

Solar Tracking Unit (STU) Website Users Manual Version 2.01

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LEGAL INFORMATION

Version 2.01

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FCC NOTICE: This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.
- It is strongly recommended that the TV be plugged into a separate wall outlet.

This equipment has been verified to comply with the limits for a class B computing device, pursuant to FCC Rules. In order to maintain compliance with FCC regulations, shielded cables must be used with this

equipment. Operation with non-approved equipment or unshielded cables is likely to result in interference to radio and TV reception.

The user is cautioned that changes and modifications made to the equipment without the approval of manufacturer could void the user's authority to operate this equipment.

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INTRODUCTION

Welcome to the Lat-Lon tracking and monitoring service! The Lat-Lon website is your portal to view the data that your GPS units send out. You now have the ability to track and manage your mobile assets from anywhere in the world using only Microsoft Internet Explorer and an Internet connection. The website has mapping capability, reporting capability, and administration capabilities.

This document explains the structure and functionality of the Lat-Lon website. The document is divided into four main sections that mirror the menu structure of the website:

- 1. Login
- 2. Reports Viewing data / maps
- 3. Administration
- 4. Preferences

Lat-Lon will keep one year of data on hand. If your intent is to have a historical record of your GPS units then you need to off load data or contract with Lat-Lon to maintain the data.

LOGIN

Logging-In

To access the website, go to www.lat-lon.com and press the "LOGIN" button on the left of the Lat-Lon home page. The next page you will see a place to enter your username and password as shown below:

User Login: Login: Password: Submit

Main Menu Functions

Once logged in the account, there will be a menu bar along the top that has the following options:

Report | Administration | Preference | Logout

REPORT – VIEWING DATA / MAPS

As a user you are able to go directly to viewing reports and maps by selecting Report on the menu bar as shown below.

Report | Administration | Preference | Logout

On the left side of the next page you will see a drop down menu that is labeled "Select a Report". There are two standard reports with each account. An administrator may setup or add as many custom reports as desired. This is explained in more detail in the administration section.

Standard Reports

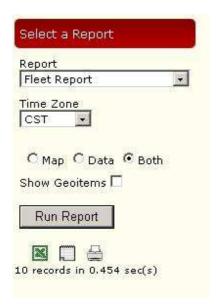
Fleet Report

The Fleet Report is for viewing the latest message from your fleet of units. The Time Zone drop down box allows you to see the report times in any time zone.

You have a choice to view MAP ONLY, DATA ONLY or BOTH

You also have a choice to view your Geofences or Geopoints ("Geoitems") on the map or not by checking the "Show Geoitems" box.

See the GeoItems section for more information on how to set up geofences and geopoints.

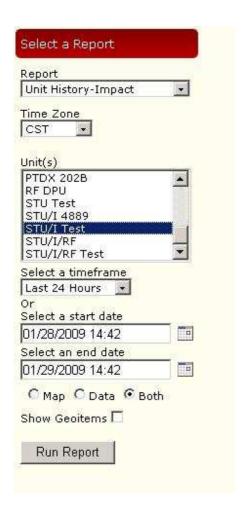


History Report

The Unit History Report is for viewing specific units for specific dates. More than 1 unit can be viewed at the same time by clicking and dragging, clicking while holding the "shift" key, or clicking while holding the "ctrl" key.

Choose your Time Zone, Unit Number(s) and Date Range

You have a choice to view MAP ONLY, DATA ONLY or BOTH. Also, check or uncheck the "Geoitems" box.

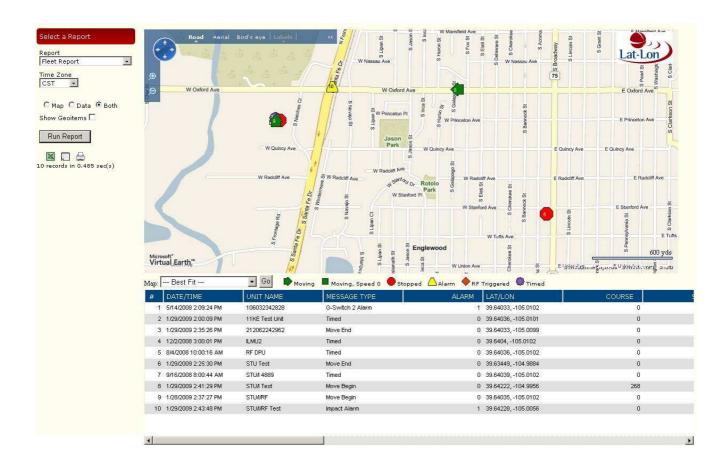


Report Display

MAP Display: This choice is for a full page map **DATA** Display: This choice is for a full page of data

BOTH Display: This choice gives you a split screen and shows you both the map and the data. **Show Geoitems:** This check box allows you to see any geopoints or geofences that you set up on the map. Please see the GEOITEMS section below for more information on setting up geofences and geopoints.

See example below.



Mapping functions

The map has a menu bar in the upper left corner of the map. The + or - icons can be used to zoom in and out. Double clicking on the map will center that point and zoom in one level. The map can be panned by clicking and dragging the map.

The Road map is the default display but aerial views can be shown by selecting the Aerial button. Bird's Eye view is also available in some areas.

At the bottom of the map is a drop down box with the valid map views. The administrator can set up these views to quickly zoom into particular areas (See Maps).

The map scale in shown in the lower right corner.

Map Icons



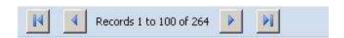
Some icons may not be applicable to your unit.

Report Functions

Each row can be sorted by clicking on the column heading. Heading names and column order can be controlled by the administrator.

The size of the columns can be manipulated by clicking and dragging them to be larger or smaller.

If your report is longer than 100 records, you will see paging options at the bottom of the report. See example below.



Save to Excel, Save to Text, Print Page



The above options are given after you run your report.

Click on any of the above and the entire report (including multiple pages) will be saved or printed.

Custom Reports

Custom reports can be setup by the account administrator. If you need the data displayed in a different way then contact the administrator.

Specialty Reports

Specialty Reports are reports designed to help productivity and the management of assets.

SEE APPENDIX II for descriptions of specialty reports available

***Specialty Reports show up under the Users Section and can be added to any user.

ADMINISTRATION

Report | Administration | Preference | Logout

Account Setup

An administration account will be established by Lat-Lon when the unit(s) is activated. The administration account will be assigned a username and password and allows complete administration authority to the account. The administrator will be able to perform the following functions:

- 1. View all data
- 2. Name units
- 3. Set up additional users
- 4. Assign user names and passwords
- 5. Set up groups within your company to view data.
- 6. Create reports
- 7. Set up alert templates
- 8. Manage map views
- 9. Create Geofences and Geopoints through "GeoItems"

PLEASE WRITE DOWN THE LOGIN AND PASSWORD FOR THE ADMINISTRATION ACCOUNT AND STORE IN A SAFE PLACE. If it is lost, call Lat-Lon at 303-937-7406 to retrieve it.

Administration Account Menu

The Administration tab displays 6 functions that will be discussed in detail in the following sections:

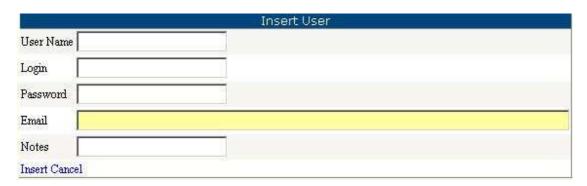


Users

Setting up "users" is an important part of using the Lat-Lon website to its full potential. Users can be set up to restrict the data that is displayed. This is useful not only in terms of security, but also when it comes to accessibility and data management. With "users" you can set up areas for specific fleets of cars. Used properly, creating new users can be valuable in terms of both time and data management.

Under the Users section click "Add New User":

Enter the Username, Login, Password, Email address (FOR ALERTS) and any Notes you would like to have (notes are only viewable to the administrator). Click "Insert".



Once you have "inserted" the new user you will see the user information on the screen.



Click the "Edit" button on the right side of the "User" login information. With "Edit" you will be able to add units to this users group, set the default time zone for the user, set a start date for the user to view report data, add specific email templates* and add specific reports for the user to view.

Make sure to click "update" when you are finished.

Column Heading Descriptions:

User Name: name of group or user

Login: user login

Password: user password

Report Begin Date: user will not be able to see data in a report before the date that you assign here.

If no date is assigned then the user will see data history.

Email: email address that you want alarms to be sent to (see Manage Alerts for more info).

Units: unit(s) seen by the user

Time Zone: default time zone for the user

Alerts: alert templates assigned to the user (for email alarms)

Reports: reports assigned to the user

SEE APPENDIX II FOR DESCRIPTIONS OF CUSTOM REPORTS

Enable Dispatch: check this box if you want your user to see the Dispatch Page.

The Dispatch Page is a map of your Fleet that updates automatically.

SEE THE DISPATCH PAGE SECTION BELOW

Enable Alerter: check this box if you want your user to see the Alerter Page.

The Alerter Page is a Fleet History Report that updates automatically.

SEE THE ALERTER PAGE SECTION BELOW

*Note: See "Alerts" below to set up your Email Alert Templates. If you do not add an Alert Template to a user then no ALERT emails will be sent to that user's email address.

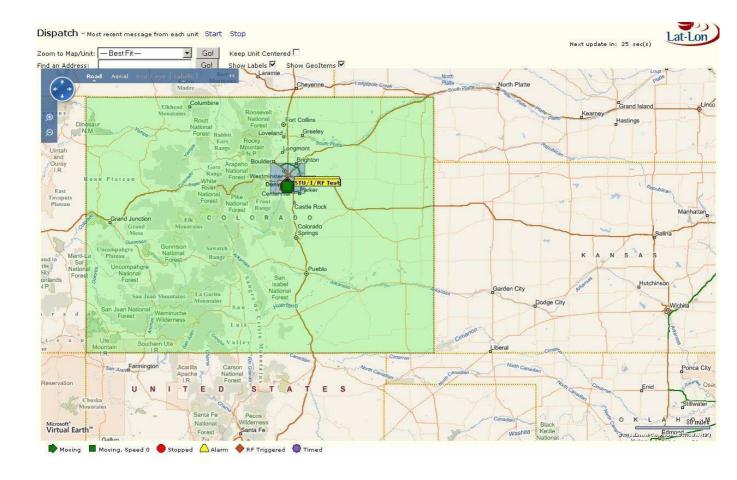
ADMINISTRATORS MUST SET THEMSELVES UP AS USERS IF THEY WANT TO ADD EMAIL ADDRESSES AND ALERT TEMPLATES FOR THEMSELVES.

Dispatch Page

The Dispatch Page can be a great tool for anyone that owns more than 1 DPU. The Dispatch Page is a map of your fleet that automatically updates every minute. Icons on the page help you determine if your asset is moving, stopped or has had an alarm. When you open the Dispatch Page make sure to click the "START" button. The Dispatch Page has options to:

- 1. Zoom into a specific unit on the map
- 2. A "Best Fit" choice so that all of your assets show on the map
- 3. Find an address: if you want to zoom directly into a specific state, city, zip code or street address
- 4. Show Labels
- 5. Show Geoitems
- 6. Keep Unit Centered on page even while moving

See the picture below:



Alerter Page

The Alerter Page can be a great tool for anyone that owns more than 1 DPU. The Alerter Page is a scrolling fleet report of your data that automatically updates every minute. During Alarm Type Events (*temperature, *digital alarms) a sound will be heard. You must have speakers and a sound card in your computer. You must click "acknowledge" to stop the sound.

^{*}you must have purchased a temperature sensor or digital wiring for these 2 alarms to sound.

Next update in: 28 sec(s)					9
Geography	Course	Speed	Event	Unit Date/Time	Name
0.79 mi S of Junction City, OR, US	N	0	Move End	1:05:58 PM (PST)	PNWR 2304
0.77 mi S of Junction City, OR, US	N	0	Move End	1:05:57 PM (PST)	PNWR 2005
0.3 mi SW of Donald, OR, US	SW	24	Move Timed	1:05:35 PM (PST)	PNWR 2305
0.82 mi S of Junction City, OR, US	N	7	Move Begin	1:05:25 PM (PST)	PNWR 2304
0.8 mi S of Junction City, OR, US	N	6	Move Begin	1:05:24 PM (PST)	PNWR 2005
0.12 mi NE of Donald, OR, US	SW	24	Move Timed	1:04:35 PM (PST)	PNWR 2305
0.83 mi S of Junction City, OR, US	N	0	Move End	1:03:54 PM (PST)	PNWR 2304
0.81 mi S of Junction City, OR, US	N	0	Move End	1:03:53 PM (PST)	PNWR 2005
0.5 mi NE of Donald, OR, US	SW	24	Move Timed	1:03:35 PM (PST)	PNWR 2305
0.73 mi S of Junction City, OR, US	S	6	Move Begin	1:03:02 PM (PST)	PNWR 2005

Units

The first column listed is "Unit Id". This is the Lat-Lon serial number(s). To rename the Unit Id to an asset number or a name click the EDIT button displayed on each line. This will allow you to update the Unit Name and also add a note as shown below. Once finished, press the Update button to save changes.

	Unit Name		Note
1005178000apx1	1005178000apx1		
1005231000ckx1	Buffer car sat unit		
106012974889	STU/I 4889		
106012975027	106012975027		
106012975076	phl123		
106020562155	106020562155		
106023022629	PTDX 202B	Permanently attached - Hot Bearing	
106023029772	106023029772		

How to Change Move-time Reporting frequencies:

You are able to submit configuration changes anytime, but STUs are only listening for configuration changes when they are reporting. So, if your unit is not moving and reporting Timed Reports every 2 hours, then it will accept the configuration changes when it reports the Timed Report.

Click "Configure" on the right side of each unit's line.

Administrators are able to change the "Time between Move-timed Reports" up to every 10 minutes or 600 seconds.

See picture below.



Reports

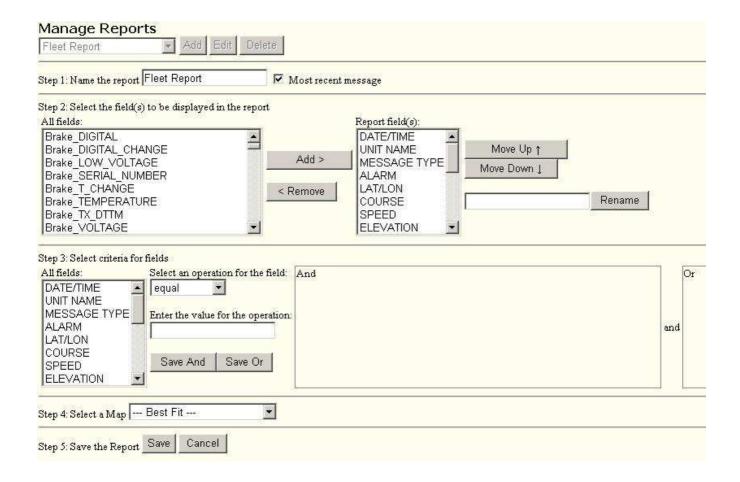
Lat-Lon gives you 2 standard reports "Unit History Report" and "Fleet Report". Each of these reports can be edited under Manage Reports. The administrator can create new customized reports here.

Click on one of the following:



Add

The Add button displays a screen that walks the administrator through the process of creating a report.



- Step 1: Name your report and then click on whether you want ONLY the last message from each unit.
- Step 2: Select the fields you would like displayed in the report. Report Fields can be sorted by clicking on the field and clicking the Move Up or Move Down button. The fields can also be renamed by selecting the field and then entering a new name for the field.
- Step 3: Select criteria for any of the fields: The example shown is to display the reports where the speed is greater than 75 miles per hour.
- Step 4: Select a Map. If you have set up a customized map view under "Manage Maps" (next section), then you can select your customized map view for this report. Otherwise it remains at "Best Fit".
- Step 5: Click SAVE when finished. **See Appendix I for a detailed description of fields**.

Because you are able to Manage/Customize Reports as an administrator, each Unit History Report may contain different information or data. See Appendix 1 for description of fields.

Maps

Managing maps will allow you to set up standard map displays for you assets. If you are interested in seeing the units just at your facility, then a custom map display can be setup to zoom into that area.

If no custom map is available or chosen then the "Best Fit" will automatically show along with your data.

Click on one of the following:





Zoom into the map to the area you would like to save, name it and click SAVE.

Alerts

Lat-Lon defines an Alert as an e-mail message generated by Lat-Lon's server computers that can be sent to a user's e-mail, pager, or as a text message to their cell phone. It is up to the customer to research or call their cellular provider so that their cell phone number can be typed as an email address (for text messaging).

There are several components to Alerts. The Administrator must define what triggers an alert email. This trigger definition process is called an Alert Template. The other component of the Alert is defining which User accounts will have Alerts activated and to whom the alerts will be sent. Within Manage Users, the Administrator will assign an Alert Template to that User and will fill in the e-mail address (or multiple addresses) to which the e-mails will be sent.

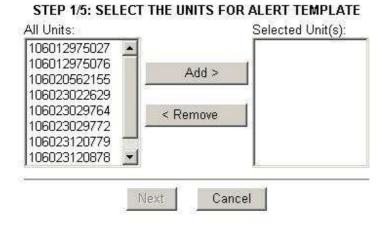
An Alert Template must be set up for an email alert to be sent to a User's email address.

After clicking on Manage Alerts, click on one of the following:



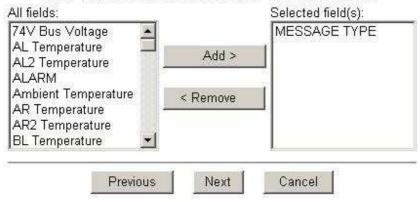
The Manage Alerts wizard will walk you through each of the following steps:

Step 1 of 5: select units that will be a part of that particular template. For example, if you want all of your STUs to send the same type of alert email then add all of your STUs to the template.



Step 2 of 5: select the fields to set your criteria. For example, if you want the email alarm to be sent on the criteria of Message Type then add that "field" in this step.

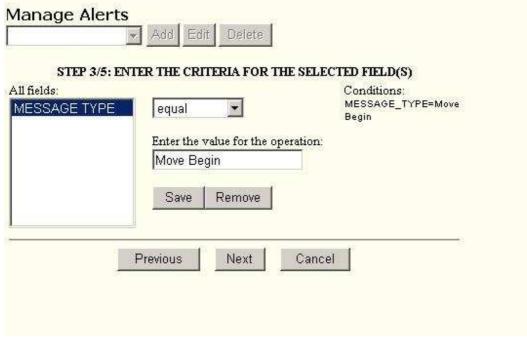
STEP 2/5: SELECT THE FIELD(S) TO SET CRITERIA ON



Step 3 of 5: enter the conditions for your selected field. The condition set in the example below is to send an alert email if the Message Type is equal to Move Begin. The reason I have used Message Type in this example is because the STU is the one that detected the change in GPS and created an additional message "Move Begin" because of that change of GPS.

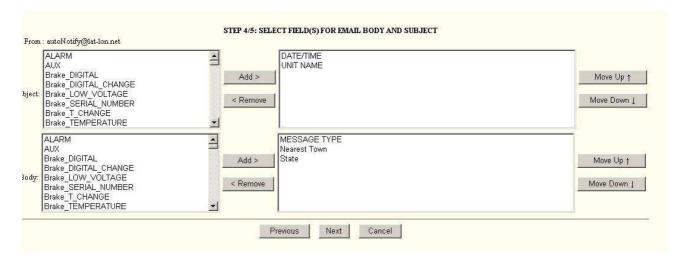
The logic for the conditions is "OR". This means that if you set more than 1 condition, the system will send out an alert email for either of the conditions.

HIGHLIGHT the field you are setting the criteria for, choose the criteria in the drop down menu, enter the value, and click the "Save" button. If you want to remove the criteria then highlight the field and click the "Remove" button. If you have done this correctly you will see your "conditions" show up on the right side of the page under "Conditions".



Step 4 of 5: layout your email by selecting what you want in your subject line as well as the body of the email. Remember that some email software applications may have a limit to the number of characters allowed in the subject line.

You can change the order of the fields on the right by highlighting the appropriate field and pressing the "Move Up" or "Move Down" button.



Step 5 of 5: confirm that everything is correct. If there is an error please use the "previous" button to go back and change it. Name your "template" and click the "Save" button.

STEP 5/5: CONFIRM AND SAVE THE ALERT TEMPLATE Please read the information below and make sure that it is correct. If there is an error please go back and change it. If everything looks good click on Save. Click Cancel to Abort. Unit(s): 106023029772 Filter(s): MESSAGE_TYPE=Move Begin **Email Details:** From: autonotify@lat-lon.net Lat-Lon Alert DATE/TIME; UNIT NAME Subject: Body: MESSAGE TYPE; Nearest Town; State Template Name: Save Previous Cancel *Note: To activate this template, please assign it to a user from the Manage Users menu by adding an email and selecting this template

*Note: After saving the Alert Template you should now go to the Manager Users section (above) and add an email address and your Alert Template to a User.

*ADMINISTRATORS MUST SET THEMSELVES UP AS USERS IF THEY WANT TO ADD EMAIL ADDRESSES AND ALERT TEMPLATES FOR THEMSELVES.

Geoltems

The GeoItems section is to be used to set up Geofences and Geopoints.

GEOFENCE: This allows a customer to receive extra information during a regular message in an additional column called Geofence. A unit is either within a geofence or it is not.

There is no limit the number of geofences that you can create in this section.

Step 1: Zoom into the area on the map where you want to place your geofence. Note that you can use the road view, aerial view or bird's eye view.

You may also enter a state, city, zip code or address to zoom quickly into that area.



Step 2: Click on the "Add" button to see the "geofence" box on the map.



Step 3: Manipulate the box by dragging the top left or bottom right corners until the geofence is exactly where you want it.

Step 4: Name the geofence



GEOPOINTS: This allows a customer to receive extra information during a regular message in an additional column called Geopoint. You will receive information as a unit approaches within 60 miles of a geopoint. For example: "Unit2 is 2.5 miles NW of Milepost 50".

Step 1: After going to GeoItems, make sure to choose the "Points" button (see picture above) Step 2: Zoom into the area on the map where you want to add your "point". Note that you can use the road view, aerial view or bird's eye view.

You may also enter a state, city, zip code or address to zoom quickly into that area.



Step 3: Click the Add button to see the Geopoint show up on the map



Step 4: Move the geopoint as needed

Step 5: Name the geopoint

Administration Tips

- 1. For security, keep the administration password in a safe place. Lat-Lon can change the password if required.
- 2. Remember to logout of the administration website to prevent unwanted visitors. As a security precaution, the program will automatically logoff after 60 minutes of inactivity.
- 3. Set up groups to control the information displayed.

PREFERENCES

Report | Administration | Preference | Logout

Preferences are designed to save steps or control the look of your website. The parameters that you can set are listed below:

Parameter	Valid Entries
Time Zone	Greenwich Mean Time (GMT)
(Time is automatically changed from Standard	Eastern Time (EST)(EDT)
Time to Daylight Savings Time)	Central Time (CST)(CDT)
	Mountain Time (MST)(MDT)
	Pacific Time (PST)(PDT)
Show Geoitems Default Checkbox	Checked or Unchecked Box
Future Parameter	
Future Parameter	

LOGOUT

Report | Administration | Preference | Logout

Remember to logout. The program will automatically logoff after 60 minutes to prevent unwanted visitors to the website. You can also logout by pressing the "Log Out" link at the top right of the page.

APPENDIX I: DATABASE FIELD DEFINITIONS

Field	Description	Valid Entries / units
UNIT_ID	Unit Serial Number	
UNIT_NAME	Unit Name	
UNIT_DATE/TIME	Unit Date and Time	
RECEIVE DATE/TIME	Date and Time Servers Received	
	Message	
DECODER DATE/TIME	Date and Time Messages was Decoded	
LATITUDE	Latitude of fix	
LONGITUDE	Longitude of fix	
GEOGRAPHY	Miles and direction from nearest town	
SPEED	Speed of unit at fix	
COURSE	Course or direction unit is moving	1-360
TIME_TO_FIX	Time between event and GPS fix	Time in seconds
SATELLITE IN VIEW	Number of GPS satellites in view by unit	
MESSAGE_IN_QUEUE	Number of stored messages not yet sent	
BUS_VOLTAGE	Voltage of unit after GPS fix	Volts
FIRMWARE	Version of firmware	
		Timed
MESSAGE_TYPE	Reason the message was generated by	Move Timed
	the unit	Move Begin
		Move End
MILE FROM PREV MSG	Miles from previous message	
TIME SINCE MOVE BEGIN	Hours unit has been moving	Hours
TIME SINCE MOVE END	Hours unit has not moved	Hours
GEOFENCE	Geofence	
GEOPOINT	Geopoint	

APPENDIX II: SPECIALTY REPORT DEFINITIONS

Start Stop Report

Features:

The Start Stop Report has a list of each start and stop the unit makes during a trip with summary data of moving time, and stopped time between cycles. The report can be adjusted to show stops greater than "x" minutes to help managers filter out traffic stops or other short delays in transit.

Key Benefits:

This report provides managers a Detailed Time Card for employees. This report can also be used as an auditing tool for verifying deliveries or billable service hours. This report can also be used to verify route deliveries.

Begin - End Report

Features:

The Begin / End Report lists the <u>first movement</u> and <u>last movement</u> of the timeframe for a unit or fleet along with elapsed time, total mileage, and engine run hours.

Key Benefits:

This report provides managers a Detailed Time Card for employees. This report allows managers to monitor trends in employee hours.

Pooling Report

Features:

The Pooling Report lists the number of units at a given location with summary data of oldest and average hours the units have been at that location. This is best used along with geofences.

Key Benefits:

This report provides managers a list of units available at a location or can identify units a customer has not released.

Dwell Report

Features:

The Dwell Report is a Fleet Report showing units that have been sitting (stopped) over a specified amount of time. The amount of time is input by user. For example show me all the cars that have been stopped more than 24 hours.

Key Benefits:

This report provides managers a list of units not moving and how long they have been sitting.

Over-Speed Report

Features:

The speed report displays all occurrences of speeding past a defined speed threshold.

Key Benefits:

Managers can quickly and easily run reports and check for speeding for the fleet for safety reasons.

Email Alerts Report

Features:

The alert report is a detailed list of all of the alerts that were generated.

Key Benefits:

This is an easy report for a summary of all alert emails that have been sent out.

GeoFence Report

Features:

The GeoFence report shows you which of your units/assets have visited saved locations set up in the administration website. Select any saved location (geofence), timeframe, unit or fleet, and run the report.

Key Benefits:

The GeoFence report can help track activity at delivery sites to show who and for how long workers were at that location. This report can also aid in detecting side jobs. The location report can show companies when their locomotive, railcar, truck, trailer, van made their deliveries.