oMM Report Guide

oMM

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Do not operate the Sierra Wireless modem in areas where cellular modems are not advised without proper device certifications. These areas include environments where cellular radio can interfere such as explosive atmospheres, medical equipment, or any other equipment which may be susceptible to any form of radio interference. The Sierra Wireless modem can transmit signals that could interfere with this equipment.

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Consult our website for up-to-date product descriptions, documentation, application notes, firmware upgrades, troubleshooting tips, and press releases: www.sierrawireless.com

Document History

Version	Date	Updates
1.3	October 30, 2015	Updated images for oMM 2.14

Version	Date	Updates
1.2	October 7, 2014	Updates for oMM 2.13
1.1	August 14 2014	Converted to SWI Template.

Contents

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1. Introduction

This document provides instructions for using the oMM user interface, reports and optional applications. The oMM can be hosted by Sierra Wireless or purchased as a standalone server appliance. Note that the hosted version offers fewer administrative functions.

1.1.   Who Should Read This Guide?

oMM users typically include fleet dispatch operators, fleet managers, IT support staff and vehicle maintenance staff.

1.2.   What is the oMM?

The oMM is a powerful browser-based software application that enables users to configure, monitor, and analyze oMGs and associated applications/accessories (such as Asset Manager Wi-Fi tags).

Each oMG collects operational data in a log (e.g. connection status, data transmitted/received, temperature of the unit, voltage of the vehicle, GPS location data, etc.). The data logs from the gateways are transmitted over a wireless data network to an oMM server. The oMM uses these data logs to present current and historical activity.

The oMM is highly configurable to enable great flexibility between customer situations. Business intelligence-style data presentation and reporting enable users to leverage the large amount of data available from the gateways.

The oMM is available both as a "hosted" version which is hosted by In Sierra Wireless' servers, and as a standalone appliance which can be purchased and administered by a customer.

In this document an oMG is often just referred to as a gateway. The gateway hardware is typically installed in a vehicle but it can also be installed in offices or depots to take further advantage of the system's capabilities.

Note: since a gateway is often installed in a vehicle, the term is often also used in place of the word "vehicle".

1.3.   Version: oMM

The version is displayed on the login page, under the user name and password fields.

Version	Details
oMM 2.12	March 28, 2014

1.4.   Related Publications

Title	Description
APP-ED-101101 - onBoard Tracker User Guide	Provides information for the Tracker application.
oMM-ED-081002 - onBoard Total Reach User Guide	Provides information for the Total Reach application.
oMG-ED-100801 - Four Port oMG Telemetry Configuration Guide	Provides information for the Telemetry application.

Title	Description
APP-ED-110301 Asset Manager Configuration and User Guide R1.6	Provides information for asset tags and the Asset Manager.
oMM-ED 101001 onBoard Nav Operation and Configuration Guide	Provides information for the Nav application.
APP-ED-101102 onBoard Passenger WiFi App Config Guide	Provides information for the passenger WiFi (aka "web portal") application.
oMG-ED-121006 oMG Operation and Configuration Guide for R3 3.9	Provides information about operating the oMG.
oMM-ED-130604 - oMM User Guide 2.12.pdf	Provides information about operating the oMM.

All related documentation is available from the knowledge base: http://kbase.inmotiontechnology.com.

2. Reports

Reports provide the true power of the oMM. In addition to reports for the core oMM functionality, reports are also available for optional applications which must be purchased separately.

The following subsections provide details on each of these available reports.

2.1. Core Reports

2.1.1. Network: Availability Trend Report

The *Availability Trend* report shows the availability of each gateway as a percentage, over a selected period of time. The report also breaks down the availability by the WAN devices installed on each unit.

Availability Trend for Group: Alexis (4 Gateways) from Jun 25 to Jul 2 (7 days), availability as uptime over gateway run time, 3 reporting, 1 below average of 99%, 16,042 events

Save Results | [X↓] | Change | Edit

Results by vehicle (active WAN link only)

Vehicle	Run Time	Average	Jun 25	Jun 26	Jun 27	Jun 28	Jun 29	Jun 30	Jul 1
H130112D0021	7 days	99%	99%	98%	100%	100%	100%	98%	100%
H090111G0009	7 days	99%	99%	99%	99%	99%	99%	99%	99%
H130112D0037	7 days	100%	100%	100%	100%	100%	100%	100%	100%
Average	7 days	99%	99%	99%	99%	99%	99%	99%	99%

Results by vehicle and network (up or active interfaces, VPN state discounted)

Vehicle	Network	Run Time	Average	Jun 25	Jun 26	Jun 27	Jun 28	Jun 29	Jun 30	Jul 1
H090111G0009	Bell	7 days	99%	99%	99%	99%	99%	99%	99%	99%
	Port4			0%	0%	0%	0%	0%	0%	0%
H130112D0021	E362	7 days	99%	99%	98%	100%	100%	100%	98%	100%
	Port4			0%	0%	0%	0%	0%	0%	0%
	WLM200NX			0%	0%	0%	0%	0%	0%	0%
H130112D0037	Gateway Network	7 days	100%	100%	100%	100%	100%	100%	100%	100%
	MC7700	7 days	100%	100%	100%	100%	100%	100%	100%	100%

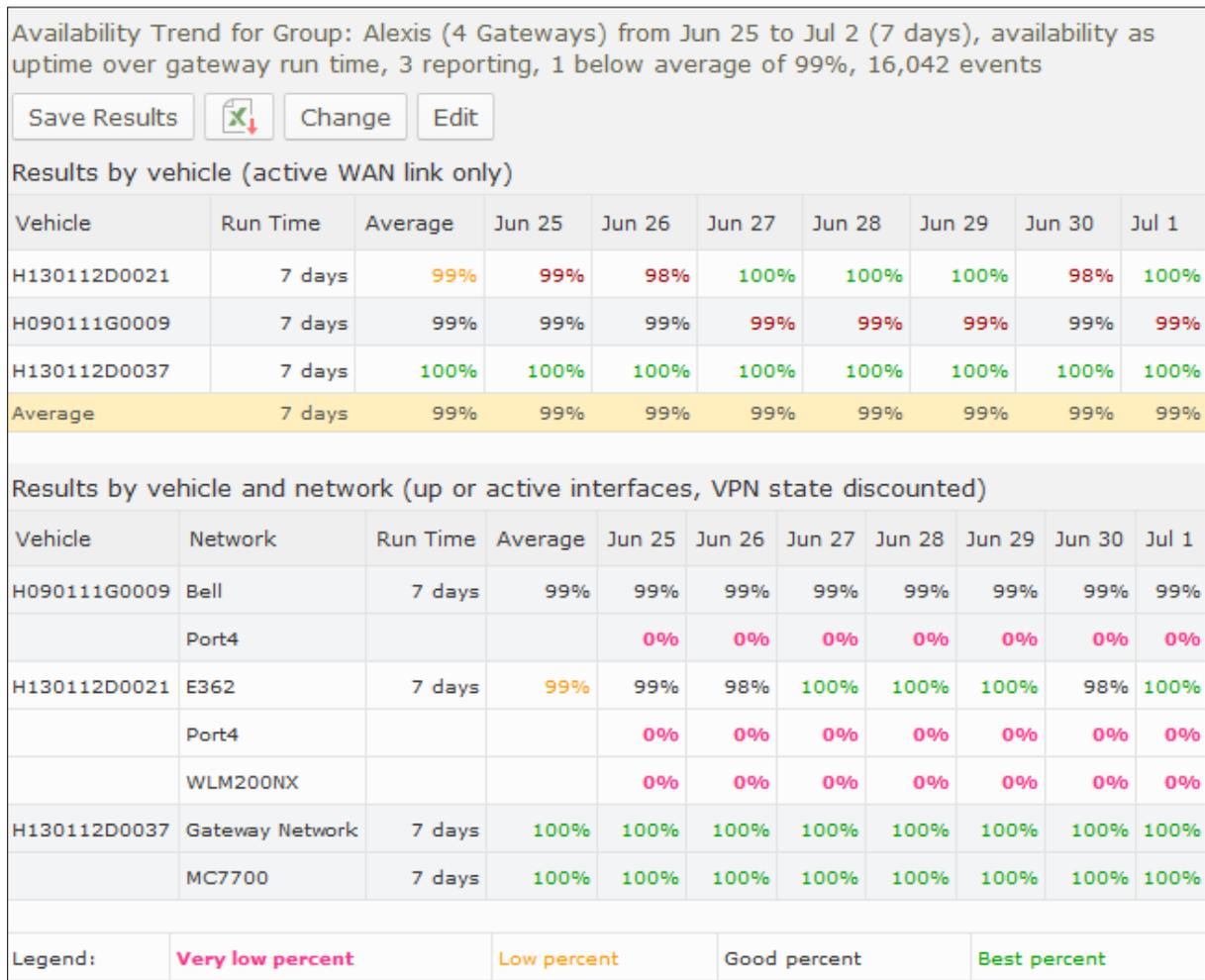| Legend:	Very low percent	Low percent	Good percent	Best percent

Figure 1 - Availability Trend Report

The availability percentage is defined as the duration of time that a gateway had a WAN data connection (Cellular, Wi-Fi, Ethernet) as a percentage of the total time period selected. Note that it does not count times when the oMG was powered off.

Basic Configuration Fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Report time range*: use the drop-down menu to select from *Previous Months, Previous Weeks, Previous Days* or *Range*. Enter the numeric value in the field. When Range is selected, use the calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Limit to map area*: select **Not Limited** to include data from any geographic location. Select **Manually defined area** to create a temporary zone for the analysis – only data from inside this zone will be included in the report. Select **One or more zones** to limit the analysis to one or more predefined zones (see the oMM Operation and Configuration guide for more information about zones).

Exclusion Zones: allows the report to exclude data from one or more predefined zones (see the oMM Operation and Configuration guide for more information about zones). Leave this option checked (default setting) to include data from any geographic location. Uncheck this option to specify zones to exclude data from.

Calculate availability as: select **Uptime over gateway run time** to calculate availability as the amount of time powered on divided by the time that the oMG was on, or **Update over report interval** to calculate availability as the total connection time divided by the report duration.

Limit to network types: runs the report for a certain type of network. Click in the field to select the network type.

Show friendly names if available: when enabled, shows WAN link names in the report if they have been set in the oMG's configuration.

Save for later or schedule a run time: enable to create reports that can be saved for future use. See Appendix A for more information.

Output Format: select **HTML** to generate the report in the browser window. Select **Excel** to display the generated report in Microsoft Excel. Note that the Excel option only works for reports which produce data in a table format.

Advanced Configuration Fields

Split table results by: use the drop-down menu to split the report results by *None, Auto, Second, Minute, 5 Minutes, 30 Minutes, Hour, 8 Hours, Day, Week* or *30 Days*. The selection should best reflect the time range (e.g. if the range is one month, splitting the result by minutes or hours may not result in a satisfactory report). The default is *Auto*.

Max bootup time*: enter the amount of time (0 to 1800 seconds) to allow the gateway to boot before reporting CALLDOWN. The default is 180.

Max time between events*: enter the amount of time (0 to 86400 seconds) to allow between gateway events before considering the unit non-responsive. The default is 3600.

The report presents the results in a column/row format for both *Results by vehicle* and *results by vehicle and network*. Clicking on a gateway in the Node column will generate an *Availability Details* report for it (see next section). Use the legend at the bottom of the report to determine the results for the average percentages.

2.1.2.   Network: Availability Details Report

The *Availability Details* report provides a graphical and detailed view of the availability (connected to a wide area data network) of gateways in your fleet. As with the *Availability Trend* report, the availability percentage is defined as the duration of time a gateway had a WAN data connection (cellular, Wi-Fi or other) as a percentage of the total time period selected.
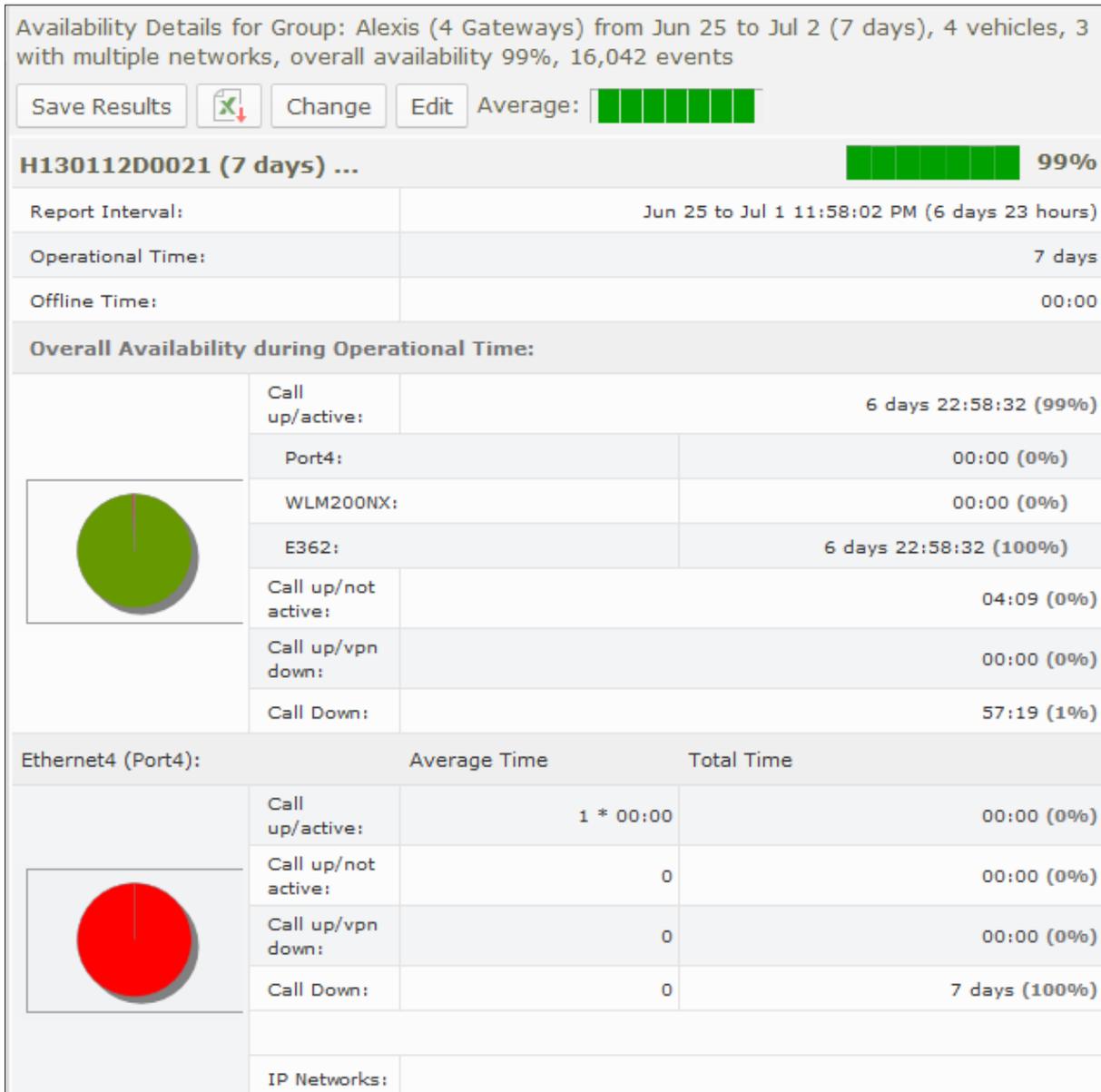
Figure 2 - Availability Details Report

The availability average (for the period of time selected) is presented by a bar graph, in the top header of the report.

Below the top header, data for each gateway within the group is also represented. The information includes an overall average availability bar graph and numeric data, and pie charts that present data for the WAN access type (cellular, Wi-Fi, Ethernet) used by each gateway.

To open a *Coverage Trail Map* report, click on the percentage value link to the right of a gateway's bar graph:
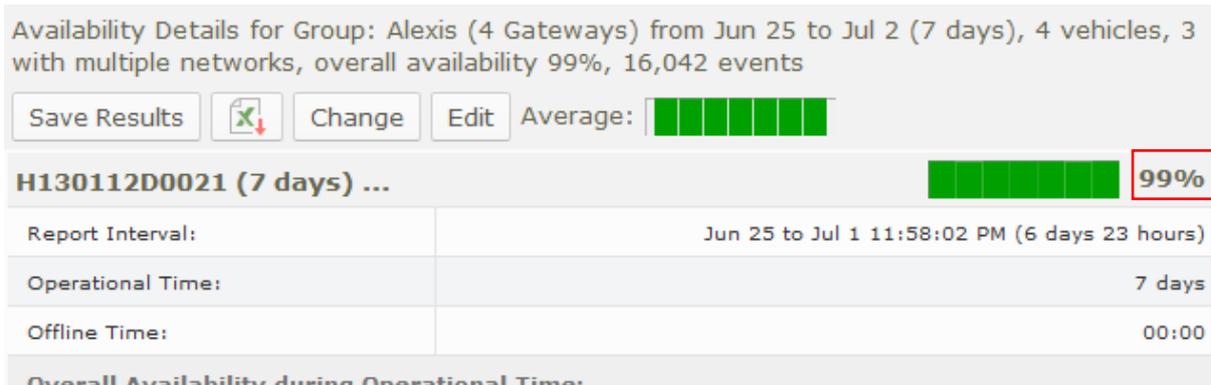
Figure 3 - Clicking the percentage to access the Coverage Trail Map

Run the report to show the actual locations of good/poor coverage.

To collapse or expand a gateway's results, click on the ellipsis (…) after gateway's name:
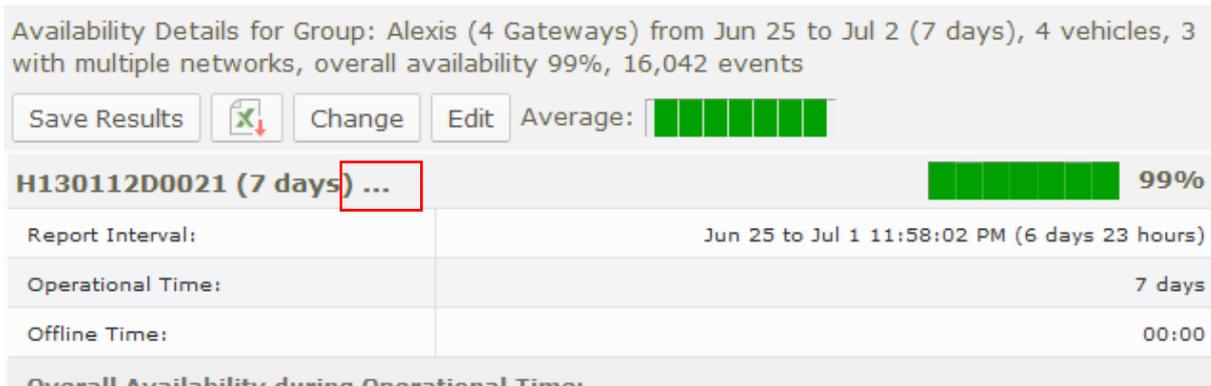
Figure 4 - Clicking on the ellipsis to expand a gateway's results

The *All unit network summary* section of the report uses pie graphs to present a network summary for each type of WAN access method (cellular, Wi-Fi, etc) used by the group of gateways. The *Network per Vehicle Summary* section presents numeric data for the group's network availability per vehicle. These can be seen in Figure 5 below.

All unit network summary

Bell used by 1 vehicles:		Average Time	Total Time
	Call up/active:	6 days 23:57:41	6 days 23:57:41 (99%)
	Call up/not active:	00:22	00:22 (0%)
	Call up/vpn down:	00:00	00:00 (0%)
	Call Down:	01:57	01:57 (0%)

E362 used by 1 vehicles:		Average Time	Total Time
	Call up/active:	6 days 22:58:32	6 days 22:58:32 (99%)
	Call up/not active:	04:09	04:09 (0%)
	Call up/vpn down:	00:00	00:00 (0%)
	Call Down:	57:19	57:19 (1%)

Gateway Network used by 1 vehicles:		Average Time	Total Time
	Call up/active:	00:00	00:00 (0%)
	Call up/not active:	7 days	7 days (100%)
	Call up/vpn down:	00:00	00:00 (0%)
	Call Down:	00:00	00:00 (0%)

Networks Per Vehicle Summary

# Networks	# Vehicles	Network Down Time per Vehicle	Time Weight Availability %
0	1	00:00	100%
2	2	00:59	99%
3	1	57:19	99%

Call up/not active   Call Down   Call up/active   Call up/vpn down

Figure 5 - All unit network summary and Networks per Vehicle Summary

Note: *green represents connected to the WAN link and active (passing data); orange represents time periods during which the gateway was connected to the WAN link but not active (not passing data), red represents time periods during which the gateway was attempting to connect to the WAN link but was unable able to, and light blue represents times when the gateway was connected to the WAN link but was unable to pass data due to the VPN being down.*

Additional information contained in the report:

Report interval: time period covered by the report.

Operational time: total time excluding boot times.

Offline time: boot times.

Downtime saved by using multiple networks: time period where a WAN link was established but a non-primary WAN access method.

Overall availability during operation time: summary of all WAN links. This will be the same as the individual link if only one link is used.

Call up/active: the total time that the WAN link (cellular card, Wi-Fi WAN radio, Ethernet cable) maintained a data connection and was being used for traffic.

Call up/not active: the total time that the WAN link (cellular card, Wi-Fi WAN radio, Ethernet cable) maintained a data connection but was not being used for traffic. This occurs when a different WAN link carries data.

Call up/vpn down: the total time that the WAN link (cellular card, Wi-Fi WAN radio, Ethernet cable) maintained a data connection but was not carrying data due to the vpn being down.

Call Down: total time the WAN link (cellular card, Wi-Fi WAN radio, Ethernet cable) attempted to connect but was unable able to.

Network boot time: time taken for the gateway to boot up and make a WAN data connection. Average, minimum and maximum times are shown.

IP Networks: list of IP networks used by the link at some point during the time period.

Basic Configuration Fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Report time range*: use the drop-down menu to select from Previous Months, Previous Weeks, Previous Days or Range. Enter the numeric value in the field. When Range is selected, use the calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Limit to map area*: select **Not Limited** to include data from any geographic location. Select **Manually defined area** to create a temporary zone for the analysis – only data from inside this zone will be included in the report. Select **One or more zones** to limit the analysis to one or more predefined zones (see the oMM Operation and Configuration guide for more information about zones).

Exclusion Zones: allows the report to exclude data from one or more predefined zones (see the oMM Operation and Configuration guide for more information about zones). Leave this option checked (default setting) to include data from any geographic location. Uncheck this option to specify zones to exclude data from.

Limit to network types: runs the report for a certain type of network. Click in the field to select the network type.

Show friendly names if available: when enabled, shows WAN link names in the report if they have been set in the oMG's configuration.

Output Format: select **HTML** to generate the report in the browser window. Select **Excel** to display the generated report in Microsoft Excel. Note that the Excel option only works for reports which produce data in a table format.

Save for later or schedule a run time: Enable to create reports that can be saved for future use. See Appendix A for more information.

Advanced Configuration Fields

Active link colors: click on each link to change the default color (use the color picker).

Server netmask: select the typical size of the ISP WAN network using the pull down list.

Max bootup time*: enter the amount of time (0 to 1800 seconds) to allow the gateway to boot before reporting CALLDOWN. The default is 180.

Max time between events*: enter the amount of time (0 to 86400 seconds) to allow between gateway events before considering the unit non-responsive. The default is 3600.

2.1.3.   Network: Coverage Map Report

This *Coverage Map* report tallies all gateway network connectivity states within geographic areas and plots a coverage map (shaded map area squares), assigning a color between green (good) and red (bad).

This report is best used to show an aggregated result where one or (likely) more than one gateway visits each area more than once. It is intended as a means of identifying geographic regions where connectivity is a systemic issue.

For cases where there is only one gateway and where that gateway visits each area only once, use the Coverage Trail report instead.

There is a values-to-color legend at the bottom of the map.

By default, locations where the gateway spent less than 30 seconds are not shown.
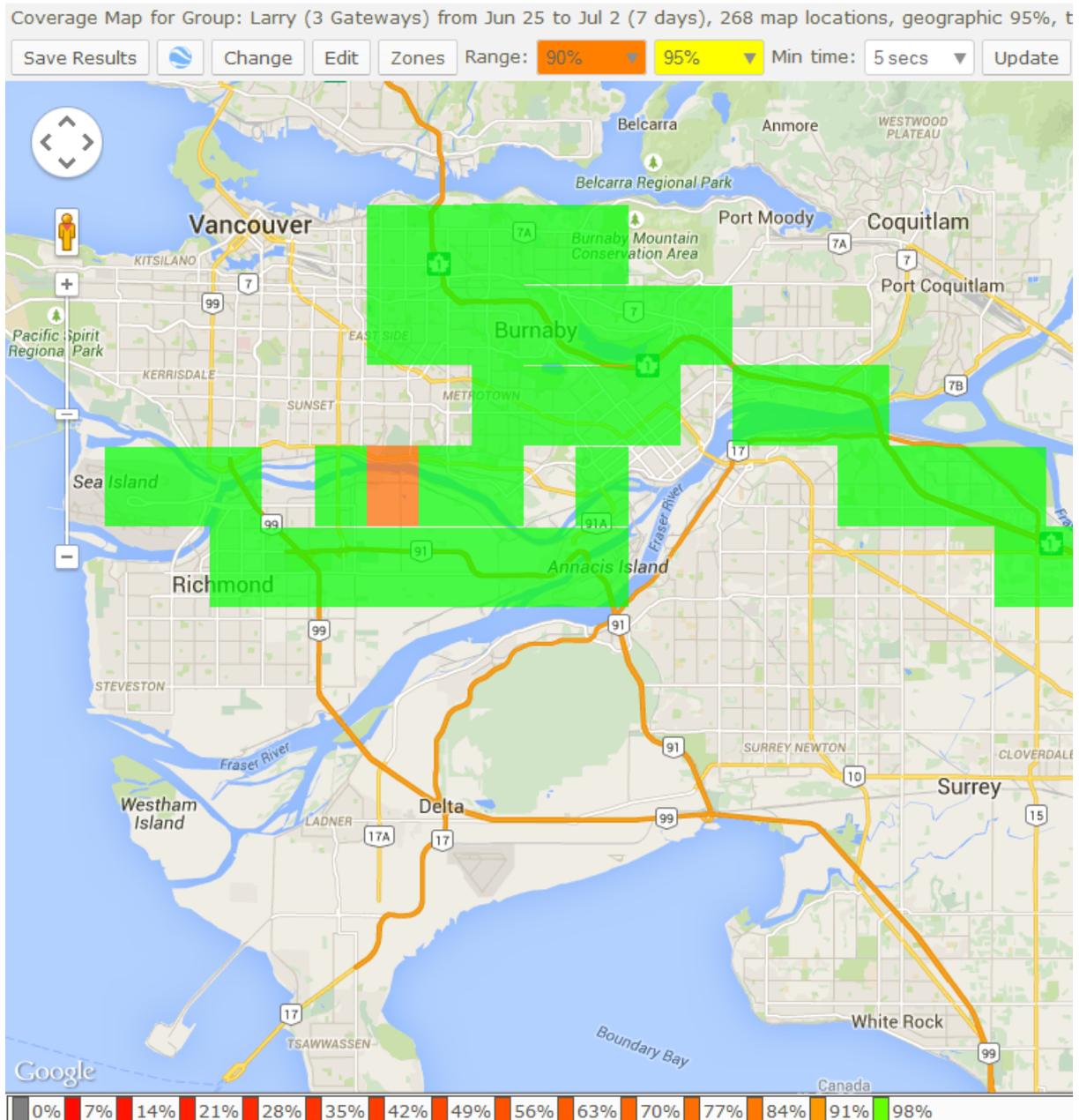
Figure 6 - Map Showing Color Legend

Clicking on shaded regions displays information pop-ups about values in that area:
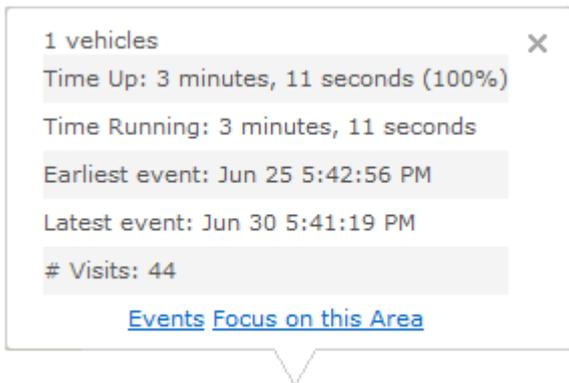
Figure 7 - Map Popup Box

Pop-up details:

 # vehicles: shows the number of vehicles which contributed data to this area.

Time up: time a call up was maintained as a percentage of the total time a gateway was in this area.

Time running: total time a gateway was in this area.

Earliest event: first event that contributed data to this square.

Latest event: last event that contributed data to this square.

 # visits: number of separate data log transmissions in this area that contributed to this report.

Events: click on the link to generate a more detailed report (below) on the activity in the square. The map shows the specific area while beneath it, is a list of each data point which contributed to the square. The date/time stamp shows how frequently reports were received. In the *Text* column, the GPS location is shown except for those events where the call up or call down status changed.

Figure 8 - Events Region of the Report

Focus on this area: click on the link to produce a more detailed coverage map for the area covered by the original individual square. This feature is useful for highlighting exact locations of poor coverage.

However, be aware that when focusing on a small area, the time spent by a gateway in the area to generate the data may be small.

Basic Configuration fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Report time range*: use the drop-down menu to select from *Previous Months, Previous Weeks, Previous Days* or *Range*. Enter the numeric value in the field. When *Range* is selected, use the calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Limit to map area*: select **Not Limited** to include data from any geographic location. Select **Manually defined area** to create a temporary zone for the analysis – only data from inside this zone will be included in the report. Select **One or more zones** to limit the analysis to one or more predefined zones (see the oMM Operation and Configuration guide for more information about zones).

Exclusion Zones: allows the report to exclude data from one or more predefined zones (see the oMM Operation and Configuration guide for more information about zones). Leave this option checked (default setting) to include data from any geographic location. Uncheck this option to specify zones to exclude data from.

Limit to network types: runs the report for a certain type of network. Click in the field to select the network type.

Show the call as down when the VPN connection is down: shows all calls as down then a VPN connection is unavailable.

Show friendly names if available: when enabled, shows WAN link names in the report if they have been set in the oMG's configuration.

Average call up %*: this number determines the color shading scale used, with percentages above this number shown in green. The default is 95.0.

Bad call up %*: this number determines the color shading scale. The better the coverage in your area, the higher these numbers should be to highlight results less than 100%. The default is 90.0.

Output Format: select **HTML** to generate the report in the browser window. Select **KML** to display the generated report in Google Earth (requires that Google Earth is installed).

Save for later or schedule a run time: enable to create reports that can be saved for future use. See Appendix A for more information.

Advanced Configuration Fields

Max bootup time*: enter the amount of time (0 to 1800 seconds) to allow the gateway to boot before reporting CALLDOWN. The default is 180.

Max time between events*: enter the amount of time (0 to 86400 seconds) to allow between gateway events before considering the unit non-responsive. The default is 3600.

Animate results by: animates the coverage over the specified report time range, in intervals defined by this dropdown. By default, *** None *** is selected which turns animation off.

Map Resolution: defines the size of colored "blocks" presented in a map. The default resolution is *auto*.

Max call up % to show: filters to show only those coverage areas which are less than or equal to the specified value. The default is 100.

Min call up % to show: filters to show only those coverage areas which are greater than or equal to the specified value. The default is 0.

Min time in area: filters to show only those coverage areas which have been in an area greater than or equal to the specified time. The default is 5 seconds.

Map range colors: defines the different colors used on the map to represent strengths of coverage areas (used on some coverage related reports). Click on each color to access the color picker and to change the color.

2.1.4.   Network: Coverage Trails Report

The *Coverage Trail* report graphs gateway position as a continuous line (trail) on the map. The trail color indicates the WAN connectivity state of the gateway (a legend is shown below the map).

This report is best used for a single gateway over a smaller time period (e.g. one gateway trip) where the same location is not visited repeatedly. For cases involving additional gateways, larger time periods or repeat visits consider using the *Coverage Map* report instead.

The fields for the *Coverage Trail* report are identical to those in the *Availability Trend* and *Availability Details* reports.

The map displays various gateway events including the trip start and trip stop points, and WAN link events. Small, medium and large green circles indicate where gateways stopped (the larger circle indicates a longer stop time). Black circles indicate where GPS signal was lost (often due to underground parking). Blue triangle markers provide location information.
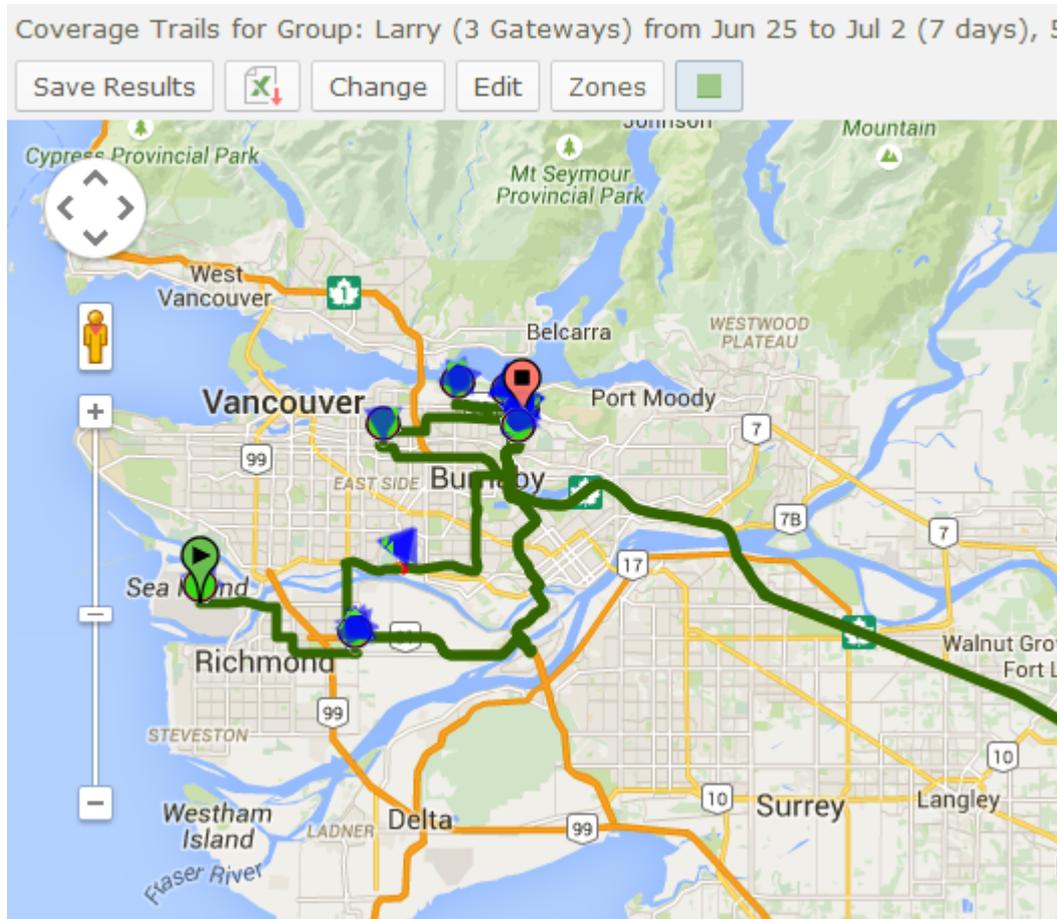
Figure 9 - Coverage Trails Report

Click on any of the markers to open a pop-up that provides additional information.

Basic Configuration Fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Report time range*: use the drop-down menu to select from *Previous Months, Previous Weeks, Previous Days* or *Range*. Enter the numeric value in the field. When Range is selected, use the calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Limit to map area*: select **Not Limited** to include data from any geographic location. Select **Manually defined area** to create a temporary zone for the analysis – only data from inside this zone will be included in the report. Select **One or more zones** to limit the analysis to one or more predefined zones (see the oMM Operation and Configuration guide for more information about zones).

Exclusion Zones: allows the report to exclude data from one or more predefined zones (see the oMM Operation and Configuration guide for more information about zones). Leave this option checked (default setting) to include data from any geographic location. Uncheck this option to specify zones to exclude data from.

Limit to network types: runs the report for a certain type of network. Click in the field to select the network type.

Show friendly names if available: when enabled, shows WAN link names in the report if they have been set in the oMG's configuration.

Output Format: select **HTML** to generate the report in the browser window. Select **Excel** to display the generated report in Microsoft Excel. Note that the Excel option only works for reports which produce data in a table format.

Save for later or schedule a run time: Enable to create reports that can be saved for future use. See Appendix A for more information.

Advanced Configuration Fields

Max bootup time*: enter the amount of time (0 to 1800 seconds) to allow the gateway to boot before reporting CALLDOWN. The default is 180.

Max time between events*: enter the amount of time (0 to 86400 seconds) to allow between gateway events before considering the unit non-responsive. The default is 3600.

Map Resolution: defines the size of colored "blocks" presented in a map, which are used to present the coverage trails. The default resolution is *auto*.

Active link colors: click on each link to change the default color (use the color picker)

Short stop*: vehicle stops are shown with small sized green circles if they have been stopped for at least this many minutes (up to the medium stop value). Default is 10.

Medium stop*: vehicle stops are shown with medium sized green circles if they have been stopped for at least this many minutes (up to the long stop value). Default is 30.

Long stop*: vehicle stops are shown with large sized green circles if they have been stopped for at least this many minutes. Default is 60.

Show direction every 5 positions: enable this checkbox to show vehicle direction every 5 GPS location reports. Default is OFF.

Show trails where oMG is booting: enable this checkbox to include times and locations where the oMG was booting up in the coverage trails. Default is *OFF*.

2.1.5.   Network: Link Utilization Report

The *Link Utilization* report shows a high level of detail for WAN data link connectivity state over time. It is best used for a small number of gateways and is ideal for identifying connectivity issues that occur at specific times of day.

The fields for the Link Utilization report are identical to those in the *Availability Trend*, *Availability Details* and *Coverage Trail* reports.

A color-coded legend shows the various connectivity states. Hovering over any point on the graph displays the date, time, link name and its connectivity state and connection duration.
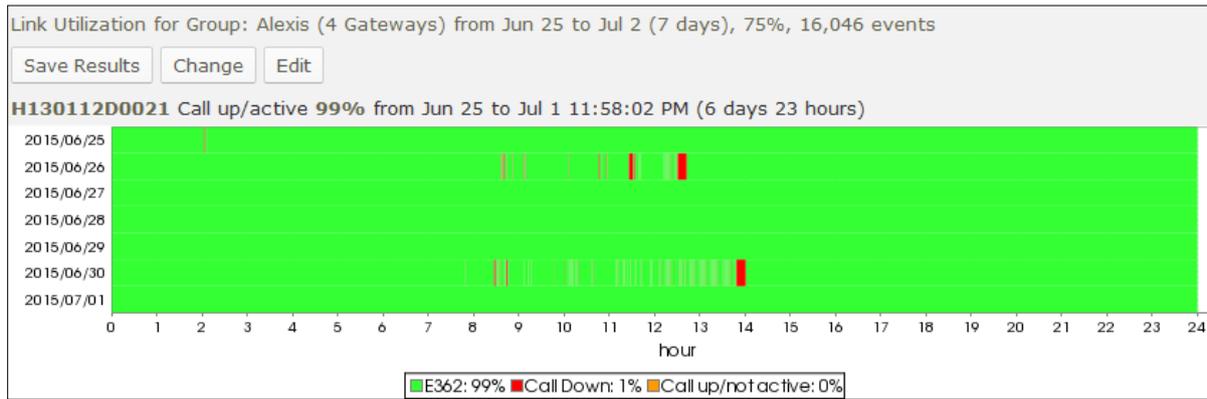
Figure 10 - Link Utilization Report

For details, click on any point on the graph to open up a new tab showing each contributing event. This feature is recommended for advanced users.
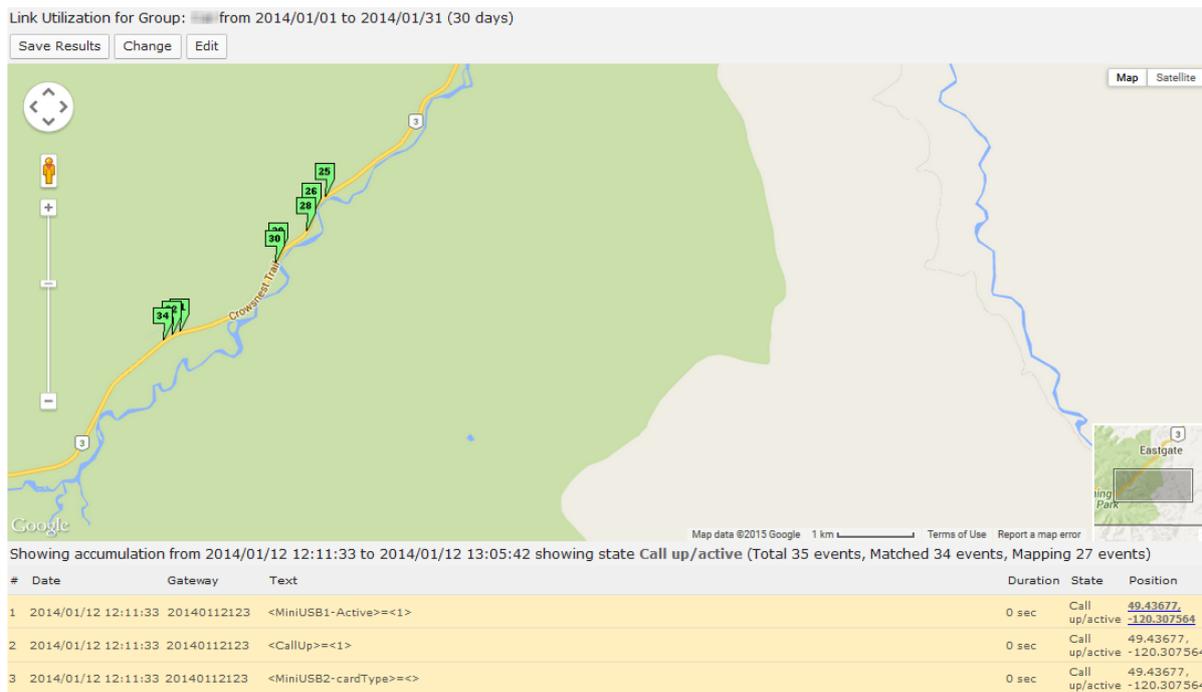
Figure 11 - Link Utilization Report Events

The data below the map provides individual event records, with a location link.

Basic Configuration Fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Report time range*: use the drop-down menu to select from *Previous Months, Previous Weeks, Previous Days* or *Range*. Enter the numeric value in the field. When Range is selected, use the calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Limit to map area*: select **Not Limited** to include data from any geographic location. Select **Manually defined area** to create a temporary zone for the analysis – only data from inside this zone will be included in the report. Select **One or more zones** to limit the analysis to one or more predefined zones (see the oMM Operation and Configuration guide for more information about zones).

Exclusion Zones: allows the report to exclude data from one or more predefined zones (see the oMM Operation and Configuration guide for more information about zones). Leave this option checked (default setting) to include data from any geographic location. Uncheck this option to specify zones to exclude data from.

Limit to network types: runs the report for a certain type of network. Click in the field to select the network type.

Show the call as down when the VPN connection is down: provides an additional indication on the graph to show when the VPN connection was down during a call.

Show friendly names if available: when enabled, shows WAN link names in the report if they have been set in the oMG's configuration.

Output Format: **HTML** is the only format supported for this report.

Save for later or schedule a run time: enable to create reports that can be saved for future use. See Appendix A for more information.

Advanced Configuration Fields

Max bootup time*: enter the amount of time (0 to 1800 seconds) to allow the gateway to boot before reporting CALLDOWN. The default is 180.

Max time between events*: enter the amount of time (0 to 86400 seconds) to allow between gateway events before considering the unit non-responsive. The default is 3600.

Active link colors: click on each link to change the default color (use the color picker).

Hours per bar: defines how many hours are represented by each row in the graph, which effectively controls the "resolution" of the graph. To ensure performance when generating the report, the value must be set appropriately based on the *Report Type Range* as follows:

- Greater than 30 days: set from 24 through 1000
- Greater than 7 days: set from 12 through 1000
- Greater than 1 day: set from 1 through 1000
- One day or less: set from 0.5 to 1000. Note that values of less than 5 hours will set the graph units to be in minutes.

The default is *auto* which automatically selects the best value for the time range.

Show detailed Info: when enabled, mouse-over tooltips and hyperlinks will be available in the graph area of the generated report. Disabled by default.

2.1.6.   Network: Cellular Network Inventory

The *Cellular Network Inventory* report shows the active cellular network equipment in use along with all associated serial and subscriber information.

Note: *oMG version 3.7.3.4 or higher is required for this report and not all cellular modems are able to provide all data fields.*

Configuration Fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Report time range*: use the drop-down menu to select from *Previous Months, Previous Weeks, Previous Days* or *Range*. Enter the numeric value in the field. When Range is selected, use the calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Output Format: select **HTML** to generate the report in the browser window. Select **Excel** to display the generated report in Microsoft Excel. Note that the Excel option only works for reports which produce data in a table format.

Save for later or schedule a run time: enable to create reports that can be saved for future use. See Appendix A for more information.

2.1.7.   Network: Cellular Technology Map
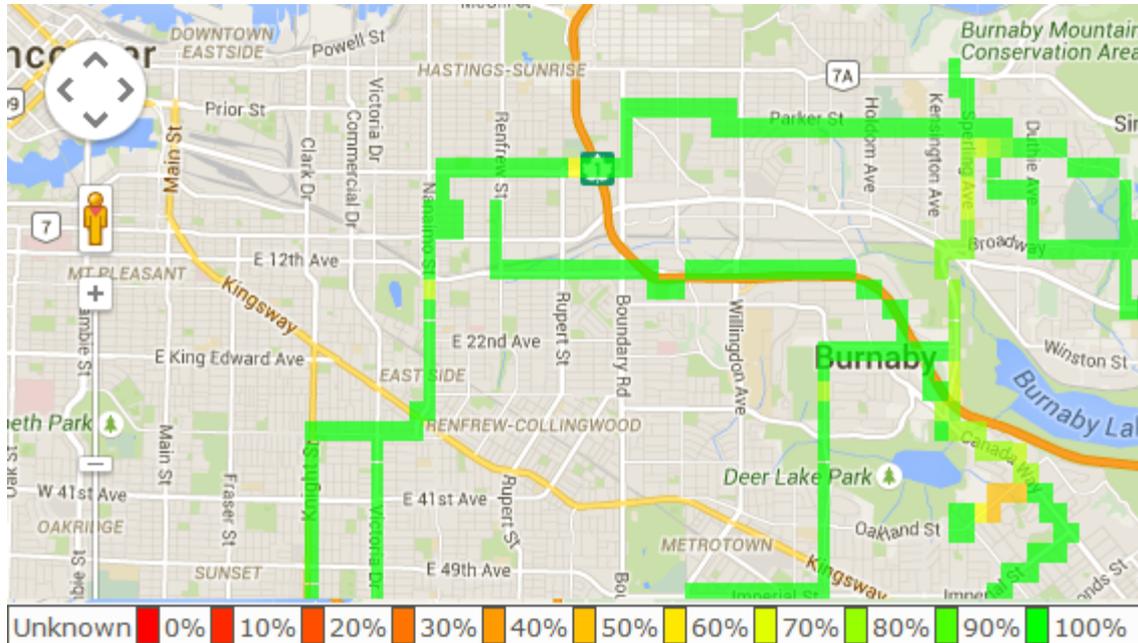
Figure 12 - Cellular Technology Map

Note: this report requires oMGs running version 3.14 or higher with at least one MC7354 device installed.

The *Cellular Technology Map* report shows the active cellular network type used by the gateway(s) for a selected cellular network type. Usage is color coded based on the percentage of the cellular network type used in a given area.

Clicking on shaded regions displays information pop-ups about values in that area:
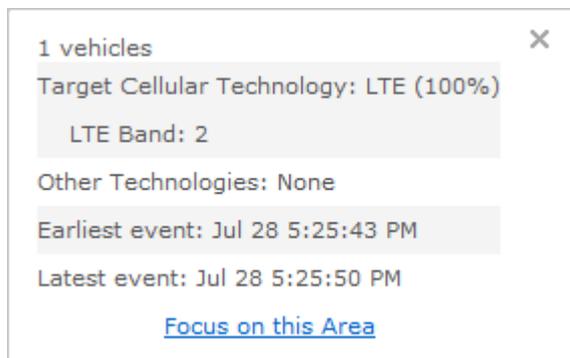
Figure 13 - Map Popup Box

Pop-up details:

 # vehicles: shows the number of vehicles which contributed data to this area.

Target technology: shows the cellular type in use.

Other technologies: shows any additional cellular types in use.

Earliest event: first event that contributed data to this square.

Latest event: last event that contributed data to this square.

Click on **Focus on this Area** within a popup to drill deeper into gateway locations and time spent within the particular geographic location.

Basic Configuration Fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Report time range*: use the drop-down menu to select from *Previous Months, Previous Weeks, Previous Days* or *Range*. Enter the numeric value in the field. When Range is selected, use the calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Limit to map area*: select **Not Limited** to include data from any geographic location. Select **Manually defined area** to create a temporary zone for the analysis – only data from inside this zone will be included in the report. Select **One or more zones** to limit the analysis to one or more predefined zones (see the oMM Operation and Configuration guide for more information about zones).

Exclusion Zones: allows the report to exclude data from one or more predefined zones (see the oMM Operation and Configuration guide for more information about zones). Leave this option checked (default setting) to include data from any geographic location. Uncheck this option to specify zones to exclude data from.

Limit to network types: runs the report for a certain type of network. Click in the field to select the network type.

Run report on: specifies the cellular network type to display results for.

Output Format: **HTML** is the only format supported for this report.

Save for later or schedule a run time: enable to create reports that can be saved for future use. See Appendix A for more information.


Advanced Configuration Fields

Map resolution: defines the size of colored "blocks" presented in a map. The default resolution is *auto*.

Map range colors: defines the different colors used on the map to represent network cellular type usage. Click on each color to access the color picker and to change the color.

2.1.8. Network Cellular Technology Trail

The *Cellular Technology Map* report plots the trails of all cellular network type(s) on a map used by an individual gateway. Each trail is color coded based on the cellular network type.
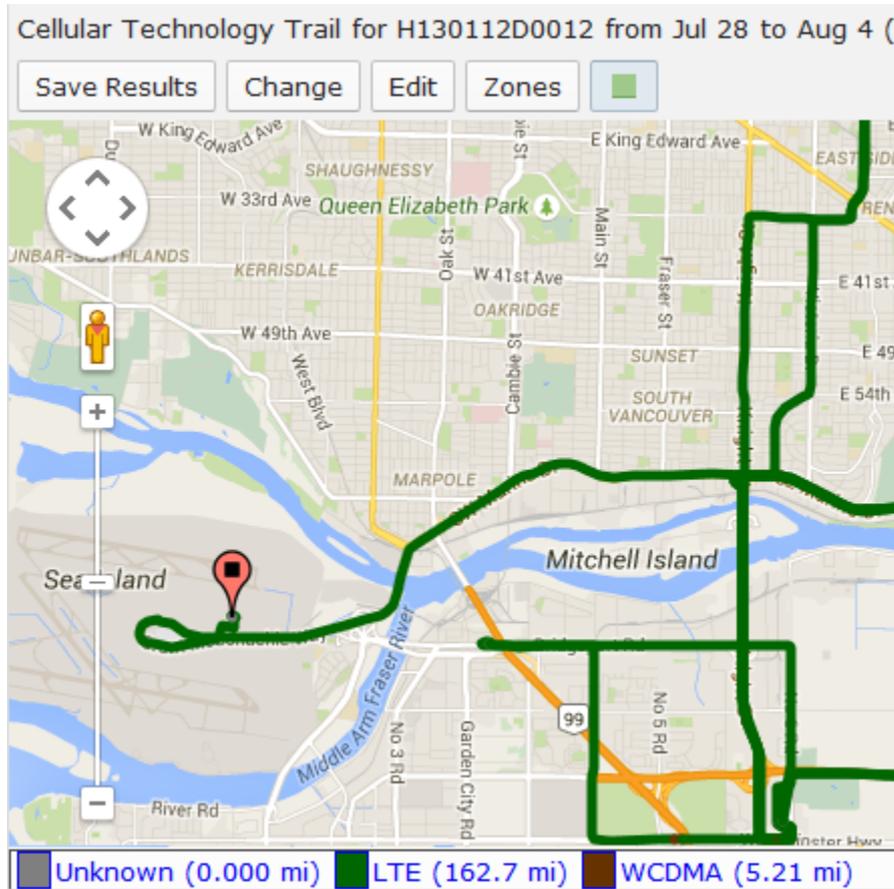
Figure 14 - Cellular Technology Trail Report

Note: this report requires an oMG running version 3.14 or higher and at least one MC7354 device.

Basic Configuration Fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Report time range*: use the drop-down menu to select from *Previous Months, Previous Weeks, Previous Days* or *Range.* Enter the numeric value in the field. When Range is selected, use the calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Limit to map area*: select **Not Limited** to include data from any geographic location. Select **Manually defined area** to create a temporary zone for the analysis – only data from inside this zone will be included in the report. Select **One or more zones** to limit the analysis to one or more predefined zones (see the oMM Operation and Configuration guide for more information about zones).

Exclusion Zones: allows the report to exclude data from one or more predefined zones (see the oMM Operation and Configuration guide for more information about zones). Leave this option checked (default setting) to include data from any geographic location. Uncheck this option to specify zones to exclude data from.

Limit to network types: runs the report for a certain type of network. Click in the field to select the network type.

Output Format: **HTML** is the only format supported for this report.

Save for later or schedule a run time: enable to create reports that can be saved for future use. See Appendix A for more information.

Advanced Configuration Fields

Map resolution: defines the precision of the plotted trail paths. Lower values increase the precision while higher values decrease the prevision. The default resolution is *auto.*

Cellular technology colors: defines the different colors used on the map to represent network cellular type usage. Click on each color to access the color picker and to change the color.

2.1.9.   Network: VPN Utilization

The *VPN Utilization* report shows a summary of the VPN status(es) for the selected gateway(s). Each row in the bar graph represents a day in the specified time range with the VPN statuses for that day summarized by the following colors:

- **Blue**: gateway is booting.
- **White**: gateway is shutdown.
- **Grey**: gateway does not have any active WAN link.
- **Green**: no VPN(s) associated with the current active WAN link is down.
- **Yellow**: at least one expected VPN is down, and at least one expected VPN is up.
- **Red**: all VPN(s) associated with the current active WAN link are down.

Figure 15 - VPN Utilization Report

Configuration Fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Report time range*: use the drop-down menu to select from *Previous Months, Previous Weeks, Previous Days* or *Range*. Enter the numeric value in the field. When *Range* is selected, use the calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Output Format: select **HTML** to generate the report in the browser window. Currently *HTML* is the only available option.

Advanced Configuration Fields

Hours per bar: defines how many hours are represented by each row in the graph, which effectively controls the "resolution" of the graph. To ensure performance when generating the report, the value must be set appropriately based on the *Report Type Range* as follows:

- Greater than 30 days: set from 24 through 1000
- Greater than 7 days: set from 12 through 1000
- Greater than 1 day: set from 1 through 1000
- One day or less: set from 0.5 to 1000. Note that values of less than 5 hours will set the graph units to be in minutes.

The default is *auto* which automatically selects the best value for the time range.

Show detailed Info: when enabled, mouse-over tooltips and hyperlinks will be available in the graph area of the generated report. For the *VPN Utilization* report, a popup will display the gateway's *Active Link* and the status of each VPN on the gateway. Disabled by default.

2.1.10. Diagnostics: R2 Configuration Audit

The *R2 Configuration Audit* report queries the configurations of the selected oMGs running Release 2.x and displays the uniformity and differences across of those settings for those oMGs.

Figure 16 – R2 Configuration Audit Report

Note: this report requires oMG software version 2.x or 3.8 and higher. Version 3.0 - 3.7.x are not supported.
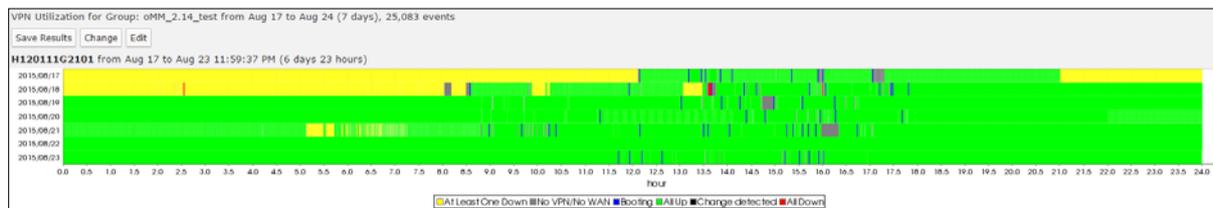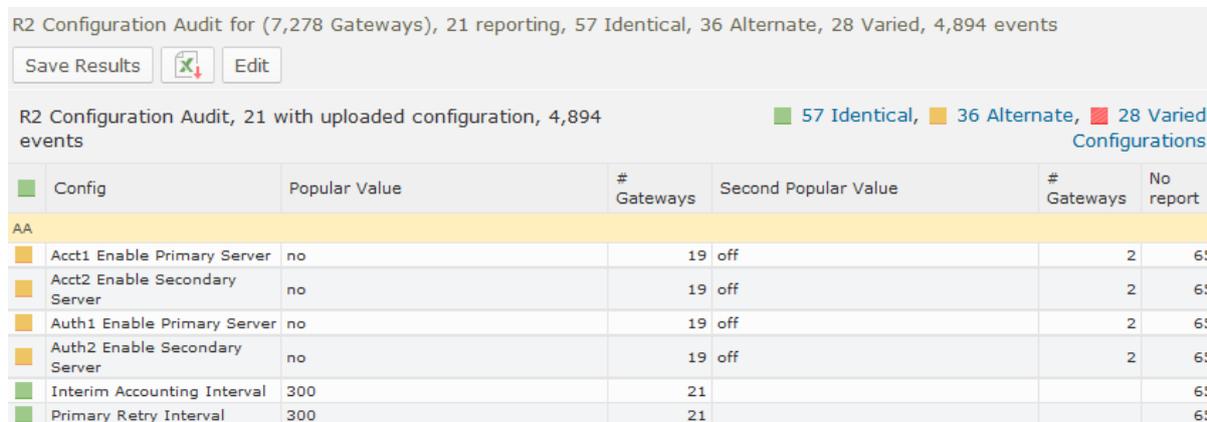
Configuration Fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Config item time range*: selects the time range within which configuration values should be reported on. By default *All* is selected which will display all configuration parameters. If a more specific time range is specified, then only those parameters which have changed in that specified time range will be reported.

To specific a time range, use the drop-down menu to select from *Previous Months, Previous Weeks, Previous Days* or *Range*. Enter the numeric value in the field. When *Range* is selected, use the calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Configuration Categories*: specifies the configuration sections and components to report on:

- **All**: when enabled, specifies that all categories are to be reported on. Uncheck this option to specify the categories to report on.
- **Show standard config items only**: when enabled, the report ignores non-standard configuration items. Non-standard items are those parameters which the oMM does not have direct knowledge of, but which exist on various versions of the oMG.
- **Normalize network configs**: when enabled, the report will attempt to compare WiFi access points based on their nicknames and WAN devices based on their card types regardless of their locations in different config files. When disabled, the report compare parameters in the order stored in the config files.
- **Convert blank values to default**: when enabled, the report will display empty values for configuration parameters as the default values, if a default is known to the oMM.
- **Skip disabled config entries**: when enabled, the report will not display the collection of configuration parameters related to an "enabled" parameter which has a negative value (e.g. "No", "False", "0").
- **Omit configuration of un-connected networks**: when enabled, the report will not cover WAN configurations for connections that were not active over the report period.

Output Format: select **HTML** to generate the report in the browser window. Select **Excel** to display the generated report in Microsoft Excel.

Save for later or schedule a run time: enable to create reports that can be saved for future use. See Appendix A for more information.

2.1.11. Diagnostics: R3 Configuration Audit

The *R3 Configuration Audit* report queries the configurations of the selected oMGs running Release 3.x and displays the uniformity and differences across the settings for those oMGs. Settings are ordered and displayed based on organization of the oMG's configuration structure.

Note: the report requires oMGs to be running release 3.8 or greater.

Figure 17 – R3 Configuration Audit Report

The report provides the following options for filtering configuration properties:

Show/Hide Identical: toggles the visibility of properties that have the same value across all selected gateways. All items are marked with a green square for easy identification.

Show/Hide Unique: toggles the visibility of properties that have different values across all selected gateways. Clicking on a unique field in the list displays the values assigned for each gateway. All items are marked with a blue square for easy identification.

Show/Hide Varied (selected by default): toggles the visibility of configurations that are defined for specific gateways. Clicking on a field marked as *Varied* in the list will display the gateway where the value is defined, as well as the variation in values between the gateways. All items are marked with a red square for easy identification.

The report displays information organized under the following columns;

Config: lists the configuration properties.

Most Common Value: displays the value of each setting.

 # Gateways with common value: lists the number of gateways with the specified value. For *Unique* and *Varied* settings, this column will always be set to 1.

 # Gateways with other values: lists the number of gateways which have a value different from the *Most Common Value*.

 # Gateways without this parameter: lists the number of gateways for which the setting is not set or defined.

Categories of settings can be expanded and collapsed using the + and – icons on the far left:

The bottom of the report lists the configuration states of each gateway in the report. Selecting the *Show Excluded* check box includes any of the selected gateways which don't meet the requirements for the report (e.g. older oMG versions not supported by the report):

Configuration Fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Select gateway active time range*: selects the time range within which configuration values should be reported on. By default *All* is selected which will display all configuration parameters. If a more specific time range is specified, then only those parameters which have changed in that specified time range will be reported.

To specify a time range, use the drop-down menu to select from *Last 7 days, Last 14 days, Last 30 days, Last 60 days,* or *Last 90 days.*.

Select audit categories*: specifies the audit categories to report on:

- **All**: when enabled, specifies that all categories are to be reported on. Uncheck this option to specify the categories to report on.

Select gateway version*: specifies the gateway sections and components to report on:

- **All**: when enabled, specifies that all versions are to be reported on. Uncheck this option to specify the versions to report on.
- **Skip disabled config entries**: when enabled, the report will not display the collection of configuration parameters related to an "enabled" parameter which has a negative value (e.g. "No", "False", "0").
- **Obfuscate passwords**: when enabled, the report will obfuscate user passwords for security purposes.

Output Format: select **HTML** to generate the report in the browser window. Select **Excel** to display the generated report in Microsoft Excel.

Save for later or schedule a run time: enable to create reports that can be saved for future use. See Appendix A for more information.

2.1.12. Diagnostics: Shutdown Reason

The *Shutdown Reason* report displays the shutdowns of oMGs within a specified time period. This report can be used to detect both normal and abnormal shutdowns (e.g. due to a loss of power).

The report displays the oMG ESN/name that was shutdown, date/time, reason, an indication of whether the shutdown was unclean (e.g. due to an unexpected power loss) and GPS location for each shutdown.

#	Node	Shutdown At	Reason	Unclean Shutdown	Last Known Position
1	H130D0012	Aug 20 8:20:41 AM	Voltage Threshold triggered at 27 secs after ignition switched off		42.172045, -123.071033
2	H130D0012	Aug 20 1:01:43 PM	Power Loss		42.133262, -123.092706
3	H130D0012	Aug 20 6:50:01 PM	Voltage Threshold		42.264763, -123.052921

Figure 18 - Shutdown Reason Report

Configuration Fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Report time range*: use the drop-down menu to select from *Previous Months, Previous Weeks, Previous Days* or *Range*. Enter the numeric value in the field. When *Range* is selected, use the calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Shutdown reasons categories filter: when *None* is deselected, options for filtering the report based on shutdown reasons become available. Selecting items from the *Available Items* list and then clicking *->* will add them to the *Selected Items* list. The report will then show events in which a shutdown occurred for one of the reasons in the *Selected Items* list. If *None* is selected, then the filtering items become unavailable and all shutdown events will be displayed in the report.

Output Format: select **HTML** to generate the report in the browser window. Select **Excel** to display the generated report in Microsoft Excel.

Save for later or schedule a run time: enable to create reports that can be saved for future use. See Appendix A for more information.

2.1.13. Bandwidth: Bandwidth Consumption

The *Bandwidth Consumption* report shows graphs for the bandwidth consumed by each link for one or more gateways over the specified time period. The report includes the consumption in MBytes, the top consumers from the list of specified gateways, and the rate of consumption for each day of the time period. Additional information is provided below the graphs including a breakdown of the consumption based on the client devices connected to that gateway. This level of detail includes the amount of data uploaded/downloaded, the number of clients, duration of usage, and the link(s) used to send/receive the data.

Figure 19 - Bandwidth Consumption Report

Basic Configuration Fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Report time range*: use the drop-down menu to select from *Previous Months, Previous Weeks, Previous Days* or *Range*. Enter the numeric value in the field. When *Range* is selected, use the

calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Show graph in report output: when enabled, shows the graphs for the report. When disabled, only the row data is shown.

Limit to Network types: filters the results to only show consumption from links which contain the specified text.

Output Format: select **HTML** to generate the report in the browser window. Select **Excel** to display the generated report in Microsoft Excel. Note that the Excel option only works for reports which produce data in a table format.

Save for later or schedule a run time: enable to create reports that can be saved for future use. See Appendix A for more information.

Advanced Configuration Fields

Discard units that did not report in time period: filters out all gateways from the report which did not report and therefore did not consume any bandwidth.

Maximum bandwidth: specifies the maximum bandwidth that is supposed to be consumed. Any consumption over this amount is highlighted in the report.

2.1.14. Bandwidth: Bandwidth Coverage Map

The *Bandwidth Coverage Map* report shows a map indicating where bandwidth was consumed for one or more gateways.
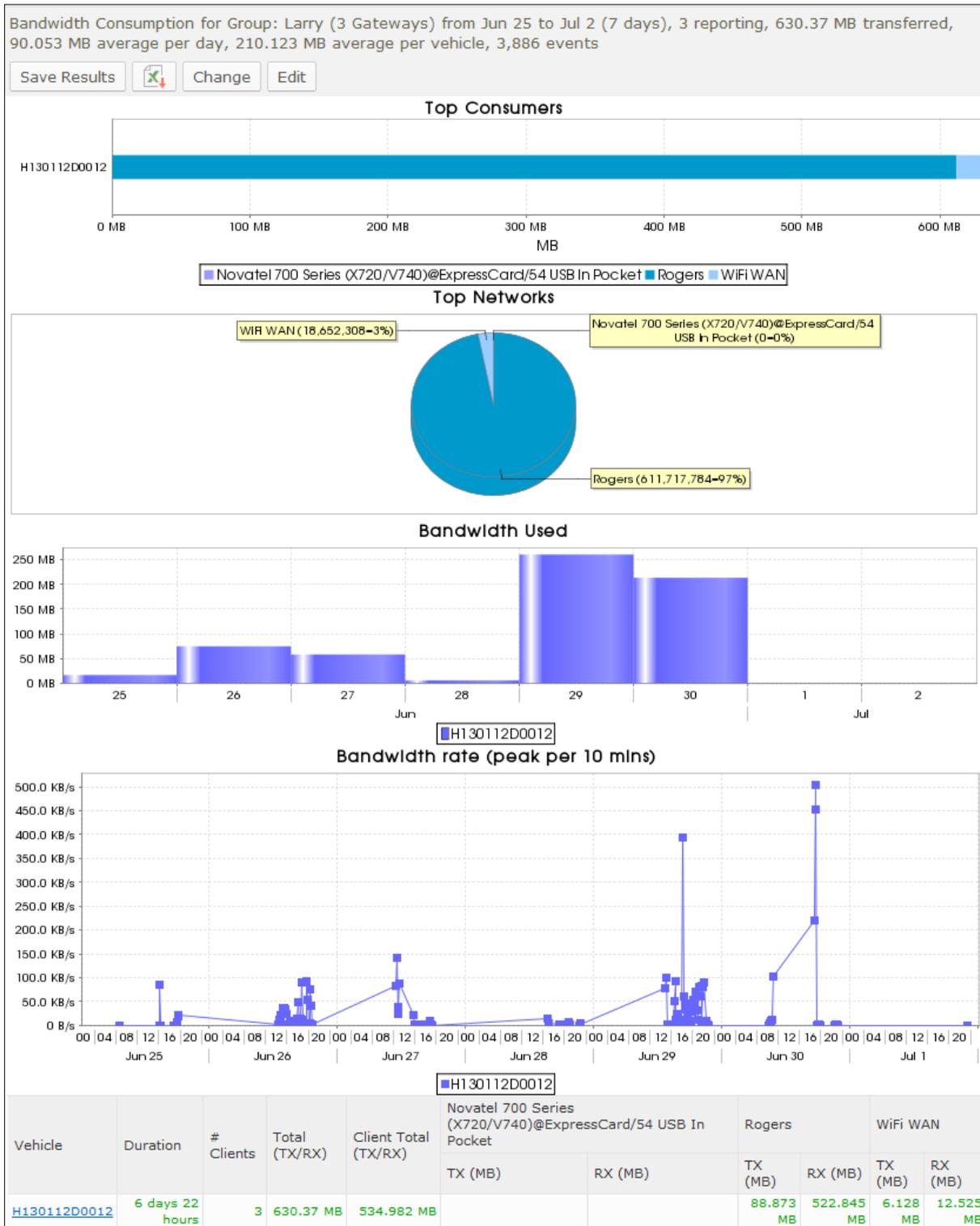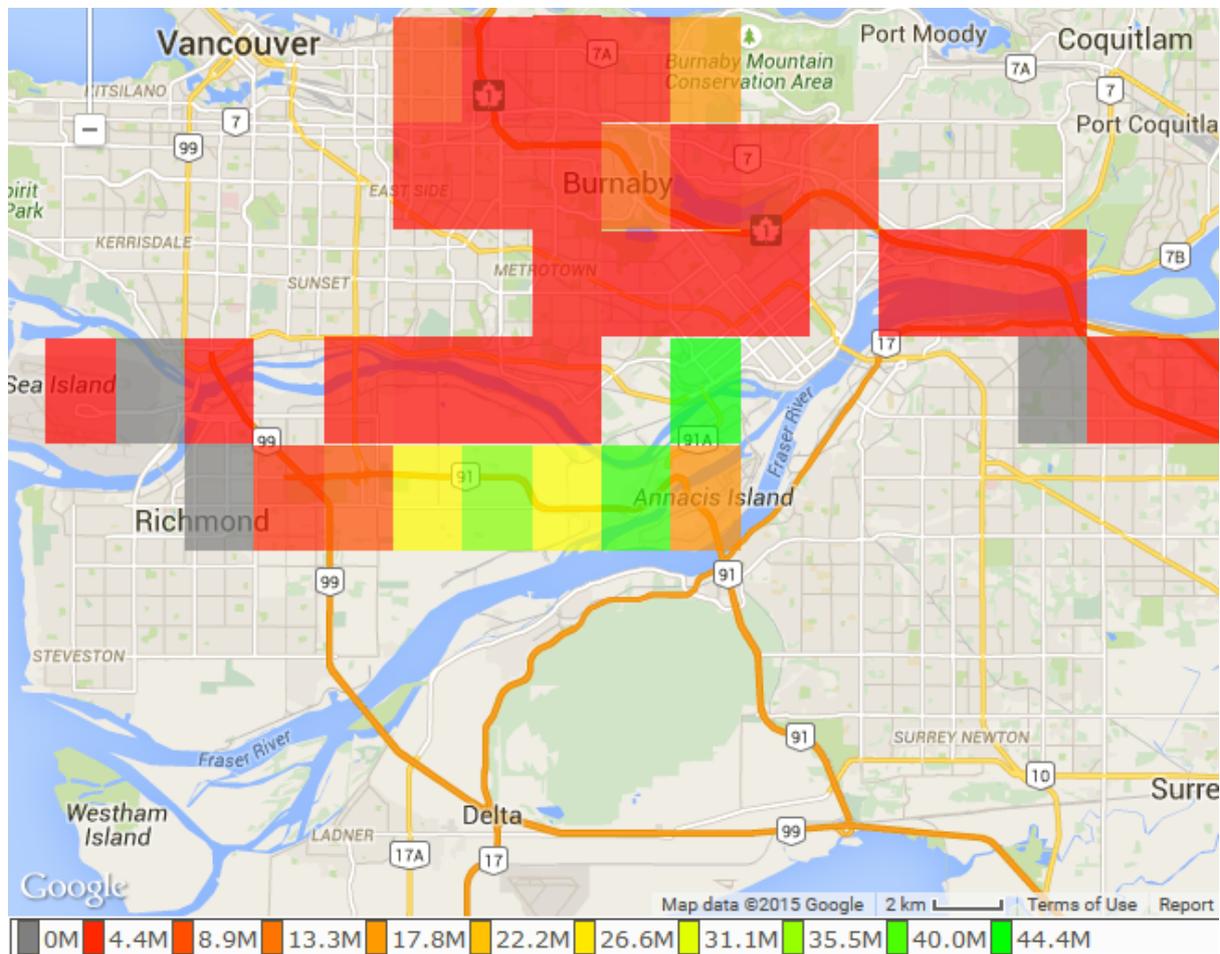

Figure 20 - Bandwidth Coverage Map

Basic Configuration Fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Report time range*: use the drop-down menu to select from *Previous Months, Previous Weeks, Previous Days* or *Range*. Enter the numeric value in the field. When *Range* is selected, use the calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Perform statistics on: select **Rx (Received Data in MB)** to calculate bandwidth consumption only on data downloaded to the oMG, **Tx (Transmitted Data in MB)** to calculate bandwidth consumption only on data uploaded to the oMG or **Rx+Tx (in MB)** to calculate bandwidth consumption using both downloaded and uploaded data.

Limit to map area: select **Not Limited** to include data from any geographic location. Select **Manually defined area** to create a temporary zone for the analysis – only data from inside this zone will be included in the report. Select **One or more zones** to limit the analysis to one or more predefined zones (see the oMM Operation and Configuration guide for more information about zones).

Exclusion Zones: allows the report to exclude data from one or more predefined zones (see the oMM Operation and Configuration guide for more information about zones). Leave this option checked (default setting) to include data from any geographic location. Uncheck this option to specify zones to exclude data from.

Color Ranges: defines the percentage of total usage (MBytes/day) to associate with the colored blocks on the map. This information visually highlights on the map where the most bandwidth was consumed. Four values must be specified, corresponding to the four map colors: red, orange, yellow, and green respectively, or this field must be left blank to accept the defaults (0, 33%, 66%, 100%).

Limit to Network types: filters the results to only show consumption from links which contain the specified text.

Time Interval (CSV Only): specifies the number of intervals in hours or days to generate the CSV report results with.

Output Format: select **HTML** to generate the report in the browser window. Select **Excel** to display the generated report in Microsoft Excel. Note that the Excel option only works for reports which produce data in a table format.

Advanced Configuration Fields

Map resolution: defines the size of colored "blocks" presented in a map. The default resolution is *auto*.

Map range colors: defines the different colors used on the map to represent strengths of coverage areas (used on some coverage related reports). Click on each color to access the color picker and to change the color.

2.1.15. Bandwidth: Top Client Activity

The *Top Client Activity* report shows the top bandwidth consumers (i.e. devices connected to the oMG's LAN to send traffic through its WAN) for the selected gateways, over the specified time period.

The report graphs the bandwidth consumed and also plots the corresponding consumption rate across each sub period (e.g. each day).

Additional details for each client shown on the report include its MAC address, name, the gateways through which the client consumed bandwidth, the quantity of times connected, amount of time connected, and the amount of data (in MB) sent and received.

Figure 21 - Top Client Activity Report

Basic Configuration Fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Report time range*: use the drop-down menu to select from *Previous Months, Previous Weeks, Previous Days* or *Range*. Enter the numeric value in the field. When *Range* is selected, use the calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Limit to map area: select **Not Limited** to include data from any geographic location. Select **Manually defined area** to create a temporary zone for the analysis – only data from inside this zone will be included in the report. Select **One or more zones** to limit the analysis to one or more predefined zones (see the oMM Operation and Configuration guide for more information about zones).

Exclusion Zones: allows the report to exclude data from one or more predefined zones (see the oMM Operation and Configuration guide for more information about zones). Leave this option checked (default setting) to include data from any geographic location. Uncheck this option to specify zones to exclude data from.

Top N clients to report: limits the number of clients to report on. Default is 25 clients.

Excessive Bandwidth: specifies the maximum bandwidth consumption (in Mbytes) for clients. The report will highlight all clients which have exceeded this value.

Limit to clients: filters the report to include only those client names which contain the specified text.

Show graph in report output: when enabled, shows the graphs for the report. When disabled, only the row data is shown.

Partially hide MAC addresses and fully hide hostnames: when enabled, hides part of the MAC address, and all of the client names.

Output Format: select **HTML** to generate the report in the browser window. Select **Excel** to display the generated report in Microsoft Excel. Note that the Excel option only works for reports which produce data in a table format.

Save for later or schedule a run time: enable to create reports that can be saved for future use. See Appendix A for more information.

Advanced Configuration Fields

Use gateway bandwidth when client data is not available: when enabled, oMG consumption will be reported instead of client consumption. Use for older versions (3.5.1 and older) of the oMG as those versions do not send client data.

2.1.16. Bandwidth: Client Usage Map

The *Client Usage Map* report shows the locations with the highest amount of internet access through the specified gateways over the specified time period.
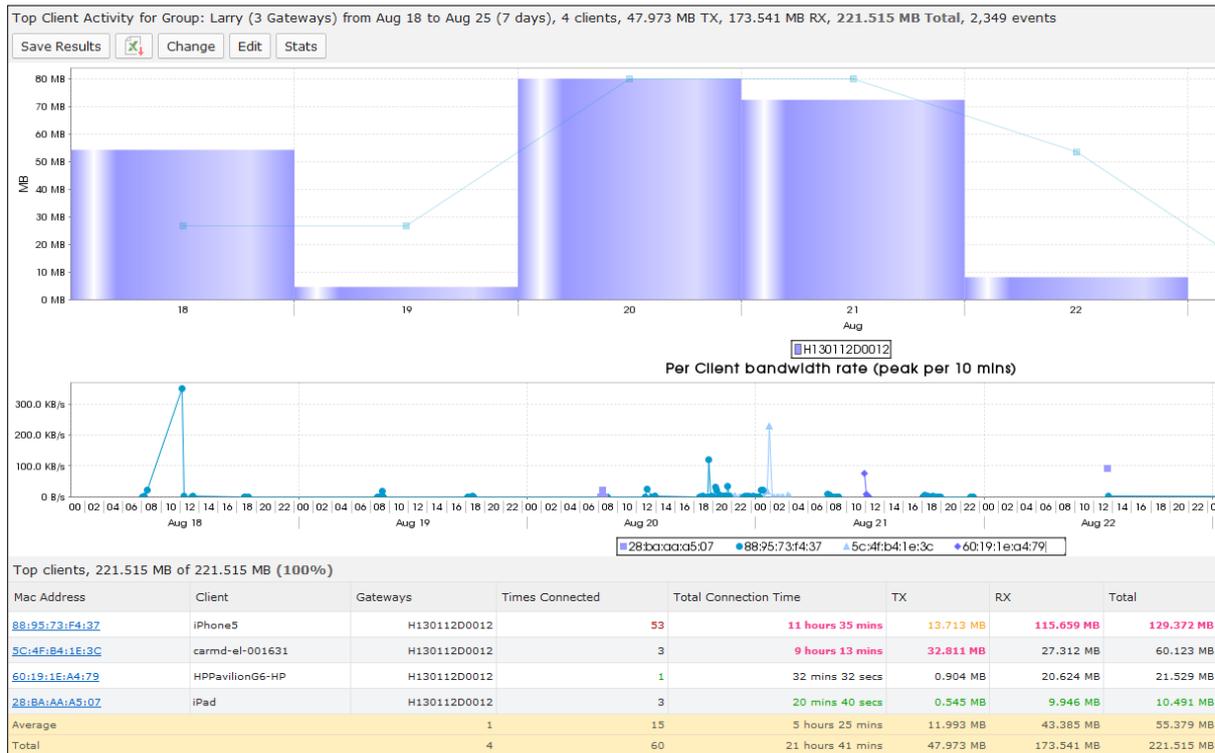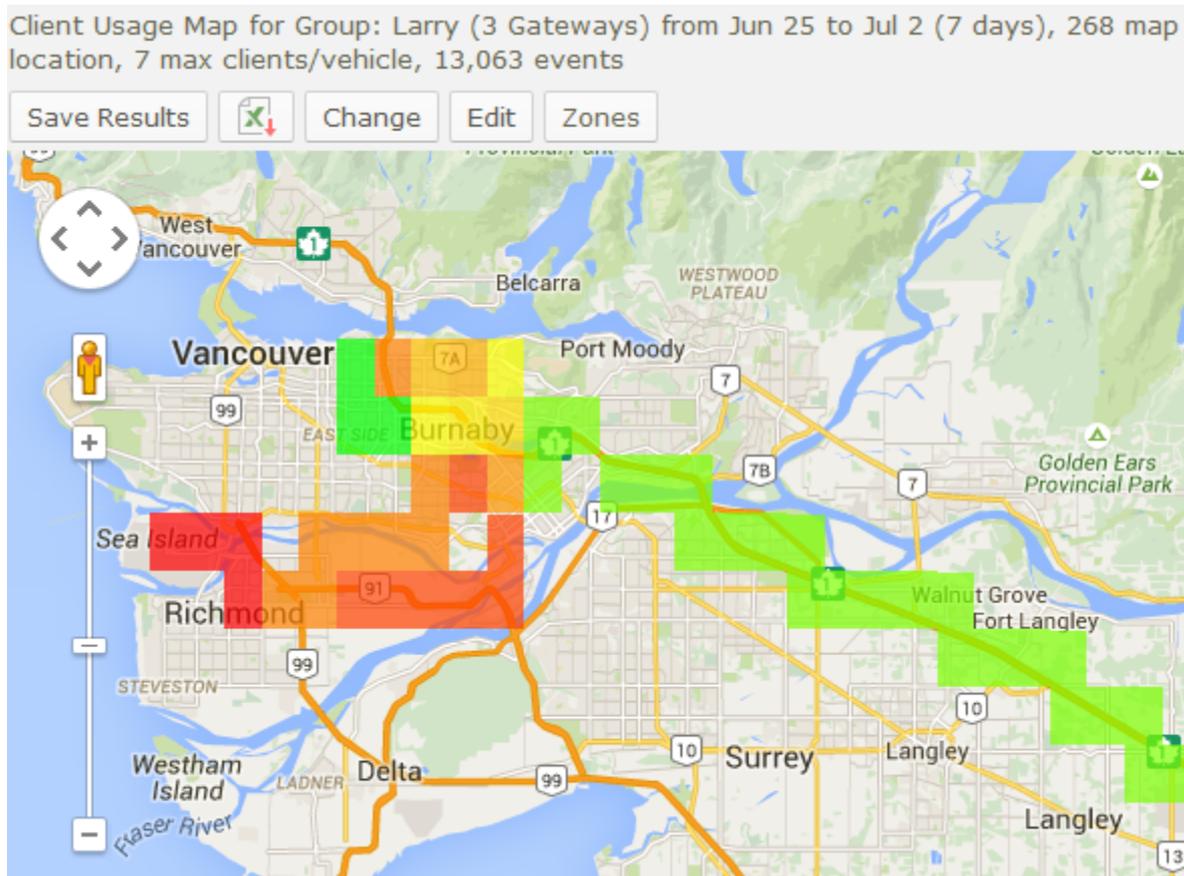

Figure 22 - Client Usage Map

Basic Configuration Fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Report time range*: use the drop-down menu to select from *Previous Months, Previous Weeks, Previous Days* or *Range*. Enter the numeric value in the field. When *Range* is selected, use the calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Partially hide MAC addresses and fully hide hostnames: when enabled, hides part of the MAC address, and all of the client names.

Value to graph: when set to *Total*, the blocks on the report represent the total number of clients who accessed the LAN in the area. When set to *Average*, the blocks on the report represent the average number of clients who accessed the LAN in the area, where "average" is calculated as the total number of clients/the number of trips in the area.

Limit to map area: select **Not Limited** to include data from any geographic location. Select **Manually defined area** to create a temporary zone for the analysis – only data from inside this zone will be included in the report. Select **One or more zones** to limit the analysis to one or more predefined zones (see the oMM Operation and Configuration guide for more information about zones).

Exclusion Zones: allows the report to exclude data from one or more predefined zones (see the oMM Operation and Configuration guide for more information about zones). Leave this option checked (default setting) to include data from any geographic location. Uncheck this option to specify zones to exclude data from.

Output Format: select **HTML** to generate the report in the browser window. Select **Excel** to display the generated report in Microsoft Excel. Note that the Excel option only works for reports which produce data in a table format.

Save for later or schedule a run time: enable to create reports that can be saved for future use. See Appendix A for more information.

Advanced Configuration Fields

Animate results by: animates the coverage over the specified report time range, in intervals defined by this dropdown. By default, ** *None* ** is selected which turns animation off.

Map resolution: defines the size of colored "blocks" presented in a map. The default resolution is *auto*.

Color ranges: defines the percentage of total usage to associate with the colored blocks on the map. This provides a visual perspective on the concentration of client connections. Four values must be specified, corresponding to the four map colors: red, orange, yellow, and green respectively, or this field must be left blank to accept the defaults (0, 12%, 50%, 100%).

Map range colors: defines the different colors used on the map to represent strengths of coverage areas (used on some coverage related reports). Click on each color to access the color picker and to change the color.

2.1.17. Bandwidth: Client History

The *Client History* report shows the locations for gateway bandwidth consumption as well as the date/time that the unit(s) connected, the duration for the connection(s), the amount of data (in MB) that was sent/received, and the distance travelled, if greater than 0 miles.

60:19:1E:A4:79	(HPPavilionG6-HP) connected for 0 mi and 32 mins 32 secs, transferred 20.624 MB RX, 0.904 MB TX (21.529 MB total)						Chart
Gateway	IP Address	Distance	Connect Time	Duration	TX	RX	Total
H130112D0012	172.22.50.104	0 mi	Aug 21 11:21:54 AM	32 mins 32 secs	0.904 MB	20.624 MB	21.529 MB

| 28:BA:AA:A5:07	(iPad)	connected for 6.44 mi and 20 mins 40 secs, transferred 9.946 MB RX, 0.545 MB TX (10.491 MB total)					Chart
Gateway	IP Address	Distance	Connect Time	Duration	TX	RX	Total
H130112D0012	172.22.50.102	5.33 mi	Aug 20 7:46:04 AM	16 mins 49 secs	0.244 MB	2.986 MB	3.23 MB
H130112D0012	172.22.50.102	1.03 mi	Aug 22 12:51:23 PM	3 mins 33 secs	0.301 MB	6.96 MB	7.261 MB
H130112D0012	172.22.50.102	0.073 mi	Aug 22 12:55:38 PM	18 secs	0 MB	0 MB	0 MB
Average		2.15 mi		6 mins 53 secs	0.182 MB	3.315 MB	3.497 MB
Total		6.44 mi		20 mins 40 secs	0.545 MB	9.946 MB	10.491 MB

Figure 23 - Client History Report

Configuration Fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Report time range*: use the drop-down menu to select from *Previous Months, Previous Weeks, Previous Days* or *Range*. Enter the numeric value in the field. When *Range* is selected, use the calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Limit to map area: select **Not Limited** to include data from any geographic location. Select **Manually defined area** to create a temporary zone for the analysis – only data from inside this zone will be

included in the report. Select **One or more zones** to limit the analysis to one or more predefined zones (see the oMM Operation and Configuration guide for more information about zones).

Exclusion Zones: allows the report to exclude data from one or more predefined zones (see the oMM Operation and Configuration guide for more information about zones). Leave this option checked (default setting) to include data from any geographic location. Uncheck this option to specify zones to exclude data from.

Limit to clients: filters the report to include only those client names which contain the specified text.

Partially hide MAC addresses and fully hide hostnames: when enabled, hides part of the MAC address, and all of the client names.

Output Format: select **HTML** to generate the report in the browser window. Select **Excel** to display the generated report in Microsoft Excel. Note that the Excel option only works for reports which produce data in a table format.

Save for later or schedule a run time: enable to create reports that can be saved for future use. See Appendix A for more information.

2.1.18. Bandwidth: Client Services

The *Client Service* report shows bandwidth consumption for the selected gateways over the specified time period. The average distribution of consumption over the course of a day is also calculated to highlight daily average peak usage times. The report can be configured to filter usage for one or more ports on a gateway.
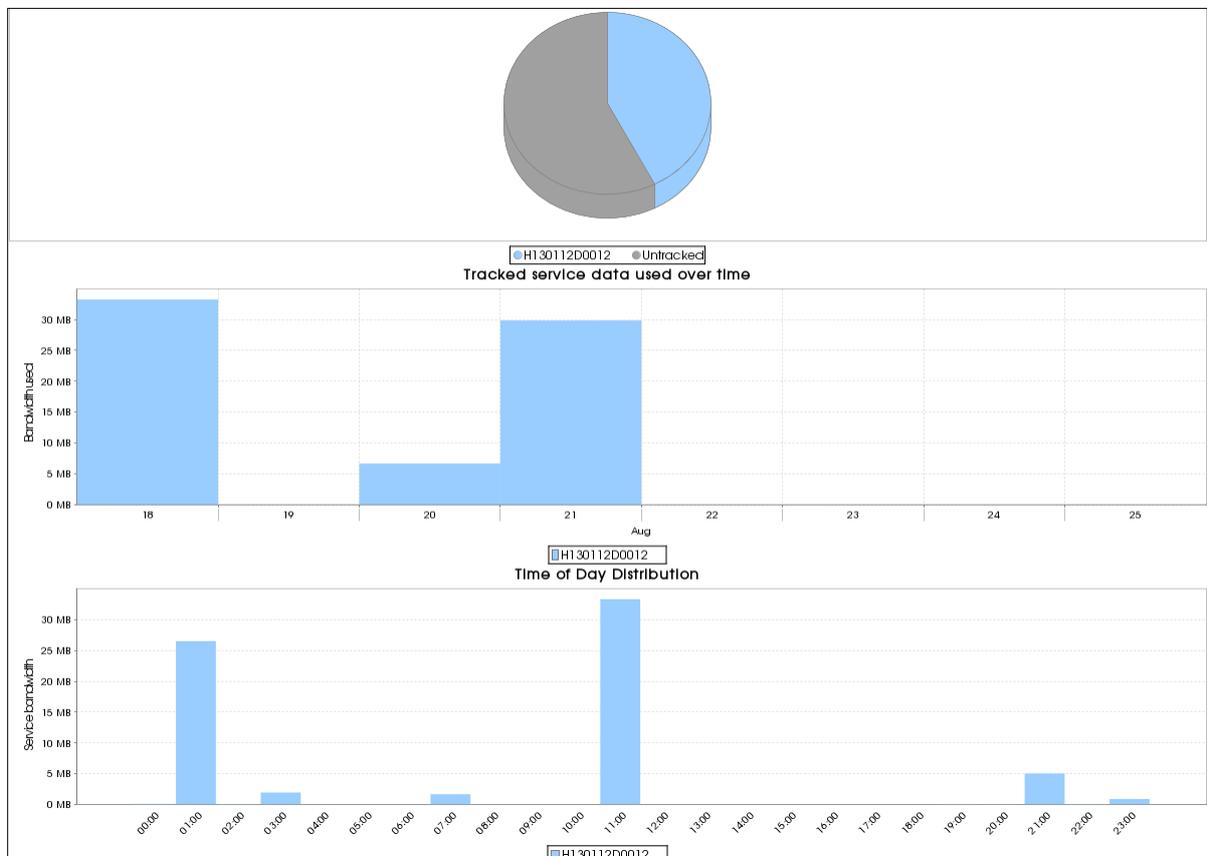

Figure 24 - Client Services Report

Configuration Fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Port Names: use for filtering the usage based on one or more ports for the selected gateways. Ports must be specified using a comma separated list of name/port value pairs (e.g. WEB=80, FTP=21, etc.). If this field is left blank or the port/value format entered is incorrect, then all bandwidth consumption for the selected gateways is shown.

Report time range*: use the drop-down menu to select from *Previous Months, Previous Weeks, Previous Days* or *Range*. Enter the numeric value in the field. When *Range* is selected, use the calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Limit to map area: select **Not Limited** to include data from any geographic location. Select **Manually defined area** to create a temporary zone for the analysis – only data from inside this zone will be included in the report. Select **One or more zones** to limit the analysis to one or more predefined zones (see the oMM Operation and Configuration guide for more information about zones).

Exclusion Zones: allows the report to exclude data from one or more predefined zones (see the oMM Operation and Configuration guide for more information about zones). Leave this option checked (default setting) to include data from any geographic location. Uncheck this option to specify zones to exclude data from.

Output Format: select **HTML** to generate the report in the browser window. Select **Excel** to display the generated report in Microsoft Excel. Note that the Excel option only works for reports which produce data in a table format.

Save for later or schedule a run time: enable to create reports that can be saved for future use. See Appendix A for more information.

2.2.   Reports for Optional Packages

The following reports are available only when the optional packages are purchased. For more information about optional packages, see the oMM Operation and Configuration Guide or contact Support. Note that the Wi-Fi reports are only available for the Four Port Gateway, versions 3.5.1 and higher.

2.2.1. Telemetry: Driving Behavior

The *Driving Behavior* report categorizes various telemetry-based, driving behavior safety parameters (e.g. long idles, hard accelerations, excessive speeding, etc.) and summarizes them across a range of vehicles over a period of time. This report is best used with multiple vehicles.

This report displays the warnings and errors for driving behavior. A vehicle's average and maximum speeds are also displayed, which makes it easy to identify good and poor driving behaviors. The amount of time a vehicle spent above the limits is also available. RPM, quick acceleration and hard braking data is provided in the number of occurrences.

Unit	VIN	Drive Time	Distance Travelled	Max Speed	Avg Speed	Speeds > 70 mph	Speeds > 80 mph	Idles > 30 mins	Idles > 1 hour	RPM > 3,500	RPM > 6,000	Hard Accels	Extreme Accels	Hard Decels
H010109D0010	N/A													
H090111E0004	N/A													
H130112D0012	FMHK	13 hours 33 mins	635 mi	88 mph	53 mph	3 hours 43 mins	58 mins 43 secs			24 mins 29 secs		0 sec	4	13
Average		13 hours 33 mins	635 mi	88 mph	53 mph	3 hours 43 mins	58 mins 43 secs			24 mins 29 secs		0 sec	4	13

Figure 25 - Driving Behavior Report

Notes:

- **Black text**: normal
- **Orange text**: below average
- **Red text**: considerably below average
- **Green text**: best result
- **Grey text**: very low run time
- **Drive Time**: the cumulative time that the vehicle was moving

Basic Configuration Fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Report time range*: use the drop-down menu to select from *Previous Months, Previous Weeks, Previous Days* or *Range.* Enter the numeric value in the field. When Range is selected, use the calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Speed warning*: the speed to be considered the limit over which a warning state will be displayed. The default is 70 (mph).

Speed error*: the speed to be considered the limit above which an error state will be displayed. The default is 80 (mph).

Acceleration warning*: the acceleration speed (mph/second) for which a warning state will be displayed. The default is 5.

Acceleration error*: the acceleration speed (mph/second) for which an error state will be displayed. The default is 10.

Deceleration warning*: the deceleration speed (mph/second) for which a warning state will be displayed. The default is -5. This value implies hard braking.

Deceleration error*: the deceleration speed (mph/second) for which a warning state will be displayed. The default is -10. This value implies hard braking.

RPM warning*: the RPM value for which a warning state will be displayed. The default is 3500. This value implies high engine revolutions and can contribute to issues such as poor fuel economy.

RPM error*: the RPM value for which a warning state will be displayed. The default is 6000.

Allowed Idle Time: the time (in seconds) within which idling is not counted as part of the idling time. The default is 120 seconds.

Output Format: select **HTML** to generate the report in the browser window. Select **Excel** to display the generated report in Microsoft Excel. Note that the Excel option only works for reports which produce data in a table format.

Advanced Configuration Fields

Medium Stop: the time (in minutes) after which a "medium stop" should be reported for a stopped vehicle.

Long Stop: the time (in minutes) after which a "long stop" should be reported for a stopped vehicle.

2.2.2.   Telemetry: Vehicle Hours

The *Vehicle Hours* report shows how long a vehicle has been running including both driving time and idle time.

Figure 26 - Vehicle Hours Report

Specific details about the usage for each time period are shown below the graph which includes totals for:

- **Engine On Time**: the time that engine RPM > 0
- **Idle Time**: the time that the engine RPM is greater than 0 and the vehicle speed is less than 2 mph for more than 2 minutes (to exclude normal idling at traffic lights, etc.)

Each property is also presented for each time period in the report. The report can show data for multiple gateways and will present each on a separate row of the report.

The default time period is dependent on the span of the report and is configurable using the *Split table results by* field, accessible from the report's advanced configuration screen.

Basic Configuration Fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Report time range*: use the drop-down menu to select from *Previous Months, Previous Weeks, Previous Days* or *Range*. Enter the numeric value in the field. When *Range* is selected, use the calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Limit to map area*: select **Not Limited** to include data from any geographic location. Select **Manually defined area** to create a temporary zone for the analysis – only data from inside this zone will be included in the report. Select **One or more zones** to limit the analysis to one or more predefined zones (see the oMM Operation and Configuration guide for more information about zones).

Exclusion Zones: allows the report to exclude data from one or more predefined zones (see the oMM Operation and Configuration guide for more information about zones). Leave this option checked (default setting) to include data from any geographic location. Uncheck this option to specify zones to exclude data from.

Allowed Idle Time: the time period (in seconds) within which idling is not counted as part of the idling time. The default is 120 seconds.

GPIO devices: specifies which GPIO pins to monitor for signals while idling. Any idle time which occurs while any of the pins have a signal will not be counted as idle time in the report. Instead, an additional *GPIO Time* column will be displayed showing the time spent idling while GPIO is in use.

The default is an empty field which means that no GPIO pins (i.e. no devices) will be monitored while idling. There are eight possible pins numbered 0 through 7. To specify the GPIO pins, enter a comma delimited list. For example, to monitor idling while pins 0, 1 and 7 are active, enter 0,1,7 in this field.

Output Format: select **HTML** to generate the report in the browser window. Select **Excel** to display the generated report in Microsoft Excel. Note that the Excel option only works for reports which produce data in a table format.

Save for later or schedule a run time: Enable to create reports that can be saved for future use. See Appendix A for more information.

Advanced Configuration Fields

Split table results by: use the drop-down menu to split the report results by *None, Auto, Second, Minute, 5 Minutes, 30 Minutes, Hour, 8 Hours, Day, Week* or *30 Days*. The selection should best reflect the time range (i.e. if the range is one month, splitting the result by minutes or hours may not result in a satisfactory report). The default is *Auto*.

2.2.3.   Telemetry: Fuel Fillup

The *Fuel Fillup* report displays data on the date/time, location and fuel fill-up amounts. This report is good for correlating actual vehicle fuel fill-ups with fuel bills and for identifying areas of potential fuel savings as well as for comparing driving behavior across a fleet of the same vehicles performing the same duties. Limitation: Some vehicles may have faulty fuel sensors impacting the quality of the results. The movement of the car (braking or driving) will cause invalid fuel data as the fuel increases and decreases while the vehicle is moving.

The report displays the fuel fill-up locations on the map as numeric markers. Clicking on a marker opens a pop-up with the address of the fueling station and a list of vehicles that visited it for refueling. Additionally, the dates and fill-up amounts are provided.

Below the map, the same information is provided in text form, along with the percent filled.

This portion of the report also contains a per-vehicle summary listing each vehicle's gateway name and VIN, as well as the following parameters for the specified report period: total amount filled, count of fills, and average fill amount.

Figure 27 - Fuel Fillup Report

Basic Configuration Fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Report time range*: use the drop-down menu to select from *Previous Months, Previous Weeks, Previous Days* or *Range.* Enter the numeric value in the field. When Range is selected, use the calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Default Tank size*: enter the size of the fuel tank (gallons).

Minimum fill size*: enter the minimum amount of fuel to be considered as a fill-up (gallons).

Show output by: select *Vehicle* to show the fillups made by the vehicle. Select Station to show the fillups made at each station.

Output Format: select **HTML** to generate the report in the browser window. Select **Excel** to display the generated report in Microsoft Excel. Note that the Excel option only works for reports which produce data in a table format.

Save for later or schedule a run time: Enable to create reports that can be saved for future use. See Appendix A for more information.

Advanced Configuration Fields

Fuel cost*: Enter the cost of fuel (per gallon).

Average readings over: uses the average fuel levels over the specified period (in seconds) instead of the last known fuel level.

2.2.4.   Telemetry: Fuel Consumption

The *Fuel Consumption* report calculates and reports the fuel consumption of a range of vehicles over a period of time. Users must provide fuel capacities and costs and this report is best used over a range of vehicles with similar fuel capacity.

Fuel consumed and the cost shown is calculated using a value returned for the percentage of fuel remaining in the tank. Several factors can affect the accuracy of this including terrain, ambient temperature and pressure. For fleets with a variety of vehicle models (i.e. different fuel tank sizes and typical fuel economy), it is recommended that similar vehicles be grouped before using this report for multiple vehicle comparisons.

Limitation: Some vehicles may have faulty Fuel Sensors impacting the quality of the results. The movement of the vehicle (braking or driving) will show invalid fuel data as the fuel increases and decreases while the vehicle is moving.

Figure 28 - Fuel Consumption Report

Notes:

- **Black text**: normal
- **Orange text**: below average
- **Red text**: considerably below average
- **Green text**: best result
- **Grey text**: very low run time
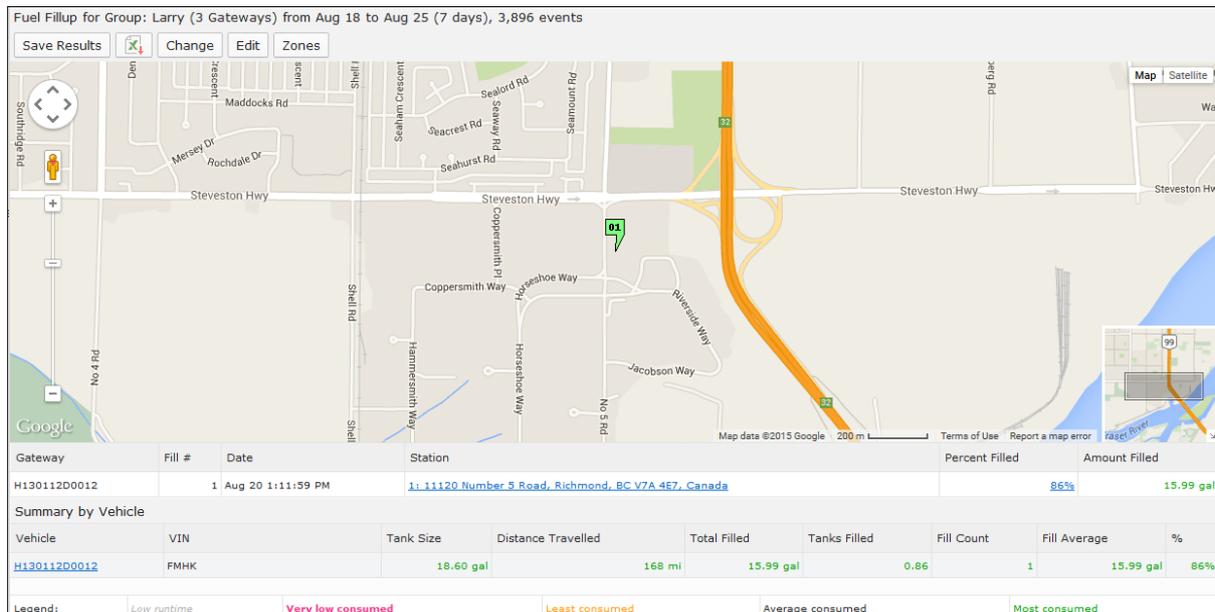
Basic Configuration Fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Report time range*: use the drop-down menu to select from *Previous Months, Previous Weeks, Previous Days* or *Range.* Enter the numeric value in the field. When *Range* is selected, use the calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Default Tank size*: enter the size of the fuel tank (gallons).

Minimum fill size*: enter the minimum percentage of the tank size that qualifies as a fillup. Default is 15 (%).

Allowed Idle Time: the **time (in seconds) within which idling is not counted as part of the idling time. The default is 120 seconds.**

Output Format: select **HTML** to generate the report in the browser window. Select **Excel** to display the generated report in Microsoft Excel. Note that the Excel option only works for reports which produce data in a table format.

Save for later or schedule a run time: enable to create reports that can be saved for future use. See Appendix A for more information.

This report displays the cumulative time each vehicle was in use including time spent idling and fuel used. The report also shows the distance travelled, fuel usage (including a per-hour average) and the calculated fuel efficiency across the distance travelled.

Advanced Configuration Fields

Fuel cost*: enter the cost of fuel (per gallon).

Average readings over: uses the average fuel levels over the specified period (in seconds) instead of the last known fuel level.

2.2.5.   Telemetry: Fuel Consumption Trend

The *Fuel Consumption* Trend report calculates and reports fuel efficiency (mpg) per time period over vehicles and date range. Trends may be the result of factors such as shift changes or peak hour driving versus off-peak driving. This report provides more details and greater information than the Fuel Consumption report.

Limitation: Some vehicles may have faulty fuel sensors impacting the quality of the results. The movement of the vehicle (braking or driving) will show invalid fuel data as the fuel increases and decreases while the vehicle is moving.

This report displays the run time for each vehicle along with the total fuel consumed and average fuel efficiency. It also provides the fuel consumption per day.
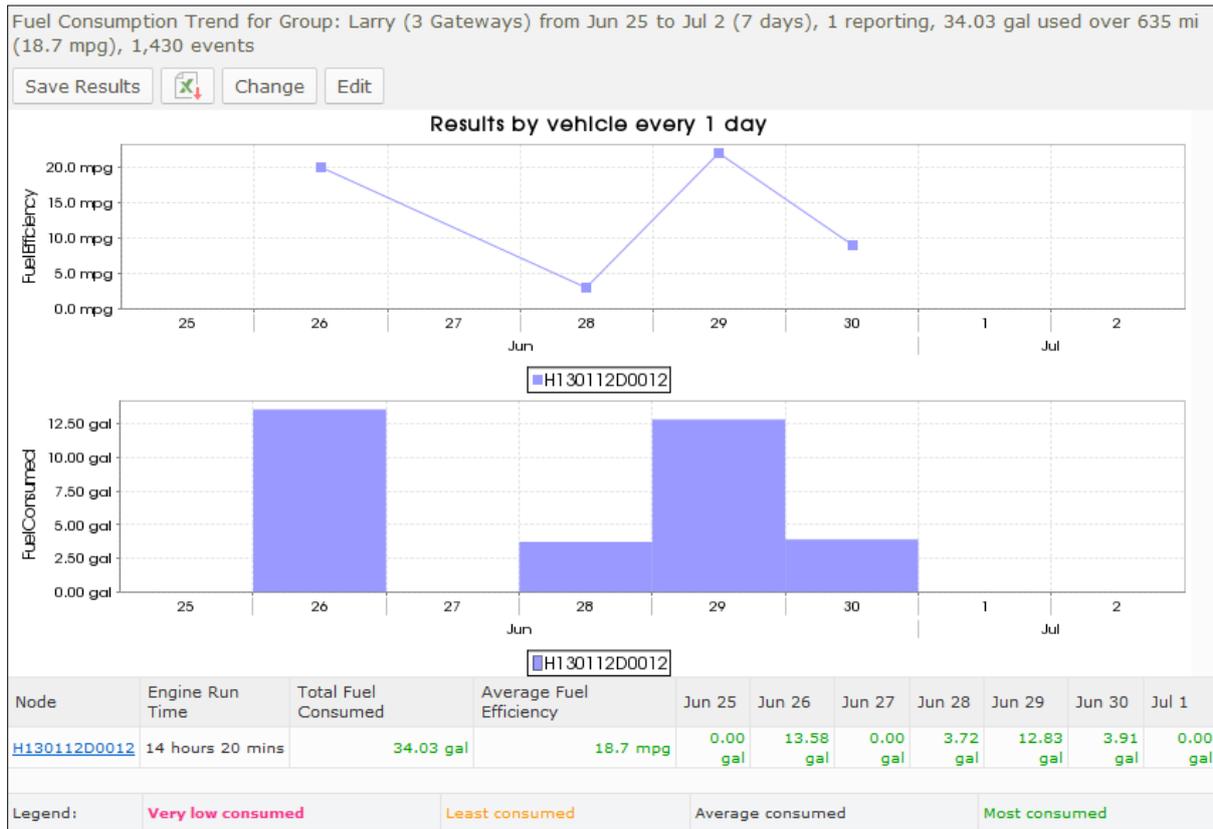
Figure 29 - Fuel Consumption Trend Report

Basic Configuration Fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Report time range*: use the drop-down menu to select from *Previous Months, Previous Weeks, Previous Days* or *Range*. Enter the numeric value in the field. When *Range* is selected, use the calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Default Tank size*: enter the size of the fuel tank (gallons)

Minimum fill size*: enter the minimum percentage of the tank size that qualifies as a fillup. Default is 15 (%).

Limit to map area*: select **Not Limited** to include data from any geographic location. Select **Manually defined** area to create a temporary zone for the analysis – only data from inside this zone will be included in the report. Select **One or more zones** to limit the analysis to one or more predefined zones (see the oMM Operation and Configuration guide for more information about zones).

Exclusion Zones: allows the report to exclude data from one or more predefined zones (see the oMM Operation and Configuration guide for more information about zones). Leave this option checked (default setting) to include data from any geographic location. Uncheck this option to specify zones to exclude data from.

Output Format: select **HTML** to generate the report in the browser window. Select **Excel** to display the generated report in Microsoft Excel. Note that the Excel option only works for reports which produce data in a table format.

Save for later or schedule a run time: enable to create reports that can be saved for future use. See Appendix A for more information.

Advanced Configuration Fields

Split table results by: use the drop-down menu to split the report results by *None*, *Auto*, *Second*, *Minute*, *5 Minutes*, *30 Minutes*, *Hour*, *8 Hours*, *Day*, *Week* or *30 Days*. The selection should best reflect the time range (e.g. if the range is one month, splitting the result by minutes or hours may not result in a satisfactory report). The default is *Auto*.

Average readings over: uses the average fuel levels over the specified period (in seconds) instead of the last known fuel level.

2.2.6.   Telemetry: Vehicle Diagnostics Report

The *Vehicle Diagnostics* report determines diagnostic information from telemetry-sourced vehicles (i.e. MIL, voltage, and temperature) and reports on ranges of values across a fleet of vehicles and a period of time. The report is best used for many vehicles to provide a status overview for the fleet.

This report provides the minimum and maximum voltage levels to help diagnose battery and electrical issues; the maximum coolant temperature to diagnosis engine problems such as over-heating; the occurrences of MILs (malfunction indicator lamps) and the odometer distance driven with an MIL. Additionally, if there are any troubles codes (i.e. On-Board Diagnostics Parameter IDs or OBD-II PIDs) for the vehicles, they will appear in the report. Note that voltage readings are subject to cable length and will always be slightly lower than the voltage measured at the source.

Vehicle Diagnostics for Group: Larry (3 Gateways) from Aug 18 to Aug 25 (7 days), 185 events

Unit	VIN	Min Voltage	Max Voltage	Max Coolant Temp	Time Coolant > 110.0 °F	Time driven with MIL on	Odometer Distance driven with MIL	Trouble Codes
H010109D0010	*N/A*							
H090111E0004	*N/A*							
H130112D0012	FMHK	11.96	14.26	195.0 °F	12 hours 16 mins	0 sec		
Average		11.96	14.26	195.0 °F	12 hours 16 mins	0 sec		

Figure 30 - Vehicle Diagnostics Report

Configuration Fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Report time range*: use the drop-down menu to select from *Previous Months, Previous Weeks, Previous Days* or *Range*. Enter the numeric value in the field. When *Range* is selected, use the calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Low voltage level*: the voltage level at which to be notified (volts). Note that voltage readings are subject to cable length and will always be slightly lower than the voltage measured at the source.

Coolant temp threshold*: the coolant level at which to be notified (Fahrenheit).

Output Format: select **HTML** to generate the report in the browser window. Select **Excel** to display the generated report in Microsoft Excel. Note that the Excel option only works for reports which produce data in a table format.

Save for later or schedule a run time: enable to create reports that can be saved for future use. See Appendix A for more information.

2.2.7.   Telemetry: Odometer Usage

Reports the distance travelled over a specified time range.

This report shows the initial and ending odometer readings for the specified time period for each gateway, and calculates the total distance travelled. Note that unlike the *Odometer Check* report (described below), this report does not compare against GPS readings to check for accuracy.

Figure 31 - Odometer Usage

Configuration Fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Report time range*: use the drop-down menu to select from *Previous Months*, *Previous Weeks*, *Previous Days* or *Range*. Enter the numeric value in the field. When *Range* is selected, use the calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Output Format: select **HTML** to generate the report in the browser window. Select **Excel** to display the generated report in Microsoft Excel.

Save for later or schedule a run time: enable to create reports that can be saved for future use. See Appendix A for more information.

2.2.8. Telemetry: Odometer Check

The *Odometer Check Accuracy Check* report compares a vehicle's odometer and speedometer readings against similar values as reported by GPS. The differences are reported which are intended to identify potential calibration issues across a fleet of vehicles.

Note that the odometer parameter is not a standard parameter and, as such, may not be available on all vehicles. Also, if a vehicle travels in a built-up, mountainous or forested area, acquiring a GPS fix may be intermittent and cause differences between the GPS and odometer.

This report displays the run time of the vehicles, the cumulative time each vehicle was in use, the odometer reading at the start of reporting and the distance travelled. It also provides an average for the fleet.

Figure 32 - Odometer Check

Configuration Fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Report time range*: use the drop-down menu to select from *Previous Months, Previous Weeks, Previous Days* or *Range*. Enter the numeric value in the field. When *Range* is selected, use the calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Output Format: select **HTML** to generate the report in the browser window. Select **Excel** to display the generated report in Microsoft Excel.

Save for later or schedule a run time: enable to create reports that can be saved for future use. See Appendix A for more information.

2.2.9.   Telemetry: Unauthorized Usage

The *Unauthorized Usage* report details the time spent driving the vehicle while it is disconnected from the oMG (i.e. off), has no GPS (disconnected GPS antenna), outside of the defined hours, or outside of the designated zones. The intent is to detect when vehicles are being used outside of their expected use conditions.

The report example shows that, in addition to the odometer details for the vehicles, two of them have engaged in unauthorized usage, as defined by the oMM. Note the *Odometer Distance with no OBD/Telemetry* and *Odometer Distance with No GPS* columns. If either of these readings represent a significant portion of the total distance traveled, users should investigate them further. They could, for example, identify an employee who disconnected the GPS antenna for unauthorized vehicle use.

Unit	Total OMG Time	Odometer Total Distance	GPS Total Distance	Odometer Distance with no OBD/Telemetry	Odometer Distance with no GPS	Odometer Distance travelled outside allowed hours	Odometer Distance inside Report Zone	Odometer Distance outside any DB Zone
fips	0 sec	0 mi	0 mi	0 mi	0 mi	0 mi	0 mi	0 mi
H090111G0009	6 days 23 hours	0 mi	0 mi	0 mi	0 mi	0 mi	0 mi	0 mi
H130112D0021	6 days 23 hours	0 mi	0 mi	0 mi	0 mi	0 mi	0 mi	0 mi
H130112D0037	6 days 23 hours	0 mi	4.80 mi	4.80 mi	0 mi	0 mi	0 mi	0 mi
Average	5 days 5 hours	0 mi	4.80 mi	1.20 mi	0 mi	0 mi	0 mi	0 mi

Unauthorized Usage Details

#	Gateway	Date	Reason	Start Location	End Location	Duration	Odometer Distance
1	H130112D0037	Jul 2 11:59:58 PM	Driving without OBD/Telemetry		13911 Wireless Way Unit 310, Richmond, BC V6V 3B9, Canada	6 days 23 hours	4.80 mi

Figure 33 - Unauthorized Usage

Configuration Fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Report time range*: use the drop-down menu to select from *Previous Months, Previous Weeks, Previous Days* or *Range*. Enter the numeric value in the field. When *Range* is selected, use the calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Allowed drive times: enter the times during which vehicle use is permitted (e.g. a driver's work hours). Blank implies all times are permitted.

Drive zones: select the zones (e.g. a driver's territory) within which the vehicles are expected to drive.

Output Format: Select **HTML** to generate the report in the browser window. Select **Excel** to display the generated report in Microsoft Excel.

Save for later or schedule a run time: Enable to create reports that can be saved for future use. See Appendix A for more information.

2.2.10. Geographic: Gateway Trips

The *Gateway Trips* report plots the gateway location as a trail (continuous line) on the map (i.e. the route the vehicle traveled). This report is most useful for a single gateway over a relatively short period of time (e.g. one gateway trip) where the same location is not visited repeatedly.

| No GPS | < 10 mph | 10 mph - 80 mph | > 80 mph |

Stops report

Date	Unit	Location	GPS Distance to here	Left at
Aug 18 7:33:59 AM	H130112D0012	13 Bline Drive, Burnaby, BC Canada	0 mi	Trip Start
Aug 18 8:07:24 AM	H130112D0012	13811 Wireless Way, Richmond, BC V6V, Canada	13.35 mi	Aug 18 11:41:47 AM
Aug 18 11:48:11 AM	H130112D0012	130 Lansdowne Road, Richmond, BC V6X, Canada	16.41 mi	Aug 18 12:44:02 PM

Figure 34 - Gateway Trip Report

The report's map shows the gateway trips, represented by a colored trail. The legend shows that green lines identify speeds under 10 mph (*Slow Speed* value), yellow lines identify speeds between 10 and 80 mph and red lines identify speeds greater than 80 mph (*Speed Error* value) (10 and 80 are default values). Markers identify start and end points as well as locations where the gateway stopped for an extended period of time.

The *Stops Report* data shows the extended gateway stops, their locations, the distance to the stop and the duration of the stop. The *GPS Speed Report* provides data where gateways in a *Speed Error* state. It shows the location of the error state, the top speed and the time spent in the error state.

Note: the GPS Speed Report is only shown if a gateway has exceeded the speed defined for the Speed error *configuration field (see configuration fields below).*

Small, medium and large circles are used to indicate locations where the gateway stops. Red flags are used to indicate locations where a speed threshold was exceeded. Start and stop markers indicate the extent of the trip. Clicking on these map objects displays a pop-up window that provides details about the location.

Enabling *Pins* displays markers where the gateway was at every hour (on the hour). Click on a pin for a pop-up with the date/time information. Enabling *Directions* displays triangles to identify gateway direction.
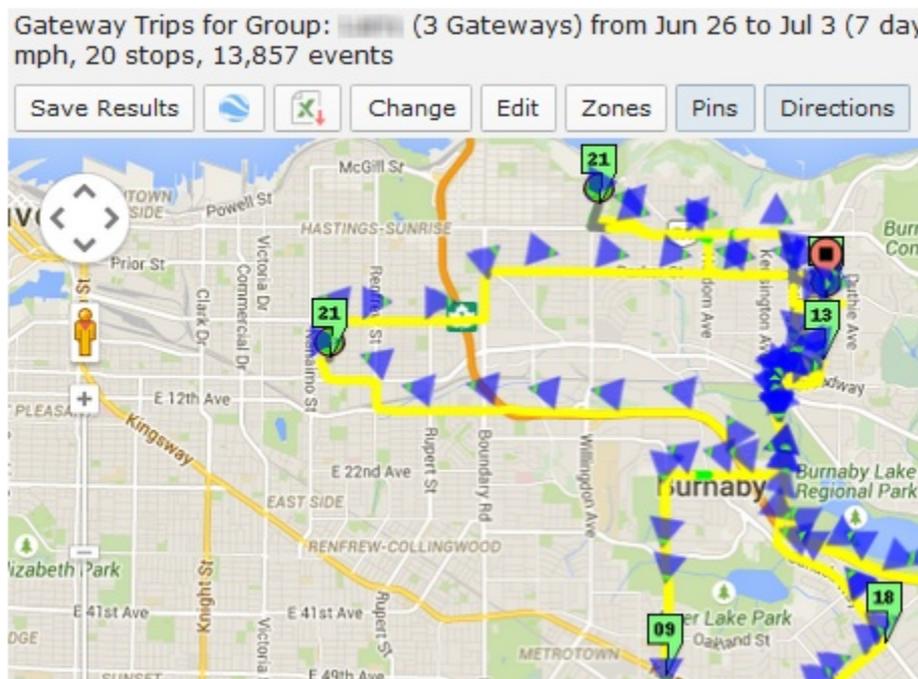
Figure 35 - Gateway Trip Report map with Pins and Directions enabled

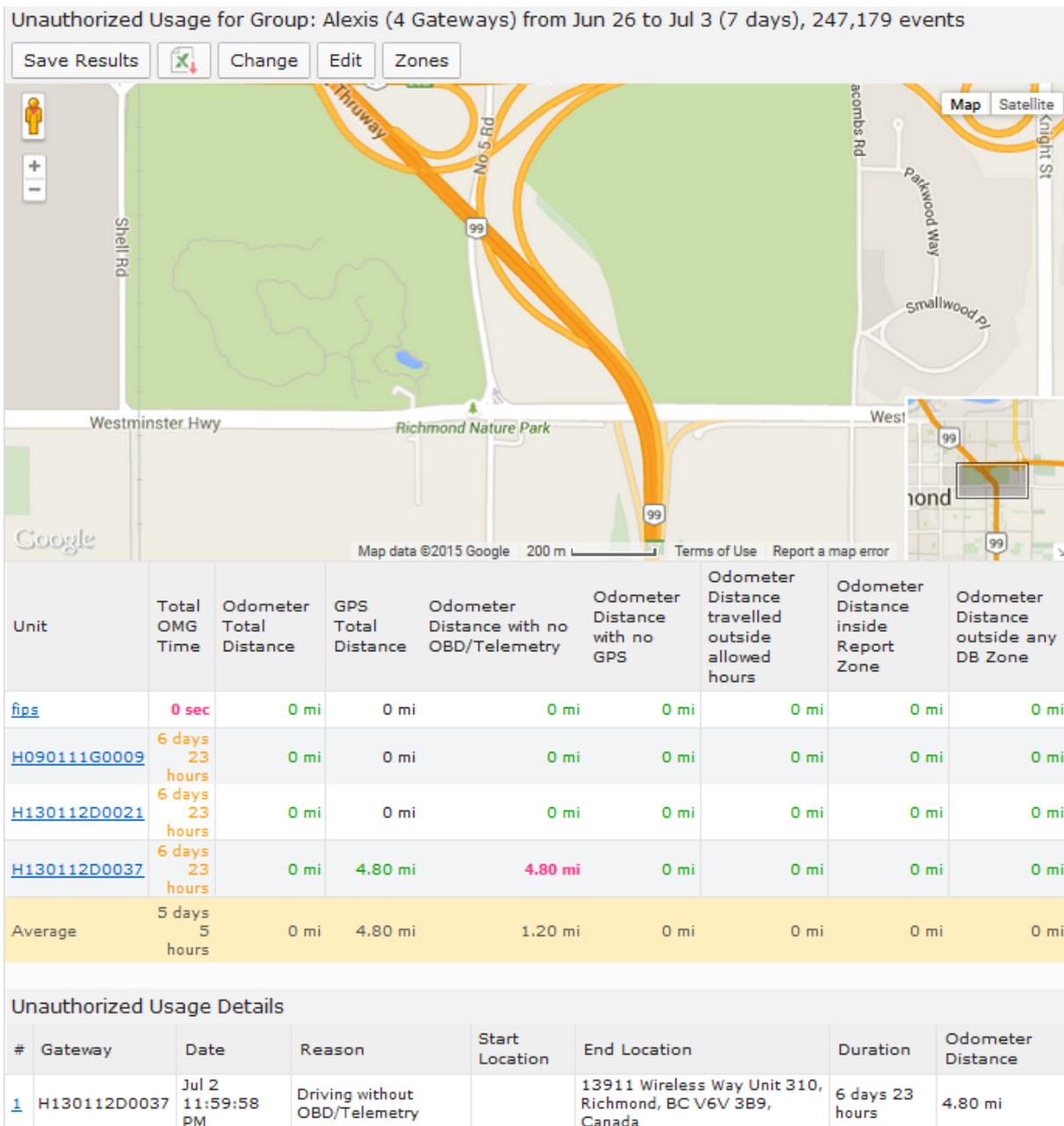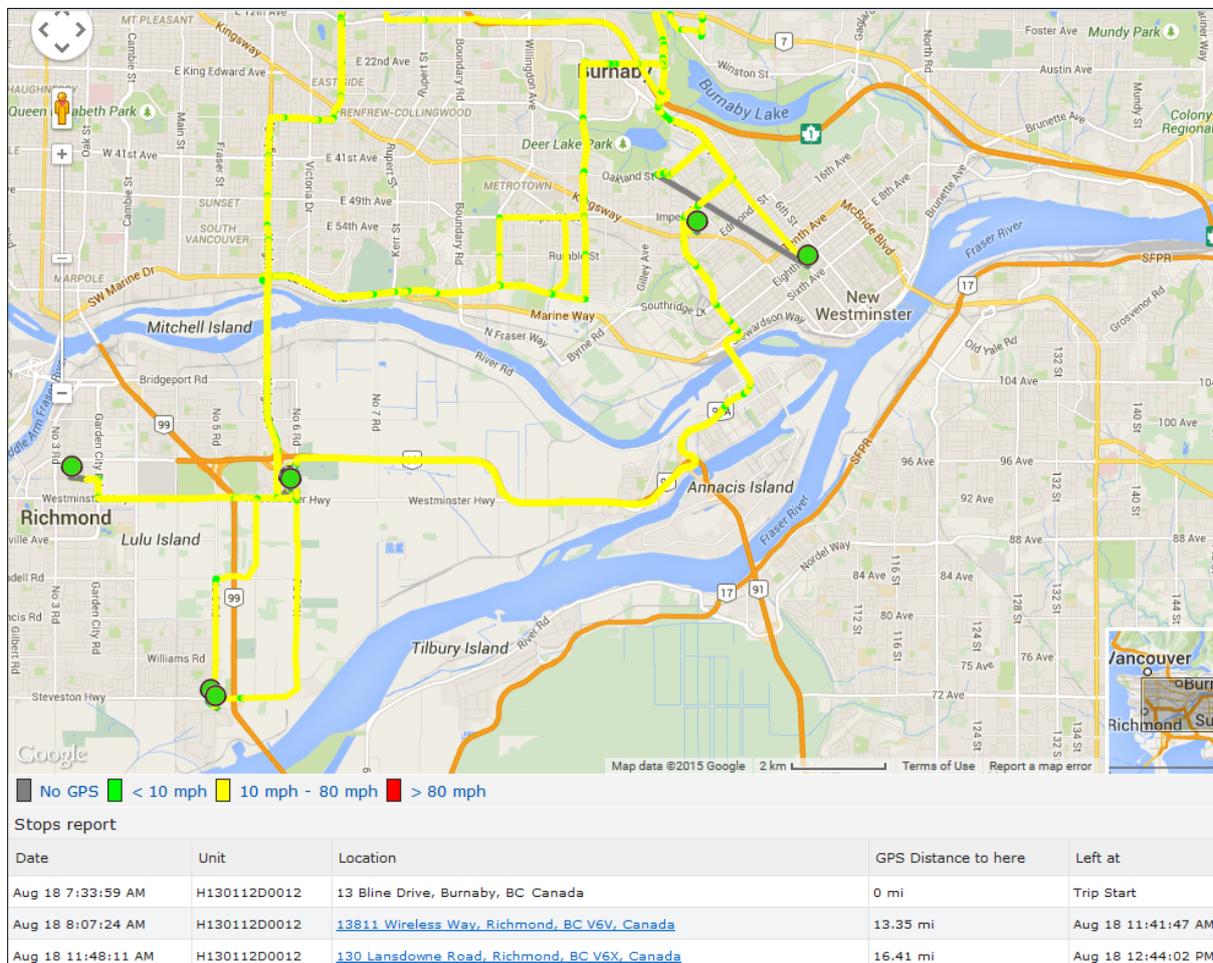**Basic Configuration Fields**

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Report time range*: use the drop-down menu to select from *Previous Months, Previous Weeks, Previous Days* or *Range*. Enter the numeric value in the field. When *Range* is selected, use the calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Limit to map area*: select **Not Limited** to include data from any geographic location. Select **Manually defined area** to create a temporary zone for the analysis – only data from inside this zone will be included in the report. Select **One or more zones** to limit the analysis to one or more predefined zones (see the oMM Operation and Configuration guide for more information about zones).

Exclusion Zones: allows the report to exclude data from one or more predefined zones (see the oMM Operation and Configuration guide for more information about zones). Leave this option checked (default setting) to include data from any geographic location. Uncheck this option to specify zones to exclude data from.

Save for later or schedule a run time: enable to create reports that can be saved for future use. See Appendix A for more information.

Advanced Configuration Fields

Draw each unit in a different trail color: select to use a different color for each trail. This is useful when multiple gateways are selected.

Slow Speed*: enter the value that will be considered as the slow speed. This value is represented as green.

Speed Error*: enter the value that will be considered as a speed error (i.e. speeding). This value is represented as red. The GPS Speed report will only be shown if a gateway has exceeded the value specified for this field.

Show locations where GPS tracking was lost: based on the gateway's GPS logs, it shows the locations where no GPS data was received and is represented by a black circle.

Force legacy gps.txt file usage: for R2 gateways, enabling this option forces the report to load data from gps.txt (newer units will always use gpstracker.txt).

Output Format: select **HTML** to generate the report in the browser window. Select **Excel** to display the generated report in Microsoft Excel. Select **KML** to display the generated report in Google Earth (requires that Google Earth is installed).

2.2.11. Geographic: Gateway Trip Coverage

The *Gateway Trip Coverage* report plots a coverage map of locations visited by vehicles and uses color to represent the time spent in the area (short to long).
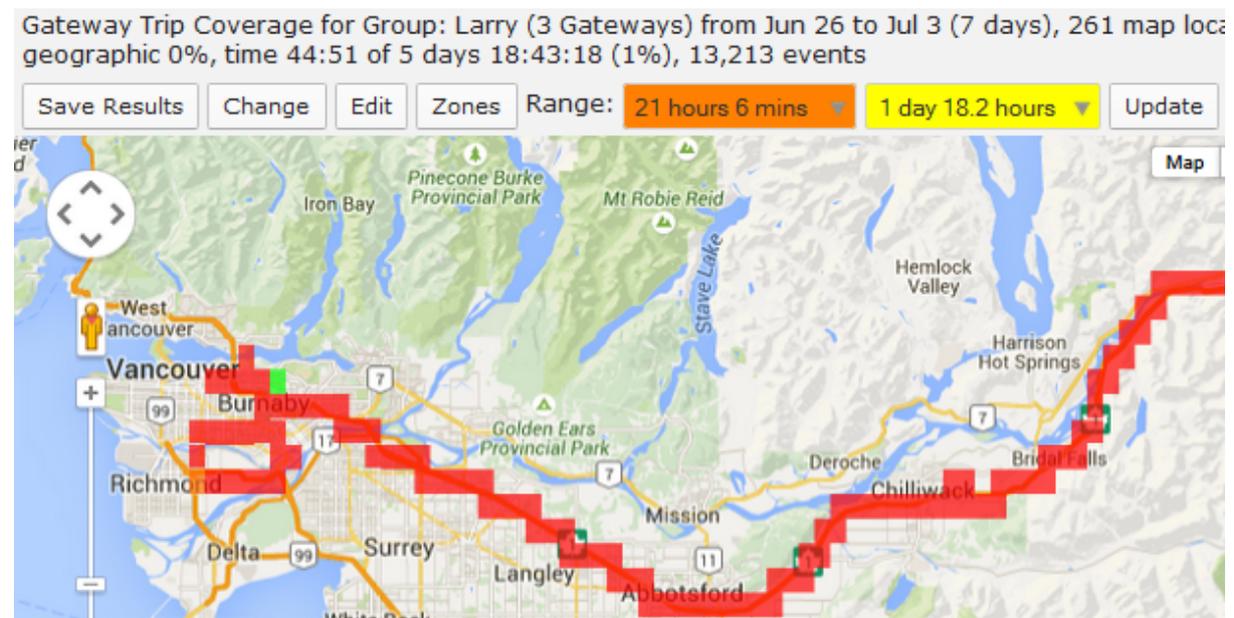
Figure 36 - Gateway Trip Coverage Report

Click on a colored square for a pop-up with details about the gateway in that geographic area.

Click on **Events** within a popup to present the gateway data for that particular area. The report shows the gateways that were in the area and when. Click on a position link for a pop-up displaying date, time and location for the event.
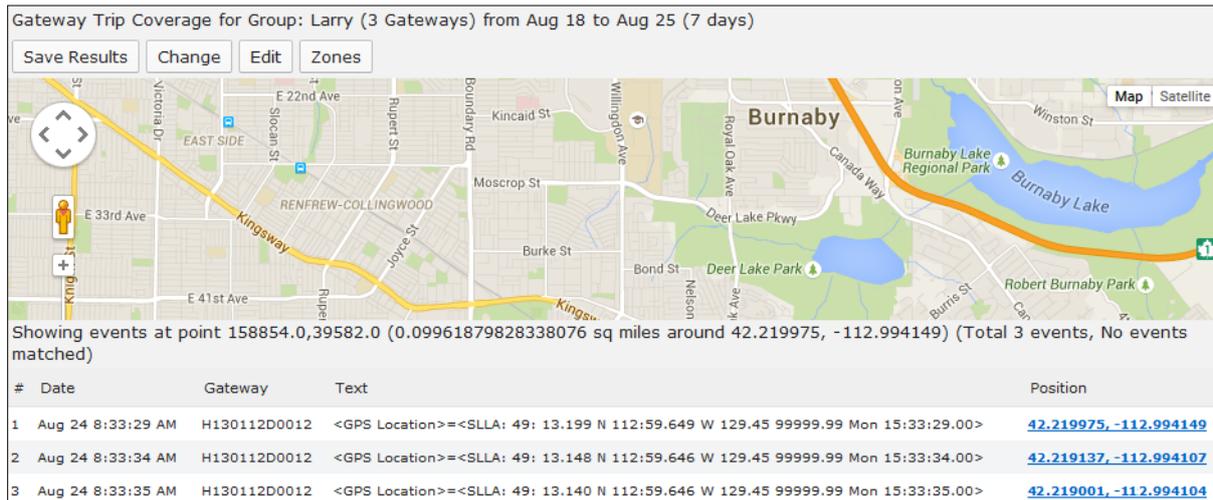
Figure 37 - Gateway Trip Events

Click on **Focus on this Area** within a popup to drill deeper into gateway locations and time spent within the particular geographic location.

Figure 38 - Gateway Trip Drilldown

Basic Configuration Fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Report time range*: use the drop-down menu to select from *Previous Months, Previous Weeks, Previous Days* or *Range*. Enter the numeric value in the field. When *Range* is selected, use the calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Limit to map area*: select **Not Limited** to include data from any geographic location. Select **Manually defined area** to create a temporary zone for the analysis – only data from inside this zone will be included in the report. Select **One or more zones** to limit the analysis to one or more

predefined zones (see the oMM Operation and Configuration guide for more information about zones).

Exclusion Zones: allows the report to exclude data from one or more predefined zones (see the oMM Operation and Configuration guide for more information about zones). Leave this option checked (default setting) to include data from any geographic location. Uncheck this option to specify zones to exclude data from.

Output Format: select **HTML** to generate the report in the browser window. Select **Excel** to display the generated report in Microsoft Excel. **Show locations where GPS tracking was lost**: Based on the gateway's GPS logs, it shows the locations where no GPS data was received and is represented by a black circle.

Save for later or schedule a run time: enable to create reports that can be saved for future use. See Appendix A for more information.

Advanced Configuration Fields

Map Resolution: defines the size of colored "blocks" presented in a map. The default resolution is auto.

Short stop*: vehicle stops are shown with small sized green circles if they have been stopped for at least this many minutes (up to the medium stop value). Default is 10.

Medium stop*: vehicle stops are shown with medium sized green circles if they have been stopped for at least this many minutes (up to the long stop value). Default is 30.

Long stop*: vehicle stops are shown with large sized green circles if they have been stopped for at least this many minutes. Default is 60.

2.2.12. Geographic: Gateway Trip Trend

The *Trip Trend* report shows the distance that one or more gateways travelled for each trip taken over the specified time period. The report also shows the average speed, maximum speed, total distance travelled, total travel time, and total distance travelled for each specified time period (e.g. per day, per hour etc.). Distances are calculated from GPS data (as opposed to odometer data).
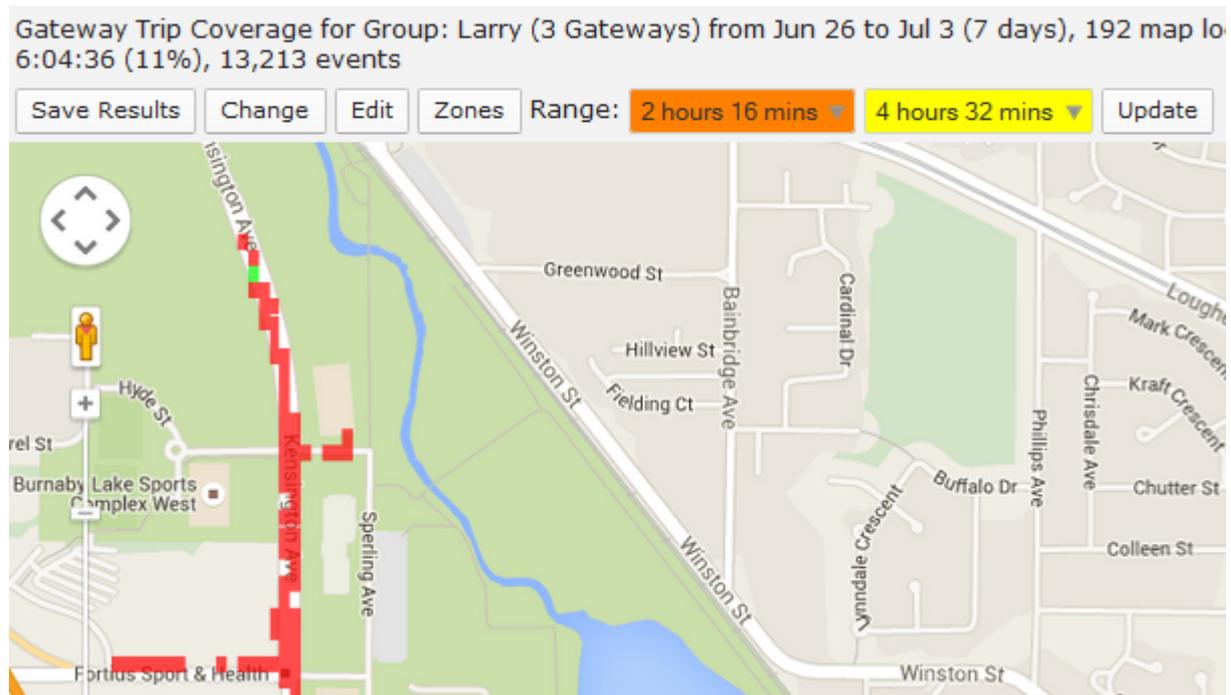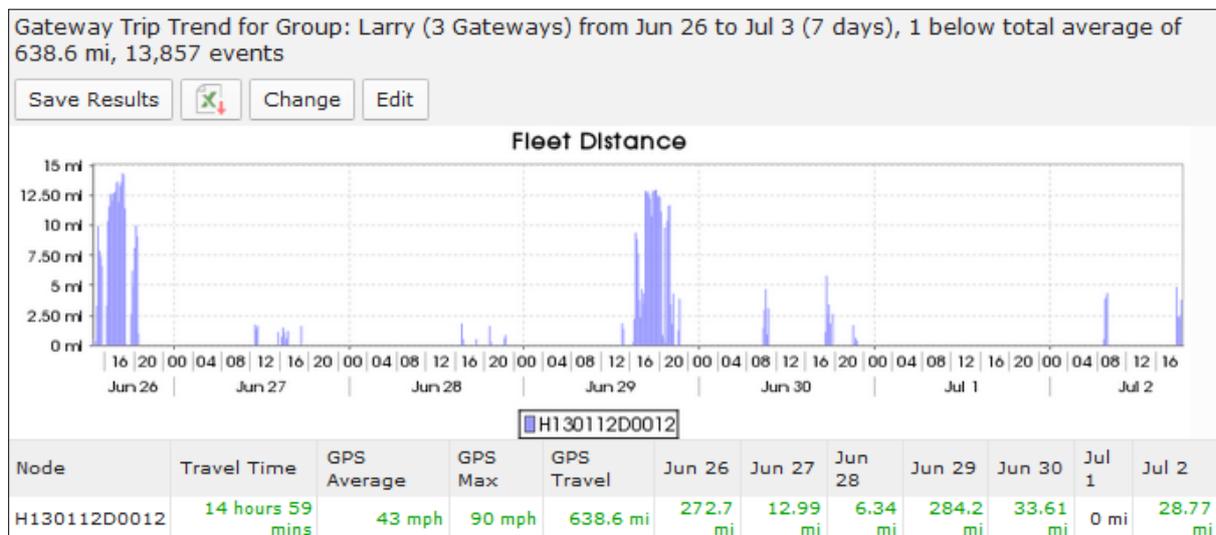

Figure 39 - Gateway Trip Trend Report

Basic Configuration Fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Report time range*: use the drop-down menu to select from *Previous Months, Previous Weeks, Previous Days* or *Range*. Enter the numeric value in the field. When *Range* is selected, use the calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Limit to map area*: select **Not Limited** to include data from any geographic location. Select **Manually defined area** to create a temporary zone for the analysis – only data from inside this zone will be included in the report. Select **One or more zones** to limit the analysis to one or more predefined zones (see the oMM Operation and Configuration guide for more information about zones).

Exclusion Zones: allows the report to exclude data from one or more predefined zones (see the oMM Operation and Configuration guide for more information about zones). Leave this option checked (default setting) to include data from any geographic location. Uncheck this option to specify zones to exclude data from.

Output Format: select **HTML** to generate the report in the browser window. Select **Excel** to display the generated report in Microsoft Excel.

Save for later or schedule a run time: Enable to create reports that can be saved for future use. See Appendix A for more information.

Advanced Configuration Fields

Split graph results by: specifies the time period for which the distances travelled should be calculated and shown below the graph. By default, distance is calculated for each day of the report's time range.

2.2.13. Geographic: Trip Replay

The *Trip Relay* report animates a gateway trip over the time period selected. As the gateway (represented by a marker) moves over the map, it is followed by a colored trail which indicates speed and distance covered. The report is a spatial representation of gateway location history that is not available on the *Gateway Trip* report. It is useful for analyzing how often gateways cross paths with each other.
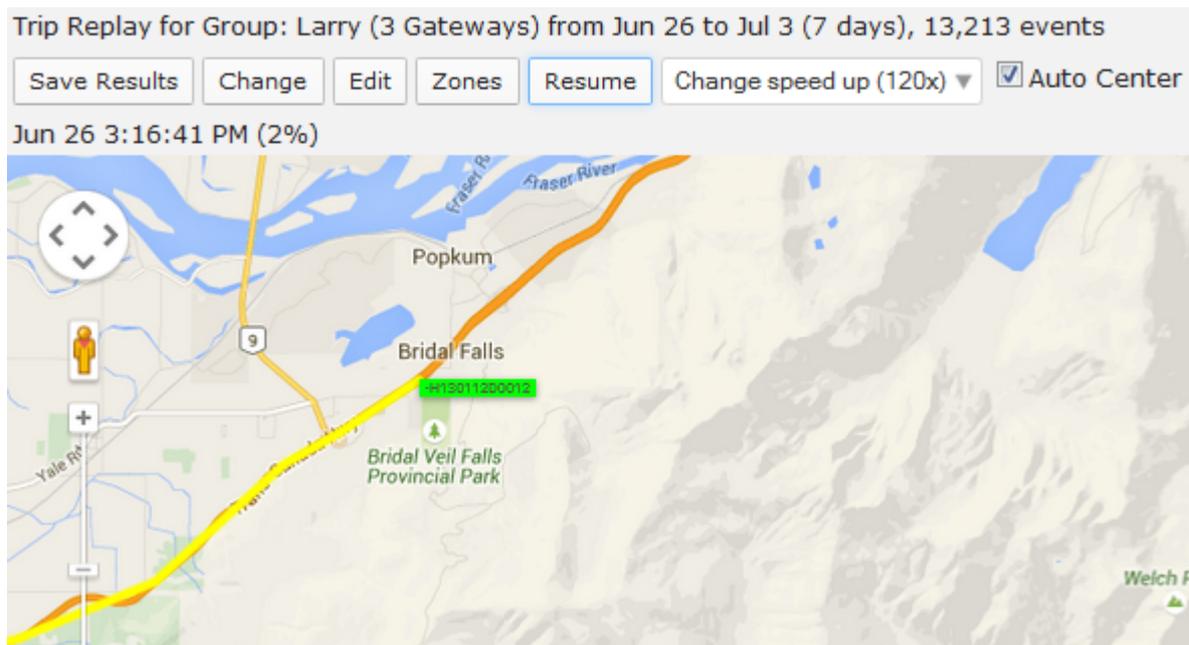

Figure 40 - Trip Relay Report

The speed at which the report animates can be controlled by selecting a rate from the speed drop down (e.g. this is set to 10x in Figure 40). The animation can also be paused by clicking the *Pause* button.

Basic Configuration Fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Report time range*: use the drop-down menu to select from *Previous Months, Previous Weeks, Previous Days* or *Range*. Enter the numeric value in the field. When *Range* is selected, use the calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Limit to map area*: select **Not Limited** to include data from any geographic location. Select **Manually defined area** to create a temporary zone for the analysis – only data from inside this zone will be included in the report. Select **One or more zones** to limit the analysis to one or more predefined zones (see the oMM Operation and Configuration guide for more information about zones).

Exclusion Zones: allows the report to exclude data from one or more predefined zones (see the oMM Operation and Configuration guide for more information about zones). Leave this option checked (default setting) to include data from any geographic location. Uncheck this option to specify zones to exclude data from.

Speed up factor*: the value for the speed used to animate the trip (e.g. if a trip took one hour, enter 60 to view the trip's animation across one minute).

Skip past times when gateway is stationary: when checked, the report will not display when the gateway is stopped (i.e. it will only show gateway movement). When checked, the replay time will be decreased.

Slow Speed*: enter the value that will be considered as the slow speed. This value is represented as green.

Speed Error*: enter the value that will be considered as a speed error (i.e. speeding). This value is represented as red.

Output Format: *HTML* is the only format supported for this report.

Save for later or schedule a run time: enable to create reports that can be saved for future use. See Appendix A for more information.

Advanced Configuration Fields

Map Resolution: defines the size of colored "blocks" presented in a map. The default resolution is auto.

Speed is represented by green, pink or red colored lines. Users may set the threshold for each speed when building the report. *Slow Speed* uses green lines for speeds below the value entered. Pink is used for speeds above this number but less than the *Speed Error* value. Speeds above the *Speed Error* value are shown with red lines. Where no GPS signal is available, the path between lost and regained signal will be shown as black.

Note: *this report is intended to report data for small number of gateways. Selecting a large number of gateways uses a great deal of resources and will make it difficult to interpret the data.*

2.2.14. Geographic: Zone Summary

The *Zone Summary* report provides a summary of time spent, as a percentage, in different zones across one or more units.

The report provides the gateway ID, its run time and the percentage of time it spends in a zone (see the oMM Operation and Configuration guide for more information about zones). If no zone is assigned to the gateway, the report shows the run time under the *No Zone* heading.

Figure 41 - Zone Summary Report

Click on a **Unit name** to display the data on the map. The legend shows the status colors for the gateway's trail line. Click on a marker for more information. This is the same information presented in the *Zone Map* report.

Figure 42 - Zone Summary Report Map

Configuration Fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Report time range*: use the drop-down menu to select from *Previous Months, Previous Weeks, Previous Days* or *Range*. Enter the numeric value in the field. When *Range* is selected, use the calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Output Format: select **HTML** to generate the report in the browser window. Select **Excel** to display the generated report in Microsoft Excel.

Save for later or schedule a run time: Enable to create reports that can be saved for future use. See Appendix A for more information.

2.2.15. Geographic: Zone Times

The *Zone Times* report provides a time-based, visual representation of the zones visited by a gateway. The report is best used for a single gateway over a short period of time (one day is optimum) or as an in-depth view to the *Zone Summary* report. It is useful for fleet managers who assign gateways to zones to monitor utilization.
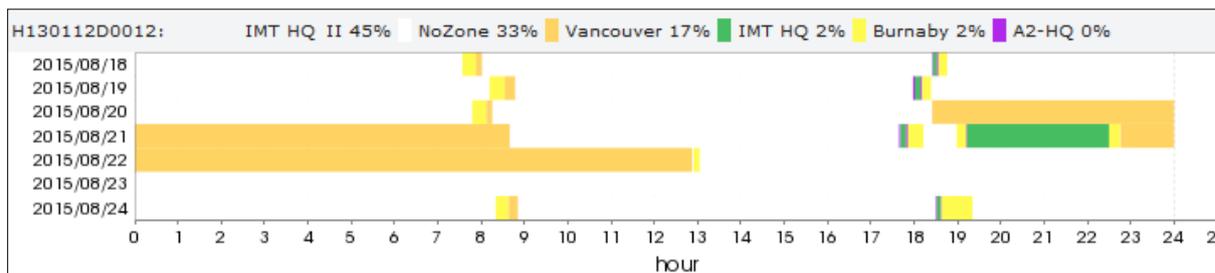
Figure 43 - Zone Times Report

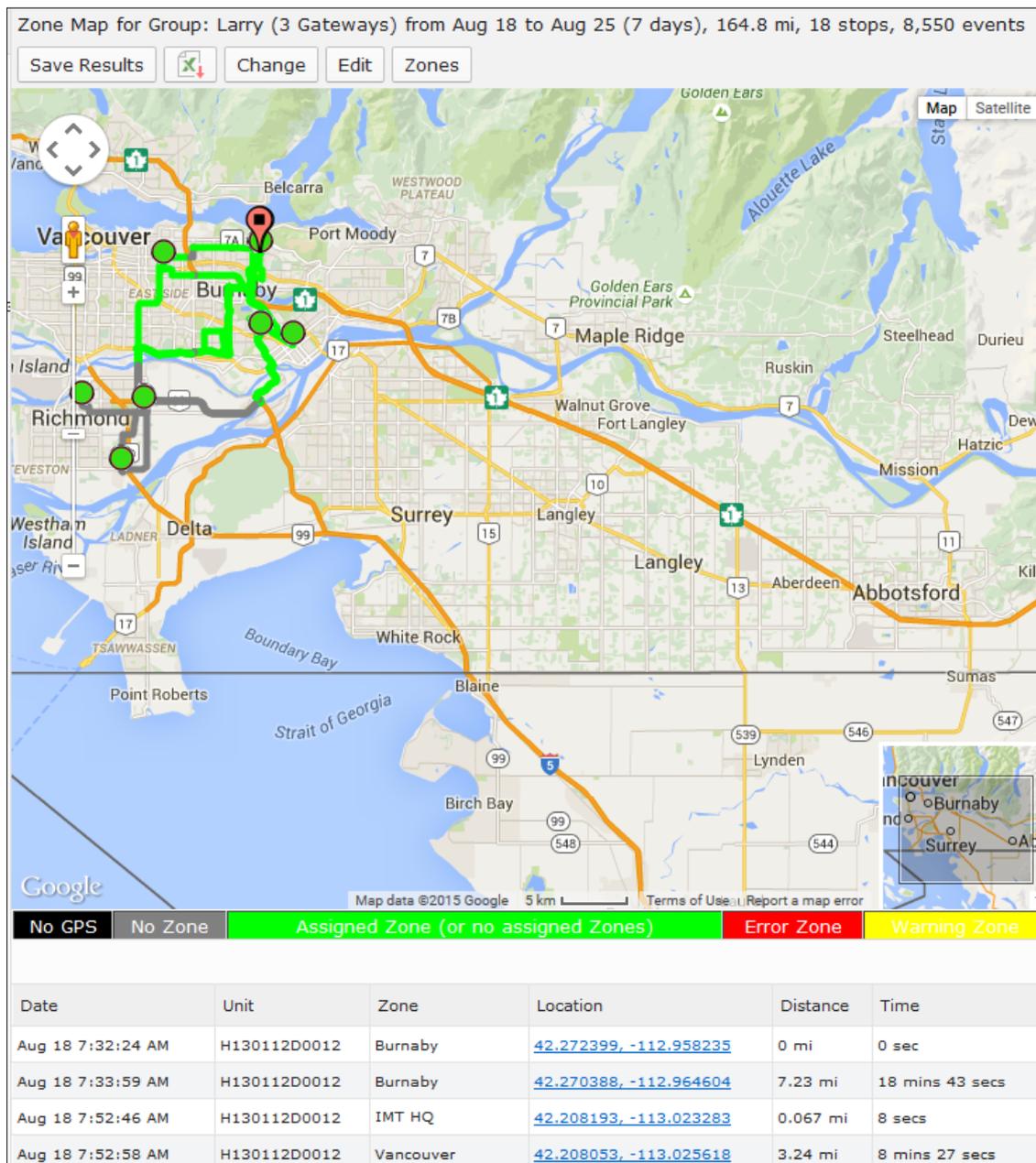Clicking on the graph provides more detail:
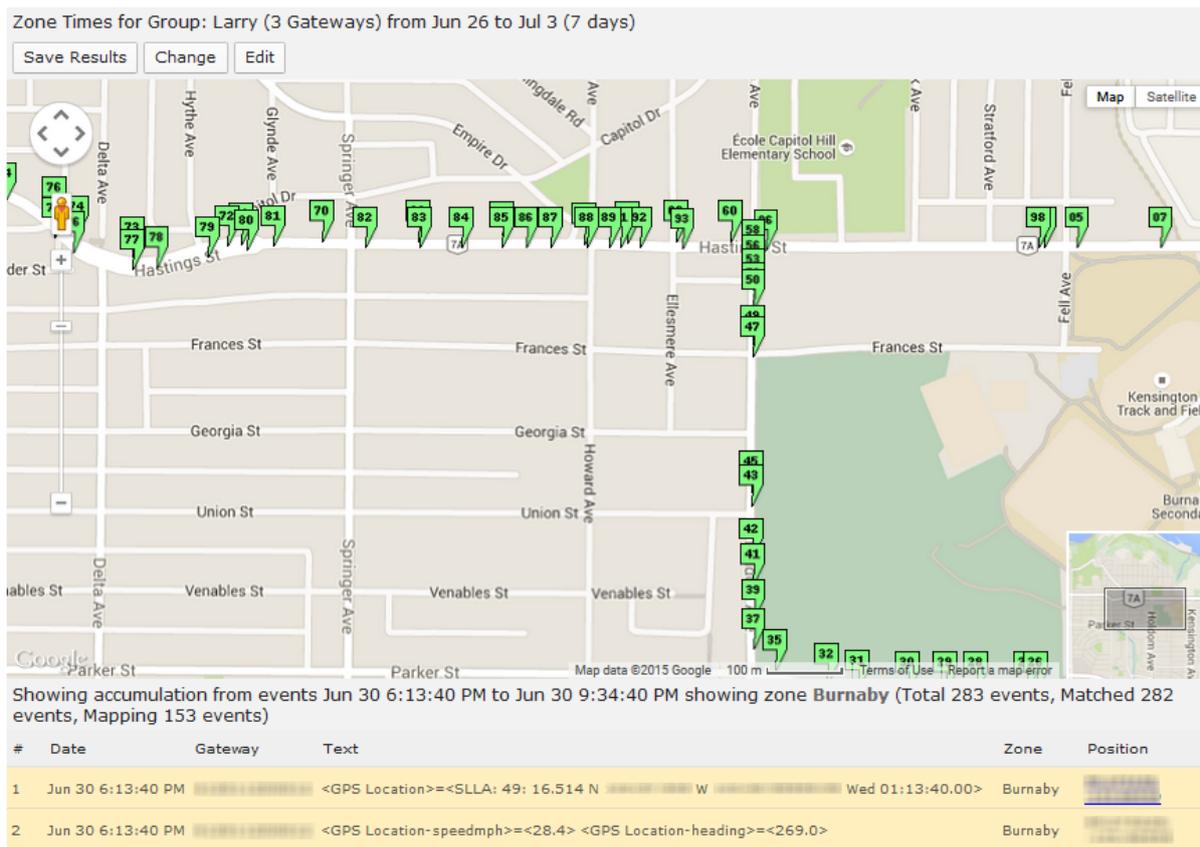
Figure 44 - Zone Times Report Map

Basic Configuration Fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on Filter to open the sub-filter options.

Report time range*: use the drop-down menu to select from *Previous Months, Previous Weeks, Previous Days* or *Range*. Enter the numeric value in the field. When *Range* is selected, use the calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Output Format: specifies **HTML** to generate the report in the browser window.

Save for later or schedule a run time: enable to create reports that can be saved for future use. See Appendix A for more information.

Advanced Configuration Fields

Hours per bar: defines how many hours are represented by each row in the graph, which effectively controls the "resolution" of the graph. To ensure performance when generating the report, the value must be set appropriately based on the *Report Type Range* as follows:

- Greater than 30 days: set from 24 through 1000
- Greater than 7 days: set from 12 through 1000
- Greater than 1 day: set from 1 through 1000
- One day or less: set from 0.5 to 1000. Note that values of less than 5 hours will set the graph units to be in minutes.

The default is *auto* which automatically selects the best value for the time range.

Show detailed Info: when enabled, mouse-over tooltips and hyperlinks will be available in the graph area of the generated report. Disabled by default.

Group all same event times: combines similar bars together into one bigger bar when **Hours per bar** is enabled.

2.2.16. Geographic: Zone Map

The *Zone Map* reports the locations of a single gateway over a specific time period. The gateway's activity is also reported as indicated by the details provided in the legend. This report is identical to the one generated by clicking on a *Unit ID* in the *Geographic: Zone Summary* report.

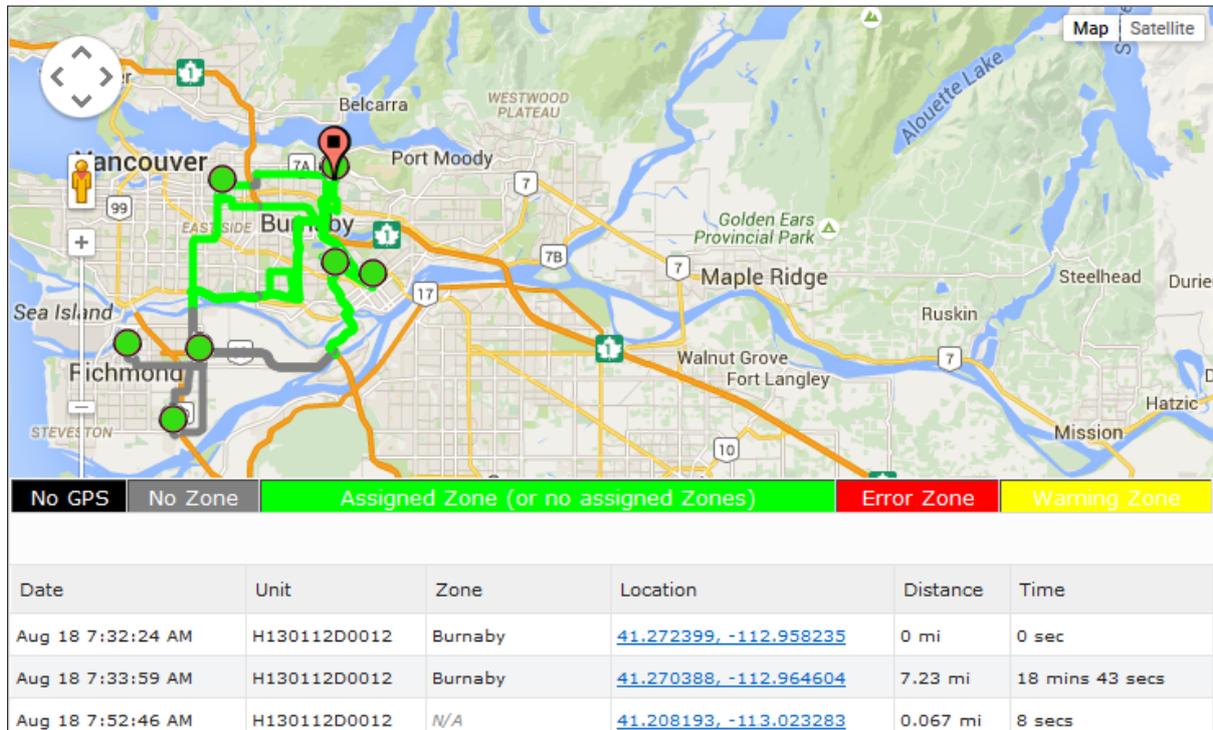| Date	Unit	Zone	Location	Distance	Time
Aug 18 7:32:24 AM	H130112D0012	Burnaby	41.272399, -112.958235	0 mi	0 sec
Aug 18 7:33:59 AM	H130112D0012	Burnaby	41.270388, -112.964604	7.23 mi	18 mins 43 secs
Aug 18 7:52:46 AM	H130112D0012	*N/A*	41.208193, -113.023283	0.067 mi	8 secs

Figure 45 - Zone Map

Basic Configuration Fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Report time range*: use the drop-down menu to select from *Previous Months, Previous Weeks, Previous Days* or *Range*. Enter the numeric value in the field. When Range is selected, use the calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Limit to map area*: select **Not Limited** to include data from any geographic location. Select **Manually defined area** to create a temporary zone for the analysis – only data from inside this zone will be included in the report. Select **One or more zones** to limit the analysis to one or more predefined zones (see the oMM Operation and Configuration guide for more information about zones).

Exclusion Zones: allows the report to exclude data from one or more predefined zones (see the oMM Operation and Configuration guide for more information about zones). Leave this option checked (default setting) to include data from any geographic location. Uncheck this option to specify zones to exclude data from.

Draw hourly pins (# is hour number 0-23): check to enable the use of pins to identify where the gateway was on the hour, based on a 24-hour clock.

Show locations where GPS tracking was lost: based on the gateway's GPS logs, it shows the locations where no GPS data was received and is represented by a black circle.

Output Format: select **HTML** to generate the report in the browser window. Select **Excel** to display the generated report in Microsoft Excel.

Save for later or schedule a run time: enable to create reports that can be saved for future use. See Appendix A for more information.

Advanced Configuration Fields

Map Resolution: defines the size of colored "blocks" presented in a map. The default resolution is auto.

Short stop*: vehicle stops are shown with small sized green circles if they have been stopped for at least this many minutes (up to the medium stop value). Default is 10.

Medium stop*: vehicle stops are shown with medium sized green circles if they have been stopped for at least this many minutes (up to the long stop value). Default is 30.

Long stop*: vehicle stops are shown with large sized green circles if they have been stopped for at least this many minutes. Default is 60.

Show direction every 5 positions: enable this checkbox to show vehicle direction every 5 GPS location reports. Default is *OFF*.

2.2.17. Geographic: Zone Crossing Summary

The *Zone Cross Summary* report shows when a gateway left and returned to one or more pre-defined zones over the specified time period:

Zone	Gateway	Zone Exit Date	Time	Zone Return Date	Time
Fleet Yard	H130112D0012	Jun 26	2:05:38 PM	Jun 29	7:36:00 PM
Highland - BBY	H130112D0012	Jun 26	1:35:18 PM	Jun 29	9:11:19 PM
Highland - BBY	H130112D0012	Jun 30	9:06:25 AM	Jun 30	5:54:14 PM
Highland - BBY	H130112D0012	Jul 2	7:45:57 AM	Jul 2	6:09:16 PM
JT Zone	H130112D0012	Jun 26	2:04:25 PM	Jun 29	7:40:29 PM
JT Zone	H130112D0012	Jun 29	9:10:52 PM	Jun 30	9:06:25 AM
JT Zone	H130112D0012	Jun 30	5:54:14 PM	Jul 2	7:45:57 AM
Average			1:57:32 PM		4:11:57 PM

Zone Crossing Summary for Group: Larry (3 Gateways) from Jun 26 to Jul 3 (7 days), 13,857 events. Save Results, Change, Edit.

Figure 46 - Zone Cross Summary Report

Configuration Fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Report time range*: use the drop-down menu to select from *Previous Months, Previous Weeks, Previous Days* or *Range*. Enter the numeric value in the field. When Range is selected, use the calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Limit to map area*: select **Not Limited** to include data from any geographic location. Select **Manually defined area** to create a temporary zone for the analysis – only data from inside this zone will be included in the report. Select **One or more zones** to limit the analysis to one or more predefined zones (see the oMM Operation and Configuration guide for more information about zones).

Exclusion Zones: allows the report to exclude data from one or more predefined zones (see the oMM Operation and Configuration guide for more information about zones). Leave this option

checked (default setting) to include data from any geographic location. Uncheck this option to specify zones to exclude data from.

Drive zone(s): when set to *None*, the report will display zone crossings from all zones not specified in *Exclusion Zones*. When disabled, one or more inclusion zones can be specified which will filter the report to only those zones specified.

Show locations where GPS tracking was lost: based on the gateway's GPS logs, it shows the locations where no GPS data was received and is represented by a black circle.

Show trips longer than: filters the report to only show results where the vehicle was outside of the zone for more than the specified number of minutes.

Output Format: select **HTML** to generate the report in the browser window. Select **Excel** to display the generated report in Microsoft Excel.

2.2.18. Assets: Asset Usage Summary

The *Asset Usage Summary* report provides a summary view of assets managed by the fleet of vehicles. Output shows a summary of the percentage of time the Asset was in range of the gateway to which it was assigned.

Asset	Tracking Vehicles	Time Tracked	Jun 26	Jun 27	Jun 28	Jun 29	Jun 30	Jul 1	Jul 2
000CCC522CC2		7 days							
000CCC522DC3		7 days							
000CCC54DB51		7 days							
000CCC71AD7B	H010109D0010	7 days	100%	100%	100%	100%	100%	100%	100%
000CCC746881	H130112D0012	16 hours 39 mins				5%	42%	100%	99%
Average		5 days 17 hours	25%	25%	25%	21%	28%	40%	40%

Asset Usage Summary for Group: Larry (3 Gateways) from Jun 26 to Jul 3 (7 days), 5 assets, average 26%, 43 events

Save Results | Change | Edit

Figure 47 - Asset Summary Report

Basic Configuration Fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Asset: the name of the asset to report on. Clicking on this field will provide a drop down from which to select the asset.

Report time range*: use the drop-down menu to select from *Previous Months, Previous Weeks, Previous Days* or *Range*. Enter the numeric value in the field. When *Range* is selected, use the calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Save for later or schedule a run time: enable to create reports that can be saved for future use. See Appendix A for more information.

Advanced Configuration Fields

Split table results by: Use the drop-down menu to split the report results by *None, Auto, Second, Minute, 5 Minutes, 30 Minutes, Hour, 8 Hours, Day, Week or 30 Days*. The selection should best reflect the time range (i.e. if the range is one month, splitting the result by minutes or hours may not result in a satisfactory report). The default is *Auto*.

2.2.19. Assets: Asset Usage Graph

The *Asset Usage Graph* displays a time based block chart (similar to the *Link Utilization* report) showing asset usage over a time period.

Basic Configuration Fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Asset: the name of the asset to report on. Clicking on this field will provide a drop down from which to select the asset.

Report time range*: use the drop-down menu to select from *Previous Months, Previous Weeks, Previous Days* or *Range*. Enter the numeric value in the field. When *Range* is selected, use the calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Time an asset needs to be lost before marked MISSING: enter the value after which the asset is considered missing (in minutes). The default is 10.

Output Format: select **HTML** to generate the report in the browser window. Select **Excel** to display the generated report in Microsoft Excel.

Save for later or schedule a run time: enable to create reports that can be saved for future use. See Appendix A for more information.

Advanced Configuration Fields

Show detailed Info: when enabled, mouse-over tooltips and hyperlinks will be available in the graph area of the generated report. Disabled by default.

Hours per bar: defines how many hours are represented by each row in the graph, which effectively controls the "resolution" of the graph. To ensure performance when generating the report, the value must be set appropriately based on the *Report Type Range* as follows:

- Greater than 30 days: set from 24 through 1000
- Greater than 7 days: set from 12 through 1000
- Greater than 1 day: set from 1 through 1000
- One day or less: set from 0.5 to 1000. Note that values of less than 5 hours will set the graph units to be in minutes.

The default is *auto* which automatically selects the best value for the time range.
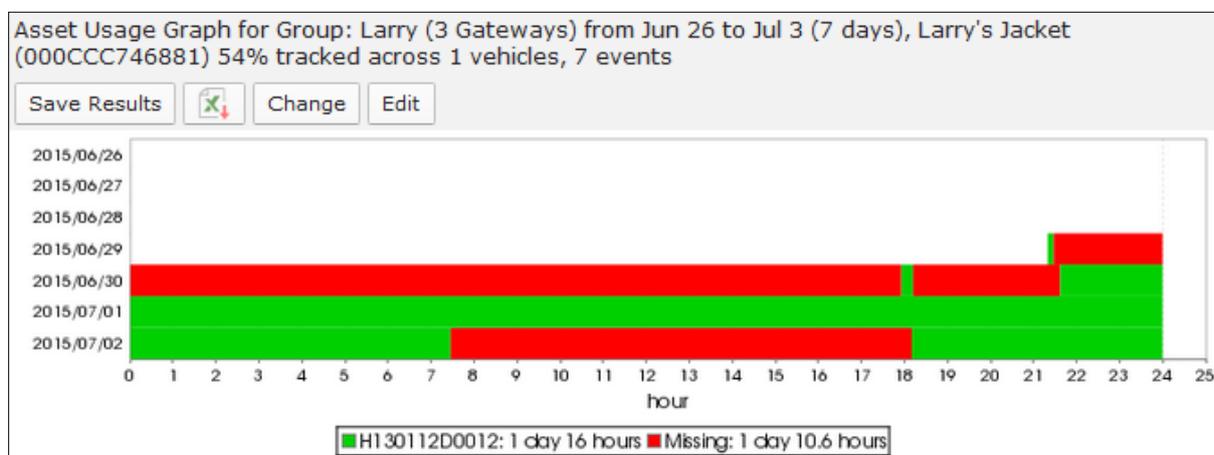

Figure 48 - Asset Usage Graph

2.2.20. Assets: Asset History

The *Asset History* report provides the known history of a selected asset over a specific time range. Assets are plotted on a map and move over time. Assets can be transferred from one gateway to another and this is reflected on the map. This report is best used to track the performance of a single asset over a period of time and across one or more vehicles.

The length of time an asset is in a stationery position (stopped) is represented visually using small, medium and large circles, corresponding to the small, medium and long idle times entered. To prevent *false alarms*, it is recommended that the time an asset is away from a vehicle before being marked missing is set to at least 10 minutes. However, this will delay email alerts for assets that are left behind.

Basic Configuration Fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Asset: the name of the asset to report on. Clicking on this field will provide a drop down from which to select the asset.

Report time range*: Use the drop-down menu to select from *Previous Months, Previous Weeks, Previous Days* or *Range*. Enter the numeric value in the field. When *Range* is selected, use the calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Limit to map area: from the drop-down menu, select the zone for which to limit the area. The default is *none*.

Time an asset needs to be lost before marked MISSING: enter the value after which the asset is considered missing (in minutes). The default is 10.

Output Format: Select **HTML** to generate the report in the browser window. Select **Excel** to display the generated report in Microsoft Excel.

Save for later or schedule a run time: enable to create reports that can be saved for future use. See Appendix A for more information.

Advanced Configuration Fields

Short, Medium, and Long stop: defines the amount of time in minutes to classify a stop as "short", "medium" and "long".

Map Resolution: defines the size of colored "blocks" presented in a map. The default resolution is *auto*.
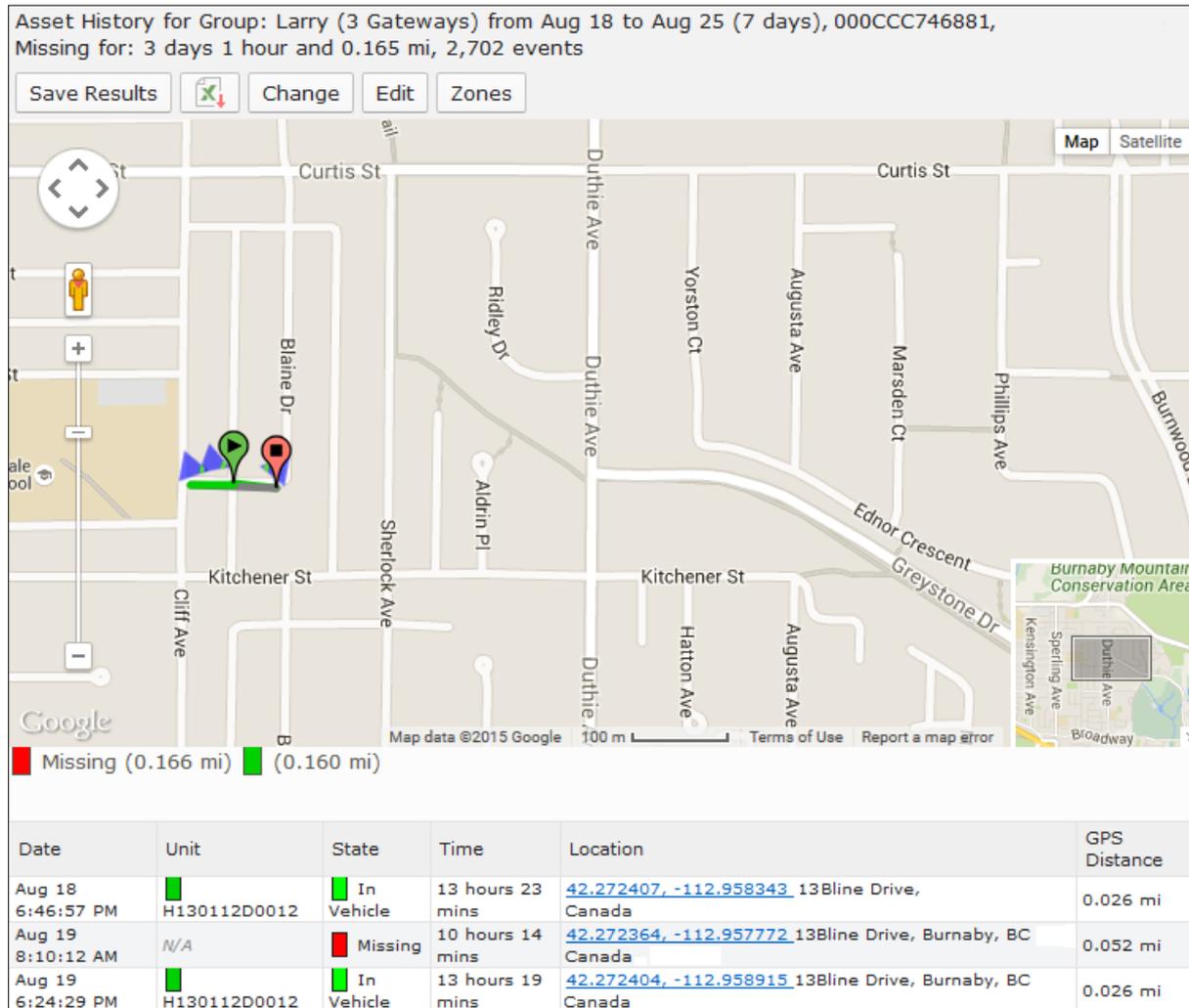
Figure 49 - Asset History

2.2.21. **Assets: Vehicle Assets**

The *Vehicle Assets* report is similar to the *Asset History* except that this focuses on all assets in a vehicle over a period of time. It graphs the locations of vehicles and assets whether they are in or out of the vehicle. The report does not search for other vehicles recognizing the selected assets within this time frame. It is best used to obtain a summary of asset performance (or usage) for assets assigned to specific vehicles.

Basic Configuration Fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Report time range*: use the drop-down menu to select from *Previous Months, Previous Weeks, Previous Days* or *Range*. Enter the numeric value in the field. When *Range* is selected, use the calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Limit to map area: from the drop-down menu, select the zone for which to limit the area. The default is *none*.

Time an asset needs to be lost before marked MISSING: enter the value after which the asset is considered missing (in minutes). The default is 10.

Output Format: select **HTML** to generate the report in the browser window. Select **Excel** to display the generated report in Microsoft Excel.

Save for later or schedule a run time: enable to create reports that can be saved for future use. See Appendix A for more information.

Advanced Configuration Fields

Short, Medium & Long stop: defines the amount of time in minutes to classify a stop as "short", "medium" and "long".

Map Resolution: defines the size of colored "blocks" presented in a map. The default resolution is *auto*.
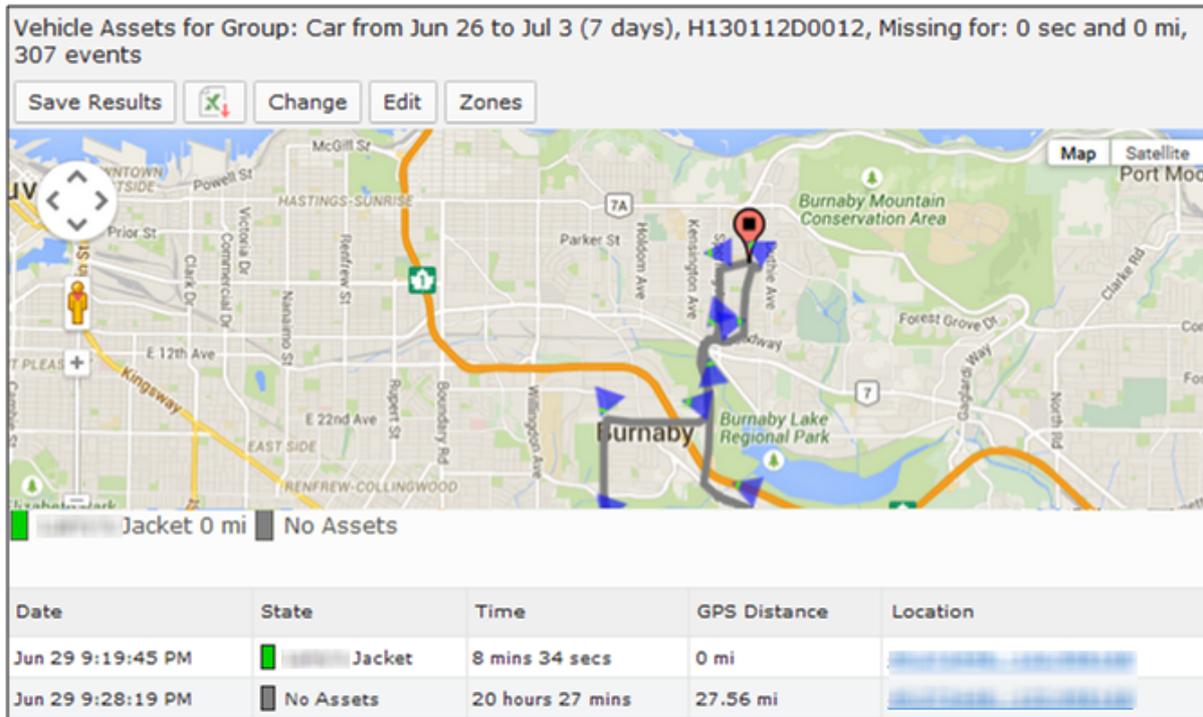

Figure 50 - Vehicle Assets

2.2.22. Nav: Nav Events

The *Nav Event Report* provides the raw events that were uploaded by the gateways for Nav activities. The output provides convenient access to Nav log files and is intended as an easy way to query Nav log files. However the information contained within them is complex in nature and not easily understood, and therefore generally used by Sierra Wireless staff for troubleshooting activities.

Configuration Fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Report time range*: use the drop-down menu to select from *Previous Months, Previous Weeks, Previous Days* or *Range*. Enter the numeric value in the field. When *Range* is selected, use the calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Nav events to look at: select the events to include in the report. Default is *All*.

Limit to lines with text: used to limit the report based on the text entry selected.

Output Format: select **HTML** to generate the report in the browser window. Select **Excel** to display the generated report in Microsoft Excel.

Save for later or schedule a run time: enable to create reports that can be saved for future use. See Appendix A for more information.

Figure 51 - Nav Events

2.2.23. Nav: Nav Stops

The *Nav Stops* report lists all of the stops (addresses) that have been sent to the Garmin PND in the time range specified. Included in the report is the time that the stop was sent to the PND and the time the stop information was last updated. The response of the driver changes the state; once read by the driver the state changes to *Received*. If a driver rejects the site the state changes to *Rejected*. The following is a list of all possible states for a stop:

- **No Route** – this is the initial state for the PND
- **Timed Out** – the oMM did not receive the acknowledgement from the oMG (not the driver) within the timeout interval (30 sec)
- **Deleted** – the stop was deleted on the oMM
- **Pending** – the oMM is waiting for the oMG to acknowledge receiving the stop
- **Rejected by Gateway** – the oMG has rejected the stop; this could be due to ID collisions, a malformed stop, or invalid data
- **Received by Gateway** – the stop has been received at the oMG (and it has sent an acknowledgement of the reception to the oMM)
- **Acknowledged** – the driver has read the stop but has not yet responded
- **Completed** – the driver arrived at the stop
- **Driver Deleted** – the driver deleted the stop
- **En Route** – the driver is en route to the stop

Configuration Fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Report time range*: use the drop-down menu to select from *Previous Months, Previous Weeks, Previous Days* or *Range*. Enter the numeric value in the field. When *Range* is selected, use the calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Output Format: select **HTML** to generate the report in the browser window. Select **Excel** to display the generated report in Microsoft Excel.

Save for later or schedule a run time: enable to create reports that can be saved for future use. See Appendix A for more information.

Figure 52 - Nav Stops

2.2.24. Nav: Nav Stop History

Provides convenient access to Nav log file. Information contained within is complex in nature and not easily understood. Best used only by those prepared to decode it. Intended as an easy way to query Nav History log file.

Configuration Fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Report time range*: Use the drop-down menu to select from *Previous Months, Previous Weeks, Previous Days* or *Range*. Enter the numeric value in the field. When *Range* is selected, use the calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Limit to lines with text: used to limit the report based on the text entry selected.

Output Format: select **HTML** to generate the report in the browser window. Select **Excel** to display the generated report in Microsoft Excel.

Save for later or schedule a run time: enable to create reports that can be saved for future use. See Appendix A for more information.

Figure 53 - Nav Stop History

2.2.25. Fleet: Shift Times

The *Shift Times Report* displays the total amount of time spent on shift and off shift, counts for when vehicles leave a depot zone late or arrive back early, and a breakdown of the shift time for each day in the report's range.

Figure 54 - Shift Times Report

The *Shift Times* report contains the following fields:

Node: the serial number assigned to the oMG in the vehicle being tracked.

Total Shift Time: the total time which the vehicle is considered to have been used "on shift" over the course of the week.

Total Non Shift Time: the total time which the vehicle is considered to have been used as "non shift" time over the course of the week. Non-shift time starts when a vehicle departs too early.

Late Starts: the number of times which the vehicle departed outside of the specified window of time allowed for departing.

Early Returns: the number of times which the vehicle arrived within the specified window allowed for arriving.

Daily Shift Times: the number of hours that the vehicle was used "on shift" for the specified day.

In addition to this information, each gateway can be clicked on by the fleet operator to display the *Gateway Trips* report which shows where the vehicle went over the specified reporting period. For more information see Section 2.2.10 - *Geographic: Gateway Trips*.

The *Shift Times* and corresponding *Gateway Trips* reports allow an operator to perform the following:

- **Detect vehicles which depart late from a depot and return early**: the Shift Times Report displays a count for both metrics. Green colored numbers indicate the least number of occurrences, while pink numbers indicate the counts with the highest values.
- **View vehicles which have shift times that are different than expected**: knowing the start and end shift time, an operator can then look at the number of shift time hours for each vehicle for each day in the report's range. Should the number of hours not match the known shift times, an operator can then click on the vehicle's node in the report to display the Gateway Trips reports which provides a further breakdown of the stops made.
- **View vehicle usage and whether it is on or off shift**: using the total shift time and total non-shift time fields, an operator can quickly compare how much time the vehicle is in use for shift work and quickly identify vehicles with high amounts of non-shift time. To get further insight into the vehicle usage, the operator can then click on a node to see the Gateway Trips Report for more detailed information on where the vehicle travelled.
- **Determine if vehicles are departing and returning to their assigned depots**: configuring the report begins by specifying the known (exclusion) zones for the depots which define the start and end location(s) for a shift. If a vehicle does not return to the specified location(s), then its shift time will be extended. Note: currently there is no way to distinguish which zones correspond to each vehicle when running a report for multiple vehicles.

To calculate these factors, the report requires the operator to specify the start and end times for a shift, as well as "grace" periods which are time windows within which a vehicle is still considered to have departed from or arrived at the depot on time.

This report also uses a hardcoded, non-configurable grace period of 30 minutes prior to the shift start in which a vehicle can leave early but still counted as starting the shift on time. A count of the departures occurring before this time is not shown in the report. Instead, all time spent outside of the depot by vehicle that departed too early will be shown as non-shift time.

The vehicles start and end location(s) are defined by the exclusion zone(s) specified.

The following subsection provides diagrams illustrating how these calculations of shift and non-shift time are performed by the report.

2.2.25.1. Calculation of a Normal Shift

In this example, the vehicle leaves after the start of the shift, but within the configurable time window (default is 30 minutes) and is therefore considered to have left the depot on time. Likewise the vehicle arrives before the end of the shift, but within the allotted 30 minute time window, and is therefore considered to have arrived back on time. The total time spent on the shift is the time between when it left the depot and when it arrived back. This time can then be compared by the fleet operator to the known shift time for that vehicle.
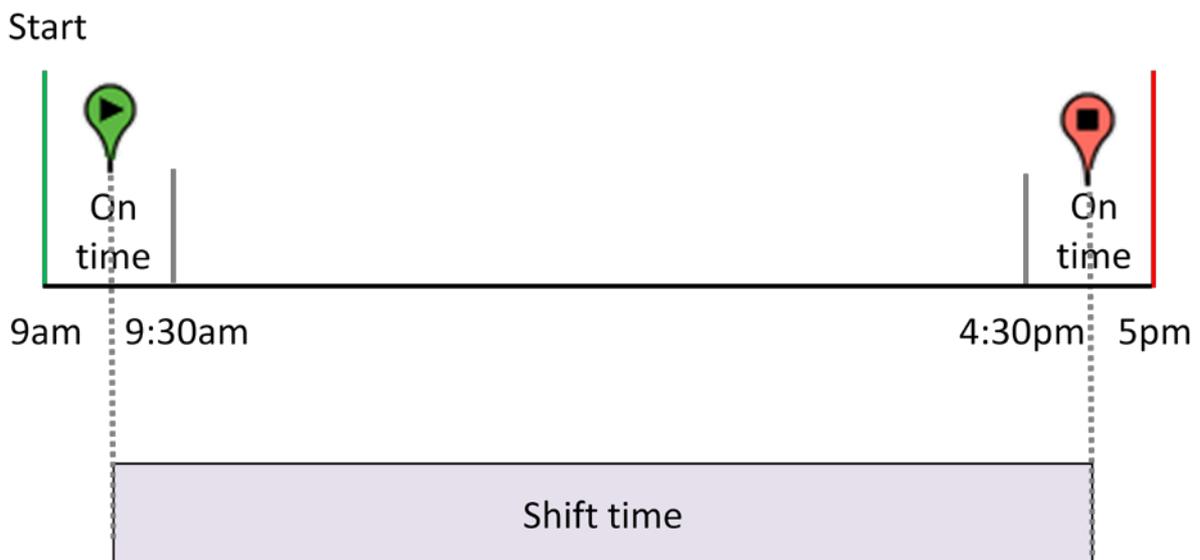
Figure 55 - Calculation of shift time - the time spent outside of the depot

2.2.25.2. Detecting a late start and early arrival

In this next example, the vehicle has left the depot after the allotted time window and has also returned to the depot before the allotted time window. Like the previous example, the shift time is calculated between when the vehicle left and returned, however the report will count and show both a late start and early arrival for this vehicle. This, in conjunction with a shift time shorter than expected, would then be used by a fleet operator to follow up on why the shift time doesn't match the expected/known shift time.
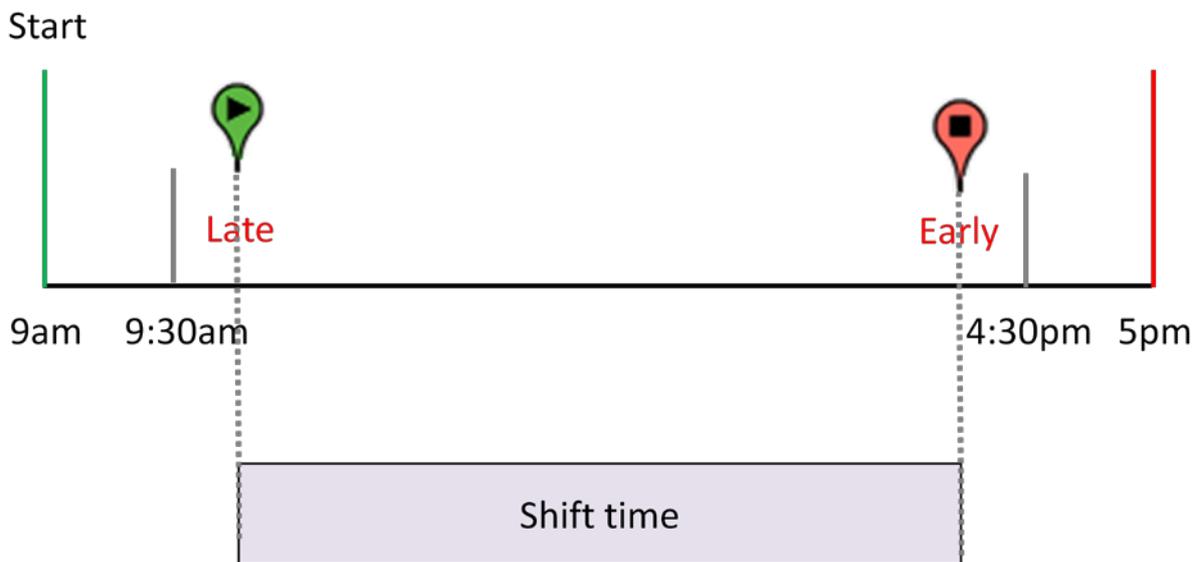
Figure 56 - Calculation of a shift which started late and arrived early

2.2.25.3. Calculation of shift time from multiple departures and returns

Some vehicles may depart and return multiple times during the course of their shift. As shown in Figure 57, each of the times spent outside of the depot will be accumulated and added together as shift time, so long as the departures take place within the defined shift time period.
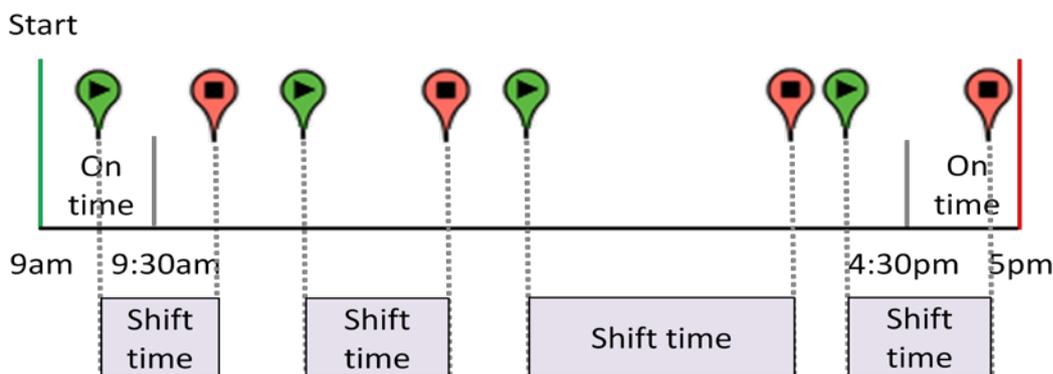
Figure 57 - Accumulating multiple shift times

2.2.25.4. Departing early but starting the shift on time.

As mentioned above, the report has a hardcoded 30 minute time window before the start of the shift in which the departure of a vehicle is still considered to have left on time. The following diagram shows how leaving the depot within this window is still counted as having left on time and that the total shift time is calculated using when the vehicle departed and when it arrived back regardless of whether the

vehicle arrived back on time or late. Note that the late arrival is not displayed by the report - only early arrivals.
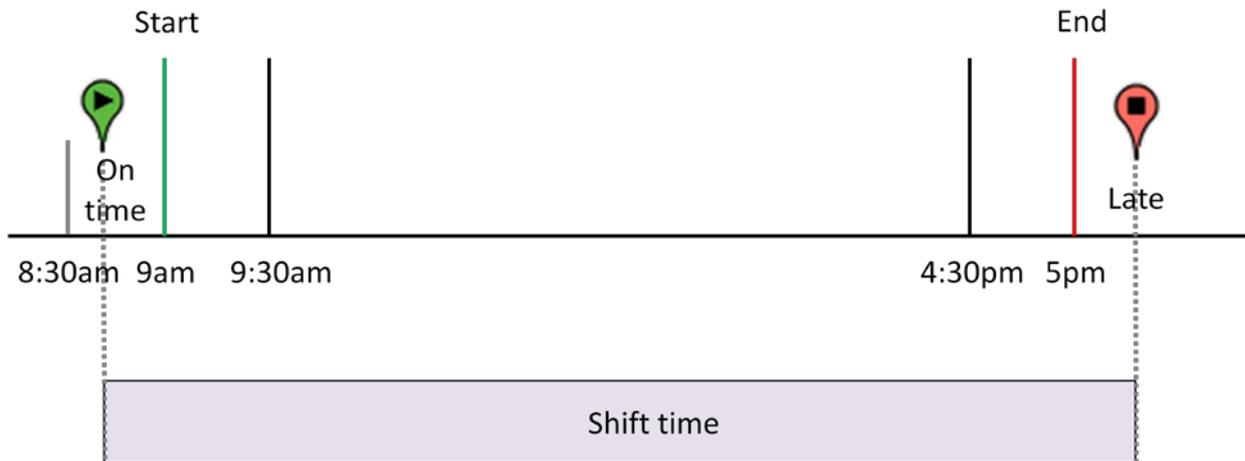
Figure 58 - Calculation of shift time when a vehicle leaves before the start of the shift

2.2.25.5. Calculation of non-shift time due to an early start

This example shows that leaving before the hard coded 30 minute window causes all time spent to be calculated as non-shift time, regardless of when the vehicle arrived back at the depot. The rationale behind this calculation is that the vehicle is considered to be in use for non-work purposes under this scenario.
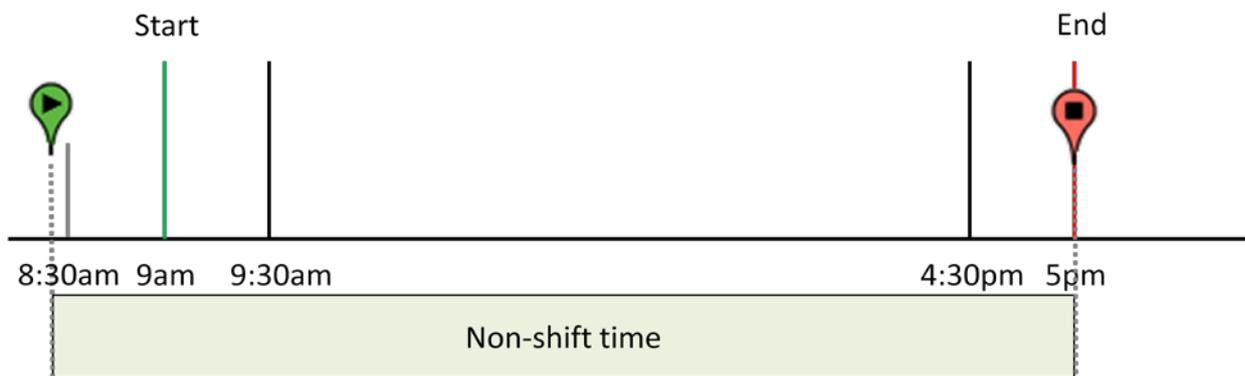
Figure 59 - Non-shift time due to an early departure

If a vehicle does not return to the depot on the same day that it departed on, then the Shift Times Report will show a shift time of more than one day for the column of the day on which the vehicle departed. This is illustrated in Figure 60 where a vehicle leaves the depot at the 8am Monday morning and doesn't return until 5pm on Tuesday. The total time spent away from the depot is 33 hours so the report will display 1day, 9 hours as the shift time for Monday.
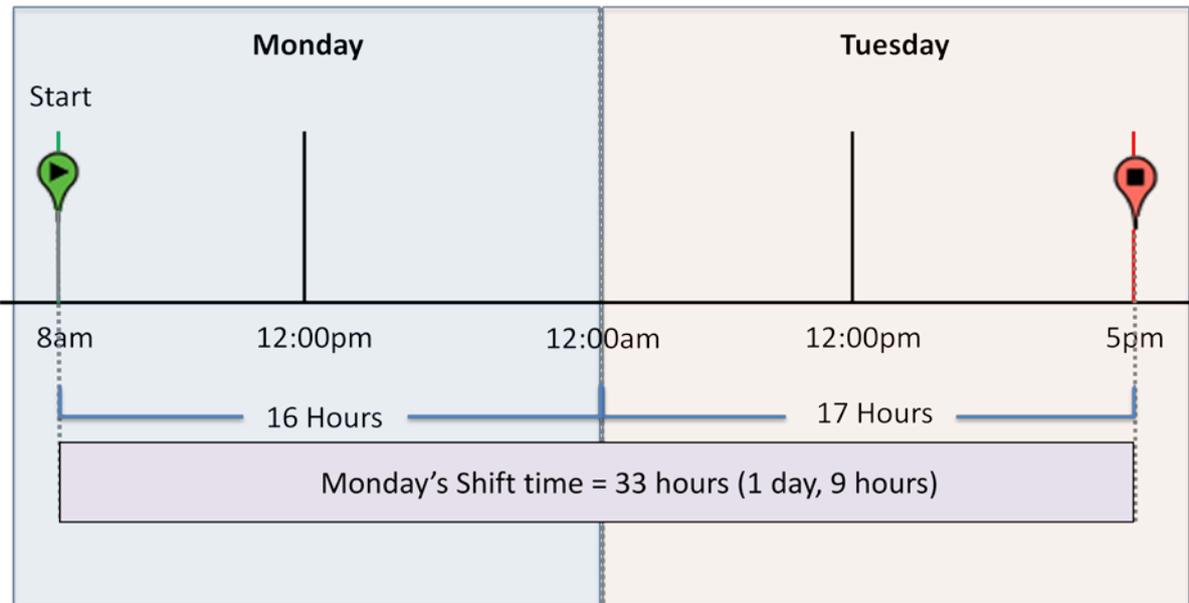
Figure 60 - Example showing how time spent on a shift can span across days

Configuration Fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Report time range*: Use the drop-down menu to select from *Previous Months, Previous Weeks, Previous Days* or *Range*. Enter the numeric value in the field. When *Range* is selected, use the calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Exclusion Zones: defines the zones representing the starting and ending point for the shift (e.g. depots). At least one zone must be selected so that the report knows where a vehicle starts and ends its shift. Failing to select at least one zone will result in an empty report.

Note: *it's mandatory that at least one exclusion zone be selected for the* Shift Times *report in order to define where the shift(s) start and end. The report will not provide value if no exclusion zone is selected.*

Daily Shift Times: defines the start and end times (in 24 hour notation) for a shift. A common shift time can be specified for each day of the report's time range, or a comma delimited set of shift times can be defined for each individual day. Multiple shift times for a given day can also be entered. Examples of these field values are as follows:

- **Example A**: to define a shift starting at 9am and ending at 5pm for all days in the range enter: 9-17
- **Example B**: to define a shift 9am to 5pm for Monday, and 10am to 3pm for Tuesdays enter: Mon/9-17, Tues/10-15
- **Example C**: to define two shifts for Monday, one from 9am-11am, and one from 1pm to 3pm enter: Mon/9-11, Mon/13-15

Late Start time: defines the number of minutes after the start of the shift (as defined in the *Daily Shift Times* field) in which the vehicle should be considered to have left on time. The default is 30 minutes (e.g. if the start of the shift is 9am and the *Late Start Time* is set to 30 minutes, then the vehicle will be counted as leaving on time if it leaves between 9am and 9:30am. If the vehicle leaves at 9:31am, then the vehicle is considered to have had a late start, and this will be added to the late start count in the report).

Note: *if the vehicle leaves 30 minutes or earlier before the shift start (i.e. before 8:30am in the example above), then the vehicle is considered to have left too early and all time spent during that day will be reported as "non-shift" time. This 30 minute window of time is not configurable.*

Early return time: defines the number of minutes before the end of the shift (as defined in the Daily Shift Times field) in which the vehicle should be considered to have arrived on time. The default is 30 minutes. (e.g. if the end of the shift is 5pm and the *Early Return Time* is set to 30 minutes, then the vehicle will be counted as arriving on time if it arrives between 4:30pm and 5pm. If the vehicle arrives at 4:29pm, then the vehicle is considered to have had an early arrival, and this will be added to the early arrival count in the report).

Output Format: select **HTML** to generate the report in the browser window. Select **Excel** to display the generated report in Microsoft Excel. Note that the Excel option only works for reports which produce data in a table format. Select **KML** to display the generated report in Google Earth (requires that Google Earth is installed).

Save for later or schedule a run time: enable to create reports that can be saved for future use. See Appendix A for more information.

2.2.26. Fleet: Excessive Stops and Idles

The *Excessive Stops and Idles Report* allows operators to see the amount of time spent idling while stopped. Since some idling time is unavoidable such as when stopped in traffic or when operating equipment such as a boom, the report can be configured to define the amount of time (threshold) after which the time spent stopped and idling should be reported. GPIO device pins can also be specified, so that the time spent idling while a GPIO signal is present (e.g. while a boom is in operation) is not counted towards the stop and idle times.

Stopping and or idling within some zones for an extended period of time (e.g. within a depot) may be acceptable or unavoidable, so the fleet operator can specify one or more exclusion zones in which stops and idles will be ignored.

The report presents a graph showing the amount of time spent stopped, overlaid with the amount of time spent idling for each vehicle. The graph is sorted to show vehicles with the highest to lowest values, thereby allowing an operator to quickly identify vehicles with the highest idle times.

The report also shows more detailed information for each vehicle including how long it was stopped for and how much idle time there was. Looking at the *Time Idling While Stopped* column, an operator can quickly identify a vehicle with a large amount of idle time.
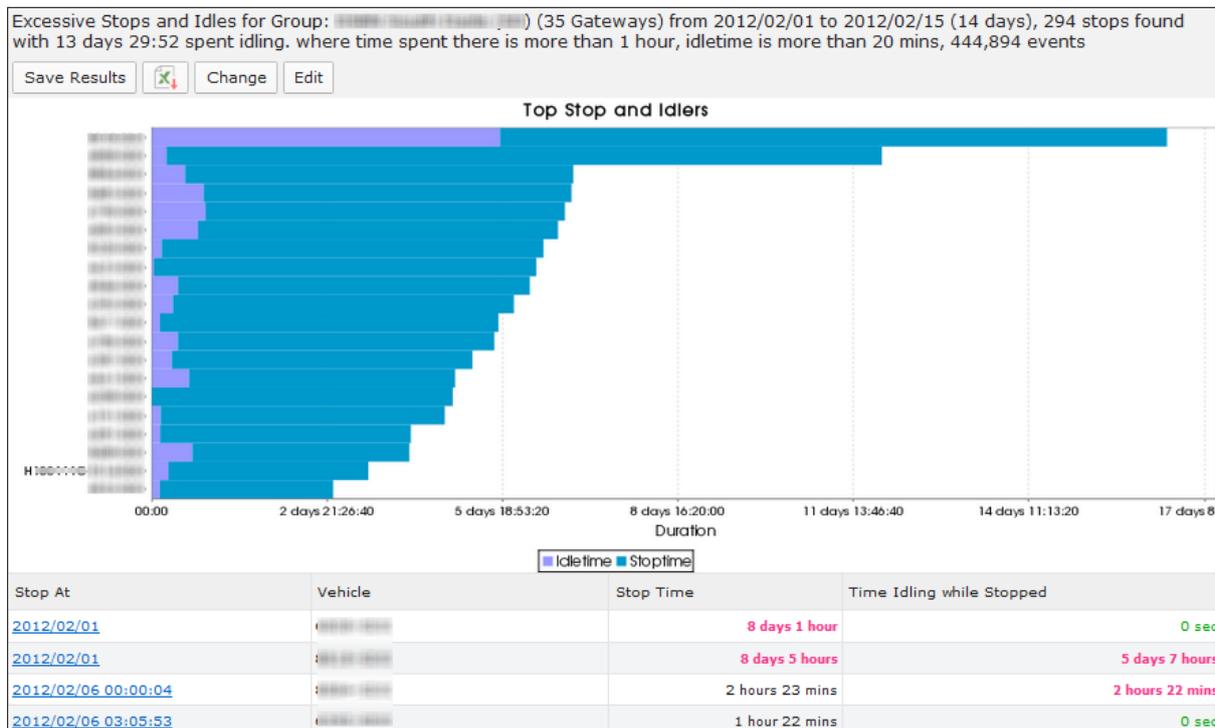

Figure 61 - Excessive Stops and Idles Report

The report itself consists of a graph showing the top vehicles which have had the most stops and idle times based on the configuration of the report. This graph is sorted from vehicles with the most stops/idles to the least. Below this graph is a grid showing detailed information for each vehicle's stop and idle times which occurred during the period of the report:

Stop At: the day and time when stoppage and idling took place. Note that each instance for which a vehicle stopped and idled will be reported on a separate row.

Vehicle: the serial number assigned to the oMG in the vehicle being tracked.

Stop Time: the amount of time spent stopped.

Time Idling while Stopped: the amount of time spent idling while stopped.

GPIO Device Time: the amount of time that a GPIO device was in use while the vehicle was stopped and idling (assuming the *Ignoring GPIO devices* configuration option is not being used for the report).

Clicking on a node under the *Stop At* column, will display the *Gateway Trips* report which provides a map where an operator can view where the vehicle stopped at. Using this map, an operator can better understand where the vehicle was when it was stopped and idling. For more information see Section 2.2.10 - *Geographic: Gateway Trips*.

Configuration Fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Report time range*: Use the drop-down menu to select from *Previous Months, Previous Weeks, Previous Days* or *Range*. Enter the numeric value in the field. When *Range* is selected, use the calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Exclusion Zones: allows the report to exclude data from one or more predefined zones (see the oMM Operation and Configuration guide for more information about zones). In the context of the *Excessive Stops and Idles* report, this field defines where it is considered acceptable or unavoidable to be idling. Leave this option checked (default setting) to include data from any geographic location. Uncheck this option to specify zones to exclude data from.

Show stops longer than: the time (in minutes) after which a stopped vehicle should be reported on. The default is 60 minutes which means that any vehicle which has stopped for more than 60 minutes will have its total stop time reported.

Idling more than: the time (in minutes) after which an idling vehicle should be reported on. The default is 20 minutes which means that any vehicle which has stopped for more than 20 minutes will have its total idling time reported.

GPIO devices: specifies which GPIO pins to monitor for signals while idling. Any idle time which occurs while any of the pins have a signal will not be counted as idle time in the report. Useful for filtering out idling while a device is in use (e.g. a boom). The default is an empty field which means that no GPIO pins (i.e. no devices) will be monitored while idling. There are eight possible pins numbered 0 through 7. To specify the GPIO pins, enter a comma delimited list. For example, to monitor idling while pins 0, 1 and 7 are active, enter 0,1,7 in this field.

Output Format: select **HTML** to generate the report in the browser window. Select **Excel** to display the generated report in Microsoft Excel. Note that the Excel option only works for reports which produce data in a table format. Select **KML** to display the generated report in Google Earth (requires that Google Earth is installed).

Save for later or schedule a run time: enable to create reports that can be saved for future use. See Appendix A for more information.

2.2.27. Fleet: Congregation Times

The *Congregation Times* report provides details about groups of vehicles which are congregating at a specific location. The definition of a congregation is based on three configurable factors: the number of vehicles, their proximity to each other and the amount of time spent together.

The *Congregations Times* report consists of a map showing all of the locations which satisfy the configured congregation criteria. Below the map is a grid providing information about each congregation:

Location: the address of the location where the congregation took place.

Date: the day and time when the congregation occurred.

Vehicles: the number of vehicles involved in the congregation.

Duration: the length of time for which the vehicles congregated.
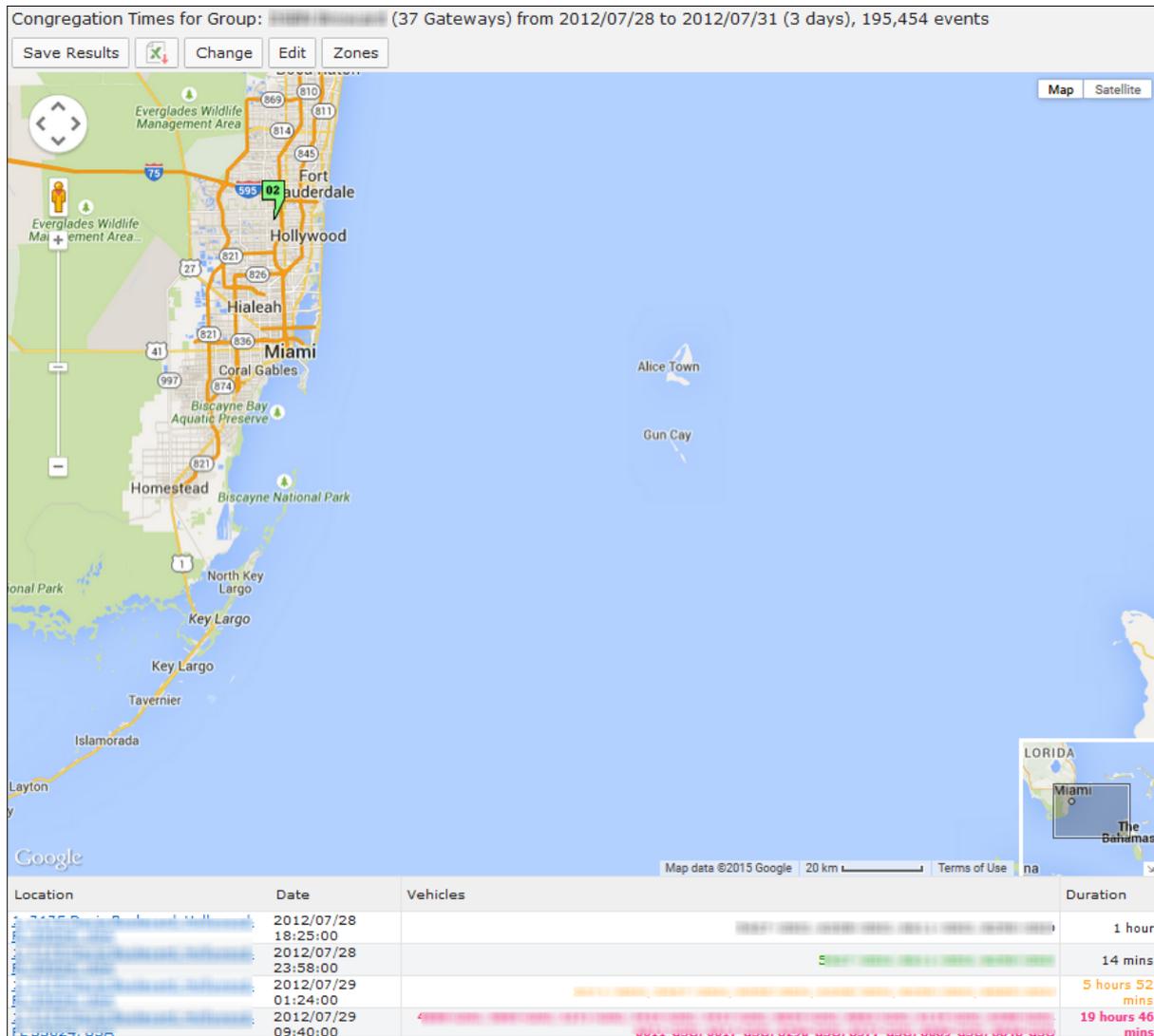
Figure 62 - Congregation Report

For this report, the use of the *Exclusion Zones* configuration parameter (optionally) defines the zones in which it's considered alright to be congregating (e.g. a work site or a depot).

Each congregation listed is numbered by location, and a pin icon is shown on the map containing the congregation number. If multiple congregations occurred at the same location, each congregation at that location will contain the same congregation number. In the example above, three congregations occurred at location 1.

Clicking on the congregation pin will provide detailed information about the congregation such as when each vehicle arrived.

The following subsections illustrate how a congregation is detected by the report.

2.2.27.1. Congregation Event Trigger and Calculation of Start Time

Figure 63 below shows a timeline where three vehicles arrive within a 200 foot radius, the first at 10am, the second at 10:02am, and the third at 10:03am:

Figure 63 - Congregation Event Occurs After Congregating for Five Minutes

After the vehicles have remained together for the threshold of five minutes, a congregation event is triggered in the system at 10:08am with a congregation start time of 10:03am (the time that the last vehicle arrived at the location, satisfying the requirement for a minimum of three vehicles).

2.2.27.2. Calculation of Congregation End Time and Time Spent Together

The total congregation time is the time that the last vehicle left minus the time that the last vehicle arrived. In this example, the congregation time is calculated as 10:35am - 10:03am = 32 minutes. This along with specific vehicles arrival and departure times will be stored in the congregation event and displayed in the congregation report.

Figure 64 - Congregation Time Calculation

Configuration Fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Report time range*: use the drop-down menu to select from *Previous Months, Previous Weeks, Previous Days* or *Range*. Enter the numeric value in the field. When *Range* is selected, use the

calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Exclusion Zones: allows the report to exclude data from one or more predefined zones (see the oMM Operation and Configuration guide for more information about zones). In the context of the *Congregation Report*, this field defines the locations where congregations should be ignored (e.g. in a depot). Leave this option checked (default setting) to include data from any geographic location. Uncheck this option to specify zones to exclude data from.

Congregation Count: the minimum number of vehicles required for a congregation to be considered as having taken place. The default is three.

Congregation radius: the radius (in feet) within which the minimum number of vehicles must be located in, in order to be considered congregating. The default is 200.

Congregation time: the minimum amount of time (in minutes) which can elapse before the group of vehicles who are within the specified radius are considered to be congregating. The default is 5.

Output Format: select **HTML** to generate the report in the browser window. Select **Excel** to display the generated report in Microsoft Excel. Note that the Excel option only works for reports which produce data in a table format. Select **KML** to display the generated report in Google Earth (requires that Google Earth is installed).

Save for later or schedule a run time: enable to create reports that can be saved for future use. See Appendix A for more information.

2.2.28. Fleet: GPIO Times

The GPIO times report can be used to view GPIO device usage and to determine if the device is being used within recommended duty cycle/operating parameters.

The report allows an operator to define the minimum and maximum amount of time that is considered acceptable for GPIO usage. The report then displays the following information:

GPIO Device: displays the name of the GPIO device and pin number.

Time On: specifies the total amount of time spent on during the time period defined for the report.

Short On Toggles: the number of times that the device was on for one second or less, during the time period defined for the report (e.g. due to a connection or contact shorting out).

Short Off Toggles: the number of times that the device was off for one second or less, during the time period defined for the report (e.g. due to a connection or contact shorting out).

On for less than 5 mins: the number of times that a GPIO device was on for less than the value specified for the *Minimum time for GPIO on* field, during the time period defined for the report.

On for more than 1 hour: the number of times that a GPIO devices was on for more than the value specified for the *Maximum time for GPIO on* field, during the time period defined for the report.

The summary row displays averages for each of the respective metrics in the columns.

GPIO Times for Group: ▓▓▓▓▓▓▓ (224 Gateways) from 2012/11/26 to 2012/11/30 (4 days), 13,606 events

GPIO Device	Time On	Short On Toggles	Short Off Toggles	On for less than 5 mins	On for more than 1 hour
▓▓▓ ▓▓▓ - USB1:0	0 sec	2	0	0	0
▓▓▓ ▓▓▓ - USB1:1	0 sec	1	0	0	0
▓▓▓ ▓▓▓ - USB1:0	10 hours 14 mins	0	0	3	2
▓▓▓ ▓▓▓ - USB1:1	48 mins 19 secs	3	0	7	0
▓▓▓ ▓▓▓ - USB1:0	50 mins 51 secs	1	0	3	0
▓▓▓ ▓▓▓ - USB1:1	24 mins 20 secs	0	0	2	0

Figure 65 - GPIO Times Report

Clicking on one of the device's counts (e.g. *On for less than 5 mins*) will display a map showing where the GPIO usage took place along with a grid containing more specific information:
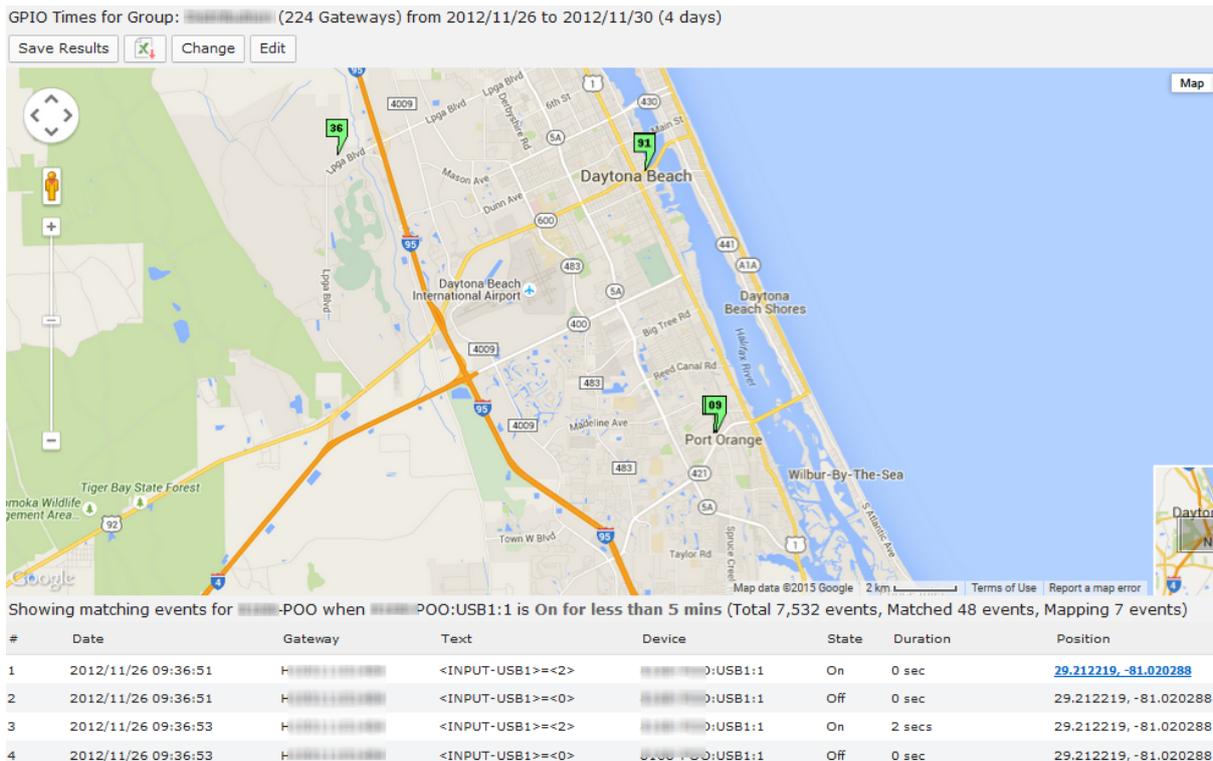
Figure 66 - GPIO Map

The specific device clicked on, will be highlighted in yellow on the grid contained below the map; the grid contains the following information:

#: the row number.

Date: the day and time when the GPIO device was in use.

Gateway: the serial number of the gateway to which the GPIO device is hooked up to.

Text: displays the GPIO input name along with the state of the device.

Device: the name of the GPIO device and input.

State: the state of the device (on or off).

Duration: the amount of time for which the device was in the specified state.

Position: the GPS coordinates where the GPIO device was in use.

GPIO device pins must be specified by the operator, so that the report knows which devices to display counts for. If multiple pins are specified, then the report will base the counts on activity which occurs from any of the specified pins. Therefore it's up to the operator to know which devices are wired to which pins.

2.2.28.1. Short On/Off Toggles

Some devices may exhibit usages of very short time periods (one second or less), such as when shorting out. These are known as *short on* and *short off* toggles. The GPIO times report lists counts short on/off toggles for each device, allowing an operator to quickly identify devices with excessively high counts for each.

Clicking on the short on or short off count for a device displays more detailed information about the history of the state changes, highlighting the short on/off toggle(s) in yellow as shown in Figure 67 below. Values less than 0.5 seconds are shown as "0 sec" in the report, while values between 0.5 and 1.0 are shown as "1 sec".

| Note: | the mouse cursor does not currently change from an I beam to a hand when placed over a short on/off count to indicate that the value can be clicked on. |

Interpreting a Short-on Toggle

The time period in each row corresponds to the amount of time that the device was in the previous state. So to interpret the sequence in Figure 67, begin by reading the time on the line prior to the toggle event (i.e. prior to the row highlighted in yellow). In this case, a state change from off to on occurred after 22 hours and 49 seconds of the device being off. The device then remained on for 1 second or less, after which it went off again, and remained off for 1 day and 22 hours.
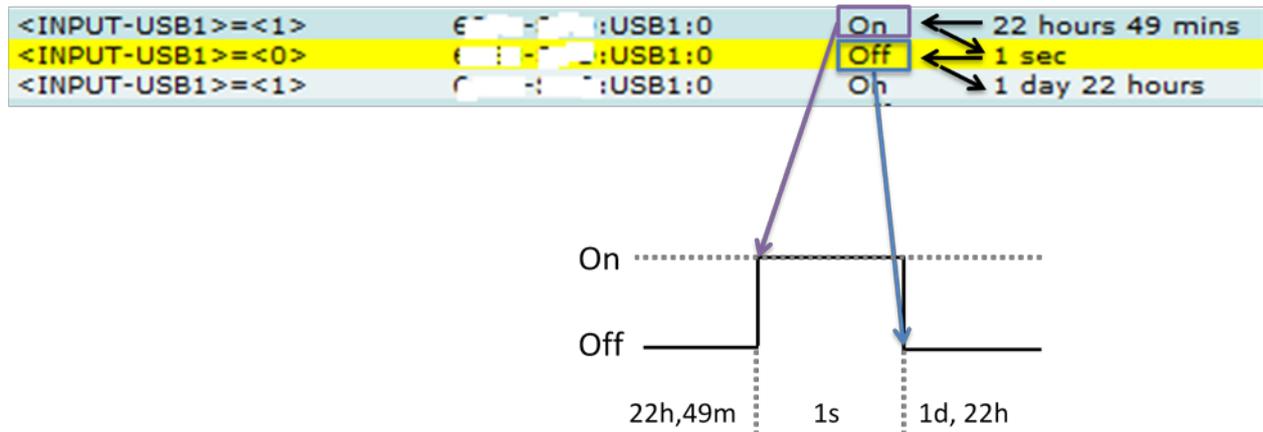

Figure 67 - Interpreting a Short-on Toggle

Interpreting a Short-off Toggle

Short-off toggles are interpreted from the data similarly to short-on toggles as described above.

In the example shown in Figure 68, a device was off for 20 minutes and 48 seconds, after which it came on for a split second (e.g. 0.2 seconds), and then returned to the off state for 14 minutes and 34 seconds.

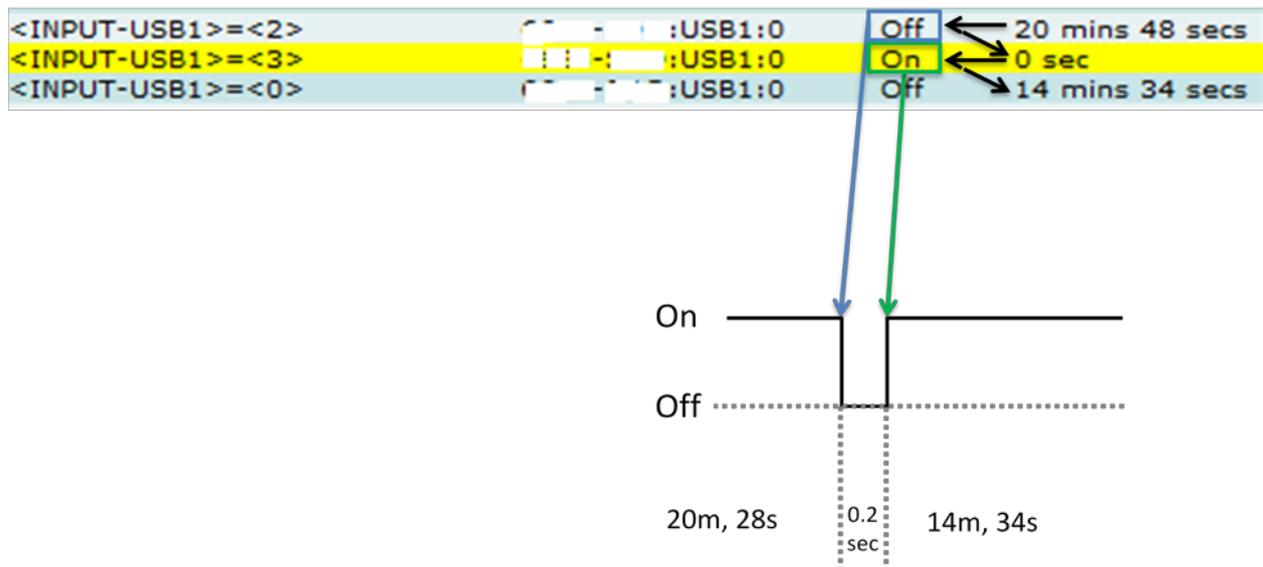*Figure 68 - Interpreting a Short-off Toggle*

Configuration Fields

Gateway(s)*: by default this is set to the gateway(s) selected in the gateway tree. Enter the name(s) manually to modify this field. Click on **Filter** to open the sub-filter options.

Report time range*: use the drop-down menu to select from *Previous Months, Previous Weeks, Previous Days* or *Range*. Enter the numeric value in the field. When *Range* is selected, use the calendar pop-up to select the dates. Alternatively, enter the date and time manually (yyyy/mm/dd hh:mm).

Limit to map area: select **Not Limited** to include data from any geographic location. Select **Manually defined area** to create a temporary zone for the analysis – only data from inside this zone will be included in the report. Select **One or more zones** to limit the analysis to one or more predefined zones (see the oMM Operation and Configuration guide for more information about zones).

Exclusion Zones: allows the report to exclude data from one or more predefined zones (see the oMM Operation and Configuration guide for more information about zones). In the context of the GPIO Times Report, this field defines the locations where GPIO usage should be ignored altogether (e.g. in a depot). Leave this option checked (default setting) to include data from any zone. Uncheck this option to specify zones to exclude data from.

Minimum time for GPIO on: defines the minimum time (in minutes) below which "short" usages of the GPIO device should be counted. The default is 5 minutes which means that any usages where a GPIO device was on for 5 minutes or less will be counted. Note that short on toggles are not included in this count.

Maximum time for GPIO on: defines the maximum time (in minutes) after which "long" usages of the GPIO device should be counted. The default is 60 minutes which means that any usages where a GPIO device was on for one hour or more will be counted.

GPIO Devices: specifies which GPIO pins to monitor for signals. There are eight possible pins numbered 0 through 7. To specify the GPIO pins, enter a comma delimited list. For example, to monitor idling while pins 0, 1, and 7 are active, enter 0,1,7 in this field. The default is an empty field which means that no GPIO pins will be monitored. Therefore the operator must enter at least one pin number.

Output Format: select **HTML** to generate the report in the browser window. Select **Excel** to display the generated report in Microsoft Excel. Note that the Excel option only works for reports which produce data in a table format. Select **KML** to display the generated report in Google Earth (requires that Google Earth is installed).

Save for later or schedule a run time: enable to create reports that can be saved for future use. See Appendix A for more information.

Appendix A. Saving and Scheduling a Report for a Later Run Time

All report configurations contain the setting *Save for later or schedule a run time* which can be enabled to create and save reports for future use.

Note: *reports scheduled for future generation can be viewed from the* Reports->Saved Templates *menu. Generated reports can be accessed from the* Reports->Generated Reports *menu. For more information see the oMM User Guide.*

Enabling this setting provides the following sub options:

Report Name: the name to assign to the saved report.

Generate every: the frequency at which to generate the report. Selecting *Do not generate* disables generation. Selecting *Once only* generates the report one time.

Start Reporting: specifies when to start generating the report.

Stop Reporting (optional): specifies when to stop generating the report. Available only when *Generate every* is set to a frequency (i.e. day, week, etc.).

Report Owner: specifies the name of the user to assign as the person who owns the report.

Send generated reports to Report Owner: when enabled, the report will be sent to the email address of the specified owner.

Also email results to: a comma-delimited list of additional email addresses to send the report to.

Retain results for: the number of days to retain the report results.