on 'Upload POI List' button in bottom left, which will display a file browser window. Select the file you wish to upload and click "OK". This process may take some time, depending on the number of POIs you are uploading. Wait for some time until you get a message indicating whether the file was successfully uploaded or not.

USERS MANAGEMENT

As the name suggests, this option allows you to create/modify/remove the user accounts from your server and help you in associating various types of tracking units to the user accounts. We will now help you in setting up one demo account and associate one tracking unit with it. Click on **Users Management**

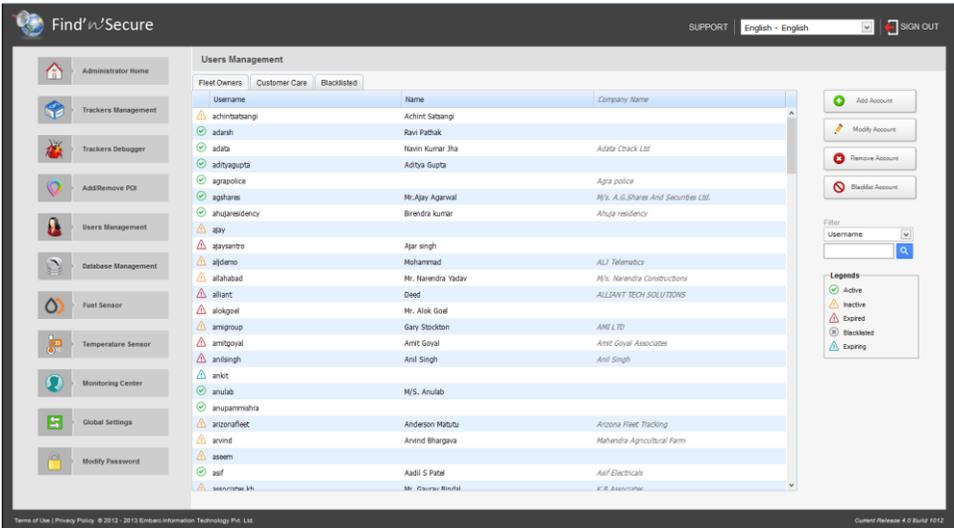


Figure 36: Users Management

In Figure 36: Users Management, you can see the list of accounts associated with the server. There are two types of accounts, as follows:

- **Fleet Owners:** Single or multiple devices can be associated with this account type
- **Customer Care:** Customer Care executives can be assigned such an account for controlling all other accounts

Each account has five types of categories viz.:

Active: The user of the account has signed in at least once in the last thirty days.

Inactive: The user of the account has not signed in in the past thirty days.

Expired: The expiry date associated with the account has passed.

Expiring: The expiry date associated with the account is approaching. The user of the account will be able to view a message for the same on his/her home page.

Blacklisted: The accounts which have explicitly been marked as blacklisted. The user of such an account will not be able to sign into his/her account.

Firstly, Users Management module provides for convenient searching of users by applying filters on **Username, Name, and Company Name**. If you need to arrange users in ascending/descending order by username, name, and company

name, you can do so by clicking on the header cell on the top of the list. Additionally, the accounts can be sorted using type of account, by clicking on the small blank cell placed above the icons, in the header area.

Secondly, there are various options that can be used on any of the desired accounts or to create a new account. These are the buttons provided on the right hand side panel. Each button serves a different purpose, as follows:

Add Account: Create a new account on the server

Modify Account: Modify the details of an existing account

Remove Account: Remove an existing account. Please note that an account once removed cannot be restored

Blacklist Account: If you need to prevent the user of an account to not be able to sign in, you can blacklist his/her account. The user will be notified that the account has been blacklisted, when s/he tries to sign in.

ADD ACCOUNT

The following steps will help you in the creation of a new account and adding a tracking device to the account:

- Click on '**Add Account**' button
- Select **Fleet Owners** as Account type in the drop-down box
- Assign a unique **username** with which this account will be identified on the server. In case username already exists on the server the system will notify that the username already exists. In such a case, you are required to assign a different username for the account.
- Assign a **password** to access the account. It is recommended that you choose a strong password i.e., which may not be easily imitated by an unauthorized person. A strong password usually consist of a combination of alphabets (both lower and upper case), numerals and special characters. Dictionary words should be avoided.
- Specify an **email** address. This email ID will be used to send all alerts that are generated on the software.
- Select **Account Expiry** date (login will be automatically disabled after this expiry date unless it is extended further). The default value of this

field is set to one year ahead of today's date. Also note that appropriate e-mails are sent to user, notifying account expiry.

- Select the account **Creation Date**. Default value of this field is today's date.
- Fill up the remaining details for the new user.
- You can also provide additional permissions to the account, as described on the right hand side features list. While adding multiple accounts one by one, you might need to apply similar features for multiple accounts. To ease the selection of feature marking, the module provides an option to save the selected features in a new template. To save a template, type in the template name and click the 'Save Template' button. You can later select this template from the template drop down list in the starting of the features list. Selecting a previously saved template will mark all appropriate permissions automatically. All features, reports and mapping services can be saved in a single template. You can create multiple templates for different permission sets.

*All the fields marked in red color on this form are mandatory and others are optional

- Once you are done click on **Save**

The screenshot shows the 'Add Account' form in the Find'n/Secure application. The form is titled 'Add Account (or the Name with the user name, a mandatory alpha-numeric & optional)'. It includes a sidebar with navigation options like 'Administrative Home', 'Trackers Management', 'Trackers Debugger', 'Add/remove PDI', 'Users Management', 'Database Management', 'Test Tracker', 'Temperature Sensor', 'Monitoring Center', 'Global Settings', and 'Mobile Password'. The main form area contains the following fields: 'Account Type' (dropdown), 'Username' (text, 4 characters), 'Password' (text, 4 characters), 'Account Expiry' (07/24/2014), 'Creation Date' (07/24/2013), 'Gender' (Male), 'Address', 'City', 'State', 'Country' (Afghanistan), 'Zipcode', 'Mobile', 'Phone', and 'Website' (http://). On the right, there is a 'Features enabled on this account' section with a 'Template' dropdown and a 'Select' button. Below this is a list of features with checkboxes, including 'Access', 'Controls', 'Service Display', 'CABILES', 'PI Identification', 'PI Operator', 'Job Scheduler', 'Service Drawing', 'Geofence Management', 'Geofence Manager', 'PIN', 'Mobile Operator', 'Contacts Directory', 'Users Management', 'School Management', 'Product Management', 'Reports', 'Full Drawing', 'Full Scheduler', 'Mobile Account Information', 'Service Alerts', 'Mobile Tracker Information', 'Address Alerts', 'Address Reminders', 'Monitoring Center', and 'Monitoring Center'. At the bottom of the form, there are buttons for 'Save', 'Cancel', 'Save as new template', and 'Save Template'.

Figure 37: Add Account

ADD TRACKERS TO ACCOUNT

After all the details of the account are saved, click the 'Trackers' button to proceed with adding trackers to this account.

This page shows two lists, 'Available Trackers' on top and 'Selected Trackers' at the bottom. Any tracker can be selected from the list of Available Trackers and can be added to the list of Selected Trackers to assign them to this user account. Once you have added the trackers and moved them to Selected Trackers list, you can now click on the 'Done' button to complete the process.

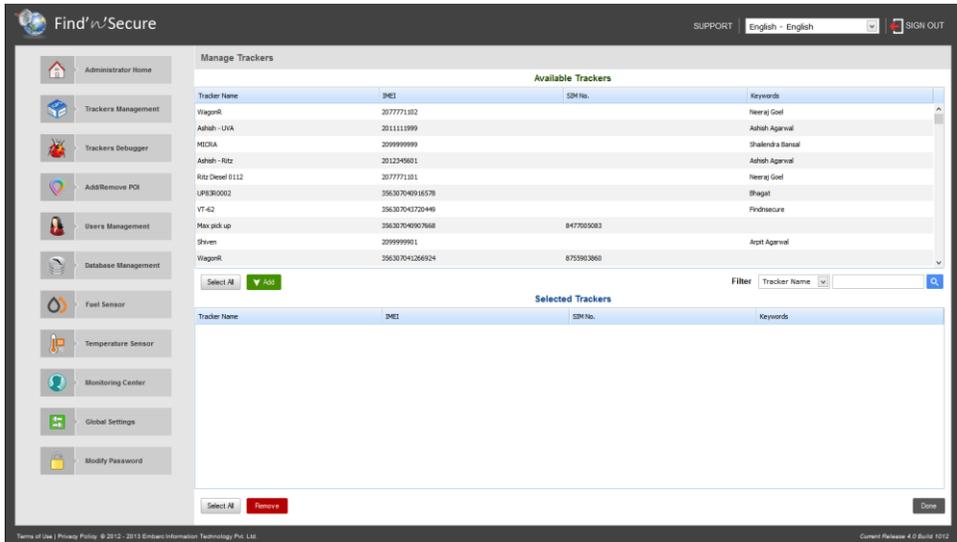


Figure 38: Manage Trackers

Please note that a tracker that is already assigned in to a user account can also be added to another user account.

REMOVE TRACKERS FROM ACCOUNT

To remove trackers from a user account, go to the Manage trackers page, as described in the previous section and shown in Figure 38: Manage Trackers. Select the trackers you wish to remove from the Selected Trackers list and click on 'Remove' button on bottom left. When you remove a tracker, it'll automatically be added to the list of Available Trackers. Click the 'Done' button to save all changes and exit.

MODIFY ACCOUNT

Modify Account is similar to Add Account in the functionality. Some unique fields associated with the account and the trackers are not editable in the modify section.

Shortcut: To modify any account simply double click on the account name in the Users Management

REMOVE ACCOUNT

This option removes the selected account and all details associated with this user.

Caution! Removing account from the server will destroy all the data present in the database and this is an irreversible process.

BLACKLIST ACCOUNT

You can select single or multiple accounts to blacklist due to any reason whatsoever. Upon blacklisting an account it doesn't allow the user to login to the software but it still keeps on storing all the data being received from the tracking devices.

REMOVE FROM BLACKLIST

This option removes the account from the blacklist and now user will be able to have complete access to his account.

DATABASE MANAGEMENT

Administrators should make use of the database management system to perform operations on the software databases. We strongly discourage you from directly performing any operations on the database of the software as even the slightest error may render the whole system useless. When you click on the Database Management option, you'll be presented with a page similar to Figure 39: Database Management.

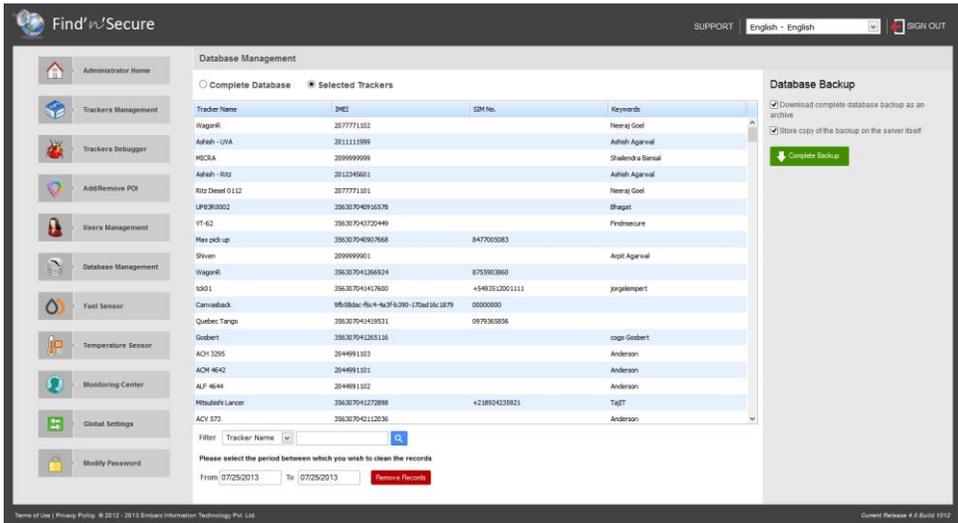


Figure 39: Database Management

Here you can see a list of trackers with their IMEI, SIM No., and Keywords. You might opt to either select Complete Database or Select Trackers manually.

REMOVE RECORDS

You can select the period between which you wish to remove data from the trackers' database. Click on **Remove Records** to perform the operation.

Caution!

It is always wise to take the backup of the database before performing any operations on the database. In the next section we'll show how to take backup of entire database.

COMPLETE BACKUP

This option allows you to perform backup of the entire database. You can download and store the backup depending upon your choice by selecting options above this button.

- Download complete database backup as an archive
- Store copy of the backup on the server itself

It is always advisable to download the file on your personal computer and move the file to any archiving facility like DVD, pen drive etc. Storing backup file over the server can be useful in the eventuality of your system developing some kind of a database corruption which needs to be restored immediately from the stored backup file. Backup filenames are generated automatically using random digits and a log is maintained on the server. The format of the backup file is gzip compressed file which can be uncompressed by using **gunzip** command available on Linux systems.

FUEL SENSOR

A wide variety of fuel sensors are available in the market, each of which has a different configuration. These configurations should be set up in the software so that they are calibrated properly.

On clicking this option you will see all the existing profiles in the left pane.

- To create a new fuel profile, click the ‘New’ button, fill up the fuel profile card and click the ‘Save’ button.
- If you wish to modify an existing profile; select the profile, edit fuel profile card values and click the ‘Save’ button to commit changes.
- To remove an existing profile, select the profile you wish to delete and click the ‘Remove’ button. This will remove the fuel profile permanently.

The Fuel Profile card contains the following parameters:

Parameter	Description
Profile Name	Name of this profile
Enable auto compute	Check this option, if the fuel profile should be automatically computed by the software
Reference Voltage	Measured voltage when the fuel tank is full
Empty Tank Voltage	Measured voltage when the fuel tank is empty
Additional Parameters	Additional properties of the sensor provided by the vendor

TEMPERATURE SENSOR

A wide variety of temperature sensors are available in the market, each of which has a different configuration. These configurations should be set up in the software so that they are calibrated properly.

On clicking this option you will see all the existing profiles in the left pane.

- To create a new temperature profile, click the 'New' button, fill up the temperature profile card and click the 'Save' button.
- If you wish to modify an existing profile; select the profile, edit temperature profile card values and click the 'Save' button to commit changes.
- To remove an existing profile, select the profile you wish to delete and click the 'Remove' button. This will remove the temperature profile permanently.

The temperature profile card contains the following parameters:

Parameter	Description
Profile Name	Name of this profile
Enable auto compute	Check this option, if the temperature profile should be automatically computed by the software
Temperature Lower Limit	Lowest range of temperature in Centigrade which can be identified by this sensor
Temperature Upper Limit	Highest range of temperature in Centigrade which can be identified by this sensor
Beta Constant	Beta Constant value of the thermistor
Thermistor Resistance	Fixed resistance value of this sensor
Reference Voltage	Voltage on which this sensor will operate
Fixed Resistance	Value of the fixed resistance
Additional Parameters	Additional properties of the sensor provided by the vendor

GLOBAL SETTINGS

Please refer to Chapter 3 - Installation for options related to System Settings.

MODIFY PASSWORD

You can use this option to modify the password of administrator account. It is important to keep a strong password for your administrator account as the complete functioning of the software may be hampered if this is leaked out. This module also indicates the strength of your password so that you can choose a good and strong password.

RESTORE DATABASE FROM BACKUP

We will now show you how to restore your database backup on the server in case of any mishap. Login to the Linux system as root, start the terminal the following steps:

```
> gunzip [BACKUP FILENAME]
```

For example, if the filename is `backup_4dbd652e82e8b59ee38fbf8a.sql.gz`

```
> gunzip backup_4dbd652e82e8b59ee38fbf8a.sql.gz
```

This will produce the file `backup_4dbd652e82e8b59ee38fbf8a.sql`. By default the name of the database used by the software is `fnsv4`. You are required to clear this database before you can perform restore.

```
>mysql -p fnsv2  
Password: *****  
mysql>DROP DATABASE fnsv4;  
mysql>CREATE DATABASE fnsv4;  
mysql>exit  
>mysql -p fnsv4 < backup_4dbd652e82e8b59ee38fbf8a.sql
```

CHAPTER 2

ADVANCED TOOLS FOR ADMINISTRATORS

In the previous Chapter we visited options available to administrators via software interface to perform administrative operations but sometimes it becomes important for administrators to make use of Linux tools for debugging software issues. We will go through the series of such tools in this Chapter starting with MySQL administrator Utility.

MYSQL ADMINISTRATOR UTILITY

You can download and install MySQL administrator utility from the MySQL website, <http://www.mysql.com> and moving to the section Downloads > GUI Tools. Once you complete download and installation, you are required to perform following operations on the Linux server:

- Login as root user in the Linux system
- Run Terminal
- Execute `mysql -p fnsv4`
- Enter your MySQL root user password
- Execute `mysql> GRANT ALL ON *.* TO 'user'@'192.168.1.10' IDENTIFIED BY 'password'`

This command will allow user with username as 'user' to login from host IP address 192.168.1.10 and the password provided is 'password'. You can modify this command as per your requirements. For more understanding please refer to MySQL manual.

Please be aware of the firewall system on your network before making the connection to MySQL. Port number 3306 is default port for communication with MySQL and therefore your firewall should allow communication on this port.

Once you have performed the above steps your MySQL is ready to connect via any PC using MySQL administrator. Open the MySQL administrator utility on your computer and fill up the following fields:

- Server Host : IP address or hostname of the server on which MySQL is running
- Username : user
- Password : password
- Click on 'OK'

Your MySQL administrator will be connected to the MySQL database engine. You can go through the wide range of documentation available for this utility to become friendly with this utility. Some of the tasks that you can do using this utility are:

- Backup – You can schedule backup projects
- Restore
- Database maintenance
- Server health monitoring
- Server logs
- Replication Status

TCPDUMP

The most common source of problems with tracking devices is incorrect configuration of these tracking devices for communication over GPRS. This utility can help you identify if the tracking devices are communicating well with the server or not. Find'n'Secure® software opens up port number 21000 by default for communication over UDP and TCP/IP. Given below are some of the useful commands and their respective meanings.

```
>tcpdump port 21000
```

Capture all the packets coming in and going out of the server related to UDP and TCP/IP port number 21000

```
>tcpdump udp port 21000
```

Capture all the packets coming in and going out of the server related to only TCP Protocol port number 21000

```
>tcpdump tcp port 21000
```

Capture all the packets coming in and going out of the server related to only TCP/IP Protocol port number 21000

```
>tcpdump udp port 21000 and host 192.168.1.10
```

Capture all the packets coming in and going out of the server related to only UDP Protocol port number 21000 with the host having IP address of 192.168.1.10

```
>tcpdump udp port 21000 and dst host 192.168.1.10
```

Same as previous command with the only difference to capture packets having destination host as 192.168.1.10

```
>tcpdump udp port 21000 and src host 192.168.1.10
```

Same as previous command with the only difference to capture packets having source host as 192.168.1.10

WIRESHARK

Wireshark is a kernel level network packet capture utility. You can see it as a GUI tool with capabilities of tcpdump utility, discussed in the previous section.

To install wireshark on Ubuntu 12.04.2, follow the steps below:

1. Open a new Terminal window
2. Install wireshark by typing `apt-get install -y wireshark`
3. To run wireshark in background type:
`wireshark &`

You can go through the huge collection of documents available on the internet for learning basic features of wireshark and also find the documentation from its website <http://www.wireshark.org>

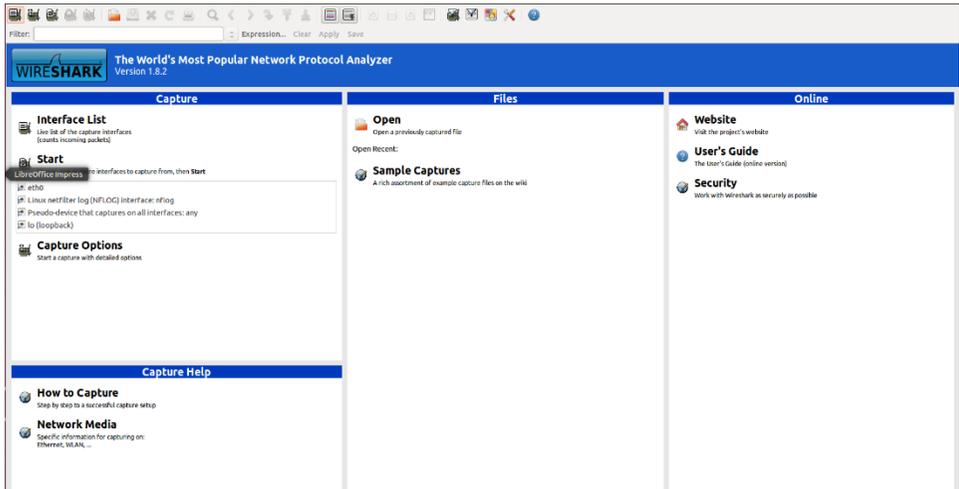


Figure 40: Wireshark

CAPTURING WITH TCPDUMP FOR VIEWING WITH WIRESHARK

There are occasions when you want to capture packets using **tcpdump** rather than **wireshark**, especially when you want to do a remote capture and do not want the network load associated with running Wireshark remotely (not to mention all the X traffic polluting your capture).

However, the default **tcpdump** parameters result in a capture file where each packet is truncated, because **tcpdump**, by default, only captures the first 68 bytes of each packet.

To ensure that you capture complete packets, use the following command:

```
tcpdump -i <interface> -s 1500 -w <some-file>
```

You will have to specify the correct **interface** and the name of a **file** to save into. In addition, you will have to terminate the capture with **^C** when you believe you have captured enough packets.

SETTING UP MYSQL MIRROR

Server failures are unavoidable and can make you lose all your vital data related to tracking of the units and in such a scenario it is most crucial to make the service up and running as soon as possible. To keep your service running all

the time with 99.99% uptime you need to setup the infrastructure that allows you to have redundancy in the data so that in the eventuality of your primary server going down you can switch to your secondary server. MySQL has an in-built ability to replicate the data on one or more storage servers. In this section we will show you how to create a mirror for your MySQL service. You need one additional server installed with the same version of the MySQL to avoid any problems, let us denote your primary server with name “MAIN” and your secondary server with name “MIRROR”

SETTINGS FOR MAIN

1. Create User in MySQL

```
mysql> mysql -p
```

Enter your password

```
mysql> GRANT REPLICATION SLAVE ON *.* TO  
'repl'@'%'.mydomain.com' IDENTIFIED BY 'password';
```

2. Open my.cnf, navigate to section [mysqld] and add the following lines :

```
log-bin = mysql-bin
```

```
server-id = 12345
```

3. Issue the following commands in MySQL :

```
mysql> FLUSH TABLE WITH READ LOCK;
```

```
mysql> SHOW MASTER STATUS;
```

Record down 'File' and 'Position' and quit mysql

4. On the Linux shell prompt issue the following command :

```
#>mysqldump -all-databases -master-data #>dbback.sql
```

5. Re-enter MySQL and issue following commands :

```
mysql> UNLOCK TABLES;
```

Once you have completed the above steps your primary server is ready to allow secondary server for fetching data.

STEPS FOR MIRROR

1. Copy dbback.sql file created over the MAIN server and move it to MIRROR server. Thereafter, issue the following command to create a copy of the database on the MIRROR server:

```
#>mysql -p < dbback.sql
```

2. Open my.cnf, navigate to section [mysqld] and add the following lines :

```
server-id = 67890 //this ID should not match master
```

3. Issue the following command in MySQL prompt:

```
mysql> CHANGE MASTER TO  
MASTER_HOST = 'MASTER HOSTNAME OR IP ADDRESS'  
MASTER_USER = 'USERNAME' //repl as created above  
MASTER_PASSWORD = 'PASSWORD' //password as created above  
MASTER_LOG_FILE = 'LOG FILENAME' //as you recorded above  
MASTER_LOG_POS = 'LOG POSITION'; //as you recorded above  
mysql> START SALVE;
```

All the steps required for slave setup are now complete and data replication should start as per the requirement. In case you face any sort of issue, you may checkout the log files situated at the locations /var/lib/mysql.