truphone

IoT/M2M Connectivity Management Platform - User Guide

Release 2.0.2

Truphone

Feb 19, 2019

CONTENTS

OVERVIEW

1.1 Description

The Internet of Things (IoT) / Machine-2-Machine (M2M) Truphone Connectivity Management platform allows enterprises to manage the connectivity service provided by Truphone. The platform controls the full life-cycle of connectivity Subscriptions, Devices and SIM cards, enabling enterprises to reduce time to market and quickly capitalize on new M2M-related revenues.

1.2 Features

The main features of the IoT/M2M Truphone Connectivity Management platform are:

Dashboard The dashboard is a dynamically configured view that allows the customer to get an overview of the connections usage, state of the inventory of devices, latest charges, latest alerts and latest notifications.

Account Management Control the customer details, user accounts, sub organizations and communications with customers.

Billing Control the details of the rate plans associated to the SIM cards. Check the monthly invoice with detailed usage and fees.

SIM life cycle Management Manage full life cycle of SIM cards. Manage over-the-air SIM Card activation, Send SMS and check latest location and device. Get the history of the SIM card, short messages, locations and call detail records.

Devices Monitor and control the devices used by the SIM cards.

Rules Create rules associated with specific SIM cards and devices based on type of call detail records, content of short message, location, device and usage (e.g., after X megabytes). Rules can be sent by email, SMS, Push API and SNMP traps.

Notifications Be notified in real time about SIM Card and device updates (e.g., activations and deactivations and SIM card and account actions).

Reports Create reports to deep dive to the details of the usages. Reports can be based on the inventory of SIM cards, rate plans, locations, usage, rules and notifications.

Audit Trail Check every action performed by users, by the platform on behalf of users (e.g., rules triggered) and actions by the operator or by platform on behalf of the operator that afect your account.

API REST-based API with the most relevant operations to manage your SIM card and device inventory. The API has granular permissions, token based authentication and throttling / rate limiting. See our public repository for demo clients (e.g., PHP, Python and Javascript).

Other. . . Real-time troubleshooting. IP addresses, VPN and private APNs. Two-way SMS. Exports (e.g., CSV, PDF or Email). Network status. And more. . .

FRONTEND

2.1 Overview

This session describes the frontend features, the user interface layout and the advanced table functions.

The frontend works with the latest two major versions of: Microsoft Edge, Google Chrome and Mozilla Firefox, and Apple Safari.

2.2 Features

The frontend user interface have the following characteristics:

- Beginner's tour
- Responsive and accessible via web browser or smartphone
- Support for full-screen
- Interactive graphs
- Customizable

2.2.1 Beginner's Tour

The beginner's tour gives a step-by-step tour of the frontend user interface, highlighting the major layout elements.

Tip: The tour will start automatically on first time the user logs in into your account.

2.2.2 Responsive and accessible via web browser or smartphone

By using a responsive web design, all the web user interface of the platform is accessible via web browser or smartphone.

2.2.3 Full-screen

Using the following icon, located in the upper toolbar, the user interface automatically changes to full-screen.
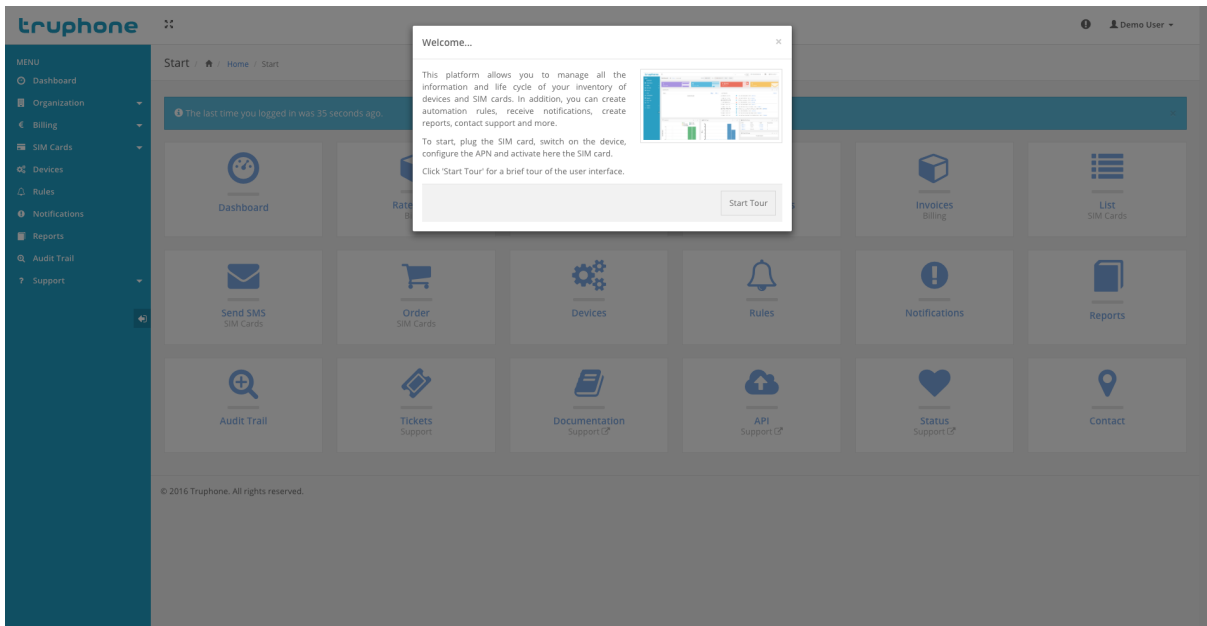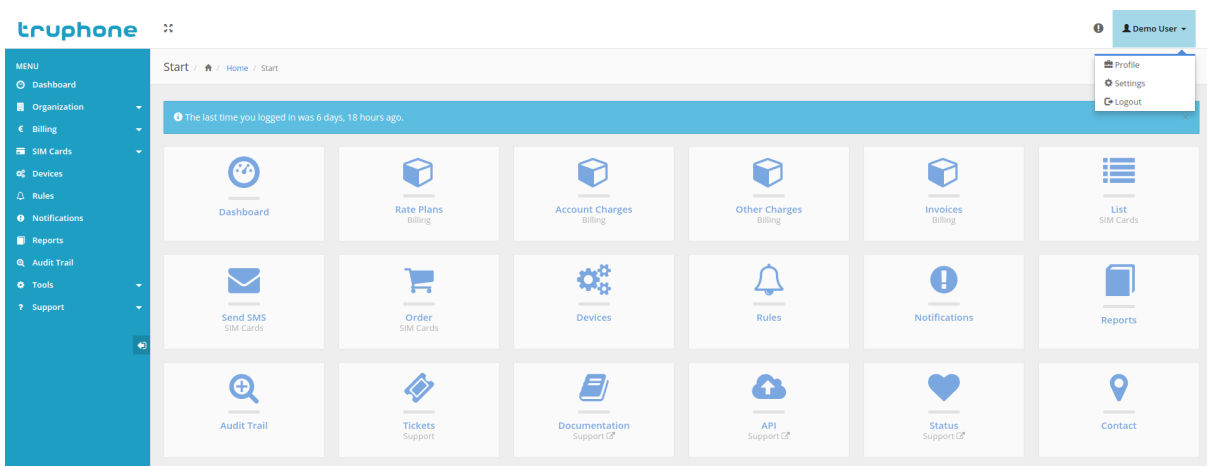
Fig. 1: User interface tour.

Fig. 2: Dashboard home page in a web browser.
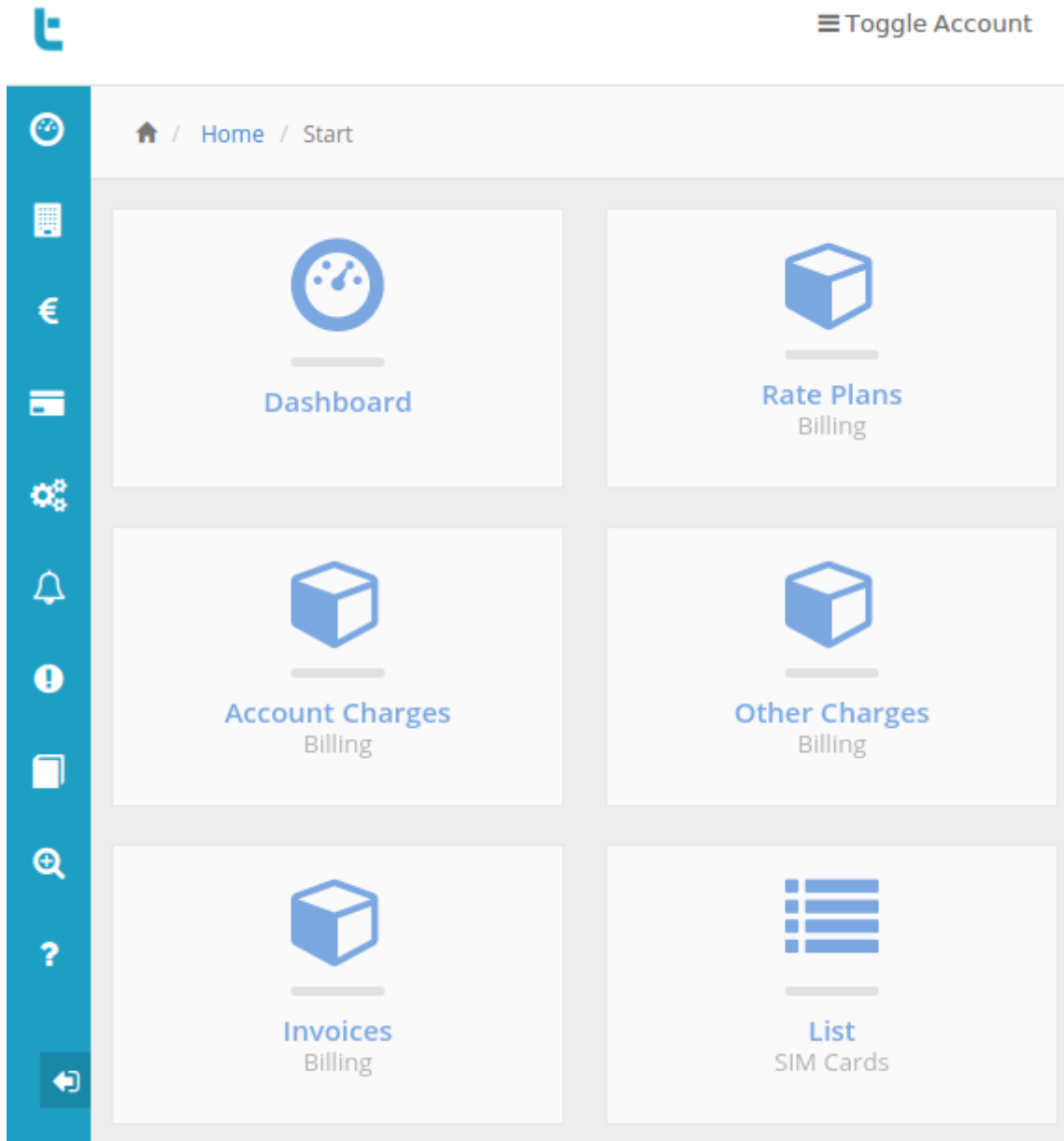
Fig. 3: Dashboard home page in a smartphone.

Fig. 4: Dashboard full-screen button.

2.2.4 Interactive Graphs

The platform uses graphs to show the reports (e.g. inventory, data or SMS usage, etc.). The graphs are responsive, they contain tooltips with the related information, you can activate or deactivate lines or bars you don't want to see, the usage reports graphs also come with a line indicating the average usage per active SIM card.
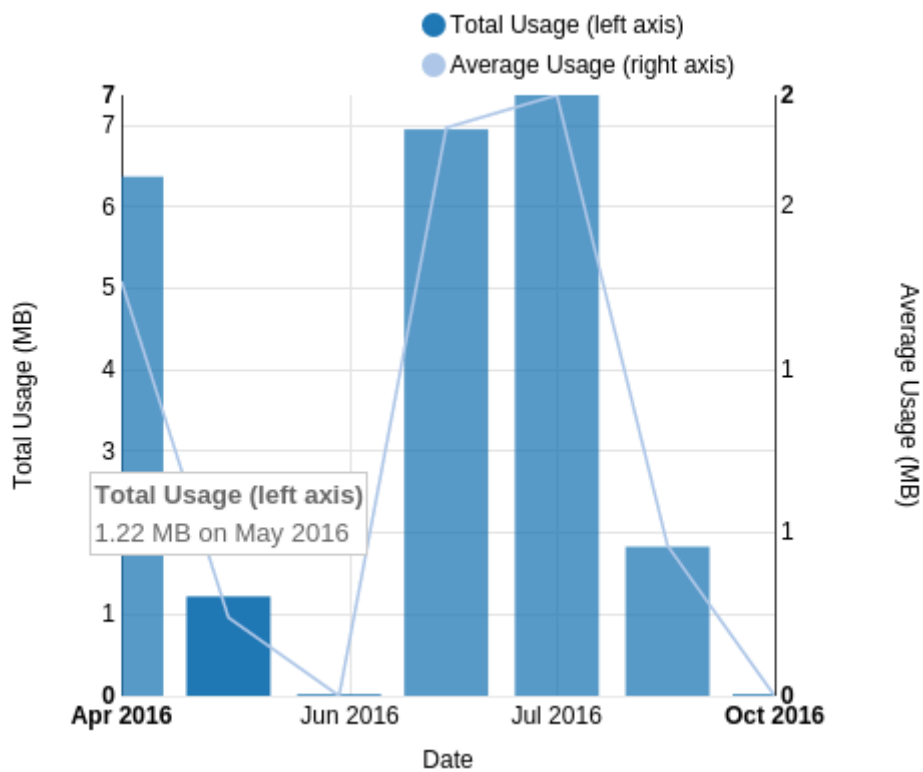
Fig. 5: Data usage report with average line and showing the tooltip.

2.2.5 Customizable

Several aspects of the frontend are customizable. To change, you need go to user Settings menu.

Among other, you can change the following options:

- Homepage
- Language
- Timezone
- Enable/disable showing last login
- Enable/disable human readable dates

2.3 Layout

The platform web pages layout is organized in three different sections: Toolbars, Menu and Content.

2.3.1 Toolbars

By default, at the top of each page, you will find one or more toolbars.

Fig. 6: Main header toolbar.

On the left-hand side, the main header toolbar allows you to minimize/restore sidebar or to switch to/from fullscreen. On the right-hand side, the main header toolbar allows to access the latest notifications or to open/close the account menu. In the user dropdown menu includes links to the user profile, user settings and to logout.

2.3.2 Menu

By default, on the left-hand side of each page, you will find the main menu.
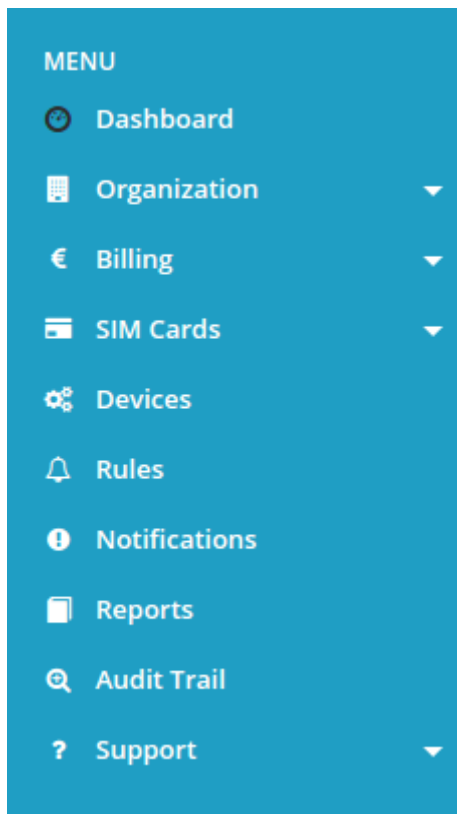
Fig. 7: Frontend main menu.

The menu includes links to all the sections of the platform. Note that the menu choices with an arrow on the right are actually a group of related links. The icon of the menu choice will change color when viewing a page of the section.

Tip: In smaller screens, the menu will reduce its horizontal size and will show only the icons. Hover the mouse over the icons to show the links of that group.

The menu can be completely hidden selection the left arrow at the bottom. To restore, you can click on the logo at the top.

2.3.3 Content

The content section is all the space occupied by page below the toolbar and at the right of the menu. This section will changed based on the page currently navigated.

2.4 Tables

Some pages have too many elements to display at the same time. This way, tables are the best element to show them. The platform comes with s good table system, with features like:

- Dynamic rows

- Pagination

- List elements between 10 and 50 rows per page

- Manual and auto Refresh functions

- Filters by string, type or date

- Single and multiple column order

- Show/hide columns

- Export as CSV or send to email as PDF

Fig. 8: SIM card list view and the table associated.

DASHBOARD

3.1 Overview

The Dashboard is a dynamic page that shows the user an overview of all the relevant information of its account.

The dashboard includes cards with the most important statistics at the top and after that three columns with widget that include events, graphs and tables.

The user can configure the reporting period and set the dashboard to automatically update the cards and the widgets.
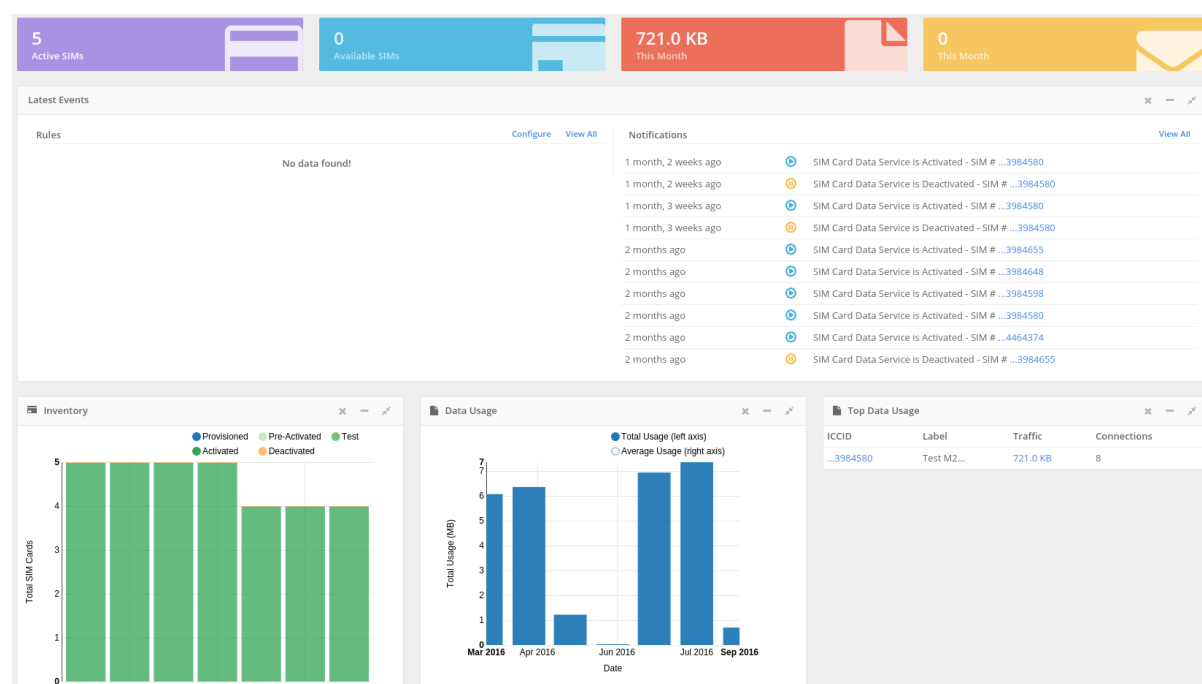
Fig. 1: Dashboard layout.

3.2 Cards

Below are the cards that are typically configured on the dashboard.
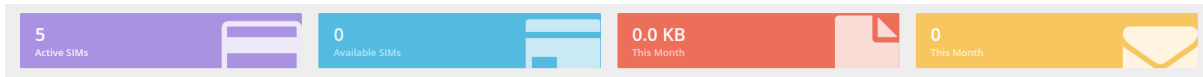
Fig. 2: Dashboard cards.

3.2.1 Active SIMs

This card shows the number of SIM cards that are in the "Active" state.

3.2.2 Available SIMs

This card shows the number of SIM cards that are in a state that can transition to "Active" (e.g., suspended).

3.2.3 Data

This card shows the amount of data (in KB, MB or GB) that the devices have used in the current month.

3.2.4 SMS

This card shows the number of SMSs that the devices have sent in the current month.

3.3 Widgets

Below are the widgets that are typically available on the dashboard.

3.3.1 Latest Events

This widget has two tables.

The left-hand table shows the latest triggered rules (e.g., New Call Detail Record and New Location). You can click in 'Configure" to go to the *Rules* section to create or modify alerts. You can also click in 'View All' to go o a page that lists all the alerts visible to the user.

The right-hand table shows the last account notifications (e.g., SIM card active and SIM card blocked). You can click in 'View All' to go o a page that lists all the alerts visible to the user.

3.3.2 SIMs Location Map

This widget is split in two halves (horizontally). On the first half there is a map showing the current locations of the SIM cards associated to the account. Only the SIMs with statuses "Active" and "Suspended" are shown.

On the right half there is a filter menu, where a user can restrict the SIMs showing on the map for better analysis.
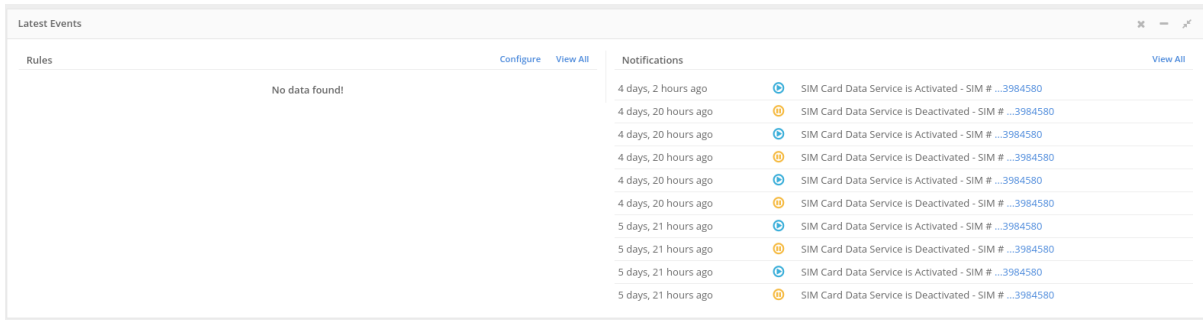
Fig. 3: Dashboard latest events widget.
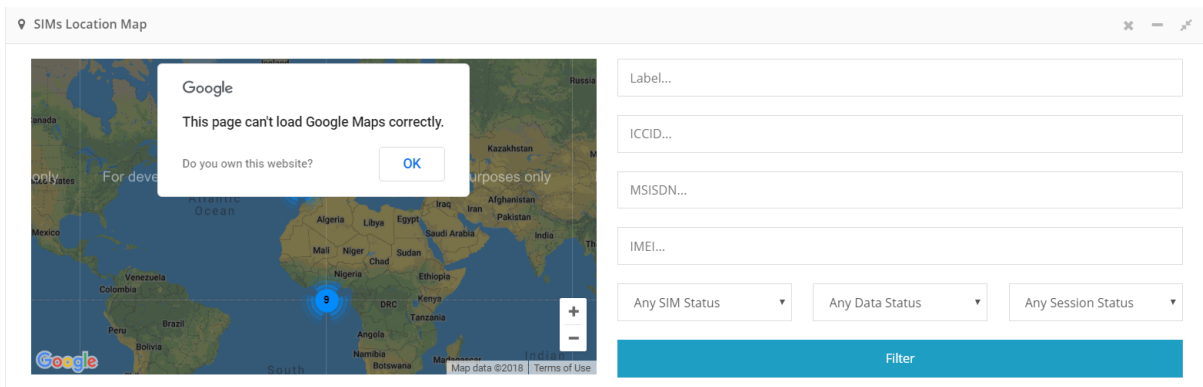
The access to this feature requires respective permissions for the user.

3.3.3 Data Usage

This widget shows a graph of the total data usage per month, in MB, for all the SIM cards in the user account.

3.3.4 SMS Usage

This widget shows a graph of the total SMS inbound and outbound usage per month, for all the SIM Cards in the user account.

3.3.5 Inventory

This widget shows a graph of the total active and inactive SIM cards in the user account.

3.3.6 Charges

This widget shows a graph of the total paid amount for the last invoices.

3.3.7 Top Data Usage

This widget shows a table with the current month top SIM cards that used more data traffic.

3.3.8 Top SMS Usage

This widget shows a table with the current month top SIM cards with more SMS usage.
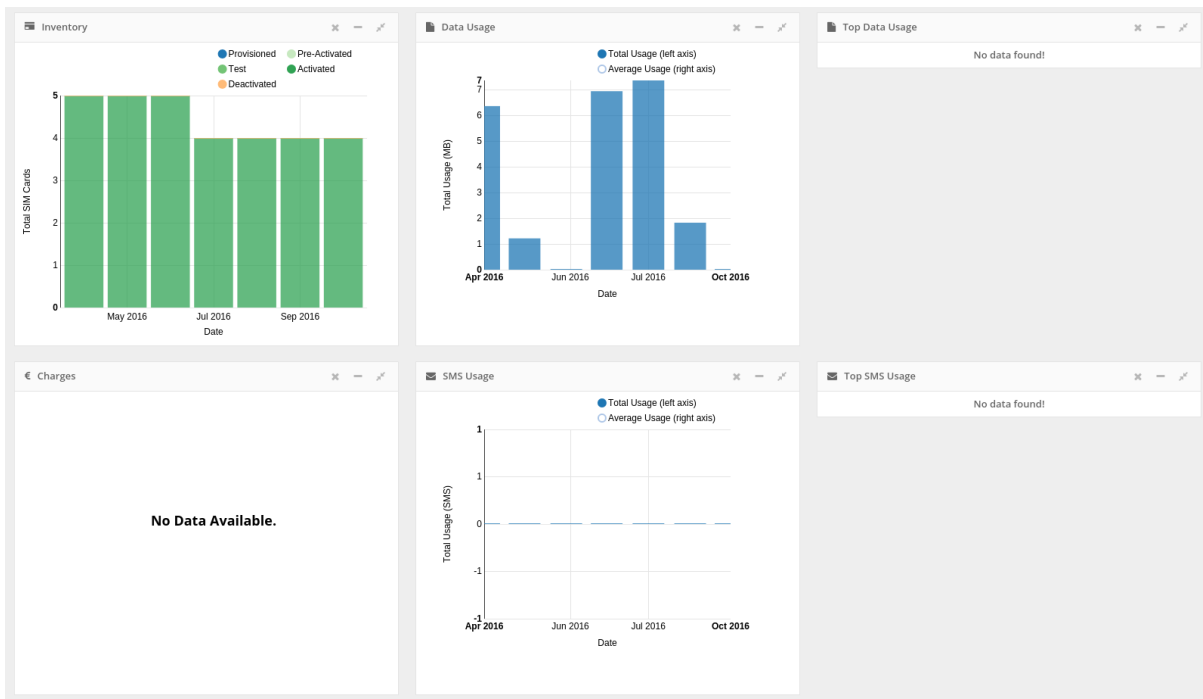
Fig. 4: Other dashboard widgets.

3.3.9 Widgets Actions

Each widget has a header to allow one to perform actions.
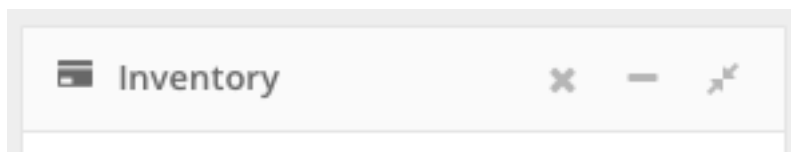
Fig. 5: Widgets header.

Drag

Click in the header of the widget to drag it. The new location of the widget will be stored for the current user and for the current device.

Note: This function cannot be done in the *Latest Events* widget.

Minimize

Click on the minus sign in the upper right corner on the widget header.

Maximize

Click on the expand sign in the upper right corner on the widget header. This creates a new page with only this widget and all the available space of the browser. You can click on the same sign to restore the widget to its original size and position.

3.4 Buttons

You can set the reporting period and the refresh timer of the dashboard, manually refresh or reset the dashboard and add new widgets.
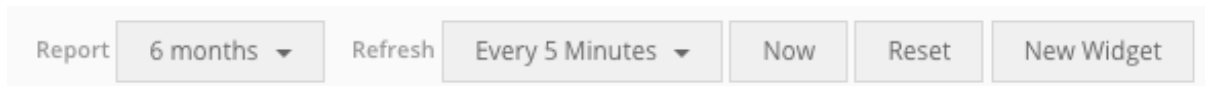
Fig. 6: Dashboard widgets.

3.4.1 Reporting Period

You can set the reporting period of the widgets that show historic information. The reporting period can be set to 6 months, 12 months, 24 months and 'Everything' (i.e., shows all available data). By default the reporting period is set to 6 months.

3.4.2 Refresh

Automatically

You can set the dashboard to auto-refresh the widgets every 5, 15 or 60 minutes or set it off. By default the auto-refresh option is disabled.

Manually

You can refresh manually the dashboard widgets by clicking on the **Now** button.

3.4.3 Reset

Click on the **Reset** button to reset all of the customization done in the dashboard page.

3.4.4 Custom Widgets

Besides the default widgets, you can customize one with the information you need. To do this click on the **New Widget** button, located in the upper right corner of the page or in the **Report** session.

Note: When creating new widgets the dashboard customization will be reseted.

3.4.5 Billing Cycle

If you previously set your account granularity as 'Billing Cycle' (see *Account Granularity*) and your organization has Rate Plans with different billing cycles a new dropdown will appear.
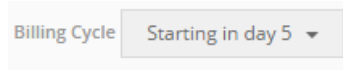
Fig. 7: Dashboard Billing Cycle dropdown.

This dropdown includes all the billing cycles available in you organization. The selected billing cycle changes the default report graphs and cards in the dashboard, including only the SIM cards and the elements associated with that billing cycle.

PROFILE

4.1 Overview

The **Profile** section contains the relevant data associated with the user. This part contains the profile profile-details-label and profile-settings-label sections.

You can access the Porfile or the Settings through the user dropdown menu of the main header bar.
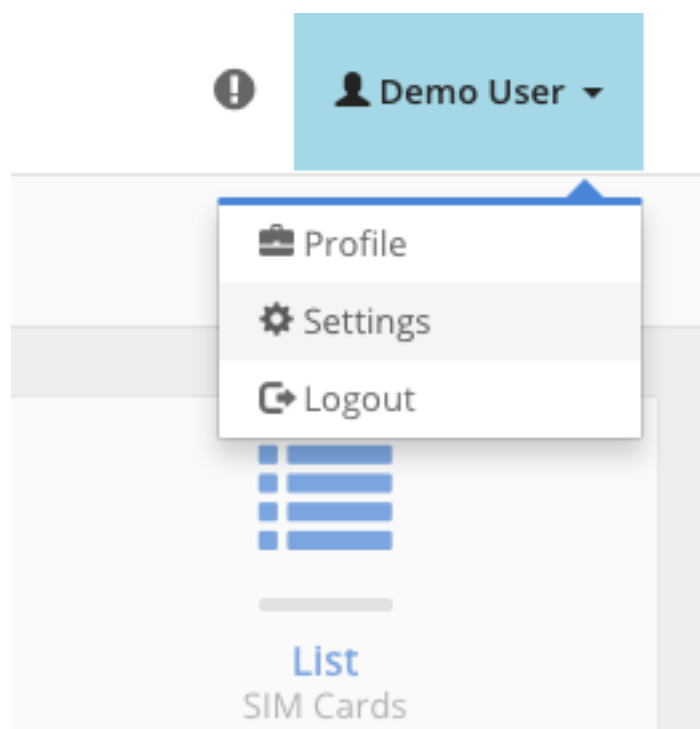
Fig. 1: User dropdown menu.

4.2 Details

The user profile contains information such as user name and phone name. You can view all of the following fields, but only some are editable:

- **Name** - Name of the user.

- **Email address** - Email of the user.

- **Organization** - Organization of the user. The organization of the user cannot be changed.

- **Phone Number** - User contact fixed phone number.

- **Mobile Number** - User contact mobile phone number.

- **Fax Number** - User contact fax phone number.

- **Date registered** - Date when the user was registered. This date is not editable.

- **Password** - Must contain letters and numbers and be at least 8 characters long.

4.3 Settings

The profile settings are related to the user platform settings such as notifications, API and date format.

4.3.1 Notifications

Activate this setting to receive email when a notification occur (e.g. SIM card active and SIM card blocked). This setting is enabled by default.

4.3.2 API

Activate this setting to get access to the API, when activated the user gets an API token. This setting is disabled by default, for security reasons.

4.3.3 Home Page

Choose the default when you enter in the platform. This setting is set to the 'Dashboard' page by default.

4.3.4 Language

Platform language in case the user interface cannot detect the language (e.g., English and Portuguese). This setting is set to 'English' by default.

4.3.5 Account Granularity

This let you choose how the platform display certain information (e.g. usage in SIM cards list, dashboard reports, etc.).

There are two types of granularity:

- Calendar Month (from day 1 to the end of the current month)
- Billing Cycle (depends on the SIM Card rate plan)

Default value is set to 'Calendar Month'.

4.3.6 Humanize Dates

Activate this setting to convert the platform dates in a more friendly text representation (e.g. converts '2015/06/16 14:30' to 'two days ago'). This setting is disabled by default.

4.3.7 Timezone

Chose the timezone in which the platform dates are represented. This setting is set to *UTC* by default.

4.3.8 Show Last Login

Show the last login date on the platform. This setting is enabled by default.

4.3.9 Show Tour

If you need to see the tutorial tour again, enable this settings. This setting is enabled by default for the first login of the user.

ORGANIZATION

5.1 Profile

The Organization Profile is the main page with your organization details. Here you can view and edit the details. This details are also used by Truphone to know your company better.

To access this page, click on **Organization** in the side bar and then **Profile**.

The **Profile** page is split in two panels, the first has your organization details with the following fields:

- **Name**: name of your organization.

- **Segment**: segment information associated with your organization (Unknown, Micro Enterprises, Small and Medium Enterprises, Corporate/Large Enterprises, Public Administration, Wholesale and Partner Operator).

- **Vertical**: vertical information associated with your organization (Agriculture, Automotive, Building, Healthcare, Utilities, Industrial, Public Infrastructure, Retail/Consumer and Security).

- **Description**: small description of your organization.

- **Date Added**: date when your organization was provisioned in the Platform.

- **Language**: notifications language, by default is english.

The sencond panel has your organization contacts with the following fields:

- **Email address**: email of the organization.

- **Phone Number**: organization contact fixed phone number.

- **Fax Number**: organization contact fax phone number.

- **Website**: organization web-site url.

5.1.1 Edit

You can edit the fields associated with your organization. To edit, click on **Organization** located at the side bar, go to the **Profile** section and click on the **Edit Organization** button at the end of the page.

5.2 Sub Organizations

Sub Organizations are organizations that are "owned" by your organization.
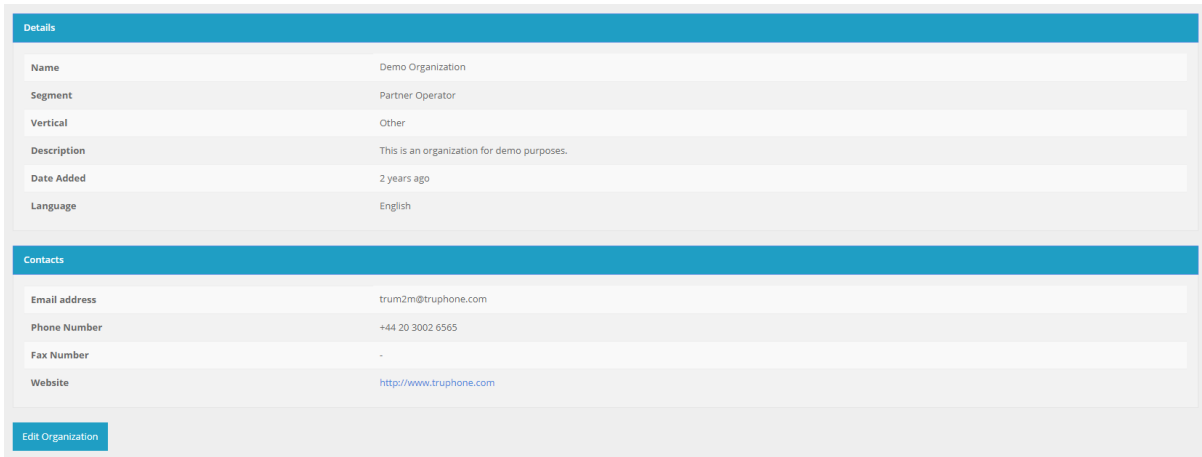
Fig. 1: Organization profile panels.

Truphone's M2M Platform allows Admin users to create Sub Organizations with their own user account. You can move SIM Card(s) that you own in your main account to your Sub Organizations. This is a great way to segment the SIM Cards in your Organization with your resellers or your departmens and let them manage their connectivity.

Note: Your Sub Organizations do not have permission to create their own Sub Organizations, the remaining features are allowed.

To access the Sub Organization page, please click on **Organization** in the side bar and then click on the **Sub Organization** section.

5.2.1 List

When you access the **Sub Organizations** section, you will see a table with the current Sub Organizations created or a message saying that you do not have Sub Organizations in your account.

The table has the following columns displayed:

- Name

- Segment

- Vertical

- Email

- Total SIM Cards (Total SIM Card(s) in the Sub Organization)

- Actions (Edit, Manage SIM Cards and Delete)
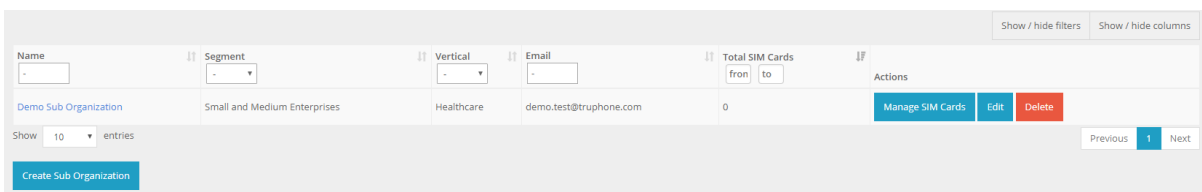
Fig. 2: Table with Sub Organizations.

All fields, except for Actions, can be filtered and ordered, you can also show or hide unecessary columns. To access the Sub Organization details you need to click on the name field.

At the end of the page you will have a button to create new Sub Organizations.

5.2.2 Create

To create a new Sub Organization, you need to access the **Sub Organization** section and click on the **Create Sub Organization** button. The button is located bellow the table with your Sub Organizations.

The form to create a new Sub Organization is split in two parts, the **User Account** where you fill the Admin user information and the **Sub Organization Details**.

Fig. 3: Form to create a new Sub Organizations.

The Admin user will need an email address and a valid password. For the **Sub Organization Details** only the name, segment and vertical fields are mandatory. The Sub Organization details can be edited later by you or by the Sub Organization Admin user.

5.2.3 Details

To access to a specific Sub Organization details you need click on its name in the Sub Organizations table.

The details page has four panels: Details, Contacts, Users and Other Information.

At the end of the page you have the **Edit** and **Delete** buttons.
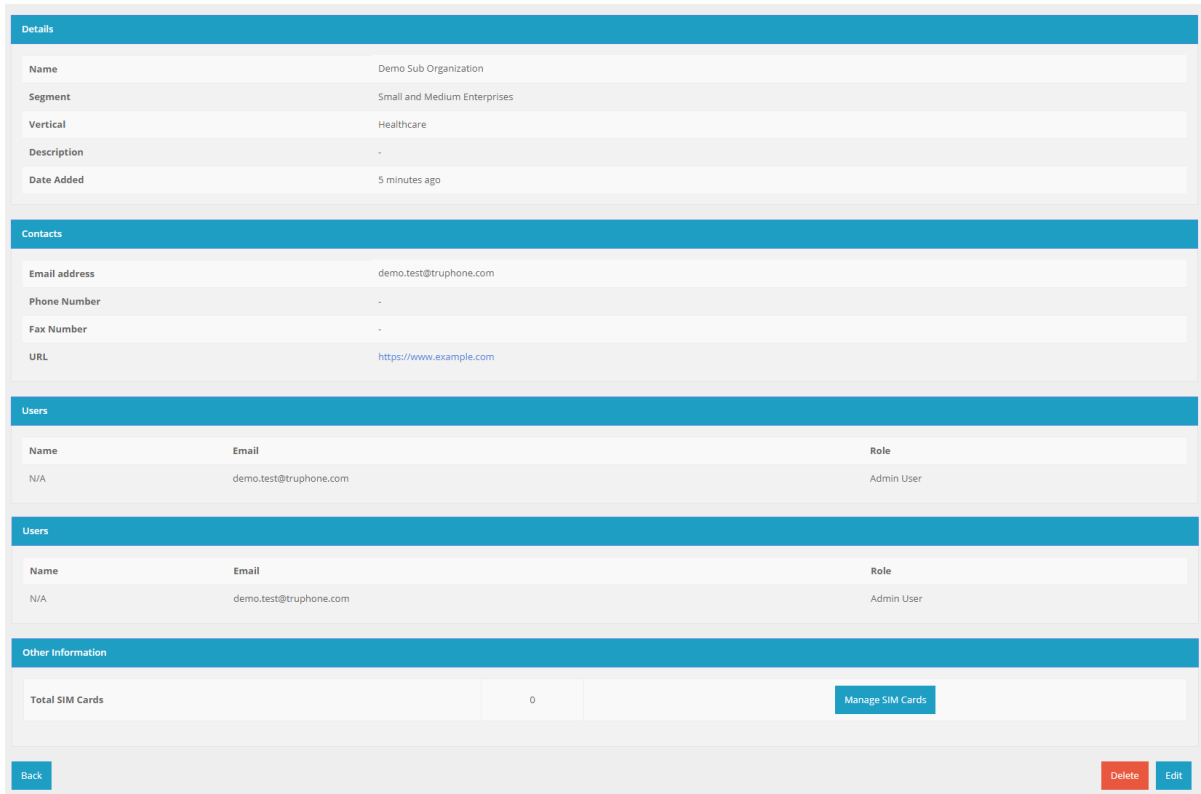
Fig. 4: Detail page for a Sub Organization.

Details

The Details panel shows the information for the select Sub Organization (Name, Segment, Vertical, Description and Date Added).

Contacts

The Contacts panel shows the contacts for the select Sub Organization (Email address, Phone Number, Fax Number and URL).

Users

Shows the users in the selected Sub Organization. The information is displayed in a table with the Name, Email and Role for each user.

The same Sub Organization can be manage by several users, with different roles:

- Admin – access to all account features

- Technical – limited to function related to support or development (e.g., SIM cards, device, rules and API)

- Finance – limited to function related finance (billing, order SIM cards and invoices)

Only the Admin users for a specific Sub Organization has the permissions to create, manage and remove other users, in the Users section.

Other Information

This panel shows additional information related to the Sub Organization.

Total SIM Cards Here you can see the total of SIM Cards the selected Sub Organization can manage. If you click on the **Manage SIM Cards** button, you can move SIM Cards from your Organization to your Sub Organization and vise-versa.

5.2.4 Edit

To edit a specific Sub Organization you can click on the **Edit** button in the Sub Organizations table or the button located at the end of the Sub Organization **Details** page.

You can edit the following Sub Organizations fields: Name, Segment, Vertical, Description, Phone Number, Faz Number and Website.

5.2.5 Manage SIM Cards

To move SIM Cards to a specific Sub Organization you can click on the **Manage SIM Cards** button in the Sub Organizations table or the button located in the **Sub Organization Details** page.

This page will show two windows. The left window has the SIM Cards that you can currently manage in your organization and the right has the SIM Cards that the selected Sub Organization can manage. You can move SIM Cards from one window to another and when you are satisfied click on the **Save** button to move the SIM Cards.
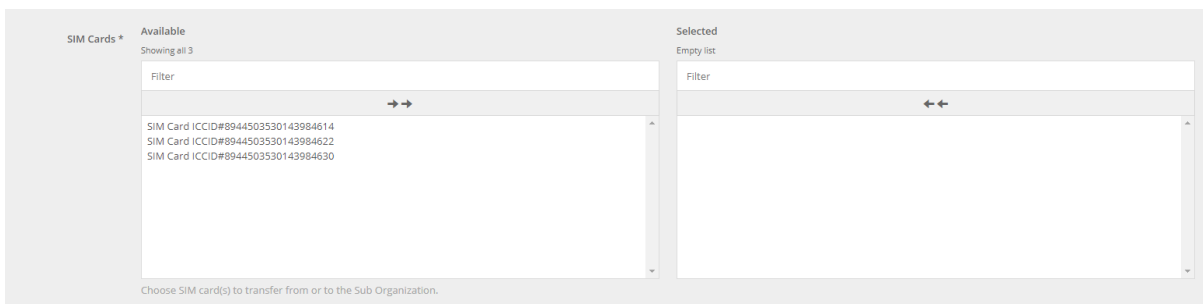
Fig. 5: Form to move SIM Cards.

Note: All additional information added to the SIM Cards (e.g. Attributes, Tags) will be deleted and the Notifications are moved to Sub Organization. In case you have Rules (Event or Usage) with the moved SIM Card has a filter, this will also be removed.

5.2.6 Delete

To delete a specific Sub Organization you can click on the **Delete** button in the Sub Organizations table or the button located in the Sub Organization **Details** page.

Note: Be carefull with this operation, you cannot revert it. The SIM Cards in that Sub Organization will move to your organization.

5.3 Users

Truphone's M2M Platform allows Admin users to create other users that will have access to their organization account. The users created can have the same role and permissions has the Admin user or have a more restricted role. This is a great way to give access to the platform and your organization SIMCards to other people within your company.

5.3.1 List

To access the Users list, click on the **Organization** section in the side bar and then click on the **Users** section.

The displayed table will always show at least your Admin user. The following columns are visible:

- Username/Email
- Name (First and Last name)
- Role (e.g. Admin, Tech)
- Actions (e.g. Delete)

Fig. 6: Table with Users.

All columns, except for Actions, can be filtered and ordered, you can also show or hide unecessary columns. To edit a specific user you need to click on its username/Email.

At the end of the table page, you will have the **Add a new User** button.

5.3.2 Add

To create a new user, you need to access the **Users** section and click on the **Add a new User** button. The button is located bellow the table with your current users.

The form to create new users will ask for an Email address, password and role, this fields can be edited later by you or by the user.

Fig. 7: Form to create a new user.

5.3.3 Delete

To delete a specific user you can click on the **Delete** button in **Actions** column of the the Users table.

Note: Be carefull with this operation, you cannot revert it.

BILLING

6.1 Overview

The billing subsystem allows users with permission to view their enterprise invoices and rate plans.

In the rate plan details, users can view how many and which SIM cards have a rate plan. Users can also check the details of each rate plans (e.g., cost and country coverage).

In the invoice tab, users can view the monthly invoices details, download it as PDF or view the complete details by downloading the Call Detail Records (CDR) as a CSV file.

Depending on the account permissions, other features related with billing such as changing rate plans associated with a SIM card can also be executed.

SIM CARDS

7.1 Overview

The main objective of the platform is to manage the connectivity service and the inventory of SIMs.

Among other things, users can:

- View inventory of SIM cards
- Perform Bulk Actions
- View usage, locations, call detail records and historical information
- Troubleshoot issues
- Assign attributes
- Assign tags
- Send/receive SMS

7.2 List

To view the SIM Cards list click on the **SIM Cards** section in the left menu and then click on the **List** option.

Fig. 1: SIM Card list view.

Each row has all of the important information associated with the SIM Cards, such as ICCID, MSISDN, Label, Rate Plan, SIM Card Service, Data Service, SMS MO/MT Service and session Status, Monthly Data and SMS usages, Device, Last Location, Tags, Attributes, etc.

Note: You can always hide some columns, if you think the table is too big. Some details are hidden by default (e.g. Date first registered, IMSI, etc.).

Note: Note that even if a column is hidden, it's filter is still applied to the table.

To export the information you can click "Export" and choose the method to export the information, see *SIM Cards Export* for more information.

7.2.1 Map

To view a map containing the SIM cards from the list, click on "Map" button on the upper right corner.
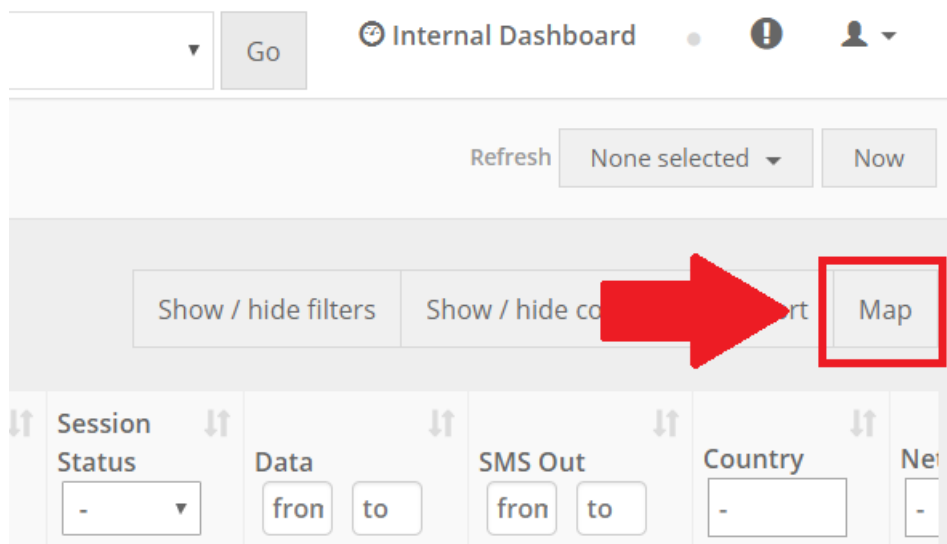
Fig. 2: SIM Cards Map Button

The map will show all the SIM cards stated as "Active" and "Suspended" currently being shown in the table. That means that the filters that you can apply on the list, are also applied to the map.

Note: The SIMs being shown are all the SIMs that match the table filters (not just the SIMs from the current table page).

7.2.2 Bulk Actions

The platform allows you to take actions (e.g. change SIM card states, etc.) to several SIM Cards at the same time. To do this, you need to check the desired SIM cards, in the SIM card list, and choose the action to perform in the **Bulk Actions** select box.

The following action are possible:

- Change Status
- Change Data Status

- Change SMS MO Status

- Change SMS MT Status

- Change Rate Plan

- Change Tags

- Change Attribute

- Send SMS

7.3 SIM Card Details

You can see all of the SIM Card details (e.g., ICCID, MSISDNs, Tags, etc.) in a single page, do actions on it (e.g., change SIM Card Service state), view the monthly traffic and request special configurations.

7.3.1 Details

This panel shows all the SIM Card information. You can edit some of it's details (e.g label, description, attributes, etc.), to do this, click on the **Edit** button.

Fig. 3: SIM Card, Additional and Billing Information and associated Tags panels.

Fig. 4: Attributes and Location Tag panels.

7.3.2 Status

In the Service Status section you can check the several SIM Card Services status and the Ongoing Sessions.

	Status	Available Actions
SIM Card	Active	Suspend Retire
Data Service	Suspended	Activate
SMS MO Service	Active	Suspend
SMS MT Service	Active	Suspend
Current Device	Unavailable	N/A
Last Location	Unavailable	N/A

Fig. 5: Panel with SIM Card Service, Data Service, SMS MO Service, SMS MT Service, Current Device and Latest Location.

Ongoing Data Session	
Status	Offline
Start Date	N/A
IP Address	N/A
Usage	N/A

Fig. 6: Panel with Ongoing Data Session panel shows information about the current Data session.

7.3.3 Usage

This section show information about the usage of this SIM Card as well as a historical Location map.

An overview of the monthly usage or the billing cycle usage can be viewed in the Usage section:

		Type	Date	Duration
Last Call Detail Record		Inbound SMS	1 month, 2 weeks ago	1 SMS
Monthly Data		0.0 KB		
Monthly Number Of Connections		0		
Monthly Inbound SMS		0 SMS		
Monthly Outbound SMS		0 SMS		

Fig. 7: SIM Card usage.

At the end of the page, you will find a map showing the historical location of the current SIM card. You can adjust the period of time on which you want to see the detected locations of the SIM. The latest location pin will be represented with a different color from other pins.

7.3.4 Location Tag Attribute

There is a special attribute called 'Location Tag'. Its goal is to help the user to identify a location on a map, by attaching an address, a point of reference or whatever the user finds to be useful. Besides
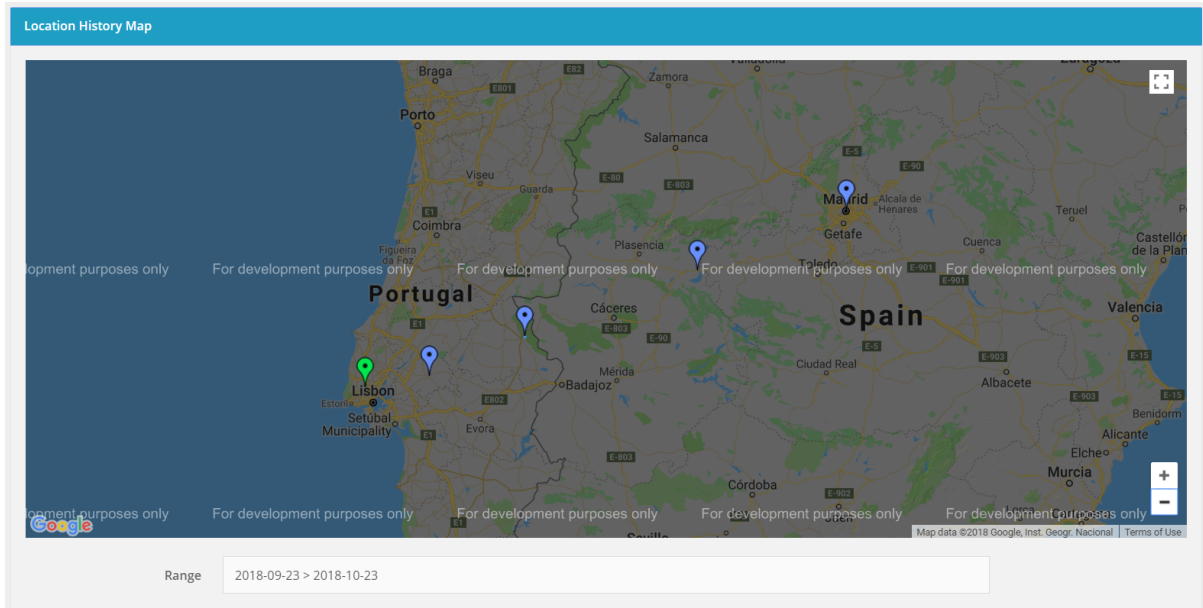
Fig. 8: Historical SIM Card Location Map.

the label, a coordinate should be specified. This tag will be displayed on the Historical Location Map, together with the historical locations of a SIM. A practical use case for this feature would be, for instance, if an user wanted to know if at any time the SIM card was somewhere around a certain point on the map.
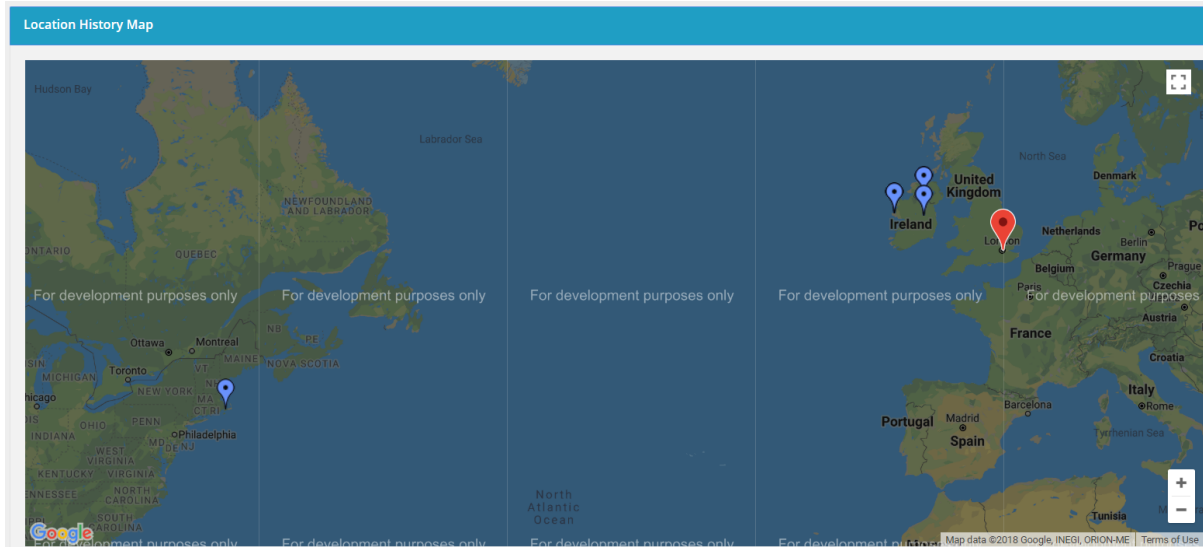
Fig. 9: Location Tag Attribute

On the image we can observe that part of SIM's locations were relatively close to the created tag (in red), but there is one location really far from the tag.

7.3.5 Special Configurations

Users with the right permissions can request for special configurations: fixed IP addresses, private APN and VPN.

Configuration	
APN Name	m2m.truphone.com
VPN	N/A
IP Address	N/A

Fig. 10: SIM Card special configuration.

7.3.6 Swap SIM card

When a SIM card gets broken or is stolen, you can move the information such as CDRs, location updates and rules to another SIM card in the Provisioned or Pre-Active state.

> **Warning:** This action is not reversible.

7.3.7 History

All history is recorded by the platform from the CDR, to SMS content, notifications, locations updates and rules triggered. The information is shown in dedicated pages.

All the information can be exported. See the *SIM Cards Export* for detail information.

7.3.8 Timeline

The platform also provides a timeline with all the content related to a SIM card, giving a more friendly view of the SIM card usage. The following image shows a timeline for a SIM card:
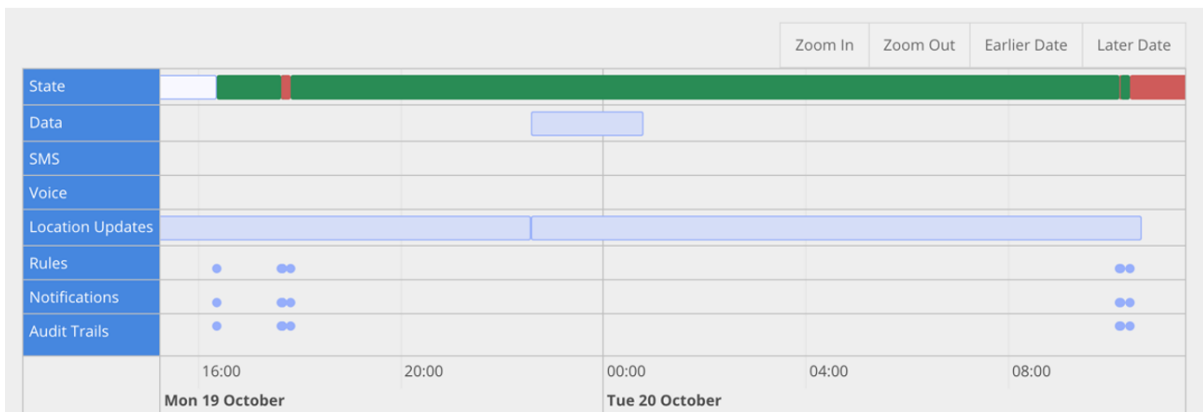
Fig. 11: SIM Card details timeline.

7.3.9 Life-cycle

Organizations can manage the life-cycle of their SIM Cards, since the day they are provisioned until they are retired. Truphone also has the ability to Block or Remove SIM cards from the organizations' accounts.

The next figure shows the SIM cards life cycle and the transitions:

> **Warning:** Please note that some states (e.g., Test state) may not be available in your account.
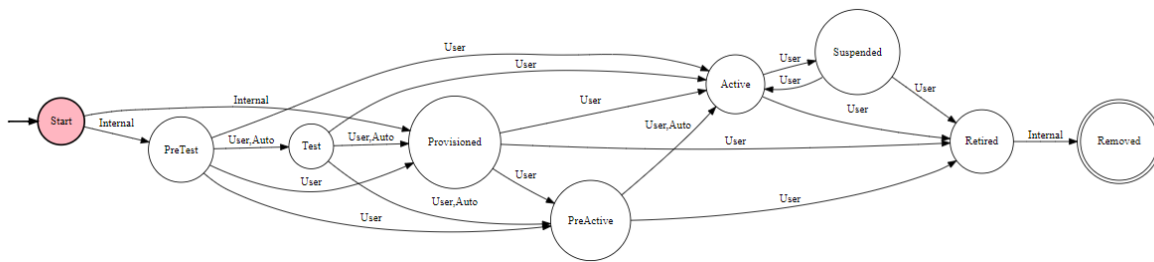
Fig. 12: SIM Card life-cycle.

Below is a description of each of the transitions:

User Transition performed manually by a user of the the account.

Auto Transition performed automatically by the back-end of the platform. The transition may have been configured by the User (e.g., rules) or by the Operator (e.g., invoices not paid).

Internal Transition performed by Truphone.

Below is a description of each of the states:

Start This is a starting state of a SIM card. This state doesn't exist as an applicable state to the SIM. Instead, its just a representation of a SIM which comes directly from the factory.

Pre-Test The Pre-Test state is similar to Pre-Active state but instead of moving automatically to Active, the SIM is moved to Test state once its connected to the network. This transition can be made manually by the user, before connecting the SIM card to the network. This state is only available if the Rate Plan of the SIM card supports Test state.

Test The Test State gives a limited amount of service (SMS, Data) for a limited time. These limitations are set in the Rate Plan associated to the SIM card. The User of the SIM can manually switch the state from Test to Provisioned, Pre-Active or Active states. If, while in Test state, any of the limits (service or time) is reached, the state of the SIM card will be switched automatically to the next state set in Rate Plan. If no next state is defined, the SIM will be moved to Provisioned state.

> **Warning:** This state might not be available on every Rate Plan.

Provisioned In this state the SIM card will not be able to generate any traffic. From this SIM Card state, the Users (U) and the Operator (O) can use the platform actions to change the SIM card state to Test, Pre-Active, Active or Retire states. The Operator can also Block the SIM card and the Back-end (B) system can Block or Retire the SIM cards if they expire.

Pre-Active In the Pre-Active state, the network automatically activates the SIM card once it is detected inside a device. The Users and the Operator can Activate the SIM card or Retire it. The Operator and the Backend system can Block the SIM card.

Active In this state the SIM Card is active and ready to communicate. All traffic in this state is charged. The Users can use the platform actions to Suspend or Retire the SIM card. The Operator and the Back-end system can Suspend, Block or Retire the SIM card.

Suspended In this state the SIM Card is suspended and cannot communicate. The Users can Activate or Retire the SIM card. The Operator can also Block the SIM card.

Blocked This state is not represented on the diagram. Any SIM can be moved to/from this state from any other state exclusively by Truphone. In this state a SIM card is blocked and cannot be used.

Retired In this state, the SIM Card is terminated and cannot go back to previous states. The Users can still view all the details and history for that SIM card. Truphone can Remove the SIM card.

Removed This is the final SIM card state. A SIM card in this state will no longer be visible to users.

7.4 Custom Attributes

The platform custom attributes feature gives you the option to create attributes to associate with the SIM cards, then you can add a value for that attribute in each SIM card.

To view the attributes list, click on the **SIM Cards** section in the left menu and then click on the **Attributes** option.

The following table shows an example for two attributes (Priority and ID):

Fig. 13: Attributes list view.

To create a new attribute click on the **Add Attributes** button. For each row, you have the ability to edit or delete it.

7.5 Tags

The platform tags feature gives you the option to create tags and associate them across the SIM cards.

To view the tags list, click on the **SIM Cards** section in the left menu and then click on the **Tags** option.

Fig. 14: Tags list view.

To create a new tag click on the **Add Tag** button. For each row, you have the ability to edit or delete it.

Note: When you edit a Tag you can select SIM cards to have it associated.

You can have multiple tags associated to a SIM cards. The following figure of the SIM Card list shows a SIM Card with two tags and another with only one tag.

Fig. 15: Tags view in the SIM Card list.

7.6 Send SMS

The platform allow users to send normal or binary SMS to the devices and accepts incoming SMS, showing the content of each message.

To send SMS, you can click on the **SIM Cards** section in the left menu and then click on the **Send SMS** option. When the page is loaded, select the SIM Cards you want to send the SMS and write the message content.

Fig. 16: Send SMS form.

After sending the SMS, the history is recorded in the table bellow.

Fig. 17: Send SMS history.
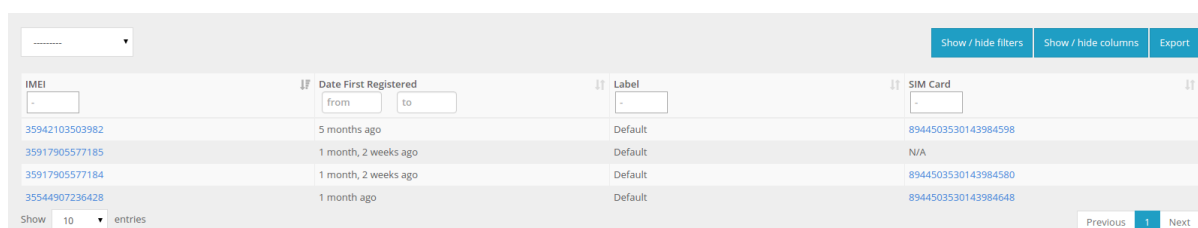
Note: Note that in the history table is only displayed the current month SMS.

DEVICES

8.1 Overview

Device are automatically detected by the platform and shown with details if the device is registered in the GSMA IMEI database. Users can edit labels and create rules to check if a SIM card is in a different device.

8.2 List

To view the list of devices attached to your SIM Cards, click on the **Devices** sections located in the left Menu. Each row shows the IMEI, date first registered, label and SIM card attached.

Fig. 1: Device list view.

To export the information you can click "Export" and choose the method to export the information, see *Devices Export* for more information.

8.3 Details

When selecting a single device, you can view its details. If the device is already in the GSMA IMEI database, the platform show the manufacturer, marketing name and the bands which operates.

You can add or edit the label and the description.

Fig. 2: Device detail view.

RULES

9.1 Overview

This section let you configure rules to control your SIM cards, send notifications (email, SMS, push API, etc.) or perform actions (e.g. change rate plan, change SIM Card status), when the rule triggers.

You can configure three types of rules:

1. Event Rules - handles specific events (e.g. New Device, New Call Detail Record, etc.), that happen during the life cycle of the selected SIM cards.

2. Usage Rules - handles the usage (e.g. data, SMS, etc.) of the selected SIM Cards, you can customize how the total usage is calculated.

The rules are applicable to all SIM cards, a list of selected SIM Cards or filtered by the selected tags, depending on your choice.

9.2 Rules Page

To access the **Rules** sections, select the options *Rules* in the sidebar **MENU**. In the rule section, the main view has three panels, one for each rule type (see picture below), with a table inside that shows the rules created.

Each row contain the basic information (Label, Type, Date Created) for each rule. In the column *Actions* you can select if you want to View or Delete the rule.

In the upper right side of each panel there is a '**+**' sign, that let you create new Rules for that type.

At the end of this view, there is the *History* button that redirects you to the rules triggered page.

9.3 Create Rules

To create new rules, go to the main **Rules** page view and click the '**+**' sign on each panel to select which type of rule you want to create. You will be redirected to a wizard form that helps you create new rules, divided in five steps:

1. Label

2. Rules Triggers

3. SIM Card(s)

4. Actions

Fig. 1: Example panels with configured rules.

5. Notifications

9.3.1 Step 1 - Label

In this step you give a name to the new rule.

Fig. 2: First step in wizard form - Label.

9.3.2 Step 2 - Rules Triggers

In this step, you configure the triggers that rule needs to check to perform the actions or send the notifications. Each rule type has their own configuration, which are described in the next subsections.

Event Rules

First, chose the event you want to configure.

There are currently, six event types to configure:

1. New Data Session

2. New Platform Simple Short Message (SMS)

3. New Device
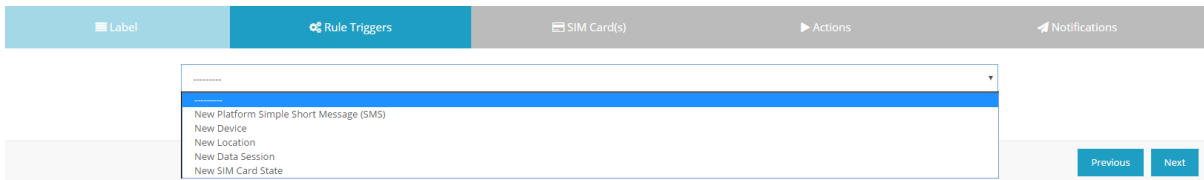
Fig. 3: Second step in wizard form - Rules Triggers (Event Rules).

4. New Location

5. New SIM Card State

Each options has their own settings to configure.

- **New Data Session**

When you configure the New Data Session event, you need to chose when you want to receive the notification, at the start of the session or at the end.
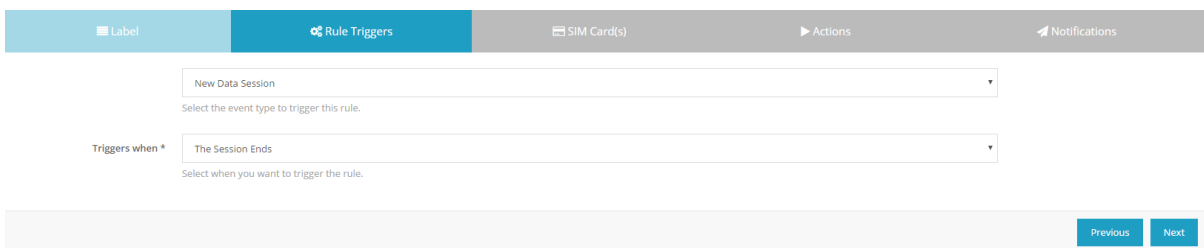
Fig. 4: Rule triggers when the new data session ends.

- **New Platform Simple Short Message (SMS)**

When you configure the New Platform Simple Short Message (SMS) event, the rule triggers when the selected SIM Cards receives a SMS from the platform or send a SMS to the platform.
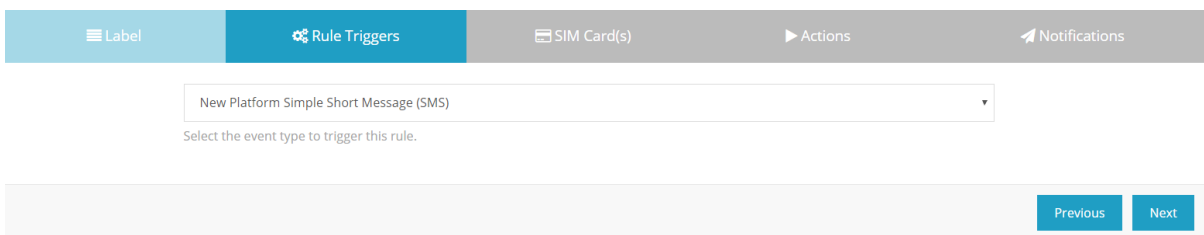
Fig. 5: Rule triggers when there are new short message

- **New Device**

When you configure the New Device event, the rule triggers when the selected SIM Cards have a new IMEI attached. Depending on the rule configuration you can lock SIM Cards to a specific IMEI, or create an IMEI range preventing the SIM Cards to attache to other devices. See below examples for possible configurations:

Note: The IMEI prefix must at least have 8 digits.

Note: This example is a good way for you to lock SIM Cards to a specific IMEI range. You can choose

---

New Device	▾
Select the event type to trigger this rule.	

From *	No Device ▾			
To *	IMEI Prefix ▾	● Starts With ○ Doesn't Starts With	12345678	

Fig. 6: Rule triggers when the SIM Card doesn't have a device attached and receives a new device with an IMEI prefix '12345678'.

New Device	▾
Select the event type to trigger this rule.	

From *	No Device ▾			
To *	IMEI Prefix ▾	○ Starts With ● Doesn't Starts With	12345678	

Fig. 7: Rule triggers when the SIM Card doesn't have a device attached and receives a new device with an IMEI prefix that doesn't start with '12345678'.

to suspend the SIM Card, when the rule triggers, preventing from using in other devices.

New Device	▾
Select the event type to trigger this rule.	

From *	Any IMEI ▾
To *	Any IMEI ▾

Fig. 8: Rule triggers when the SIM Card changes from any device to another.

Note: This example is a good way for you to lock SIM Cards to any IMEI already attach. You can choose to suspend the SIM Card, when the rule triggers, preventing from using in other devices.

- **New Location**

When you configure the New Location event, the rule triggers when the selected SIM Cards enter a new country or network, depending on your choice.

- **New SIM Card State**

When you configure the New SIM Card State event, the rule triggers when the selected SIM Cards changes from one state to another, depending on your choice. See below examples for possible configurations:

Note: This example is a good way to send an email notifications when a SIM Card is Activated.

9.3. Create Rules **41**

Fig. 9: Rule triggers when the SIM Card enters a new country.

Fig. 10: Rule triggers when the SIM Card changes from provisioned state to active.

Usage Rules

First, chose the usage you want the rule to control. From the five possible options:

1. Inbound Call(s)

2. Outbound Call(s)

3. Outbound SMS

4. Data Usage

5. Number of Data Connection

The second option let you choose how the rule counts the usage. There are two option:

- "Each SIM Card" - the rule tracks the usage for each SIM Card.

- "All selected SIM Card(s)" - the rule tracks the usage sum of all SIM Card(s).

The third option let you type the usage amount cap, in order to trigger the rule.

The units and the total amount change depending on usage type. See the table below for more information:

Fig. 11: Rule triggers when the SIM Card changes from any state to another.
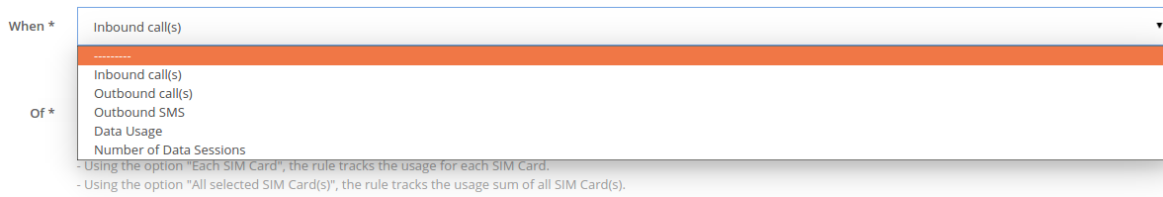
Fig. 12: Usage type select list.
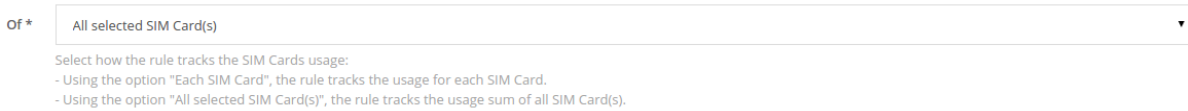
Fig. 13: Usage sum type select box.

Units	Usage Type	Max value
KB	Data Usage	4294967295
MB	Data Usage	4194303
SMS(s)	SMS Usage	4294967295
Seconds	Voice Usage	4294967295
Minutes	Voice Usage	71582788
Hours	Voice Usage	1193046

The fourth option let you choose the period in which the rule gatherers information to calculate to total usage.

Period	Comment
Calendar Month	Uses the data of the current month
Billing Cycle	Uses the data of the current billing cycle of the triggered SIM Card
Calendar Week	Uses the data of the current week
Calendar Day	Uses the data of the current day
Past 24 Hours	Uses the data from the last 24 hours
Past 7 Days	Uses the data from the last 7 days
Past 14 Days	Uses the data from the last 14 days
Past 30 Days	Uses the data from the last 30 days
Custom Period	Uses the data from the custom select period, counted in minutes or hours
Last Session	Uses the data from the last session

Note: If you select **Custom Period** it will show the following box:

Fig. 14: Usage amount box.

Over the *	Calendar Week	▼

Select the period to trigger the rule (e.g., a past 14 days rule will be triggered if you use more than the configured above in the past 14 days).

Fig. 15: Rule period select box.

Of	24		Hours	▼

Choose the number of minutes or hours to perform the custom period.

Fig. 16: Custom Period field in usage rules.

9.3.3 Step 3 - SIM Card(s)

In this step, you select the SIM Card(s) for the rule. There are three possible choices:

1. SIM Card(s)

2. Tags

3. All SIM Cards

SIM Card(s)

Manually select the list of SIM Card(s) from your inventory. Use Ctrl key (or Cmd key in Mac) to select the SIM Card(s) you want to use or not.

Fig. 17: SIM Card list selection box.

Note: If your inventory has more then 1000 SIM Card(s), this feature is disable. Apply tags to your SIM Card() and create rules with them (see below).

Tags

If you use the Tags option, the rule will use the SIM Card(s) that have all of the Tags selected. You can create more tags using the **Tags** section.
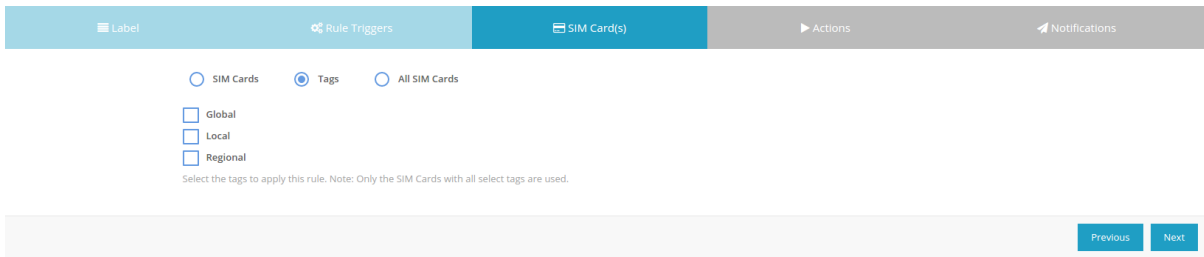
Fig. 18: Tags options selection view.

All SIM Card(s)

If you use this option, the rules uses all SIM Cards in your account.

9.3.4 Step 4 - Actions

After selecting the SIM Cards, choose which actions you want the rule to perform in the SIM card(s) if it triggers. You can leave the options blank and the rule will jump this step.

For all rule types you can choose to change the SIM Card status. For examples, if one SIM Card triggers a scpecifc Rule triggers it will suspend the SIM Card(s) in question.
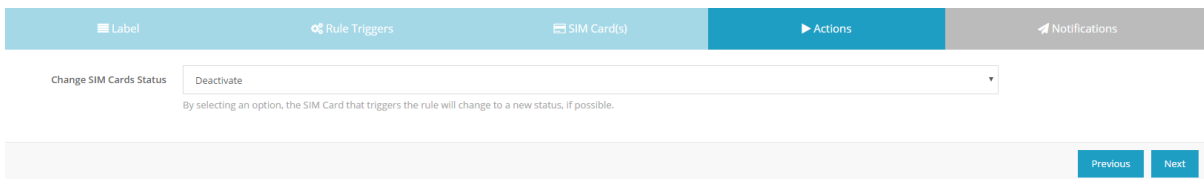
Fig. 19: Actions step for Event and Usage Rules

9.3.5 Step 5 - Notifications

After selecting or not the actions, choose which notifications you want the rule to send when it triggers. You can leave the options blank and the rule will jump this step.

There are currently four types of notification to send:

1. Email
2. SMS
3. Webhook (Push notification)

- **Email**

Sends an email with a default message to the selected email.

- **SMS**

Sends a message to the selected number.

The selected number can be the **Triggered Number** or a **Custom Number**.

Fig. 20: Notifications step for all the Rules

Note: SMS's can only be sent to Truphone numbers.

The message sent can be the default message (select **Default Message**) or customizable (select **Custom Message**).

The following figures shows possible configurations:

Fig. 21: Send SMS with **Custom Number** and **Custom Message**.

Fig. 22: Send SMS with **Default Number** and **Default Message**.

- **Webhook (Push notification)**

Sends a push notification to the selected server.

9.4 View Rule Details

You can click in the **View** button to view the details of a specific rule. The new page will show in a single page the triggers, SIM cards, the actions adn the notifications. You can click **Edit** to start editing the page.

9.5 History

You can click in the **History** button to view all the list of all the triggered rules and the actions.

To export the information you can click "Export" and choose the method to export the information, see *Rules History Export* for more information.

Fig. 23: Details of existing rule.

Fig. 24: History of triggered rules.

NOTIFICATIONS

10.1 Overview

The platform notifications saves all changes occurred in the SIM Cards, such as rate plan, device or status changed as well as other changes.

10.2 Notification

Each notification as the following structure:

- Type - notification type (e.g. SIM Card Update)

- Source Type - source type (e.g. ICCID)

- Source - the source value (e.g. 8944503530143984580)

- Date - date then the notification was created

- Value - store additional information of the notification, for example the new rate plan that will be associated

- Description - notification sub type (e.g. data service)

- State - new state if applicable (e.g. blocked)

10.3 List

To view the notification list, click on the **Notification** section in the left menu, a similar table as the figure bellow will appear.

To export the information you can click "Export" and choose the method to export the information, see *Notifications Export* for more information.

Type		Source Type		Source		Description		State		Value		Date	
SIM Card Updated		ICCID		8944503530143984580		Data Service		Activated		N/A		3 days, 6 hours ago	
SIM Card Updated		ICCID		8944503530143984580		Data Service		Deactivated		N/A		3 days, 23 hours ago	
SIM Card Updated		ICCID		8944503530143984580		Data Service		Activated		N/A		3 days, 23 hours ago	
SIM Card Updated		ICCID		8944503530143984580		Data Service		Deactivated		N/A		3 days, 23 hours ago	
SIM Card Updated		ICCID		8944503530143984580		Data Service		Activated		N/A		3 days, 23 hours ago	
SIM Card Updated		ICCID		8944503530143984580		Data Service		Deactivated		N/A		3 days, 23 hours ago	
SIM Card Updated		ICCID		8944503530143984580		Data Service		Activated		N/A		5 days ago	
SIM Card Updated		ICCID		8944503530143984580		Data Service		Deactivated		N/A		5 days ago	
SIM Card Updated		ICCID		8944503530143984580		Data Service		Activated		N/A		5 days ago	
SIM Card Updated		ICCID		8944503530143984580		Data Service		Deactivated		N/A		5 days ago	

Fig. 1: Device list view.

REPORTS

11.1 Overview

In the report section you are able to create different types of reports (e.g., Inventory, Data Usage, etc.). These reports uses information associated with the selected SIM Card(s) and shows in a time scale graph. With the new report created you can export the information in a CSV file, download an image or add to your **Dashboard**.

11.2 Create Report

To create new reports, click the **Report** section located in sidebar **MENU**. You will be redirected to the **Report** create page, which has a wizard form to help you create new reports. The wizard form is divided in three steps:

1. Report Type – select which report type you want to view (e.g., Inventory, Data Usage, etc.);

2. SIM Cards – select the SIM Card(s) to collect the data;

3. Time Scale – select the time range and granularity (hourly, daily and monthly) to use in the report time axis;

11.2.1 Step 1 - Report Type

Select the report type that you want to view. There are currently 8 report types:

Type	Description
In-ven-tory	Shows you the total of SIM Cards for each SIM Card status of your inventory (or the selected SIM Card) throughout the time you selected. The status displayed are: Provisioned, Test, Pre-Active, Active, Inactive, Blocked and Retired.
Rate Plans	Shows you the total of SIM Cards for each Rate Plan associated to your Organization throughout the time you selected.
Lo-ca-tion	Shows you the total of SIM Cards for each country visited by the SIM Cards throughout the time you selected.
Data	Shows you the total data usage throughout the time you selected.
SMS	Shows you the total SMS usage throughout the time you selected.
Event Rules	Shows you the total Event Rules triggered throughout the time you selected.
Us-age Rules	Shows you the total Usage Rules triggered throughout the time you selected.
No-tifi-ca-tions	Shows you the total Notification, divided by notification type (SIM Card Service, Data Service), throughout the time you selected.
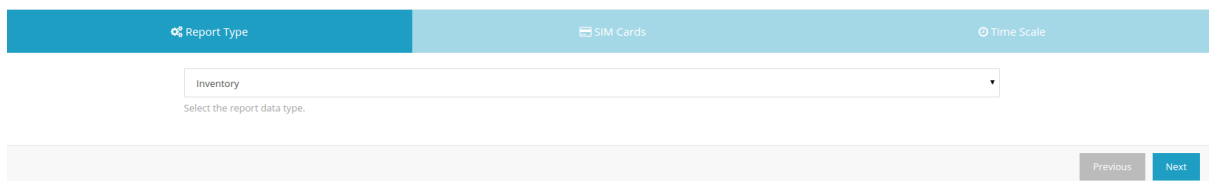
Fig. 1: Wizard to create a report.

Note: After adding to the **Dashboard** the Retired status bar will not appear.

11.2.2 Step 2 - SIM Cards

In this step you choose the SIM Card(s) from where you want to pull the information. There are three possible choices:

1. SIM Card(s)
2. Tags
3. All SIM Cards

SIM Card(s)

Manually select the list of SIM Card(s) from your inventory. Use Ctrl key (or Cmd key in Mac) to select the SIM Card(s) you want to use or not.
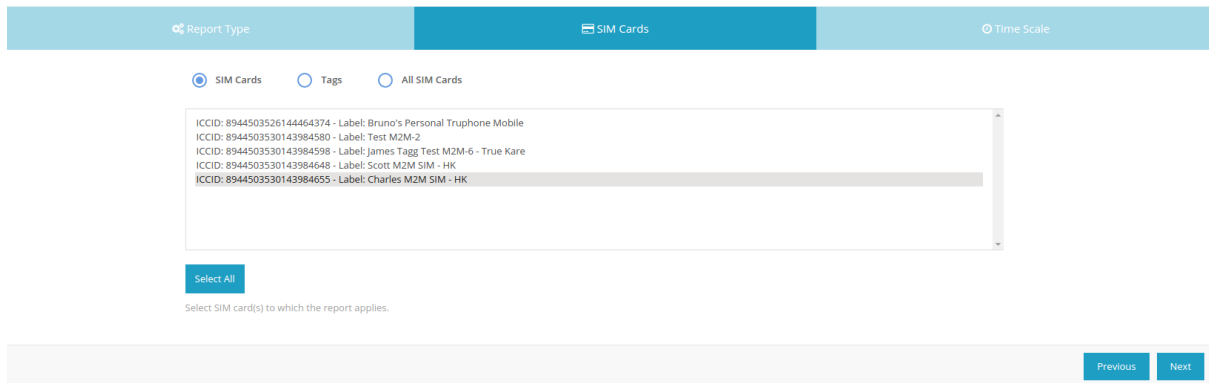
Fig. 2: SIM Card list selection box.

Note: If your inventory has more then 1000 SIM Card(s), this feature is disable. Apply tags to your SIM Card() and create reports with them (see below).

Note: After adding the report to your **Dashboard**, the SIM Cards selected cannot be changed.

Tags

If you use the Tags option, the report will use the SIM Card(s) that have all of the Tags selected. You can create more tags using the **Tags** section.
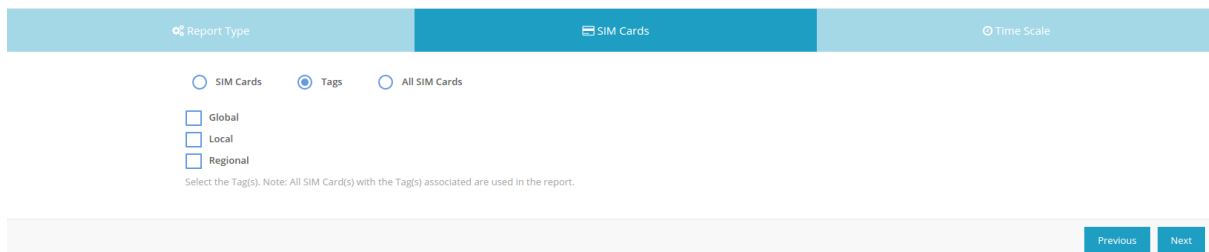
Fig. 3: Tags options selection view.

Note: The number of SIM Card(s) in the **Dashboard** reports change, as you associate or dissociate Tags to the SIM Cards.

All SIM Card(s)

If you use this option, the report uses all SIM Cards in your account.

11.2.3 Step 3 - Time Scale

All reports have a time scale in the x-axis. In this step you have to choose the granularity to organize the data (hourly, daily, monthly or durint the billing cycle) and choose the range for the time axis (selected

period or a custom range).

> **Caution:** Depending on the granularity option selected, you can only use a maximum time range:
>
> 1. Hourly granularity can only be used in a maximum of 7 days.
>
> 2. Daily granularity can only be used in a maximum of 6 months.

Note: In case you account has multiple Rate Plans with different Billing Cycles. A box with the billing cycles options will show in the form. The selected billing cycle filters the SIM Card that do not correspond to it.

Selected Period

Using the selected period option, the report will always end in the current hour, day or month, depending on the granularity.

Fig. 4: Time scale step with the period option selected.

Currently there are 6 options:

1. Last 7 days

2. Last 14 days

3. Last 30 days

4. Last 3 months

5. Last 6 months

6. Last year

Custom Range

In case you select a custom period, you need to choose the two dates (start and end) to create the report.

> **Caution:** Some errors might appear if you select:
>
> 1. Start date or end date in the future.
>
> 2. Start date after end date.

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Fig. 5: Time scale step with the custom range option selected.

11.3 View Report

After the options are selected, you will be redirected to the report view. Here, you can change some attributes that were previously selected (e.g. tags, granularity, etc.), export the data in a CSV file, download an image of the report generated and add the report to your **Dashboard**.
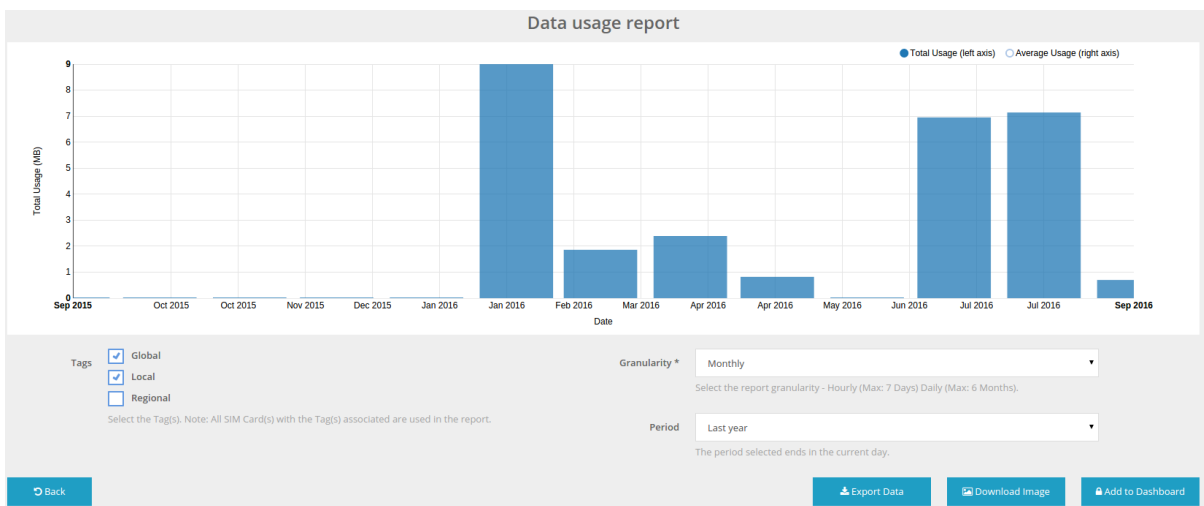
Fig. 6: Report view after successfully completing the wizard form.

Caution: To generate the report you will always need to have all attributes selected.

Caution: The same errors as the report create form, might appear.

11.3.1 Graphs - Features

- The generated graph always shows tooltips with detailed information for each point or bar;
- Graphs with multiple bars, have the options to show or hide each bar;
- Usage graphs have a line for the average usage per SIM Cards;

11.3.2 Actions

Export

If the report is generated, you are able to download a CSV file with the content used to generate it. Some reports do not have a CSV actions (e.g. Inventory report).

To export the information you can click "Export" and choose the method to export the information, see *Report Export* for more information.

Download Image

If the report is generated, you can download a image of the report generated.

Add to Dashboard

If the report is generated, you can add to your **Dashboard** with a label attached to it.

> **Caution:** When adding the new reports, your **Dashboard** settings will reset.

11.4 Examples

This section shows some examples using the report section.

11.4.1 Example 1

Report Type	SIM Cards	Granularity	Custom Range
Inventory	SIM Cards (Selected 3)	Monthly	1 Jan. 2016 - 31 Aug. 2016
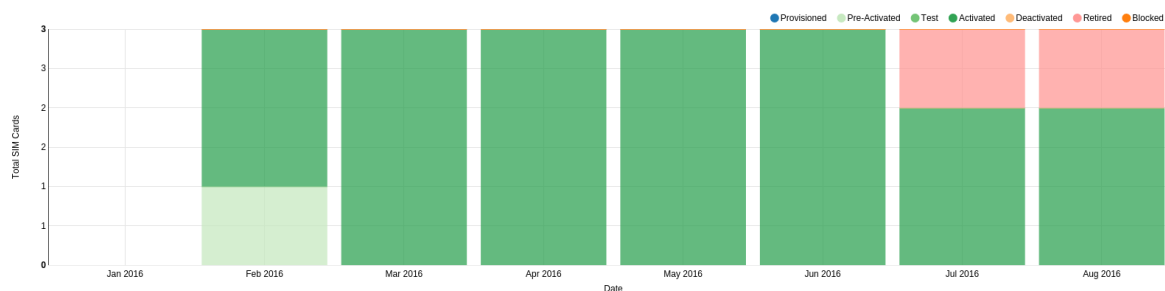
Fig. 7: Example 1 generated graph.

11.4.2 Example 2

Report Type	SIM Cards	Granularity	Custom Range
Data Usage	All SIM Cards	Hourly	12 Sep. 2016 - 14 Sep. 2016
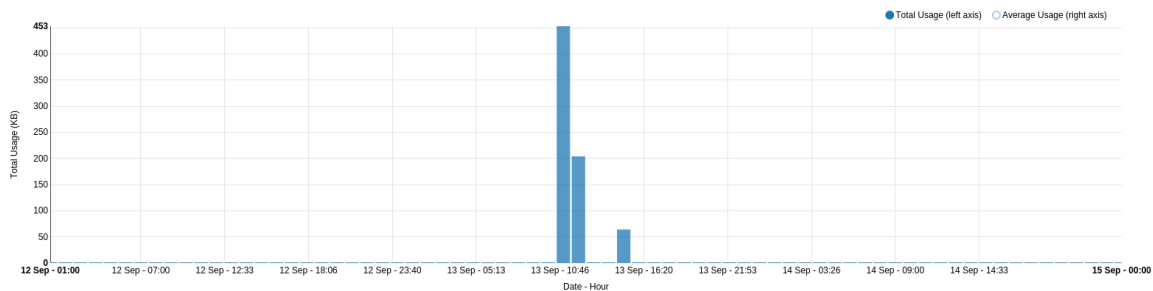
Fig. 8: Example 2 generated graph.

11.4.3 Example 3

Report Type	SIM Cards	Granularity	Period
Event Rules	Using 2 Tags	Monthly	Last 6 Months
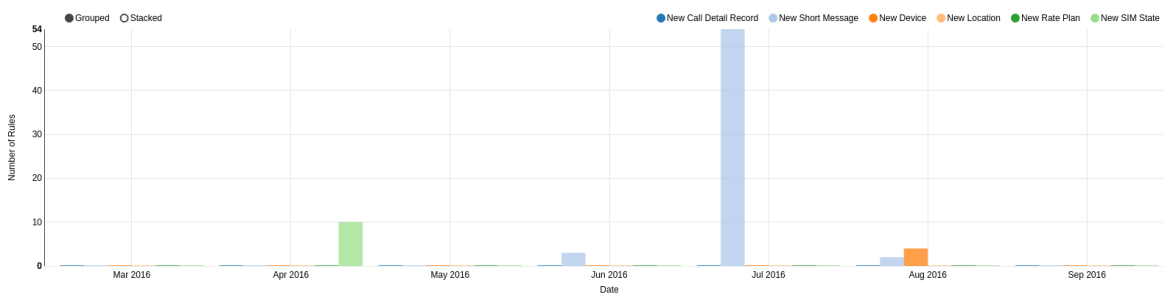
Fig. 9: Example 3 generated graph.

AUDIT TRAIL

12.1 Overview

Audit trail allows users to know all of the platform usage history. All actions recorded such as:

- Login, logout

- Profile, settings and password edit

- Add, edit and remove organizations, users, rate plans, sim cards, rules, etc.

- Change SIM cards state, rate plan, IP address, etc.

- Send SMS from platform

- Other relevant activities

The Audit Tails tracks the user and date when the action is performed with additional information.

To export the information you can click "Export" and choose the method to export the information, see *Audit Trail Export* for more information.

ANNEXES

13.1 Glossary

- 2G: Second Generation (of the GSM technology) - 2G was launched in the 1990s. It's more efficient than the first-generation of the GSM technology because it uses digital signalling to compress the information being sent over the radio spectrum. 2G also enabled the SMS, MMS and GPRS services.

- 3G: Third Generation (of the GSM technology) - 3G offers far more capacity than 2G (i.e., higher download speeds). 3G is around ten times faster than GPRS. See also UMTS.

- 4G: Fourth Generation (of the GSM technology) - 4G delivers significantly faster download speeds than 3G. 4G is a data-only network. Voice calls are transmitted using a specific VoIP technology. See also LTE.

- API: Application Programming Interface - Specification of how software components should interact with each other (e.g., CoSwitched control panel and a customer's system).

- APN: Access Point Name - Name of the data access gateway between the mobile device and the public internet or a private network.

- CDR: Call Detail Record - Data record created by a communications network that contains attributes that are specific to a phone call or other communication transaction that was handled by the network.

- CSV: Comma Separated Values - Tabular data (numbers and text) format in plain-text form separated by some character or string, most commonly a literal comma or tab.

- Download: Data transferred onto a computer (or other device) from another computer or the internet.

- EDGE: Enhanced Data rates for GSM Evolution - Technology that enhances GPRS to improve data transmission rates. EDGE is considered a pre-3G technology.

- GPRS: General Packet Radio Service - GPRS is a standard that describes how data is transferred over the mobile network to and from the devices on 2G networks.

- GPS: Global Positioning System - Space-based satellite navigation system that provides location and time information anywhere on or near the Earth where there is an unobstructed line of sight to four or more GPS satellites.

- GSM: Global System for Mobile Communications - GSM is a set of technologies and standards that provide the blueprints that telecoms operators use to build mobile networks. GSM is the dominant technology for mobile communications in most parts of the world.

- HSPA: High Speed Packet Access - Technology that extends and improves the performance of existing Third Generation of the GSM technology.

- ICCID: Integrated Circuit Card IDentifier - Each SIM card is internationally identified by its ICCID. ICCIDs are stored in the SIM cards and are also engraved or printed on the SIM card.

- IMEI: International Mobile Station Equipment Identity - An identification, usually unique, to identify mobile network devices, as well as some satellite phones.

- IMSI: International Mobile Subscriber Identity - Identifies the user of a mobile network. Each SIM card has one or more IMSI. SIM cards with multiple IMSIs are known as Multi-IMSI SIM cards.

- IP: Internet Protocol - Principal communications protocol in the Internet protocol suite for relaying data across network boundaries. Its routing function enables internetworking, and essentially establishes the Internet.

- IP Address: Identification assigned to each device (e.g., computer or mobile phone) participating in a computer network that uses the Internet Protocol for communication. IP Addresses can be private or public, and dynamic or static.

- LTE: Long Term Evolution - Key technology of the Fourth Generation of the GSM technology

- M2M: Machine-to-Machine - Communications between machines using fixed or mobile networks.

- MCC: Mobile Country Code - Used in combination with MNC, identifies mobile network operators and some satellite mobile networks.

- MMS: Multimedia Messaging Service - Technology to send messages that include multimedia content to and from mobile devices.

- MNC: Mobile Network Code - Used in combination with MCC, identifies mobile network operators and some satellite mobile networks.

- MNO: Mobile Network Operator - Provider of wireless communications services that owns or controls the elements necessary to sell and deliver services to an end user, including radio spectrum allocation.

- MO: Mobile Originated - Call or message being sent in from a mobile device (i.e., outgoing call or message).

- MSISDN: Mobile Subscriber ISDN Number - A number uniquely identifying a subscription in a GSM or a UMTS mobile network.

- MT: Mobile Terminated - Call or message being sent to a mobile device (i.e., incoming call or message).

- MVNO: Mobile Virtual Network Operator - Network provider that does not own radio access network and spectrum license and may also not own some core network elements.

- PIN: Personal Identification Number - Numeric password shared between a user and a system that can be used to authenticate the user to the system (e.g., SIM card).

- PUK: PIN Unlock Key - Code to reset a PIN that has been lost or forgotten.

- SIM: Subscriber Identity Module - Integrated circuit that securely stores the IMSI and the related key used to identify and authenticate subscription on mobile devices.

- SMS: Short Message Service - Text messaging service component of phone, Web, or mobile communication systems.

- SMS-C: SMS-Center - Name of a network element that stores, forwards, converts and delivers SMS messages.

- UMTS: Universal Mobile Telecommunications System - Key technology of the Third Generation of the GSM technology.

- Upload: Data transferred from a computer (or other device) to another computer or the Internet.

- USSD: Unstructured Supplementary Service Data - Technology used by GSM mobile phones to communicate with the network operator's system (e.g., balance enquiry).

- VPN: Virtual Private Network - Virtual point-to-point connection across a public network as if it is directly connected to a private network.

Source: 4G Americas, ETSI and Wikipedia

13.2 Exports

13.2.1 Overview

Some of the data stored by the platform, such as CDRs, can be exported as files by the user (e.g., as CSV files).

13.2.2 Export Format

The platform supports the following export formats:

- Comma-separated Values (CSV) - Tabular data (numbers and text) in plain text. Each line of the file is a data record. Each record consists of one or more fields, separated by commas. The file is exported with a '.csv' extension.

- Portable Document Format (PDF) - Tabular data (numbers and text) exported as a table inside a PDF file sent by email. Each row of the table is a record. Each record consists of one or more fields. The file is exported with a '.pdf' extension.

- Email - Tabular data (numbers and text) exported as a table in an email. Each row of the table is a record. Each record consists of one or more fields.

- ZIP - Some data may require more than one CSV file. In those cases, the platform may show the option to compress all files inside a ZIP archive. The file is exported with a '.zip' extension.

- Print - Directly prints the viewed table. Each row of the table is a record. Each record consists of one or more fields.

Note: The exports file name has the following structure m2m-<name_of_export>-<date_YYYYMMDDHHmmSS>.csv (e.g. sims_list_20160824094730.csv). For exports related to a specific SIM Card, the file name has the following structure m2m-sim-<sim_iccid>-<name_of_export>-<date_YYYYMMDDHHmmSS>.csv (e.g. m2m-sim-8944503540145553069-notifications-20170825090030.csv).

13.2.3 Field Format

The fields are exported with the following format:

- Date - Text with date in ISO 8601 format with the UTC timezone (e.g., "2016-08-06 23:45:00+00:00''").

- Phone number (i.e., MSISDN) - ITU.T E.164 specification with Country Code + National Destination Code or Number Planning Area + Subscriber Number (e.g., "447408812027" - CC=44, NDC=7408 and SN=812027). If phone number doesn't apply, the field will be empty or ''None''.

- Label - Text with up to 255 alphabetic and numeric characters. This field cannot have a blank value.

- Description - Text with up to 1000 alphabetic and numeric characters. This field can be empty.

13.2.4 Field Selection

Each export only gets the fields that are visible. To include or exclude fields select them in the button "Show/Hide columns".

Note: If you order by a specific field and then hide the column, when exporting the table data the order will not be included in the query.

13.2.5 Filter Selection

Each export only gets the rows that filtered, when filtering rows the export will increase the download time. To filter the row use the filter boxes on each field header.

13.2.6 Data

SIM Cards Export

The table below lists the content of the exported files for SIM cards.

Field	Description	Possible Values
ICCID	ICCID number of the SIM card.	"8912345678901234567"
Primary IMSI	Primary International mobile subscriber identity (i.e., IMSI) associated with the SIM card.	"23123456789000"
Label	Label set by the user for the SIM card.	"Default"
Primary MSISDN	Primary phone number (i.e., MSISDN) associated with the SIM card.	"441234567890"
SIM Type	Shows the SIM Card type (i.e.Mini-SIM, Multi-SIM, etc)	"Mini-SIM", "Micro-SIM", "Nano-SIM", "Multi-SIM" or "Solderable-SIM"
Rate Plan	current Rate Plan associated with the SIM Card.	"Truphone M2M"
SIM Status	Status of the SIM card.	"Provisioned", "Test Mode", "Pre-Active", "Active", "Suspended", "Blocked" or "Retired"
Data Status	Status of the Data service of the SIM card.	"Activated" or "Suspended"
Session Status	Status of the currents Data Session.	"Online" or "Offline"
Data	Current monthly Data usage in KBytes.	"1234563"
SMS Out	Current monthly SMS Originated usage.	"10"
Country	Name of the country of the network of the operator that the device is connected to.	"United Kingdom" or "N/A"
Network	Network name of the operator that the device is connected to.	"Truphone UK" or "N/A"
Last Seen Date	Shows the last seen date of the SIM Card (i.e. last time the SIM Card had a Location Update).	"2016-06-07 14:50:57+00:00"
Provisioned Date	Shows the provisioning date of the SIM Card.	"2016-06-07 14:50:57+00:00"
Date First Activated	Shows the first time the SIM Card got active.	"2016-06-07 14:50:57+00:00"
Device Imei	Shows the Devices that the SIM Card is currently attached.	"35123456789012" or "N/A"
Tags	List of Tag associated with the SIM Card separated by comma.	"Tag1, Tag2" or "N/A"
Ip Address	Ip Address currently attached to the SIM Card.	"127.0.0.1"
Attributes	Each attribute created has its own column.	"ID-75" or "N/A" if no value added to the attributes

Note: Specific accounts may have additional fields exported in the file (e.g., IMSI and APN). A specific file specification should be provided to the customer.

Note: The life-cycle of the SIM card is specific of the account and associated service profiles. Some

states may not be available in a specific account (e.g., Test state).

Location Updates Export

The location update procedure allows a mobile device to inform the cellular network, whenever it attaches to a new network, it moves from one location area to the next or at periodic times (usually every hour). The platform stores the Location Updates signaling messages received from the network. The table below lists the content of the exported files for Location Updates.

Field	Description	Possible Values
Date	Date of when the Location Update signaling message was received by the network.	"2016-06-07 14:50:57+00:00"
Country	Name of the country of the network of the operator that the device is connected to.	"United Kingdom"
Network Name	Network name of the operator that the device is connected to.	"Truphone UK"
Mcc	Mobile Country Code (three digit number).	"234"
Mnc	Mobile Network Code (three digit number).	"015"

Tip: For a detailed description of Mobility Management function of the cellular networks, please refer to 3GPP Technical Specification TS 23.012 Location management procedures.

Note: Specific accounts may have additional fields included in the Location Update (e.g., IMSI). A specific Location Update specification should be provided to the customer.

Note: Location Updates table (accessed through the SIM card detail page) only shows the elements associated to the SIM card in question.

Call Detail Records Export

The platform create a new Call Detail Record (CDR) for any event (e.g., SMS) or session (e.g., call). The table below lists the content of the exported files for CDRs.

Field	Description	Possible Values
Coun-try	Name of the country of the network of the operator that the device is connected to.	"United Kingdom"
Net-work	Network name of the operator that the device is connected to.	"Truphone UK"
Start Date	Date that the event started (e.g., start of call, start of Data session or date SMS was sent).	"2016-06-07 14:50:57+00:00"
End Date	Date that the event stop (e.g., end of call, end of Data session or date SMS was sent).	"2016-06-07 14:55:31+00:00"
Origin Num-ber	Phone number (i.e., MSISDN) of the originator of the event (e.g., who sent the SMS).	"441234567890" or "N/A"
Desti-nation Num-ber	Phone number (i.e., MSISDN) of the terminator of the event (e.g., who received the SMS).	"441234567890" or "N/A"
Dura-tion	Duration of the session/event.	"124" (Seconds for calls, units for SMS and Kilobytes for Data sessions).
Cdr Type	Type of the event (e.g., Data session).	"Mobile Terminated Call" (MTC), "Mobile Originated Call" (MOC), "Mobile Terminated SMS", "Mobile Originated SMS" or "Data".

Note: Specific accounts may have additional fields included in the CDR (e.g., Disconnect Reason). A specific CDR specification should be provided to the customer.

Note: Call Detail Record table (accessed through the SIM card detail page) only shows the elements associated to the SIM card in question.

Rules Export

The platform stores an history of all the rules that where applied in SIM cards in the account. The table below lists the content of the exported files of the applied rules.

Field	Description	Possible Values
Date	Date when the rule triggered.	"2016-06-07 14:50:57+00:00"
Label	Name of the rule triggered. Configured by rule.	"Defaut"
Rules Class	Rule class which the notification represents.	"Usage Rule" or "Event Rule"
Rule Trig- ger	Trigger configured that created the rule notification.	"New Device", "Data Usage", "Inbound call(s)", "New Country/Network", "New Data Session", "Inbound SMS", "New Platform Simple Short Message (SMS)", "New SIM Card State", "Number of Data Sessions", "Outbound SMS" or "Outbound call(s)"
Change Sim Card Status Action	The SIM card status that the SIM Card changed if the rule triggered. This only happens if the options is configured in the rule.	"Active", "Suspend", "Retire" or "N/A"
Change Data Status Action	The data status that the SIM Card changed if the rule triggered. This only happens if the options is configured in the rule.	"Active", "Suspend", or "N/A"
Send Email	Email where the message was sent. This only happens if the options is configured in the rule.	"somemail@example.com" or ""
Send SMS	Number where the message was sent. This only happens if the options is configured in the rule.	"44123456789012" or ""
Send Push Api	URL where the message was sent. This only happens if the options is configured in the rule.	"http://<doman>/test" or ""
Mes- sage	Message sent to the email or SMS.	"New short message Type: MT, Content: example, Date:2016-06-07 14:50:57+00:00"

Note: This Rule table (accessed through the SIM card detail page) shows the elements associated to the SIM card in question.

Notifications Export

For each change of services status related to the SIM cards the platform creates a notification. The tables below lists the content of the exported files of the notifications.

Field	Description	Possible Values
Type	Notification type	"SIM Card Updated"
Description	Description of affected	"SIM Card", "Data Service" or "Rate Plan"
New State	New service state	"Provisioned", "Pre-Active", "Active", "Suspended", "Blocked" "Retired", "Removed" or "Set"
New Value	New values that the notification might store.	"Truphone M2M" or "N/A"
Date	Date when the notification was created.	"2016-06-07 14:50:57+00:00"

Note: This Notification table (accessed through the SIM card detail page) shows the elements associated to the SIM card in question.

Devices Export

The platform has the capability to find and store the device associated with the SIM Cards. The tables below lists the content of the exported files for the devices.

Field	Description	Possible Values
International Mobile Station Equipment Identity	IMEI number of the Device	"35123456789012"
Date First Registered	Date of the first time registered in the platform.	"2016-06-07 14:50:57+00:00"
Label	Label set by the user for the Device.	"Default"
Sim Card Iccid	ICCID of the Card attached to the device.	"8912345678901234567" or "N/A"

Rules History Export

The platform stores an history of all the rules that where applied in SIM cards in the account. The table below lists the content of the exported files of the applied rules.

Field	Description	Possible Values
ICCID	ICCID of the Card that triggered the rule.	"8912345678901234567"
Date	Date when the rule triggered.	"2016-06-07 14:50:57+00:00"
Label	Name of the rule triggered. Configured by rule.	"Defaut"
Rules Class	Rule class which the notification represents.	"Usage Rule" or "Event Rule"
Rule Trigger	Trigger configured that created the rule notification.	"New Device", "Data Usage", "Inbound call(s)", "New Country/Network", "New Data Session", "Inbound SMS", "New Platform Simple Short Message (SMS)", "New SIM Card State", "Number of Data Sessions", "Outbound SMS" or "Outbound call(s)"
Change Sim Card Status Action	The SIM card status that the SIM Card changed if the rule triggered. This only happens if the options is configured in the rule.	"Active", "Suspend", "Retire" or "N/A"
Change Data Status Action	The data status that the SIM Card changed if the rule triggered. This only happens if the options is configured in the rule.	"Active", "Suspend", or "N/A"
Send Email	Email where the message was sent. This only happens if the options is configured in the rule.	"somemail@example.com" or ""
Send SMS	Number where the message was sent. This only happens if the options is configured in the rule.	"44123456789012" or ""
Send Push Api	URL where the message was sent. This only happens if the options is configured in the rule.	"http://<doman>/test" or ""
Message	Message sent to the email or SMS.	"New short message Type: MT, Content: example, Date:2016-06-07 14:50:57+00:00"

Notifications Export

For each change of services status related to the SIM cards the platform creates a notification. The tables below lists the content of the exported files of the notifications.

Field	Description	Possible Values
Type	Notification type	"SIM Card Updated"
Source Type	What does the Source value represents	"ICCID"
Source	Source value that the notification is associated.	"8912354678901234567"
Description	Description of affected	"SIM Card", "Data Service" or "Rate Plan"
New State	New service state	"Provisioned", "Pre-Active", "Active", "Suspended", "Blocked" "Retired", "Removed" or "Set"
New Value	New values that the notification might store.	"Truphone M2M" or "N/A"
Date	Date when the notification was created.	"2016-06-07 14:50:57+00:00"

Report Export

Some reports have the option to export the data. To download the CSV file with the data click on the button "Export Data".

Note: The report exports file name has the following structure m2m-<name_of_export>-report-export-<date_YYYYMMDDHHmmSS>.csv (e.g. m2m-usage-rule-report-export-20170825091249.csv).

Data and SMS Usage Report

The usages report export will include the following fields in the file:

Field	Description	Possible Values
Start Date	Date that the record started. The start date will always coincide with starting month, day, hour or billing cycle.	"2016-06-07 14:50:57+00:00"
End Date	Date that the record stopped. The start date will always coincide with starting month, day, hour or billing cycle.	"2016-06-07 14:55:57+00:00"
ICCID	ICCID of the SIM Card that generated the usage.	"8912354678901234567"
Total Usage	Usage done in between the start and end dates. Data usage counted in KB.	"1024"

Location Report

The locations report export will include the following fields in the file:

Field	Description	Possible Values
Date	Date of when the Location Update signaling message was received by the network.	"2016-06-07 14:50:57+00:00"
ICCID	ICCID of the SIM Card that generated the usage.	"8912354678901234567"
Country	Name of the country of the network of the operator that the device is connected to.	"United Kingdom"
Network Name	Operator name that the device is connected to.	"Truphone UK"
Mcc	Mobile Country Code (three digit number).	"234"
Mnc	Mobile Network Code (three digit number).	"015"

Event and Usage Rules Report

The rules report export will include the following fields in the file:

Field	Description	Possible Values
ICCID	ICCID of the Card that triggered the rule.	"8912345678901234567"
Date	Date when the rule triggered.	"2016-06-07 14:50:57+00:00"
Label	Name of the rule triggered. Configured by rule.	"Defaut"
Rule Trigger	Trigger configured that created the rule notification.	"New Device", "Data Usage", "Inbound call(s)", "New Country/Network", "New Data Session", "Inbound SMS", "New Platform Simple Short Message (SMS)", "New SIM Card State", "Number of Data Sessions", "Outbound SMS" or "Outbound call(s)"
Change Sim Card Status Action	The SIM card status that the SIM Card changed if the rule triggered. This only happens if the options is configured in the rule.	"Active", "Suspend", "Retire" or "N/A"
Change Data Status Action	The data status that the SIM Card changed if the rule triggered. This only happens if the options is configured in the rule.	"Active", "Suspend", or "N/A"
Send Email	Email where the message was sent. This only happens if the options is configured in the rule.	"somemail@example.com" or "N/A"
Send SMS	Number where the message was sent. This only happens if the options is configured in the rule.	"44123456789012" or "N/A"
Send Push Api	URL where the message was sent. This only happens if the options is configured in the rule.	"http://<doman>/test" or "N/A"
Message	Message sent to the email or SMS.	"New short message Type: MT, Content: example, Date:2016-06-07 14:50:57+00:00"

Notifications Report

The notifications report export will include the following fields in the file:

Field	Description	Possible Values
Date	Date when the notification was created.	"2016-06-07 14:50:57+00:00"
Type	Notification type	"SIM Card Updated"
Source Type	What does the Source value represents	"ICCID"
Source	Source value that the notification is associated.	"8912354678901234567"
De-scrip-tion	Description of affected	"SIM Card", "Data Service" or "IMEI"
New State	New service state	"Provisioned", "Pre-Active", "Active", "Suspended", "Blocked" "Retired" or "Removed"

Audit Trail Export

For each action done in the platform an audit trail is created. The tables below lists the content of the exported files of the audit trails.

Field	Description	Possible Values
Interface	The interface type of the action audited	"Web/Mobile", "API, "Backend Action", "Operator" or "Periodic Action"
Object	Object type of the action audited	"Account Charge", "Zone", "SubAccounts", "Organization Users", "User", "FTP Setup", "Tag", "Organization", "Attribute", "Billing Settings", "Password", "GGSN", "Rules Sent", "Rules", "Devices", "SIM Card", "Invoice", "Other Charge", "Settings" or "Profile"
Action	Action type of the action audited	"Send SMS", "Order", "Suspend", "Activate", "Move", "Delete", "Test State", "Change Primary IMSI", "Change Primary MSISDN", "New Rate Plan", "Suspend Data", "Activate Data", "Edit", "Move to Sub Organization", "Move to another Organization", "Sudo logout", "Sudo login", "Swapped", "Assign Rate Plan", "Pre-Active", "Removed", "Retired", "Provisioned", "Add", "APN", "VPN", "Rule Fired", "Remove IP", "Remove Fixed IP", "Add IP", "Unblock", "Lock", "Charge", "Assign Fixed IP", "Logout" or "Login"
User Email	Email of the user that perform the the action audited.	"test@example.com"
Date	Date when the action audited.	"2016-06-07 14:50:57+00:00"
Message	Message with details of the action audited.	"User Logged In."

13.2. Exports