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This complete manual is intended for GpsGate Server tracking partners, to give a complete walkthrough of the system - both the administration side and the user interface.

Note that this is normally two separate manuals.

Let's get started:
- SiteAdmin
- VehicleTracker
Introduction
Welcome to GpsGate Server!

Who is this for?
You are a system administrator who has installed the system or has admin access to a hosted installation.

You can log in to SiteAdmin at the address http://yoursite/GpsGateServer/SiteAdmin/ in your browser if default settings were used during the installation, where yoursite is replaced by the server name / domain / IP address.

On the server, a link to SiteAdmin is also available in the Windows Start menu:
Start > GpsGate Server > GpsGate Server Site Admin page

Terminology

Vehicle
Often we refer to a vehicle as the object you're using GPS devices to track. You can of course track anything, but for the purpose of this manual we use the term vehicle, or simply device.

Application
Created on the Application tab of SiteAdmin. Represents a customer or your company.

VehicleTracker
The end user / customer interface for an Application, containing the Map view where vehicles are tracked.

Learn more:
• Applications
Applications

Logging in to SiteAdmin, the default tab is **Applications**. During the installation the first application was added and should be listed here (if not, make sure the **Applications** radio button is selected).

On the **Applications** tab we can manage Application settings, login in to the Application's **VehicleTracker** and add new Applications.

Search Applications

A great feature of the Applications tab is that you can search for Applications and even **users** in your Applications.

Add Application

To set up a new customer, start by adding an Application with the **Create New** menu option (to the left).

1. Leave the **Application type** set to **VehicleTracker** to create a regular Application.

2. In the **Template** menu, choose one of the options or leave it at **Basic One**.

3. Apply a **Name** (the company) and optionally a **Description**. Then click **Next** in the bottom left.
Application administrator

4. A) Now provide user details for the Application administrator. Then

4. B) Or you can click the Add existing radio button and search for a user to make administrator in the new Application:

5. The Application's basic settings are shown. Make any necessary changes and click the Finish button (bottom of page).

Edit Application or Template

From the Search and Manage menu option (default view) on the Applications tab, click on an Application (not the login icon), or an Application Template (below) to edit it.

Note: the "Application" mentioned below might just as well be a Template, if that’s what you’ve chosen to edit.

In the Information section you'll find the Application type as well as its URL - this is the address to access the Application's VehicleTracker.

In the Administrator section you can remove an Application admin or add a new one according to step 4, above.

Properties

Let you set and Expire date (for trial accounts), User limit and Log out URL (like your website).
Localization
Contains language, measurement and time settings.

Geocoding
The Geocoding settings let you customize the address format.

- **Geocoder** - choose the priority of address providers such as *Google, Points of Interest* and *Geofence* data.
- **Geocoding language** - address language
- **Geocoding address format** - for most countries the default *[ADDRESS]* works well, but you can customize it by using the available keywords (below the text box)

Default Workspace
If the Application has different workspace configurations, this allows you to set the default one.

Enable/Disable features
In the tree of Features you can choose which ones should be available in the application.

**Note:** we strongly recommend using the minimum amount of features to start with, to make the system as easy to use as possible for the customer.

A more detailed description of each feature is available in the VehicleTracker documentation.

Read on about Templates below or click *Save* to finish.

Templates
In the bottom of the *Edit Application* page you'll find the Application Template management (not to be confused with Report Templates, which has its own tab).

Templates are a great way to save Application configurations, so you can reuse them for other customers with similar needs.
More then that, the template contain the Application's Event Rules, Workspaces etc.

Templates can be edited the same way as Applications - just select the Templates radio button on the Applications tab.

**Convert and Save As Template/Application**

With the buttons in the bottom of the Edit Application view you can create a Template from your Application, in order of re-using it for other Applications - even ones on a different server installation (see Export below)

**Convert to Template**

If the Application was specifically created to become a Template, click this button to convert it to a Template.

Do not do this with a live Application that is used by a customer.

**Save As Template**

When you want to use an existing customer's configuration for other Applications, use this button.

Once you've clicked on this button you will be viewing the Template instead (the copy), and Export will replace Synchronize (see below).

**Editing a Template**

When editing a Template the buttons will say Application instead of Template in order of reversing the process.

**Synchronize**

When editing an Application, you can choose to synchronize it with a [imported] Template.

**Note:** this will overwrite the current Application's settings, Event Rules and more.

**Export**

After saving as or editing a Template the Export button will be available.

This will export a XML template file that can then be imported to a completely different server.

**Note:** for experts, the XML file can be edited to strip away unwanted elements. This allows you to for example make a Template containing only Event Rules. Import the Template to your server and synchronize a Application with it to for add the Template content.
Settings
On the Settings tab of SiteAdmin you'll find global server configuration as well as License management (below).

License
Choosing License in the left side menu will display the number of available and used user licenses.

When upgrading from free to commercial version of the system, this is where you upload the license file.

Localization
Here you can set the server defaults for new Applications.

Scripts
By default the system compresses scripts for optimal loadtime. If this causes some problems on your server, you can disable the setting here.

Note: this setting is for advanced highly technical users only.

Admin User
This is basically the settings for your user and enables you to change your password.

Email
Various functions require mail to be sent (reports, for example). Input settings for your email server here or those functions will not work.

SMS
If we're hosting the server, don't change these settings. If, however, it's your own server and you got a SMS provider, enter the provider settings here and use the Send Test SMS functionality to ensure the settings are correct. Read more here.

Cleanup
To manage the amount of user session, report and track data that is stored in the database you can configure Cleanup to run at a specified interval. The Cleanup settings determine what data is saved how long.

Note: this setting is for advanced highly technical users only.

Branding
If you want to brand your GpsGate Server installation with your own logo, do it here by following the on page instructions.
Your logo will then appear in VehicleTracker.
Service
Note: these settings are for advanced highly technical users only.

The Service tab provides management of the background service, which among other things receives the tracker data.

Start / Stop
Normally there's no reason to stop the server, but if it's not running you can start it from here.

Listeners
Here individual listeners (incoming data) for your installed devices are shown, with port used. Make sure the ports are open in your firewall (if hosting yourself).

Providers
The Providers menu lets you manage the Message Providers on your server. Message Providers are used to connect your server to external systems. The table shows the list of providers installed on the server.

You can select the following provider types from the drop-down menu:

- GpsGateCellProvider
- HttpMessageProvider
- SmtpPopEmailMessageProvider
- OrbCommMessageProvider
- ClientMessageProvider
- ProxyMessageProvider
- WatchDogProvider

Creating a provider
1. Begin by selecting one of the installed provider types (above).

2. Supply Name and all other relevant options:
<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Provider name</td>
</tr>
<tr>
<td>Type</td>
<td>Provider type</td>
</tr>
<tr>
<td>Url</td>
<td>Url address to the provider. Used for the HttpMessageProvider</td>
</tr>
<tr>
<td>Username</td>
<td>Username for the service.</td>
</tr>
<tr>
<td>Password</td>
<td>Password. The password field is only available when adding new or editing existing providers</td>
</tr>
<tr>
<td>CallInterval</td>
<td>Call interval for the provider</td>
</tr>
<tr>
<td>CustomLong</td>
<td>Custom numeric field for the provider</td>
</tr>
<tr>
<td>CustomString</td>
<td>Custom text field for the provider</td>
</tr>
<tr>
<td>CallTimeout</td>
<td>Timeout setting for the provider connection</td>
</tr>
<tr>
<td>RouteLabel</td>
<td>Routing label for the provider</td>
</tr>
<tr>
<td>DefaultProvider</td>
<td>Use the check-box to mark your provider as the default provider</td>
</tr>
<tr>
<td>Start / Stop</td>
<td>Links to handle the provider status.</td>
</tr>
<tr>
<td>Edit</td>
<td>Link to configure the provider. Click on Edit to change the provider settings</td>
</tr>
<tr>
<td>Delete</td>
<td>Link to delete the provider.</td>
</tr>
</tbody>
</table>

3. Finalize with the bottom left **Save** button.
Devices

On the Devices tab of SiteAdmin you can manage custom commands for reuse. Commands added here will become available in VehicleTracker.

On the Commands page you can create custom Commands in order of sending these to your devices.

The Types page enable you to see what vehicles use which signal mapping, mass update these Device Mappers and export your configurations.

Creating Template Commands

On the Devices > Commands page available commands for the chosen device are shown, but you can also create your own Template Commands.

If your device for example need a "poll position" command, you can look up the correct command in the device configuration documentation, and add this as "PollPosition" on the Commands page according to the below instructions.

1. Select a device in the Protocol drop down list.

2. In the Commands drop down list, select New...

3. Supply an appropriate Name and enter your device command in the Template field.

Template Variables

In the bottom half of the Commands page you have a list of variables that can be used in the Template field.

For example "$[DeviceIMEI],3,9" might result in a command like "$35930200541954114,3,9" when sent to the device.

4. Choose how to send the command with the First- and Second Attempt drop down lists; by SMS or tcp (Internet/GPRS) for example.

5. Save the command. Some options now appear:
5. If there’s a standard command to be associated with your custom one (for example `_StartTracking`), select the **Alias** check box and choose the command.

6. To restrict who can send the command, choose **Yes** in **Rights**. Otherwise skip this step.

7. Choose all and any devices your command should be available for in the **Device Types** section.

8. Finish up by clicking the **Save Command** button. The command will now be available in the Terminal as well as in VehicleTracker.

**Create custom variables**

If you need to input a custom value every time the command is used to say set the odometer, you can create your own variable easily. Just include your custom variable name in the command - `MyVar1` in the below example:

```
$SetOdo=[MyVar1]
```

When you later use the command there’s a variable input text box available. Use this to supply your parameter(s):

```
MyVar1=53
```

This will work like any other variable, and send the complete command to your device:

```
$SetOdo=53
```


**Edit Devices**

On the **Devices > Types** page you can configure device settings and signal mapping defaults, as well as update them on multiple applications.
1. Choose a **Device Type** in the top left drop down list.

2. Choose a Instance (only one by default). You can create **New** or **Import** versions of the device type if needed.
   The device properties are now shown in the **Create/Update** area.

3. Alter the device properties as needed:
   - **Name & Description** - will help you / an admin identify the device type.
   - **Upgradable** should normally be selected.
   - **Supported Commands** let you control what **Commands** (above) are available for the device type.
   - **Device Mapper Template** let you set the signal mapping defaults for this device type.  
     For more information on device mapping, see the VehicleTracker manual.

4. **Save** the changes and optionally perform one of these other actions:
   - **Export** let you download a XML file that can be imported into another installation (step 2).
   - **Copy** enable you to mass update applications with the changes you’ve made.  
     **Note**: this will completely overwrite the current mappings in all selected applications.
   - **Display Devices** shows a list of devices using the current device type.
   - **Delete** let you remove the current device type.
Plugins

On the Plugins tab you can update the system to the latest version and install new features such as device drivers, report templates and more. By default your currently installed plugins are shown (My Plugins tab).

Plugin categories

There are several plugin types, identified by their category icon. You can click on the Category column header to sort by category.

- **Application template** to use when creating new applications
- **System Core** usually includes general improvements
- **Developer Tool** should only be installed when specifically needed
- **Device Driver** - install those matching your tracking devices
- **Feature** - add on features such as **Points of Interest**
- **Language** - for the VehicleTracker interface
- **Log** - updates to the logging
- **Map** - different types of maps like Google and Bing
- **Measure** - measurements like metric and imperial
- **Patch** - a pack of minor fixes
- **Report** - templates for the reporting module

Update plugin

When a plugin needs to be updated, it has a orange background and the Update link appear to the far right. Simply click this link and follow the step-by-step guide.

Get More Plugins

Click this tab to list plugins that are not yet installed. To the far right you’ll find a Install link. Click it and proceed through the step-by-step guide.

Repository URL

Normally you don't need to change repository. The default choice is update.gpsgate.com, which contain stable tested features.

If you’re looking to test an experimental plugin though (at your own risk), you can change Repository URL to any of the other choices.

The list of available updates and new plugins are refreshed to the chosen repository.
Maps

The Maps tab let you configure installed map providers such as Google Maps, Bing Maps etc.

In the left hand menu you can see which maps are installed. They all contain a specific setting page for that map, but in general you will need to fill in API id and/or key for that map.

When you're done, click Save in the bottom left.
Import
There are several things you can import to a GpsGate Server installation, enabling you to reuse items already created.

Points of Interest
To have use of this the Points of Interest Plugin must be installed and enabled in the Application in question.
Read more about the usage of this plugin in the VehicleTracker manual.

Import Points of Interest
1. Choose Points of Interest in the Import drop down menu. The import options are shown.

2. Browse for your generated or exported POI file - XML or KML. More info on the file formats are shown on the page.

3. Choose a POI category or enter a new category name in the text box.

4. Click the Import button. The POI:s will now be available in your applications.

Templates
If you've exported reports or Applications these can be imported by choosing Template in the Import drop down menu.

Browse for the file and click Import. The template will be added to this installation.
Reporting

The Reporting part of GpsGate Server allows you to design custom reports for usage in any number of Applications.

Learn more:
- Enable reports
- Report creation
- Deployment
- Advanced usage
Enable reports

The reporting feature is enabled by default in your installation of GpsGate Server as well as every Application (company).

However, if you don't see Reports option in the admin or VehicleTracker, check these steps:

Plugins

On the SiteAdmin site, go to the Plugins tab and ensure that the Reporting plugin is installed.

<table>
<thead>
<tr>
<th>Name</th>
<th>Category</th>
<th>Installed Version</th>
<th>Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reporting</td>
<td></td>
<td>3.0.0.3410</td>
<td></td>
</tr>
<tr>
<td>Reporting Optimization</td>
<td></td>
<td>3.0.0.3362</td>
<td></td>
</tr>
</tbody>
</table>

Application Settings

On the application tab of SiteAdmin, click on the application in question to show its settings.

Ensure that the _ViewReport section is ticked. This will enable the end user to see created reports. This way, any new reports you create for them will be checked automatically.
Report Creation

In this section we will cover the creation and management of reports in GpsGate Server.

You will gain the ability to create custom reports, that can be used in any Application.

Learn more:
- Templates
- New from Template
- Report Editor

Templates

Go to the Reporting tab of SiteAdmin. Available templates are shown.

Note: more templates can usually be found in Plugins > Get more plugins.

Further see http://gpsgate.com/reports for a list of available templates and their use.

These predefined Templates serve as a base for you to create reports from. They are fully functional “out of the box” and provides you with different types of data (see below). You can use the templates to create your own fully custom reports.

Trip based reports

Included with the system are the templates TR1000 Trip & Idle (Detailed) and TR1001 Trip & Idle (Daily).

These will give a chronological (if so sorted) record of each trip a vehicle has made.

Trip based reports can show distance traveled for each vehicle, travel time, average and maximum speed. The start and stop addresses and the length of idle time between two trips is also available.

Event based reports

The EV1000 Event Rule and EV1001 Event Rule (total) templates are very effective for displaying the result of your device signal events (“SOS”, “Speeding” etc).

Note that events doesn't really occur chronologically, but have a more asynchronous nature.

Say we have an event for SOS, which is either on or off - true/false.

When viewed in the report, we get a start time for SOS, when it's changed to "on", say 15:00. The stop time won't occur until the SOS signal is changed again, and during this time any other events may be occurring.

This might read in the following manner, when you run the report:
<table>
<thead>
<tr>
<th>Event</th>
<th>Start</th>
<th>End</th>
</tr>
</thead>
<tbody>
<tr>
<td>Idle</td>
<td>14:55</td>
<td>15:10</td>
</tr>
<tr>
<td>SOS</td>
<td>15:00</td>
<td>15:45</td>
</tr>
<tr>
<td>Driving</td>
<td>15:30</td>
<td>18:33</td>
</tr>
</tbody>
</table>

See that the events overlap each other. That's because they are in fact signals, and do not end until the signal is changed.

Learn more:
- [New from Template](#)
- [Report Editor](#)

**New from Template**

On the **Reporting** page, click on the button **New** in the bottom left corner.

The new report guide is shown. Choose a **Template** suiting your needs. This will determine what data is available to use in your report. Advanced users can, however, customize the data source.

The Report editor is now shown and you can begin to design your report.

Learn more:
- [Report Editor](#)
- [Templates](#)
Report Editor

Report state
Changes are automatically saved in a draft-like state as you make them, but must be "published" by saving.

Name and description
In the top box you can edit the name and description of your report. This is the name the end user will see, so make it as descriptive as possible.

Formatting tools and the cell text box
Below the name and description a long text box is shown, followed by some formatting tools.

Page Layout
For use when exporting the report to PDF, you can specifically choose page layout. This is helpful if the report for example is intended to be in Portrait format - the Layout editor (below) will restrict your design to the printable area.

This text box is used to more easily edit cell contents, since cells in the editor (below) have a fixed size. When you left click in a cell in the editor, its full contents are displayed in this text box.

Formatting
This works like any word processor or mail client. Do note, however, that formatting in the report editor applies to the whole cell, not a text selection.

Borders and padding
To the far right of the formatting toolbar you find this icon: Clicking this icon displays the borders and padding window.
For border to apply, make sure you set **Top**, **Right**, **Bottom** and **Left** width, as these are **None** by default.

The **Color** is #000000 by default. This is a HTML code for black. Click anywhere in the color text box to display the color picker.

Choose color in the main area and adjust hue with the right hand gauge.

**Note:** Click in the text box (#000000) to close the color picker.

Padding works in a similar way as border and determines how far from the cell edge its content is placed.

Finalize with the the **OK** button in the bottom right corner.

**Layout editor**

This is the main area of the editor. Your report is shown in an spreadsheet-like grid with columns and rows.

The report designer use **fields** to populate the report with data from the Application and the columns/rows to organize this data with grouping, aggregation and visibility.

**Editor cells**

The editor cells are of fixed size contain text and/or **fields**.

But when the report is run cell size is dynamic, and cell borders are not show unless so specified.

Right click a cell to display the cell menu.
Merge right / left
This is a practical design function, making two cells into one.

Unit
See Aggregation and functions

HTML content
The cell options contains the option to mark your cell as Contains HTML.
With this option enabled you can input HTML in the cell in order of, for example, including a picture.
Note that if you intend to mail the report not all HTML might be supported in the recipients mail client.

Learn more:
- Working with Fields
- Map links
- Rows and Columns
- Groups
- Aggregation and functions
- Query Editor
- Undo and Preview
- Save
Working with Fields

A Field is simply text that is replaced by data when the report is run. The system knows it's a field because the word is contained by brackets ([ ]). When the user runs the report the field is replaced by actual data.

Example

A report based on the Trips template has a field called [TotalDistanceGps]. This of course doesn't have to be italic - formatting can be applied to the field in any way you want, just like a word processor.

When we design the report it would look like the following:

Let's walk through the various components of the editor area.

Insert a Field

You've probably used a spreadsheet tool like Excel before. This works very similar to the report designer.

1. In a cell, right click to bring up the commands menu.

Note: If the menu doesn't show up, make sure your web browser is updated to the latest version.
2. From this menu, choose Insert field. A list of available fields for the report Data Source is displayed:

3. Left click on the field you want to insert. The field is displayed in the cell, contained in brackets ([]):

A cell can contain any number of fields, joined together with regular formatting (for example start- and enddate joined with a dash).

Don't worry about the field being "cut off" - this is just the cell default width restricting how much we see.

When the user runs your report everything will fit automatically and be displayed something like this:

```
<table>
<thead>
<tr>
<th>Stop Time</th>
<th>Total Distance (GPS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12:12 PM</td>
<td>10024 km</td>
</tr>
</tbody>
</table>
```

That was easy right? This is all you really have to do for the report to work. We might however want to group and aggregate the data. We'll cover this in the next few chapters.

Learn more:
- Map links
- Rows and Columns
Map links

To make the report interactive and not just a static list you can use the On click function to create map to show a marker or even draw a track on the map.

1. In the report editor, right click a cell that you want to be clickable and choose On Click. The On Click settings window appear.

2. Choose what type of link to create:
   - **Show Marker** will create a single marker point at the selected time stamp (see below).
   - **Draw Track** will draw a track between the selected time stamps (see below)

3. Match up UserID with a Field containing the user's ID, from the report's list of available fields. If "UserID" is missing, you will have to add it in the Query Editor.

4. Choose a report Field for TimeStamp (Show Marker) or TimeStampStart and TimeStampEnd (Draw Track).
   For example, trip based reports contain SamplingStart and SamplingEnd which work excellent as "time stamp".

5. Click OK. The cell will now have a link icon to show that it's contains a map link.
Deploy the report to an Application and try the link out!

Learn more:
- Rows and Columns
- Groups
- Aggregation and functions
- Query Editor
- Undo and Preview
- Save

Rows and Columns

While editing a report, there are various things you can do on each row and column.

To access the respective context menus, right click on the edge of the column or row you wish to edit (the borders of the report):

Column menu

When you right click any of the column headers as pictured above, the column menu is shown:

From here you are able to insert or delete columns. Just left click the option of your choice. This is an excellent way of managing your report design.

As you will learn, actions like adding or deleting a column is reversible, just as any other actions in the editor. So don't worry about permanently deleting a column or row by mistake.

Column options

Right clicking on a column header and choosing Options gives you the opportunity to specify column width in percent. This way you can be more specific in what column takes up what amount of space (horizontally).
Row menu
Similar to the column menu (above), the row menu gives you the option to add and delete rows. However, there are far more things you can do with a row than with a column:

Insert- and delete row
This work exactly as with columns (above).

Row Options
Currently, this is used to change the row visibility. This let you control the layout without having to delete a row.
With Visible set to false the row won't show up when the report is run. The default value is true.

The reason the value of Visible is a regular text box is that advanced users may use expressions here to control visibility based on a field.
In general this uses the same syntax as when programming device commands.

Learn more:
- Groups
- Aggregation and functions
- Query Editor
- Undo and Preview
- Save
- Working with Fields

...
Groups

Grouping is a key feature for displaying your report data in a correct and (for the end user) understandable manner.

In our report we can group the data by any available field in the current Data Source.

Example

We choose to group by [UserId] - since every vehicle or unit is a user in GpsGate Server.

The report could output this in something like the following manner:

<table>
<thead>
<tr>
<th>Car 1</th>
<th>Distance travelled: 23 miles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car 2</td>
<td>Distance travelled: 5 miles</td>
</tr>
</tbody>
</table>

Every report template have some sort of grouping by default. When creating a report based on a template we can either change which field the report groups on and/or add new subgroups.

Say we would like to group by date for each car. We would create a report based on Trip & Idle (Weekly) and then edit the default group to use the field Start Time.

Creating a row group does not automatically display the grouped field when the report is printed. But if we also include the field in our layout, the result might look like this:

<table>
<thead>
<tr>
<th>Car 1</th>
<th>2012-11-01 Distance travelled: 13 miles</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2012-11-02 Distance travelled: 10 miles</td>
</tr>
<tr>
<td>Car 2</td>
<td>2012-11-01 Distance travelled: 3 miles</td>
</tr>
<tr>
<td></td>
<td>2012-11-02 Distance travelled: 2 miles</td>
</tr>
</tbody>
</table>

Let's take a look at how the above is accomplished.
Groups in the editor

Take a look at the area marked with a blue rectangle in this screenshot:

- **Duration Idle** = Time a vehicle is online and while standing still.
- **Duration Trip** = Time that a vehicle is online and moving.

<table>
<thead>
<tr>
<th>[Name]</th>
<th>Total Distance</th>
<th>Total Duration</th>
<th>Total Trips</th>
<th>Total Idles</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\sum([TotalDistance])$</td>
<td>$\sum([TotalDuration])$</td>
<td>$\sum([TotalTrips])$</td>
<td>$\sum([TotalIdles])$</td>
<td></td>
</tr>
</tbody>
</table>

While normal rows have a gray icon to the left, grouped rows have a colored icon with a number indicating its level (where level 1 are your regular non-grouped rows). When you add more groups they get other colors like pink to easily tell them apart.
Each group is made up of three sections. Each section may have one or more rows. You add and delete rows to an existing group \textit{like any other row}.

When the report is shown from VehicleTracker the header, detail and footer rows are repeated for each user, if that is what you grouped on.

\textbf{Group header rows}
These are commonly used to display the titles for your group columns, as seen above (\textit{Date, Start Time} etc). But fields can be \textit{aggregated} here as anywhere else, as well; in the above example \textit{Total distance} and other info is displayed in the header section, on separate header rows.

\textbf{Detail rows}
This is normally the main part of our group, where for example the total distance for a unit / vehicle (grouped on \textit{UserID}) is displayed.

\textbf{Group footer rows}
Here we commonly display an aggregated value for each group column, to present for example the total distance traveled by all vehicles (within the chosen period).

\textbf{Add or edit a group}
I will now walk you trough adding or editing a group.

1. Bring up the row menu by right clicking in the designer margin. If you're editing a group, right click the colored group header icon (above).

2. Left click \textit{Insert Group}. The group settings window is shown.
3. The first part is made up of an **Expression** text box and a **Group by** drop down list. Click the latter to display a list of available fields. The field you choose is added to the **Expression** text box within brackets. If we for example choose `UserId` to the right, the value "[UserID]" is automatically added to the left and your group will display data for one user (vehicle) at a time.

4. The next part determines how the data is sorted within your group. Often you might wish to sort by the same field as used in your expression. But if our **Expression** is `UserID` we might want to sort by the field `Name` instead, as that is more easy to follow when the report is run. You might ask yourself why not simply group by `Name` as well? You can of course do this, but it's faster and more exact to sort by an numerical "ID" number, since there normally are no duplicate ID's.

5. Click **OK** to finish. When adding a new subgroup, this will be the innermost one closest to the detail (purple with a 4 in this case). The report will group and sort your data in the order of your groups - lowest outermost group first.

---

**Learn more:**
- Aggregation and functions
- Query Editor
- Undo and Preview
- Save
- Working with Fields
- Rows and Columns

---

Subgroups

* Duration Trip = Time that a vehicle is online and moving.
Aggregation & functions

Values in a report can be and is often aggregated. This allows us not only to summarize fields, but many other things.

Fact is that all fields with more than one value (i.e. one value per vehicle or event rule) must be aggregated when use anywhere else than in a group detail, including outside the group part of your report.

Only one-value fields like report start date can be used anywhere without being aggregated.

Function - insert aggregated field

1. Much like insert field, this is done by right clicking a cell in the editor. The cell menu is displayed.
2. Choose Function. A list of available functions is displayed.

- Sum will summarize a fields’s total.
- Count - for example how many vehicles there are.
- Countunique will count ignoring duplicate values (two users with the same name are only counted as one).
- Avg results in the average for numerical fields.
- Min will give you the minimum length traveled, for example.
- Max - as with Min but the opposite value.
- Previous - will give you the previous row’s value for chosen field.
- Next - as opposite to Previous.

3. In the functions submenu, choose which field to aggregate.

4. All done! The function is displayed as $count([UserID]) (a count of how many users there are).

$math() expressions

For more complex math we’ve introduced $math() expressions. You can input any of the below functions by themselves, inside a $math.eval or inside another $math function (people familiar with JScript math will recognize their syntax).

Just type them into the cell (without the description) in any combination, replacing a and b with the field name(s).

Example

$math.round([Distance]) - 10 )

“Round the Distance field minus ten”

- $math.abs(a)
  The absolute value of a
- $math.acos(a)
Arc cosine of \( a \)
- \( \text{\$math.asin(a)} \)

Arc sine of \( a \)
- \( \text{\$math.atan(a)} \)

Arc tangent of \( a \)
- \( \text{\$math.atan2(a, b)} \)

Arc tangent of \( a / b \)
- \( \text{\$math.ceil(a)} \)

Returns the smallest integer greater than or equal to \( a \).
- \( \text{\$math.cos(a)} \)

Cosine of \( a \)
- \( \text{\$math.exp(a)} \)

Returns \( e \) (the base of natural logarithms) raised to the power of \( a \).
The return value is a number. The constant \( e \) is the base of natural logarithms, approximately equal to 2.178 and number is the supplied argument.
- \( \text{\$math.floor(a)} \)

Integer closest to \( a \), not greater than \( a \)
- \( \text{\$math.log(a)} \)

Returns the natural logarithm of \( a \).
- \( \text{\$math.max(a, b)} \)

The maximum of \( a \) and \( b \)
- \( \text{\$math.min(a, b)} \)

The minimum of \( a \) and \( b \)
- \( \text{\$math.pow(a, b)} \)

\( a \) to the power \( b \)
- \( \text{\$math.random()} \)

Pseudorandom number 0 to 1.
The pseudorandom number generated is from 0 (inclusive) to 1 (exclusive), that is, the returned number can be zero, but it will always be less than one.
- \( \text{\$math.round(a)} \)

Integer closest to \( a \)
- \( \text{\$math.sin(a)} \)

Sine of \( a \)
- \( \text{\$math.sqrt(a)} \)

Square root of \( a \)
- \( \text{\$math.tan(a)} \)

Tangent of \( a \)

**Logical expressions with \$math.eval**

Sometimes you might want to control the output based on a logical statement (aka if-statement).
For this reason we've introduced logical expressions using the \$math.eval function.

How it works is that you encapsulate your expression with \$math.eval(), telling the report to evaluate it as an expression instead of text.

Your expression can of course contain fields.

**Note:** both numerical values as well as text values can be used.
**Note:** use period instead of comma for decimal values

**Basic math**

Basic math is supported within a \$math expression. Use \*, -, + and / to calculate result.

**Example**

\$math.eval([WeightBreaking * 2])

"The value of the WeightBreaking field multiplied by 2"

**Comparisons**
Comparisons can be used to determine which value (or field) is highest, lowest, equal or not equal to another value / field. They must be contained in a $math function.

**Syntax**

```math
$math.eval( \{expression\} ? \{value if true\} : \{value if false\} )
```

Replace `{expression}` with one of the below options. Replace `{value if true}` and `{value if false}` fields or values.

**Expressions**

- `A <= B`
  - A less then B
- `A >= B`
  - A higher then B
- `A == B`
  - A equals B
- `A != B`
  - A doesn't equal B

**Example**

```math
$math.eval([Distance] < 1000.0 \ ? \ 0 : \math.round([WeightBreaking] * [HarshBrk] / [Distance]) )
```

"If the Distance field is lower then 1000 output zero (0), otherwise round (the WeightBreaking field multiplied by the HarshBrk divided by the Distance field)"
**Unit**

Also available in the cell menu is *Unit*. This option applies specifically to aggregated cells. The cell's Unit determines how the value is transformed when the report is run.

Right click a cell that contains an aggregated value and open the *Unit* menu. A list of possible units is displayed.

If you're for example using a date field and only want to display the time in your report, choose *SHORT_TIME*.

The unit options prefixed *SIGNAL* refers to device signals and will use that signal's native format, in most cases applying the appropriate suffix for the unit used (kg, km, mile etc).

---

**Learn more:**
- [Query Editor](#)
- [Undo and Preview](#)
- [Save](#)

**Query Editor**

Below the layout editor you'll find the Query area. The query defines what *Fields* are available in the report. There's always a default query selected in the drop down list, but more then one may be available.

Clicking the *Query Editor* button takes you to the SQL query editor.

**Note:** MySql and/or MS SQL knowledge is strongly recommended beyond this point.

---

The query editor mainly consist of three parts, as illustrated below:
From left to right: query explorer, SQL editor and Parameters.

Queries Explorer
The queries to the left work behave like SQL Views - you can JOIN them together using their stated names. They're divided into three types: Report Queries (editable in SQL editor), Provider Queries and System Queries (non editable).

Expand [+] a query to display its available fields. Click a report query to open it in SQL editor.

Note: without choosing a query first you can create a new one by entering a name in SQL editor and saving.

Report Queries
By default there is only one query here, and it's your main report SELECT statement. As noted above more can be created and joined together.

Provider Queries
A standard report query selects FROM a Provider Query, which in turn is based on one of the Data Providers. The Data Providers determine how the data is collected from the system.

System Queries
These "tables" provide data for common system info, like Users, Tags, Device(s) etc. They are commonly used to populate the report Parameters.

SQL Editor
In the middle of the page is the SQL Editor, allowing you to create a new query or edit an existing one (having clicked in in Queries Explorer).

Below Name are two radio buttons for switching between MySQL and T-SQL (Microsoft). Use the correct one depending on your installation (which type of database you use). MySQL is default when installing the system and used on servers hosted by GpsGate.

The SQL queries in general work like anywhere else, with some exceptions. Currently unsupported:

- Table alias
- Derived tables
- Temp (#) tables
Using parameters
Available parameters (read more below) can be referred to with brackets:

```
SELECT [ApplicationID] AS myparam
FROM TagUsers
WHERE
TagUsers.TagID IN [TagID]
```

Execute Query
Assuming you've supplied valid parameters the Execute button will run your query and return the result as a table below the SQL Editor.

If your query wasn't valid for some reason, an error message is shown above the editor:

Parameters
To the far right you'll find the report parameters. With exception for ApplicationID these are by default available for the when you or the user runs the report, to filter the result. Here in the Query Editor we are also able to edit and/or delete parameters.

When testing the query, make sure to choose parameters first: begin with Application. This auto filters the other parameters by displaying for example Event Rules for that Application.
Add a new parameter
You can add your own parameters, for use in your SQL query.

1. Click the **Add Parameter** button. The following options are displayed:

2. Choose **Parameter type**: 
   - **Custom value** - a list of strict text values that you provide
   - **From Query** - a dynamic label / value list populated by a chosen provider- or system query
   - **Time of Day** - time picker resulting in a hh:mm:ss value
   - **Time Period** - date picker which adds the `[PeriodStart]` and `[PeriodEnd]` parameters if not already available
   - **String value** - great way of collecting user input such as a text name filter, but also has Default value designed in SiteAdmin.
   - **Numeric value** - use this to collect numeric values. Decimals and separators (period in English) are allowed according to culture.
     When the report query receives the value it's a double with period as decimal separator.

3. Choose **Parameter name**. This is how the user knows what value to choose, so make it descriptive.

4. **Multi valued** - for **From Query** and **Custom value** parameters this makes let the user choose more than one value.
   When using a multi value parameter in your SQL, treat it as a comma separated list (don't add parentheses):

   ```
   [...] WHERE Users.UserID IN [TagUsers]
   ```

4. **Values**
For **Custom Value** parameters, specify a **Label** for the user and ideally a numerical **Value** for your SQL.
Add as many options as appropriate with the **Add New Value** button.

In a **From Query** parameter you first specify what **Query** to use - for example **TagUsers**.
For the **Label** field, we could then choose "Name" (displaying "Show on map" etc).
For **Value** "UserID" would in this case be appropriate, so we can **JOIN** on this in our SQL query.

5. Finish by clicking on the bottom left **Add** button.

Editing parameters works in the same way. Just click **Edit** and follow the above steps.

**Parameter Default Value**
String and numeric parameters support default value designed in SiteAdmin. What this means is that
you can input a default value when designing the report, which will appear in VehicleTracker when
deploying the report. The VehicleTracker admin can of course override this default value, but doesn't
have to.

---

**Learn more:**
- **Undo and Preview**
- **Save**

**Undo and Preview**

Below the main editor area we find two key functions: the **Undo** and **Preview** buttons.

**Undo** will reverse your last change, simply enough.
**Preview** is very efficient for checking the result of your last changes. In contrast to VehicleTracker, preview uses the current "draft". This enables you to check your changes before permanently committing them.

The preview pops up in a new window, which you can keep open and update (**Preview** button to the right of **HTML**). You can make changes.

You also choose which **Application** to preview in this window, and **Tags** are dynamically populated from that Application.

**Trip Report**

*Trips and idles, by vehicle*

- Period: 05/13/2012 - 05/19/2012
- Total Vehicles: 1
- Total Distance: 0.7 km

Learn more:
- **Save**
- **Working with Fields**
- **Rows and Columns**
- **Groups**
- **Aggregation and functions**
Save

While changes are automatically saved, a bit like a draft, in order of "publishing" your report for use in Applications, you must save them with the bottom left button. Here you also find a Cancel button that deletes the current "draft" - all changes you made since last save.

Learn more:
- Working with Fields
- Rows and Columns
- Groups
- Aggregation and functions
- Undo and Preview
Deployment

Once you've created and saved your report, it's time to deliver it to your Application.

Application privileges

Begin at the Applications tab of SiteAdmin.

1. Click on your application to access its settings.

![GpsGate Server](image)

2. Scroll down to Privileges and Roles - Enable/Disable features and expand Plugins > Reporting in the bottom of the tree.

![Plugins](image)

3. Now expand the _CreateReport folder. Here you will find your report, with its checkbox unselected.

![Reporting](image)

4. Select your report's check box and finalize with the Save button in the bottom left of the page.

This concludes the SiteAdmin part of report deployment.
Adding a report in VehicleTracker

We will now "create" the report in our Application. This let us choose what settings the report will have in this specific Application.

Log in to your Application's VehicleTracker.

1. Click **Manage reports** in the **Reports** menu. The **Report manager** window is shown.

2. Choose your report in the **Report definitions** list and click **Open**. Report settings and preview pops up in a new windows/tab.

3. Choose suitable **Report settings** as desired:

   - **Name** and **Description** - this is what the users primarily see
   - **Show Parameters** - leave this ticked to let the users choose period and other parameters by themselves.
     You can, however, unselect this check box and make the default parameters (below) static.
   - **Default format** is set to **HTML** as default, which works well for general purposes.
     You can also choose **PDF** if the report is normally printed (requires the users to have a PDF reader installed).
     If the report is primarily to be used for export, and then import to Excel or other compatible applications, choose **CSV** instead.

4. **Select parameters** to set their default values. This can make the report more effective even if **Show parameters** is selected, since the user don't have to do more than necessary to run the report.

**Hide parameters**

Other than hiding all parameters (above), there's an option to hide individual parameters by selecting the **Hide** check box to the right. This enables you to choose what event rules to include, for example,
and prevent the Operator (user) from changing these values.
5. **Email schedule** (optional)
Other than running the report from VehicleTracker you might want to add an email schedule. This often increases usage of the report significantly. When you select the *Activated* check box email options are shown:

![Email schedule](image)

Choose interval, users with which tag and format (works in the same way as *Default format*, above).

6. **Preview** and/or **Save**
Preview the result if you like to and then save the report.

Your report should now be available in the **Reports** menu of VehicleTracker. All done!

**Expert tips**

*You can control who the report is available for with user roles. To do this, go to Admin > Features and enable / disable reports just like in SiteAdmin.*
Advanced usage

In this section we will have a look at some of the more complex features of GpsGate Server reporting.

Note: at least basic knowledge of databases and the SQL language (MySql/T-SQL depending on your installation) is highly recommended and in most cases required when working with the advanced features.

Read more:
- Data Providers
- Accessing Report Data Store

Data Providers

Technical note: This requires at least version 3.0.0.2803 of the Reporting plugin. Read more about updating in the SiteAdmin documentation.

Note: always try to solve problems with report queries and/or design first. Custom data providers is an expert feature and can cause the report to become too slow to run.

A data provider processes raw track data and stores the aggregated information in a reporting table. The provider defines what data to process, how it should be aggregated and if any calculations should be made before the data is stored in the reporting table.

Data providers run as background processes to provide fast access to updated reporting data. A reporting table can be used by multiple report queries.

The following types of data can be collected:

- **Address**
  - The address of a position. It can be the first (Start) or last (Stop) position that fits into the time interval of the record
- **Average**
  - The average value of the selected variable
- **Distance (GPS)**
  - The distance, measured by GPS
- **Distance (Odometer)**
  - The distance measured by the device odometer variable
- **Fuel Consumption**
  - The fuel consumption, if measured by the device
- **Geofence**
  - The Geofence name of a position. It can be the first (Start) or last (Stop) position that fits into the time interval of the record
- **Max**
  - The maximum value of the selected variable
- **Min**
  - The minimum value of the selected variable
- **Sum**
  - The sum of the occurrences for the selected variable
- **Value**
  - The value of any selected variable

The data is written to the reporting table when the write conditions are fulfilled.

The following options exist for write conditions:

- **Each trip**
  - One data row will be written for each trip. By default a trip is started when a vehicle start moving and stopped when a vehicle stands still for some time. A
stand still (fat point) is also considered a trip and will create another row in the reporting table.

**Column value change**

A row will be written each time the selected variable changes its value. This can be used if for example an `Ignition` variable is used to define start and stop for a trip.

A row is written after a defined time period. This is useful if you want to accumulate report data over a period of time, such as number of incidents per hour.

**Variable condition**

A row is written each time a condition is fulfilled for a variable, for example “[speed] > 10”

As an example the data provider for the distance report creates a record for each trip based on the **Each trip** condition. The record includes the start and stop times and positions, user information and trip distance. The record also holds additional data such as average and maximum speed during the trip as shown in the image below:

<table>
<thead>
<tr>
<th>Name</th>
<th>Distance</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Select which data to be collected</strong></td>
<td></td>
<td>Each column collects or aggregates data over a period or condition specified by the resolution.</td>
</tr>
<tr>
<td>SamplingStart</td>
<td>UTC</td>
<td>Min</td>
</tr>
<tr>
<td>SamplingEnd</td>
<td>UTC</td>
<td>Max</td>
</tr>
<tr>
<td>UserID</td>
<td>UserID</td>
<td>Value</td>
</tr>
<tr>
<td>StartAddress</td>
<td>Address</td>
<td>Start</td>
</tr>
<tr>
<td>StopAddress</td>
<td>Address</td>
<td>Stop</td>
</tr>
<tr>
<td>DistanceEnd</td>
<td>TimePoint</td>
<td>Distance (GPS)</td>
</tr>
<tr>
<td>DistanceOdometer</td>
<td>TimePoint</td>
<td>Distance (Odometer)</td>
</tr>
<tr>
<td>MaxSpeed</td>
<td>Speed</td>
<td>Max</td>
</tr>
<tr>
<td>AvgSpeed</td>
<td>Speed</td>
<td>Average</td>
</tr>
<tr>
<td>Fuel</td>
<td>FuelLevel</td>
<td>Fuel Consumption</td>
</tr>
<tr>
<td>FatPointState</td>
<td>FatPointState</td>
<td>Value</td>
</tr>
</tbody>
</table>

| **Select when data should be written** |         | Each trip |

**Note:** multiple data providers can be used by one report definition and this allows for flexible reports based on combinations of aggregated data.

**Accessing Report Data Store**

In this chapter you’ll learn how you can access the data stores used for reporting within your own applications. One of the reasons for wanting to do this is to be able to provide some additional value to your customers.

**Introduction**

A common request we get from our customers is for a way to access data from the GpsGate Server database. With the new reporting framework introduced as part of version 3.0, we have opened up the possibility to access odometer readings, maximum and average speeds, fuel levels, start and stop addresses, and much more. These values can be used by 3:rd party developers to create value adding solutions to their customers. As an example, I am going to show you how to calculate the distance travelled per day by your vehicles.

**Setup**

For this task I will be using GpsGate Server 3.0 with reports activated, on top of MySQL. I am using MySQL Workbench to perform queries, which you can download from [here](#). If you are using Microsoft
SQL Server, you can follow along this guide by using Microsoft SQL Server Management Studio Express instead.

The database to connect to will be the one you specified during installation. For my purposes, I will be using one called **reportingtest**.

**Data Provider**

Reporting data is generated by a data provider. When you activate reporting for your GpsGate Server you will have one data provider. These providers analyze historical data and build up the data store. We are going to use a default data provider for this task, one that calculates distances. You should know that it is possible to create your own data provider, for example one that handles other scenarios like event rules.

**Data Store**

All reporting data is stored in the same table, the reportv3_data_store table. This is a generalized table that just stores values with no meta data. Here's an example from my database:

```sql
SELECT * FROM `reportingtest`.`reportv3_data_store`;
```

All rows are generated by the same data provider. You'll see this if you have a look at the **report_data_provider_id** column. This is not always the case, if you have more than one data provider. For this post I am just going to assume all data comes from the same data provider. When this is not the case you need to add something like where `report_data_provider_id = 5` to the queries.

As you can see, we are dealing with integers, doubles, booleans, etc. To make any use of this data we need to turn to another table: **reportv3_data_provider_column**. This table provides us with a column mapping for the **reportv3_data_store** table. Here's what my table looks like:
SELECT * FROM `reportingtest`.'reportv3_data_provider_column';

From the above screenshot we can see that the `dbl_01` column should be interpreted as distance calculated by gps, `dbl_03` as max speed, `dbl_04` as average speed, etc. Notice that `int_01` is the `UserID`. This will be important later when we need to access the vehicle name.

### Summing Distances

We now have enough information to make a simple query. Let’s show the distance by gps per day. For this query we will perform a grouping on the date part of the `data_time_stamp_start` column. There is a MySQL function for this: `Date`.

Let’s name this column `Date` and the distance column `TotalDistance`. Here’s the result:

```sql
use reportingtest;
SELECT Date(data_time_stamp_start) as 'Date',
       sum(dbl_01) as 'TotalDistance'
FROM reportv3_data_store
GROUP BY Date
```
Distance Per User

Let's say we want to know the distance each vehicle has travelled per day. We will need to add a grouping on the user. To do this we will join on the users table. For our purposes the users table contains two interesting columns: `user_id` and `username`. The `username` column is guaranteed to be unique, so let’s use it for the vehicle name. As we saw previously, the `user_id` is stored in the `int_01` column, so we will need to join on that column. Here’s the final result:

```sql
use reportingtest;
SELECT Date(data_time_stamp_start) as 'Date',
       u.username as 'Username',
       sum(dbl_01) as 'TotalDistance'
FROM reportv3_data_store r
     JOIN users u ON r.int_01 = u.user_id
GROUP BY Date, Username
```
Summary

Hopefully this will have wet your appetite for what is possible with the new reporting data store. Of course we have only touched the surface here. Feel free to ask questions in the forums for more detailed discussions.
System Tools

The **System Tools** tab contains many useful administrative utilities, which we will cover in this chapter.

Terminal

In the terminal you can see devices and it is essential for troubleshooting connections. Once you've found the device in question, use the features of the actual **Terminal** in device **Results** (below).

Find device

Enter a device IMEI, phone number or user (actual *Name*, not username) in the box and click **Search**. If the device has ever been connected it will show up in the results.

View connections

Other then searching for a specific device you can

- **List unknown connections** - useful for showing all devices not properly configured as a *User*.
- **View connections last x minutes** - use this to show all devices in the specified number of minutes.

Results

The results contain several useful functions:

- **Last position** - click to show the address on Google maps
- **Application** - go to the Application's settings
- **Terminal** - show the command history of the device (communication between vehicle and server).

Above the terminal output are controls for sending **Commands** to configure the device - read more below (**Sending Commands**).

**Example**: `[2012-10-16 10:25:14] (200.100.110.100:54968/GpsGate/tcp) Server: $FRRET,12345, _SendMessage*4E[0x0D][0x0A]

The first part is a timestamp. Following that is the address of the sender/recipient (server/vehicle). Finally there's a prefix telling you the context of this row (**Server, Client, Info** etc) followed by the actual Command or message.

When trouble shooting a device, look for the **Report** rows. These will tell you what signals are properly mapped and consequently what signals are not.

- **Commands** - will list sent and pending Commands in the Queue Viewer (below).
• **SMS** - will list SMS messages in the Queue Viewer (below)

**Sending Commands**

When looking at a device in the terminal you can manually send commands to the vehicle. This assumes that you either:

A. know what **Command** to send (using the device manufacturer's documentation) or
B. find the appropriate command in the bottom left drop down list.

Using method **A**, simply input the command in the top left text box, choose how to send the command (by **SMS** or **tcp** usually) and click the top most **Send** button.

Using method **B**, choose a command (**MyCmd** in the above example), input any custom variables comma separated and click the bottom right **Send** button.

The command will now show up in the terminal, preceded by **Server:** to let you know it's being sent. A device specific response will let you know the result, assuming the device received your command and was able to send it back.

**Queue Viewer**

In the Queue Viewer you can see what Commands and SMS messages that have been sent and if they were successfully delivered. Use the filters to specify type (**Commands** / **SMS**), time period, **Status**, **Device/User** and/or **Command** name.

**Abort**

For a failed command you have the option of aborting the retry attempts, by clicking the **Abort** button to the far left.

**Scheduled Tasks**

This page will give you a list of regularly scheduled tasks such as report provider processing.
User Actions
This page provides a searchable log, so you can track user actions in your Applications.

Filter as appropriate and click **Search** to display the results.
Introduction
Welcome to VehicleTracker - the system for tracking your GPS Devices.

As an Administrator you can manage Operators, Event Rules and more. This manual covers both the common functionality as well as administrative tasks.

Recommended web browsers
We recommend that you use a major, updated, web browser for the best experience: Firefox 3 or later / Internet Explorer 7 or later. The system does, however, also support Internet Explorer 6, Opera 9, Safari 3.1 and Google Chrome.

Terminology

Device
The GPS tracker device(s) you're using with GpsGate Server.

Vehicle
Often we refer to a vehicle as the object you're using devices to track.
You can of course track anything, but for the purpose of this manual we use the term vehicle, or simply device.

Application
This is usually your organization or unit. If you have access to more than one Application you get to choose which to log in to after you've entered your username and password.

SiteAdmin
The GpsGate Server administrator has access to the SiteAdmin web site. This is the main administration site where for example Applications, Plugins and Report templates are managed.

Learn more:
- Overview
- Map view
- Reporting
- Admin
Overview

Main menu
At the top of the page you'll find the main menu, which contains some or all of the below (depending on your installation). Click to read more about each topic:

- **Map view** - the start page
- **Reports** - view and create reports for print / export / mail.
- **Admin** - if you're an administrator, you can manage the Application here (such as Users).
- **Settings** - change password and personal display settings
- **Workspace** - change or create a Workspace
- **Maps** - change map if you have more than one available
- **Help** - support options
- **Logout** - log out of the system

Map View and Workspace
When logging in to the system, the default Map view is displayed.

The Map view interface is made up of a map surrounded by multiple lists that can be freely moved around and re-sized. Any set of lists can be saved as a custom Workspace. The Workspace that shows includes several lists:

- **Vehicles** - a list of all your vehicles, connected or not.
- **Tracks** - when a vehicle is selected (Track check box in Vehicles) a list of tracks are shown here
- **Track points** - will give you a breakdown of any selected track.
- **Vehicle Info** - by default shown below the map, displays details about the selected vehicle

Note: multiple workspaces can be created where lists are moved and re-sized. Therefore your actual user interface might differ from the pictures in this manual.
VehicleTracker

Learn more:
- Map view

Chapter 3  VehicleTracker
Map view
The first thing you see when logging in is the Map view. Let's take a look at how to work with the map.

Map context menu
There is also a context menu in the map, that appears when you right click on any location:

- **Zoom to street / city or region** level will give you a better overview of the selected area.
- **Draw today’s tracks**, only appears when you right click on a vehicle and will display the vehicle's path.

Map Display Options
Between the main menu and the map you find the following options:

- **View** - change active View.
- **Zoom to view** - changing View will zoom the map to show all vehicles in that View.
- **Follow selected** - the map will automatically center on the position of the vehicle selected in the Vehicle list.
- **KML** icon - used to generate a KML feed which can be used in for example Google Earth.
- **Center on click** - like Follow selected, but when you click on a vehicle.
- **Show trace** - this option will show a short red line after the vehicle you have selected in the Vehicle list, the line represents the last 10 position updates for the vehicle.

Learn more:
- Vehicles list
- Track lists
- Alarms
- Status tab
- Vehicle info
- Commands
- Tags and Views
- Settings
- Workspaces
- Maps
Points of Interest

Points of Interest is a VehicleTracker Plugin (the Administrator can install it), enabling you to view and add POI's on the map. Depending on your configuration POI's may also cause alarms when vehicles enter or leave them.

Add POI on location

POI location are commonly imported to the system, rather than added manually. But you can however right click on the map and add a POI at the current location:

The Add POI window is shown and you can give it a Title, Description (optional) and Category. Choose New.... to add a category, if needed.
Points of Interest list
By default (with the POI module installed), there should be a Points of Interest list in the bottom right of the Map view. Here you are able to search, and Add POI (see above).

If this list is empty or no POI's show up on the map, click the Settings link to the left of Add poi:

- **Show labels** - makes the POI labels always visible, as oppose to only appearing on mouse over.
- **Max map markers** - limit how many POI markers are shown on the map
- **Categories** - choose what categories to display on the list and on the map.

By default no categories are chosen. Make sure to select the appropriate categories and save these settings in your Workspace. If you are not allowed to make changes in the Workspace, contact your VehicleTracker administrator.
Vehicles

A key part of the system is the **Vehicle list**. There you see the **Users** and **Vehicles** in the current view. By default it shows the **Name**, the time it was last seen, one check box for **Tracks** and one for **Show**.

You select a vehicle either by clicking on it on the map, or in the Vehicle list in the Vehicles list. A selected vehicle will be marked in green on the map and highlighted in bold in the **Vehicle list**.

**Search user**

In the top of the **Vehicle list** there is a **Search** function where you can make free text searches for your **Operators** and **Vehicles**.

Sometimes the vehicle isn't included in the current view and the below message appears. Click **Show** to include all users.

**List Settings**

In the list's upper right corner you'll find the column selector icon. Left click on this icon to choose what columns to display.

You can also reorder the columns using the right edge handle (dots).

The available columns are:

- **Vehicle color identifier** – identifies the vehicle in the track list
- **Vehicle Name** – the name of the vehicle
- **Login ID** – the vehicle login id
- **Last seen** – time stamp for the last valid position update
- **Track** – the check-box for selecting tracks for a vehicle
- **Show vehicle on map** – the check-box for showing a vehicle
- **Status** – the vehicle connection status icons:
  - Connected and sending position
  - Connected but not sending position (it may take a while to get GPS fix)
  - Not connected (no data for at least 10 minutes caused by for example sleep mode or ignition
VehicleTracker

- Never been seen
- Last connection – time stamp for the last server connection
- Protocol – the protocol used by the device (HTTP, TCP, SMS,...)
- Speed – vehicle speed at last update
- Tag – tag(s) associated with this vehicle
- Description – vehicle description

Learn more:
- Tracks lists
- Alarms
- Status
- Vehicle info
- Commands
- Tags and Views
- Workspaces
- Maps
Drawing tracks

In this chapter we will look at the Track lists and how they're used to display vehicle tracks - both in the lists and on the map.

Selecting tracks - Tracks list

You can show multiple tracks for multiple Operators/Vehicles at the same time on the map. First you select the desired Operators/Vehicles by checking the Track box next to the name in the Vehicle list. This will populate the Tracks list with the tracks of the selected Operators/Vehicles.

The default sort order is with the newest track first, you can sort the lists in another order by clicking the column headers. You can limit the tracks you wish to show by narrowing the start and stop time stamps. By doing so you will only display Tracks that have Track points inside the selected time period.

To view a Track click on the check-box in the Select column in the track list. This will open the Track points list and fill the track points list with all the track points from the selected track.

You can also delete tracks in this list by clicking the delete icon (ð) to the right of a track.

If you have selected the Auto update points option all you changes in the Tracks list will instantly take effect in the Track Points list. If you are working with many tracks and Track Points at the same time you can disable this function by clearing the check box. This will speed up load time. If you have done this then use the Update button to load the track points into the Track Points list.

List Settings

In the upper right corner of the Tracks list you'll find the column selector icon. Left click on this icon to choose what columns to display.

- Vehicle Color identifier - this will display a square to the left of each track matching the vehicle color (see Vehicles list).
- Track Color identifiers - adds a circle to the left of each track matching the track segment color on map.
- Name - vehicle name
- Start - date and time the track began
- Stop - date and time the track ended
- Dist - track travel distance
- Select - populates the Track points list
- Del - shows the delete button (see above)

Drawing tracks - Track points list

When you select a track in the Tracks list it is opened the Track points list, where you see the individual positions in the track.

Clicking on the Draw Tracks button will draw the chosen tracks on the map in different colors for each track. There is also a button here for clearing all tracks from the map.
You can select an individual track point in a track either by clicking on it on the map, or by clicking on it in the Track point list. You remove the tracks drawn on the map by clicking the clear tracks icon.

**Track Settings**

Next to the Draw tracks button you have a drop down menu. Clicking it displays options for track drawing. Check the check box next to the specific option to enable it for track drawing:

- **Show polyline**
  Select this option to connect all the track points in a track with a solid line.

- **Show points**
  Select this option to show markers with direction arrows on the track points. To show a bread crumb trail you should enable this option without the polyline option above.

- **Show Fatpoints**
  Select this option to show “Fatpoints” where the vehicle has been idle. A Fatpoint also includes information on the length of the stop.

- **Zoom to fit**
  Select this option to zoom in on the selected tracks when drawing and re-drawing them. You should un-check this option if you have zoomed in on a part of the selected tracks and you wish to re-draw them without changing the zoom level and position of the map.

**Advanced Filters**

You can narrow down your search further based on different search criteria. This is done by expanding the Advanced filters options found on top of the Track points list.

You have the options time, speed and altitude.
By default the search options are disabled. You enable them by checking the check box to the right of each field.

**Live Filtering**

When this option is enabled the *Track Point* list below will update directly when you change your search criteria. If you are working on large amounts of data you have the option to disable the Live Filtering by clearing the check-box and using the **Apply Filter** button to the right.

**List Settings and Status Signals**

In the upper right corner of the *Track points* list you’ll find the column selector icon. Left click on this icon to choose what columns to display.

- **Track color identifier** – identifies the vehicle in the track list
- **Date** – date
- **Time** – time stamp
- **km/h** – speed (shown in the selected unit)
- **Alt** – altitude
- **Heading** – heading in degrees
- **Lat** – latitude
- **Lon** – longitude
- **Valid** – validity of the position update

Below the standard fields your available device signals are displayed (*SOS*, *Battery low* etc). These vary depending on device used.

Learn more:
- [Alarms](#)
- [Status tab](#)
- [Vehicle info](#)
- [Commands](#)
- [Tags and Views](#)
- [Settings](#)
- [Workspaces](#)
- [Maps](#)
Alarms

Alarms on the map
When an alarm occurs it is displayed on the map with a red radius at the location the alarm was reported.

![Alarm on the map](image)

If there are multiple alarms in the same area and you are zoomed out a bit on the map (i.e., normal zoom) a cluster icon is shown with the number of active alarms in the middle.

![Alarm Cluster (3 alarms)](image)

Zoom in to see the individual alarms.
Alarms list
Alarms has a normally collapsed list, by default below the map, with *(no active alarms)* in the title.

Once an alarm has activated, the Alarms list has *(X active alarms)* in its title (where X is the number of active alarms).

In the Alarms list you can manage current alarms:

In the top of the list there's an option to *Show all alarms* and *Zoom all alarms*, to get a better overview on the map.

To the right of Zoom all alarms button you'll find *Close all*. This will mark all alarms as managed, so they don't show up on the map any more. You can also close them individually with the Close alarm button to the far right.

Clicking the small black arrow to the left expands the alarm and shows details such as signal arguments.

Learn more:
- Alarms
- Status tab
- Vehicle info
- Commands
- Tags and Views
- Settings
- Workspaces
- Maps
By default shown right beneath the map in Map view, the Status tab will give you a detailed view of the selected vehicle's signal messages. With the Status tab you can easily see current signals from the device and when they occurred.

<table>
<thead>
<tr>
<th>Vehicle Info</th>
<th>Status</th>
<th>Commands</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latest messages: Taxi 0054</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alarm</td>
<td>false boolean</td>
<td>2008-12-05 14:05:03</td>
</tr>
<tr>
<td>Left GEO fence</td>
<td>false boolean</td>
<td>2008-12-05 14:05:03</td>
</tr>
<tr>
<td>Speed limit</td>
<td>false boolean</td>
<td>2008-12-05 14:05:03</td>
</tr>
<tr>
<td>Fuel level</td>
<td>1 liter</td>
<td>2008-12-05 14:05:03</td>
</tr>
</tbody>
</table>

Learn more:
- Vehicle info
- Commands
- Tags and Views
- Settings
- Workspaces
- Maps
**Vehicle info**

The **Vehicle Info** tab, by default shown below the map in Map view, shows information for the vehicle currently selected in the Vehicles list. It displays information such as *Latitude / Longitude, Speed, Heading* and when it was last updated.

<table>
<thead>
<tr>
<th>Status</th>
<th>Commands</th>
<th>Vehicle info</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Vehicle Info:</th>
<th>Description:</th>
<th>Position info:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Login ID: Unit5431</td>
<td>Latitude: 50.32868</td>
<td>Speed: 50.0 km/h</td>
</tr>
<tr>
<td>Vehicle name: Unit 5431</td>
<td>Longitude: 18.02943</td>
<td>Heading: NE, 38.0°</td>
</tr>
<tr>
<td></td>
<td>Altitude: 10.0 m</td>
<td>Last updated: 03/25/2012 13:03</td>
</tr>
</tbody>
</table>

Learn more:
- [Commands](#)
- [Tags and Views](#)
- [Settings](#)
- [Workspaces](#)
- [Maps](#)
Commands

The **Commands** tab, by default located beneath the map in Map view, contains device control and configuration commands. It will show the commands available for the currently selected vehicle (Vehicles list).

Here you can start and stop tracking and send a poll-position SMS to request a position from an off-line device.

### Sending Commands to Devices

With the Commands tab you can send commands to your devices:

1. Make sure the vehicle is selected in the **Vehicles** list.
2. Open the **Commands** tab (below the map).
3. Select device in the first drop down list and a command in the second one.
4. Click on the **Execute** button.

A progress bar is displayed and you can click **Show status** to get a more detailed view.

**Note:** If the device won't respond the progress bar will never complete, as it waits infinitely. In this case, click on the **Abort** button and investigate any problems with the device.
The application Administrator can control which commands are available (read more about Template Commands below).

The following commands are available in a default installation for most devices:

- **Device setup** Sends default setting to the device
- **Request position** Sends a request to the device for a single position update
- **Start tracking** Starts tracking with the selected tracking method with the current *Update* interval. The *Update* interval can be changed in the *Track Recorder* settings
- **Stop tracking** Stops tracking

**Template commands**

To add additional commands, see the *Devices* tab in *SiteAdmin*. For further information see the *SiteAdmin* manual.

**Learn more:**
- [Tags and Views](#)
- [Settings](#)
- [Workspaces](#)
- [Maps](#)
Tags and Views

Tags and Views are used to group vehicles and users. You can for example create a View based on vehicle type (e.g. truck or taxi) or any other criteria (e.g. “West coast group”, “Subcontractor ACME” or “Unit Managers”). This enhances the usability of VehicleTracker as the information on the map can easily be kept relevant to the task at hand.

If you have any views available in your account they can be found in the top left of the map:

Simply choose a view in the drop down list and the map will be “filtered” according to the view settings.

If you are an administrator of VehicleTracker you can manage these tags. Read more here.

Learn more:
- Settings
- Workspaces
- Maps
Settings
In the main menu you can access the Settings window.

General tab
On the General tab you can change your password. Simply Save when you're done.

![General Settings Window]

Track visualization tab
On the Track visualization tab has settings for how vehicle tracks are shown on the map.

Fatpoint duration
The first setting determines how long a vehicle can idle on a position before it is considered a fatpoint. Fatpoints are then visible on the map.

Use filtered reader
By default this check box is selected, which ensures that tracks are always current when drawn on map.

Warning: deselecting this check box might make the tracks draw faster, but has them rely on nightly updates and could cause inconsistencies.

![Track Visualization Settings Window]

Localization tab
On the Localization tab you can change language and measurement. Your installation determines what languages are available and the GpsGate Server administrator can manage languages.
Style
Settings on the **Style** tab determines overall look and feel of VehicleTracker.

Marker settings
Settings for how vehicles are displayed on the map. By default they use an arrow marker and show their Name in a label above the marker. Change this as you see fit.

Workspace Settings - Marker clustering
By default the map clustering feature will be used, but if you always want to see each individual vehicle on the map, deselect the **Enable vehicle marker clustering** check box here and click **Save**.

Learn more:
- [Workspaces](#)
- [Maps](#)
Workspaces

A Workspace is a specific layout of the VehicleTracker user interface. You can have multiple Workspaces with different layouts for different tasks. A Workspace keeps track of the following information:

- list positions and sizes
- Columns visible in list lists
- Sort order in lists
- Current View

VehicleTracker has a default Workspace that you can always go back to.

Save Workspace

You can save the state of the user interface as a Workspace at any time.

In the Workspace menu, select Save to save changes to the active Workspace. However, if you try to save the default workspace, the Save as dialog is displayed instead (below).

Create a new Workspace

1. In the Workspace menu, select Save as. The new Workspace window is displayed.

The Shared check box is only shown if you're an administrator / have rights to create shared Workspaces. This option will make the Workspace available to all users. You can also use the Manage Workspaces window (below) and select Shared.

2. Enter a name to describe your Workspace.

3. Click on the OK button to save.
Deleting a Workspace
You can delete any workspace you've created (assuming your user has the right to do this).

1. Select **Manage Workspaces** in the **Workspace** menu. The Workspace window is displayed.

2. Click on the **Delete** link to remove a workspace.

3. Finalize by clicking on the **Save** button.

Learn more:
- **Maps** 79
Maps

In this chapter we’ll have a deeper look at different map roles in VehicleTracker.

Map clusters

A feature that works with all maps is the map clustering: if three or more vehicles are in the visually same area (1 cm²) a cluster icon is shown, displaying how many vehicles are in that area:

Zoom in to see the individual vehicles.

Area Search

With the Area Search map tool you can see what vehicles and events occurred in a certain area during the specified period.

1. Simply click the Area Search icon and select a area on the map. The Area Search window is shown.

2. Specify period and optionally an Event Rule and click Search.

3. Matching vehicles are shown. You can now click on a vehicle to show the specific track.

Close the Area Search window when you're done.

Google Map Roles

By default, Google Maps is used in VehicleTracker and you won't have any other options in the Maps menu.

Your administrator may however have installed additional maps. You can then change map as you wish.

Different maps have different roles - try to find the one that works best for you.
If your system uses Google Maps (which is default), it has the following functionality:

- **Map modes** - there are currently four different Google Map views: Map, Satellite, Hybrid and Terrain. Note that if you are using custom maps then you will not have these options.

- **Zoom control** – on the left side of the map you have the zoom control bar. Drag it up or down to zoom in and out. You can also zoom in with a double left click on the map and zoom out with a double right click.

- **Zoom area** - click on the button and then hold down left mouse button and drag a square over the area you would like to zoom into.

- **Zoom all vehicles** - click on the button to zoom in on all vehicles on the map.

- **Request Address** – Click on the button and then drag the marker to the place you want address information for.

- **Clear map** – click on the button to clear all tracks from the map.

- **Undo zoom** - the button undoes the previous zoom operation.

Learn more:
- [Points of Interest](#)
**Geofences**

The **Geofence** tab, by default located below the map in Map view, is divided in two modes: *Administrator* and *Operator*. As an Operator you can only view existing Geofences created by an Administrator.

**Operator mode**

Click on the **Geofence** tab and select the Geofence Tag you would like to view in the drop-down menu. You will get a list of all included Geofences. Click on a Geofence to pan the map to the location of the selected Geofence.

**Administrator mode**

As an VehicleTracker administrator you have the ability to create and edit Geofences. You also have the ability to group Geofences using Geofence Tags.

Note that there is also a Points of Interest plugin that works very similar to Geofences, but suit some scenarios better (visual points with or without alarms).

**Create a Geofence**

Make sure the **Geofence mode** radio button is selected.

1. In the dropdown, select *New circle* or *New polygon*.
2. Type in an appropriate name that describes the location in the **Geofence name** text box (e.g. "Acme Warehouse", "4th Presinct" etc).

3A. When choosing a circle geofence, the red circle that appears on the map is the Geofence boundary. Click on the circle center and drag it to the right place on the map. You can click and drag on the circle border to increase or decrease the Geofence radius. Alternately, you can use the **Radius** text box.

3B. When choosing a polygon geofence, left click on the map to start drawing the polygon. Left click on the map for each new point of the polygon that you wish to create. Finish by left clicking on the start point (red circle with black border).
4. You connect a single Geofence to a group of Geofences by adding a Geofence Tag. There are two predefined Geofence Tags that trigger alarms:

- **Go inside – Alarm** - triggers an alarm when a vehicle enters the Geofence area
- **Go outside – Alarm** - triggers an alarm when a vehicle leaves the Geofence area

Select the one you would like to use in the drop down menu **Select Tag**.

5. Optionally click the Advanced link to add a new Geofence tag. Here you are also able to link the Geofence to multiple tags. Custom Geofence tags can be used to create more advanced **Event Rules**.

6. Save your Geofence when you are done. The Geofence will now trigger alarms for all Vehicles in your application.

**Edit a Geofence**

You edit an existing Geofences by selecting the Geofence in the drop down menu. You can then rename, move, resize or remove the Geofence just as you do when creating one.

**Tag mode**

You can also Edit Geofence Tags by selecting the **Tag mode** radio button. All the Geofence tags will then be selectable in the drop down menu. Here you can select and deselect Geofences within each Geofence Tag. Click **Save** to apply your changes.

Learn more:

- Maps
- Points of Interest
**Driver Journal**

Driver Journal is used to create detailed reports to justify vehicle usage. You can combine multiple trips to one journal entry and for each journal entry you can choose a category and add a description. You can select the categories you want to show in Driver Journal reports.

Select **Driver Journal** in the **Workspace** menu to open your Driver Journal.

The Driver Journal Workspace has three main windows, **Journal**, **Trip information** and **Map**. When you work in the **Journal**, the currently selected trip is shown in the **Trip information** and **Map** windows.

In the list you can see the trips and vehicles assigned to you. If you drive multiple vehicles you can select the vehicle you want to work with in the **Vehicle** drop-down.

When you open the Journal the week with the latest journal entry is shown. You can move forward and backward in time with the arrows and change time period with the buttons **Day / Week / Month**. The **Today** button takes you back to today.

**Add trip to Journal**

When you give a trip a category it turns green and is automatically added to the Journal.

1. Select the trip category in the **Category** drop-down. The trip turns green and is added to the Journal
2. Add a description of the trip in the note field

The trip is automatically saved when you make changes to it.

**Note:** The odometer values are automatically calculated based on the **Accumulator** settings for the vehicle.

**Merge multiple trips**
You can merge multiple trips when you add them to the Journal (for example if one customer visit is listed as several trips).

1. Select the trip category in the **Category** drop-down. The trip turns green and is added to the Journal.
2. Add a description of the trip purpose in the note field.
3. Click on the "Plus" sign to include the next trip in this Journal entry (the start and stop times and addresses are updated).
4. Keep clicking on the "Plus" sign to add more trips.
5. Click on the "Save" icon to save the trips as one Journal entry.

The **Trip information** and **Map** windows are updated as you add more trips to show the current selection.

**Note**: You can click on the "minus" sign to remove the last trip from the Journal entry.

**Edit Journal entry**
At any time you can make changes to the Category and Note fields directly in the list.

You can merge in additional trips to the selected journal entry with the "Plus" sign. If you want to remove trips from a Journal entry you must first remove the Journal entry and then add it again.

**Remove Journal entry**
A Journal entry is removed when you change the **Category** to " - none - ". When you do this the trip turns gray.

**Note**: When you remove a Journal entry made of multiple trips they will again show up as separate trips in the list.

**Odometer handling**
The Odometer is managed from the **Accumulator** tab in the administration page for the vehicle.

**Show Journal reports**
At the bottom of the Journal you can select a report for your Journal (the reports available depend on your installation).

Select a report and click on **Show Report**.
Your report is opened in a separate window.
**Reporting**

Assuming your account has access to this feature, you will find *Reports* in the main menu.

Depending on your VehicleTracker configuration, there might be preconfigured reports available, like *Event Rule, Trip & Idle (Daily)* etc, ready to use.

Usually it's only the VehicleTracker administrator who has *Manage Reports* available in this menu.
Running a report

If you have reports available below the Reports / Manage Reports menu option, click one of these to run it.

The report preview is shown in a new window:

![Report Preview](image)

The parameters may have default values, but change these as you see fit (Period etc).

By default the report will be show as HTML (web layout). But if you for example wish to use the result in Excel, then choose CSV instead to export as a comma separated list.

Click on the Generate button. The report is shown below the gray list.

When using HTML layout you can print the report. If you chose CSV you'll be able to save the report.

Also, you can select the **Send to youraddress@yourdomain.com** check box to mail the report to yourself.

Learn more:
- Adding a report
Adding a report

Adding a report in VehicleTracker

We will now "create" the report in our Application. This let us choose the report's default settings.

1. Click **Manage reports** in the **Reports** menu. The **Report manager** window is shown.

2. Choose your report in the **Report definitions** list and click **Open**. Report settings and preview pops up in a new windows/tab.

3. Choose suitable **Report settings** as desired:
   - **Name** and **Description** - this is what the users primarily see
   - **Show Parameters** - leave this ticked to let the users choose period and other parameters by themselves.
     You can, however, unselect this check box and make the default parameters (below) static.
   - **Default format** is set to **HTML** as default, which works well for general purposes.
     You can also choose **PDF** if the report is normally printed (requires the users to have a PDF reader installed).
     If the report is primarily to be used for export, and then import to Excel or other compatible applications, choose **CSV** instead.

4. **Select parameters** to set their default values. This can make the report more effective even if **Show parameters** is selected, since the user don't have to do more than necessary to run the report.

**Hide parameters**

Other then hiding all parameters (above), there's an option to hide individual parameters by selecting the **Hide** check box to the right. This enables you to choose what event rules to include, for example, and prevent the **Operator (user)** from changing these values.
5. **Email schedule** (optional)

Other than running the report from VehicleTracker you might want to add an email schedule. This often increases usage of the report significantly. When you select the **Activated** check box email options are shown:

![Email schedule settings](image)

Choose interval, users with which tag and format (works in the same way as **Default format**, above).

6. **Preview** and/or **Save**

Preview the result if you like to and then save the report.

Your report should now be available in the **Reports** menu of VehicleTracker.

All done!

A GpsGate Server administrator control who the report is available for with user roles. To do this, go to **Admin > Roles** and enable / disable reports just like in **SiteAdmin**.
GpsGate Mobile
You can access roles directly from your mobile device with the GpsGate Mobile interface. As an administrator you can install the Mobile plugin from SiteAdmin and enable it in the Application.

Logging in
Login to GpsGate Mobile from the same URL as you login to VehicleTracker. Your mobile device is detected at login.

If you want to login from a desktop web browser you add “/m” to the standard login URL (for example “http://myserver.com/m” or “http://myserver.com/GpsGateServer/m” depending on your installation). If not available, ask your system administrator.

You can expect GpsGate Mobile to work well on all modern mobile devices.

Fleet status
The vehicle list is continuously updated showing the address, time since the last update and all active alarms for each vehicle.

The list can be sorted in date, name and alarm order using the menu at the top of the list and with the search function you can quickly find specific vehicles.

Tap on any vehicle for more details or tap a map icon to go directly to the real time map for the vehicle.
Vehicle information and Alarms
The vehicle information page shows more details for the selected vehicle including current speed and vehicle status. The map icon takes you to a map page for real time tracking of the vehicle.

Active alarms are listed with detailed information and times stamp. You can show alarms on a map or close them directly in the list.

The alarm icon in the top right corner is available on every page. As long as there are active alarms the alarm icon is red. Tap the alarm icon to show the vehicle list with the vehicles with active alarms first.

Live maps
Tap the map icon to track a vehicle in real time. The map window shows the vehicle and active alarms. You can show and hide vehicles and alarms with the menu above the map.

You can show your own position on the map by tapping the Me button below the map. This is great if you want a visual reference between you and the vehicle.

The All button zooms and pans the map to include all objects.

The Info button brings up the information box showing details and status information for the tracked vehicle.

As shown in the images multiple maps are supported. At the time of the first version of GpsGate Mobile this included Google Maps, OpenLayers and OpenStreetMaps.
VehicleTracker

Open layers

Map with alarm
Admin

This section explains how to work with the Admin menu options.

Only administrators of VehicleTracker have this menu available. If you don't see Admin in the main menu, please ignore this section of the manual.
Users

This chapter will cover the management of Users in VehicleTracker (only available for administrators).

User Roles

There are three different user roles in VehicleTracker: application Operators, Administrator (Operator with admin rights), Driver, and Unit (vehicle). The table below shows the differences between the user types.

<table>
<thead>
<tr>
<th>User type</th>
<th>Send tracking data</th>
<th>Viewing rights</th>
<th>Administration rights</th>
<th>Act on alarms</th>
<th>Geofence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrator</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Create/Edit</td>
</tr>
<tr>
<td>Operator</td>
<td>Yes</td>
<td>Yes</td>
<td>-</td>
<td>Yes</td>
<td>View</td>
</tr>
<tr>
<td>Unit (vehicle)</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Driver</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Units

Units are users that can send tracking information to GpsGate Server by being attached to a Device. These users can not login to the VehicleTracker user interface. Normally this user type is selected for vehicle mounted tracking devices.

Operators

Operators can be connected to a device, but are also able to login to the VehicleTracker user interface and view vehicles, draw tracks, export track data (KML / CSV), generate different reports and act on alarms.

Application Administrators

In addition to the Operator functionality Administrators can create, manage and delete other users in the application, add reports etc. Note that this user may be a VehicleTracker administrator while not having access to SiteAdmin.
Adding Operators
An administrator can create all type of users. We'll now look at creating an Operator.
Click on the Add new user button in the Vehicle list.

The user creation wizard is shown:

You navigate the wizard with the Next / Back buttons available in each section.
You can also click on a section to expand it.

1. Choose a User Type template (or none) and click Next.
2. In the Details section, supply username, name, surname, e-mail and password.
   If your user is a Driver (using iButton), supply a Driver ID in that section. Else skip to Roles.
3. The permissions step is shown. Else Operator (if not selected) and click Next.
4. Add a new tag if necessary and select the tag or tags to associate with this user. Click Next.

4. A summary of the Operator settings are shown. Click Finish and you're done.
Adding Vehicles

A vehicle is a user attached to a device, giving the device an identity in VehicleTracker. The process is similar to adding an Operator. When you've clicked Add user on the Users page:

1. Supply username, name, surname, e-mail and password. Click on the bottom right Next button.

   **Note:** The username and password are used both as login credentials to the VehicleTracker user interface and when sending data to GpsGate Server from a Device (client).

2. The permissions step is shown. Select _Unit_ and click Next.

3. Add a new tag if necessary and select the tag or tags to associate with this user. Click Next.

4. The summary is shown. Now click Configure device instead of Finish. The Devices tab of your new user is shown. Follow the steps below for adding a device.

---

Adding a device

Now we will look at adding a Device for one of your users. This will enable you to track the Device.

1. On the Devices tab of a user, click Add new device.

2. Supply the correct information about your Device:

   - **Device name**: Your own description
   - **IMEI**: The device IMEI number (usually printed somewhere on the device). If IMEI is used the device can use this to log in instead of username and password from the User - not to be confused with GPRS login.
   - **Device mapper**: A device mapper matching your device protocol.
   - **Country**: Country of the SIM card.
   - **Operator**: The SIM card operator.
   - **APN**: Access Point Name received from the SIM card's telecom operator.
   - **GPRS username &**: Login credentials for GPRS traffic on the SIM card's telecom
3. Click **Save** to finish.

* Only be available if your installation has SMS support.
Device Mappers

VehicleTracker can handle status messages and alarms from a large number of supported devices. Device specific messages are mapped to system messages using Device mappers for each device type.

Device specific inputs are mapped to the common GpsGate Server message format. For example: the message “SOS Alarm” can be different for different devices, such as: “SOS”, “SOS Button”, “Alarm1”, “Input1”, “In1”. The device mapper is used to transform these device specific messages to system messages.

Add Device Mapper

From the Admin > Device mappers page, click Add new Device mapper or Edit on a current mapper.

1. Select a installed device in the drop down menu. If the device you're looking for isn't available, download it as a Plugin through SiteAdmin. Please contact us on support@gpsgate.com if you wish to discuss additional devices.

2. Give the mapper a name and a description.

3. Map the device specific messages to system messages. You only need to map the messages that you actually use in you implementation.

Conversion

If you are mapping analog inputs you can add a multiplier and constant to transform the device specific input to a “real” value.

- **Input** is the device signal.
- **Multiplier** is used to multiply the Input for a correct out value
- **Constant** can be used as an offset to add / subtract a constant value

\[
\text{Output} = (\text{Input} \times \text{Multiplier} ) + \text{Constant}.
\]

Example

If your vehicle tracking device sends fuel level represented as 0 – 255 for 0 to 70 liters your multiplier should be set to 0.2745098 - giving you a 70/255 conversion. This way the system Fuel level message will contain the actual fuel level in liters. The constant can be used to add an offset to the value.

You can add several device mappers for one device type. For example you would want to do this if you have two types of trucks with different fuel tank volumes or different fuel level meters. When you add devices to your system you can select one device mapper for each device.
**Non linear conversion**

It is possible to map analog values with a non-linear function. This can be useful when taking a sensor value from a vehicle (e.g. a fuel tank) and map it to a system variable (e.g. "Fuel level" when the sensor value is not proportional/linear to the actual fuel volume.

Rather then using a constant in the *Multiplier* filed you add a formula with the following syntax:

\[
IN1:IN2#OUT1:OUT2,IN3:IN4#OUT3:OUT4, \ldots
\]

*INx* and *OUTx* are numbers, which defines intervals. The IN-interval maps to the OUT-interval.

**Example:**

\[
0:2#0:20,2:4#20,80
\]

A value 1.0 from the tracker will map to 10.0 in the system variable. A value 3.0 will map to 50.0

**Example 2:**

\[
0:1.5#0:15.0,1.5:3#15:45.8,3:10#45.8:0
\]

Example with decimal numbers in interval.

When using a formula the *Constant* field is not used.

![Edit Device mapper](image)

4. Click **Save** to finish.
Event Rules

*Event Rules* decide under which conditions incoming messages should create alerts and how they should be handled in VehicleTracker. Rules can also detect when a tracking device has been offline for a certain duration of time.

This approach enables flexible implementations where alarm monitoring can be customized to include exactly the right messages or missing messages.

Add Event Rule

For ease of use a wizard guides you when you setup an event rule. If you make a mistake or omit something a yellow triangle comes up next to rules that have potential issues. Moving the mouse over a triangle brings up a detailed explanation as shown in the picture.

From the Admin > Event Rules page, click *Add new Event Rule*. The wizard is shown.

1. Provide a name and optionally a description. Also choose what *Kind* of rule to create:

   - *Live and Analyze* - will display alarms on the map. Further see *Notifications*, below.
   - *Analyze only* - the event is strictly used for reporting.

   Then click on *Next*.

2. Choose which *tags* the Event Rule applies to and click *Next*.

   Note: if you need to add a tag through Admin > Tags, remember to click Refresh in the Event Rules window once you’ve saved the tag.

3. Now decide when the rule should be active. By default *Always active* is selected, but you can change it to *Active on schedule* and make exceptions on for example weekends:
Click **Next** when you're done.
4. In the **Expressions** step, add the actual rule condition. This is typically a device signal, but can be many other things too.

![Expression Example](image)

When you add a new expression, make sure to choose an appropriate type:

- **Driver ID login**: Use this to track drivers with iButton.
- **Analog Expression**: Analog Expressions let you create an expression for analog inputs. The expression compares the input value to the value you set. To use this expression you need to map an analog input from your device to a GpsGate variable using the Device Mapper.
- **Digital Expression**: Digital Expressions let you create an expression for digital inputs. The expression compares the input value to the value you set. To use this expression you need to map an analog input from your device to a GpsGate variable using the Device Mapper.
- **Geofence Expression**: Trigger event when vehicles pass through [Geofences](#).
- **Offline Expression**: Offline Expressions let you specify a time period since last connection for a device to be considered as offline.

**Match all or any**

When using multiple expressions in the same Event Rule you can choose **Match all** or **Match any** (radio buttons) below the last rule. Selecting all will require that all the conditions are met, while only one of them must be met if you choose any.

**Event delays**

You also have the option to delay how fast the event triggers. If the vehicle for example must stay in a Geofence for at least 5 minutes before the event should trigger, Change **Immediate** to **Delayed event** and input 5 in the **minutes** text box.

Click **Next** when you're finished with the expression.

5. The final step is **Notifications**. This is both used for reports, and also to display event information in the map view.
Application
If the Event Rule applies to Alarm panel and reports, you will find a SOS/Alarm drop down list to the right (not seen with Reports only), followed by the Message drop down.

| Application | Alarm panel and reports | ALARM | Battery is low |

The Message window allows you to supply a message for reports and / or the Map view. This can simply be a static message like "Battery is low" or a dynamic message using variables.

Using variables
The variable drop down list is located to the far right in the message window. Available variables depends on the type of Event Rule you're creating.

For example, we could customize the “battery low” message like this:

“Battery low: [USER_NAME] [EVENT_TIME]”

This would output the vehicle name and what time the event occurred.

When you're done with the Event Rule, click Save in the bottom right corner of the page.
Tags

Tags are used in many parts of the system for categorizing and filtering users and vehicles, so the using tags should be essential for you as an administrator.

Let's take a look at managing tags, which is pretty straightforward. Begin by choosing **Admin > Tags** in the main menu.

**Edit tag**
To the right of each tag there's an *Edit* link. Click it and see below.

**Add new tag**
1. Click the bottom left *Add New* button.
2. Provide a tag *Name* and optionally a *Description*.
3. Choose which users this tag applies to.
4. Click the *Save* button.

Learn more:
- **Views**
- **Roles**
Views

Views are used to filter users in the user interface. Only the users that fit into the View criteria are shown in the user interface. This can be used to group vehicles after their status, such as Online / Offline. It is also possible to add tags for additional filtering such as “Taxi”, “Truck”, “Department A”, “Operator A”, etc.

Manage Views through Admin > Views in the main menu.

Edit View
To the right of each tag there's an Edit link. Click it and see below.

Add new View
1. Click the bottom left Add new View button.
2. Provide a tag Name and optionally a Description.
3. Choose which Status codes to include in this view.
4. In the Tags section, you can choose to include vehicles with all selected tags - Match all - or every vehicle with any of the tags you select below - Match any.
5. When you've selected Tags, click the Save button.
Roles

You can use Roles to set privileges and available roles per user role (Administrator, Driver, Operator and Unit).

Click Admin > Roles to show the Roles window.

Copy Role

To the far right of each Role there’s an Create copy button. This is an effective way to create a new role, without having to set every single feature from scratch.

Click the button and continue to edit as described in Edit roles, below.

Edit Role

To edit a role, click anywhere to the left of the Create copy button, on the role’s row.

The Role’s details are displayed. Make sure Name and Description have appropriate values.

Auto allow new items will add features to this role as they are enabled for the Application. This way you don’t have to update each role with the new features when, a new feature is enabled in SiteAdmin.

Click the Next button (or the 2. Users title) to continue.
Role Users
Use the check boxes to select which users to include in this role. Just like in the Vehicles list, you can use the search box to filter the results. When you're done, click Next (or the 3. Privileges title).

Role Privileges
The role privileges appear in a tree of folders.

- **Admin**
  - _EditApplicationPrivileges enables user to edit Roles and Privileges.
  - _EditDeviceMapper enables user to edit Device Mappers.
  - _EditDialogs enables user to edit dialogs. Some dialogs e.g. the Jobs dialog in Dispatch, have downward arrow in the upper right corner. This contains a menu where you can edit which fields are visible in the dialog. Changes are saved in the Workspace.
  - _EditEventRule enables user to edit Event Rules.
  - _EditGateEvent enables user to close Alarms.
  - _EditTags enables user to edit Tags.
  - _EditUsers enables user editing. Select which Roles users may be edited for. For example you may prevent an _Operator from editing _Administrator users.
VehicleTracker

Chapter 3

- **_EditUserTemplates** enables user to edit User Templates. Read more.
- **_ReadData** using _ReadData to determine who can see which vehicle data and the _Me tag to only see your own data.

- **Commands**
  - **_ExecuteCommandAll** lets a user send commands to devices.
  - **_ExecuteSpecialCommandAll** enables the user to also send commands marked as Special.
  - **_ResetCommandQueue** allows the user to reset the outgoing queue when it contains commands.

Further see **Template Commands**[^11] in the SiteAdmin documentation.

- **Geocoding**
  - **_LiveAddress** will enable the Live Address functionality, so addresses are only retrieved when the user is logged in. _LiveAddress must be enabled for this Application in SiteAdmin first.

- **Geofences**
  - **_EditGeofence** if Geofences[^8] is installed and enabled in the Application this enables the user to edit geofences.

- **Login** - determines how the user can login:
  - **_DeviceLogin** is used for tracking devices to login in and transmit data.
  - **_MobileLogin** controls access to the GpsGate Mobile[^88] site.
  - **_WebLogin** refers to VehicleTracker.

- **Maps**
  - **_UseMapCustom** enables imported PEG, PNG, GIF or BMP maps. Read more
  - **_UseMapNative** enable the standard Google Maps.
  - **_UseMapPlugin** - Enable other map plugins.

Further see the SiteAdmin documentation.

- **Reports and Export**
  - **_UseTrackExport** determines of the users have general access to reports and/or can export data from the track points list.

- **Tracks** - read / edit rights for track lists[^65].

- **User settings** - possibility to change password, localization etc.

- **Views** - read / edit rights for Views[^18].

- **Workspaces** - control usage of private and shared Workspaces[^77].

- **Plugins** - control access and settings for plugins you've installed.
  - **PointsOfInterest** enables the use of Points of Interest
  - **Reporting** controls which reports are available. You will need them enabled as **_CreateReport** to add them in the Report Manager[^87].

The **Save** button is in the very bottom left corner.
$math 34
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$math.acos 34
$math.asin 34
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