



sigfox
0G Technology

Sigfox Backend

First contact



Content

1. Sigfox Cloud GUI
2. Organization & Hierarchy
3. Devices & Device type
4. Service map
5. APIs & Callbacks

1

Sigfox Cloud GUI

Pre-requisites

User checklist:

- ✓ Internet access
- ✓ Computer with correct date/time
- ✓ Recent web browser
(Chrome, Firefox & Safari preferred)
- ✓ Account creation email received

Production cloud:
backend.sigfox.com

Support contact:
support.sigfox.com

Sigfox Cloud GUI



SITE BASE STATION DEVICE DEVICE TYPE USER GROUP RADIO PLANNING BILLING



NEWS

SERVICE MAPS

KNOWN ISSUES

SIGFOX_Singapore_Unabiz

Welcome to
sigfox portal

OPERATOR CLIENT

Release 12.3

Devices, Device types and Callbacks

[Overusage \[improvement\]](#)

When a device exceeds the number of messages allowed per day at contract level, a unique overusage event is triggered until the end of the day (vs. 1 event per message in overusage previously). The overusage counter is reinitialized at the end of the day.

Service impact

There will be no impact on the services.
Scheduled release start: 2023-04-11, 2:00 PM CEST
Scheduled release end: 2023-04-11, 6:00 PM CEST

11
APRIL
2023



Sigfox Cloud GUI

The screenshot displays the Sigfox Cloud GUI interface. On the left, a dark blue sidebar (1) contains navigation links for 'NEWS', 'SERVICE MAPS', and 'KNOWN ISSUES'. The top navigation bar (2) includes menu items: 'SITE', 'BASE STATION', 'DEVICE', 'DEVICE TYPE', 'USER', 'GROUP', 'RADIO PLANNING', and 'BILLING'. In the top right corner (3), there are icons for user profile, help, and share. The main content area features a 'Welcome to sigfox portal' banner with a date indicator for '11 APRIL 2023'. Below the banner, there are sections for 'Release 12.3', 'Devices, Device types and Callbacks', 'Overusage [improvement]', and 'Service impact'.

- 1 **Main page shortcut** (News, service maps, known issues)
- 2 **Category selection** (Device, Device type, User, Group)
- 3 **Global entries** (profile, online help, logout)

Sigfox Cloud GUI

The screenshot displays the Sigfox Cloud GUI interface for the 'Device - List' page. The page is annotated with eight numbered callouts (1-8) pointing to specific UI elements:

- 1** Selected category: The 'DEVICES' sidebar menu.
- 2** Action buttons: A row of buttons including 'New', 'New series', 'Edit series', 'Transfer series', 'Replace series', and 'Delete series'.
- 3** Filter conditions: A section containing input fields for 'id', 'Last seen from date', and 'Last seen to date', along with a 'State' dropdown menu.
- 4** Displayed items/total: A 'Count:' label.
- 5** Filter operations: A row of buttons including 'Group', 'Select a group', 'Include sub groups', and 'RESET'.
- 6** Export list to CSV: A button with a CSV icon.
- 7** Page switch: A 'page 1' label with a right arrow.
- 8** Column display customization: A gear icon.

- 1 Selected category
- 2 Action buttons
- 3 Filter conditions
- 4 Displayed items/total
- 5 Filter operations
- 6 Export list to CSV
- 7 Page switch
- 8 Column display customization

Sigfox Cloud GUI

The screenshot displays the Sigfox Cloud GUI interface. At the top, there is a navigation bar with tabs for 'DEVICE', 'DEVICE TYPE', 'USER', and 'GROUP'. Below this, a sidebar on the left contains 'DEVICES' and 'DELETED DEVICES'. The main content area is titled 'Device - List' and features several filter fields: 'ID', 'State' (dropdown), and 'Last seen from date'. A 'Group' dropdown menu is highlighted with a red dashed box and a '1' callout. To the right, a 'Field selection' panel is highlighted with a red dashed box and a '2' callout, showing a list of fields such as 'Activation date', 'Automatic token renewal', 'Com status', 'Device type', 'Group', 'Id', 'Last purge', 'Last seen', 'Modem certificate', 'Name', 'PAC', 'Product certificate', 'Protocol', and 'Token state'. The 'Apply' button at the bottom of this panel is highlighted with a red dashed box and a '3' callout. Below the filters, there is a table with columns for 'Connection status', 'Device type', 'Group', 'Id', 'Lastseen', 'Name', and 'Token state'. The table contains several rows of device records. At the bottom of the page, there is a copyright notice: 'Copyright © Sigfox 8.9.19/R0641-00190916.152410-290 - Terms and conditions / Cookie policy.'

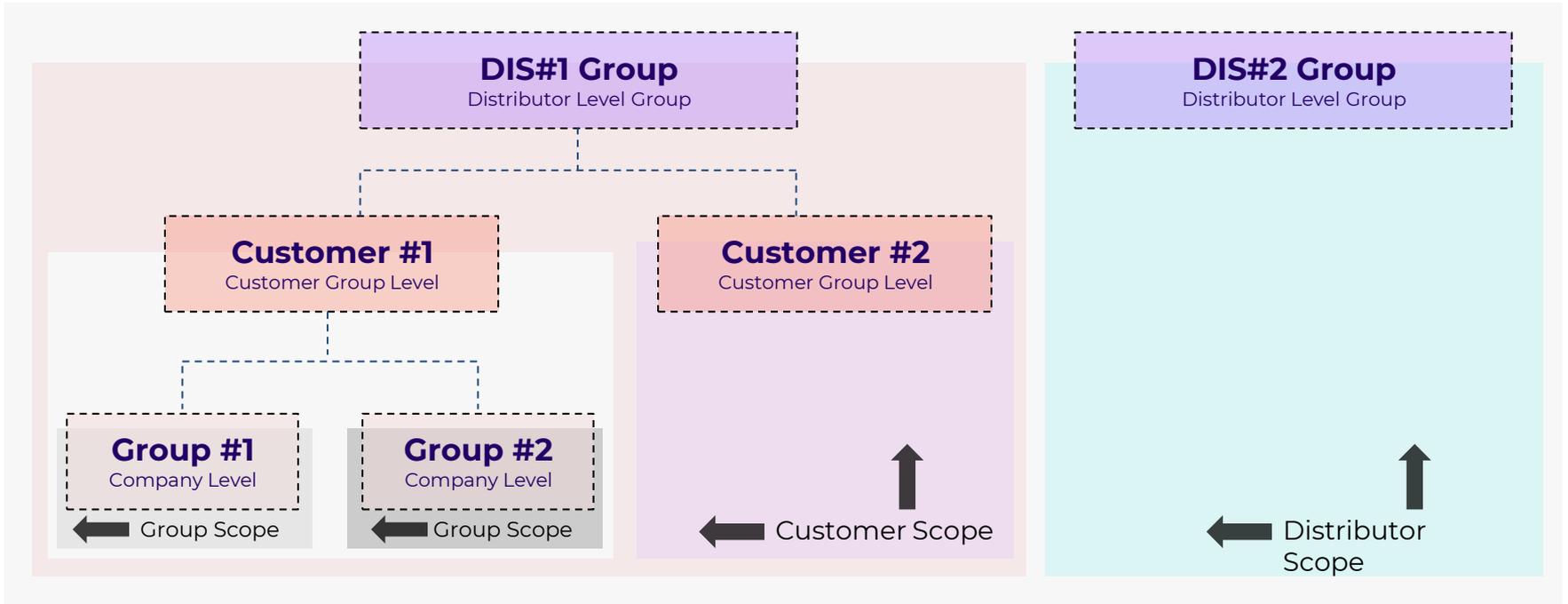
- 1 Selected category
- 2 Column edition menu (max. 8 columns)
- 3 Column edition validation

2

Organization & hierarchy

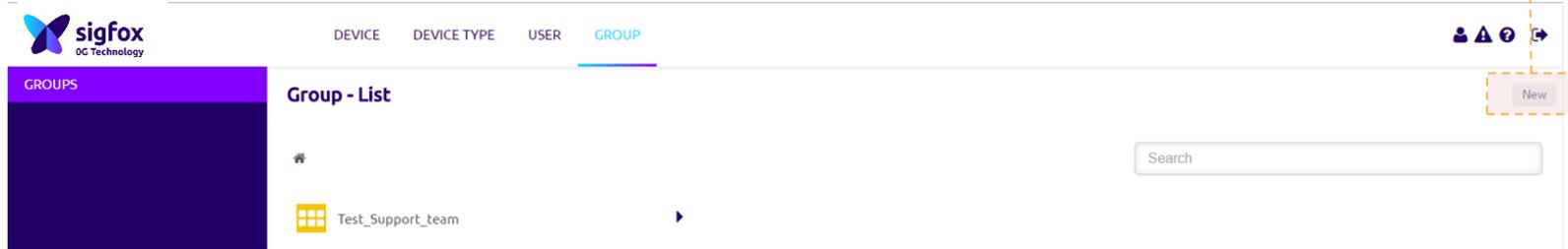
Group & Subgroups

Cloud organization is hierarchically structured

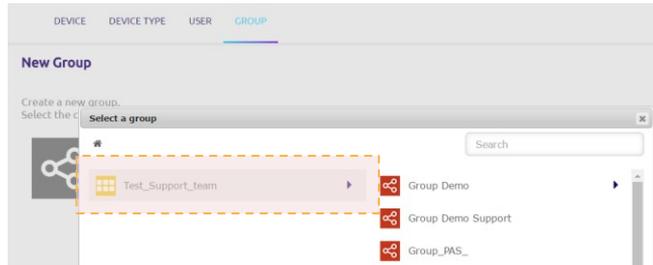


Group creation in detail

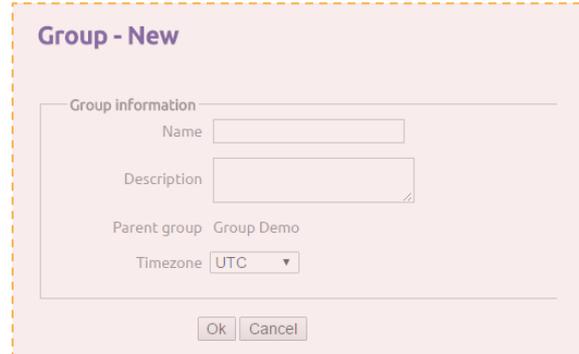
Step 1: Click on New button in Group tab



Step 2: Select the Parent Group



Step 3: Enter Group information

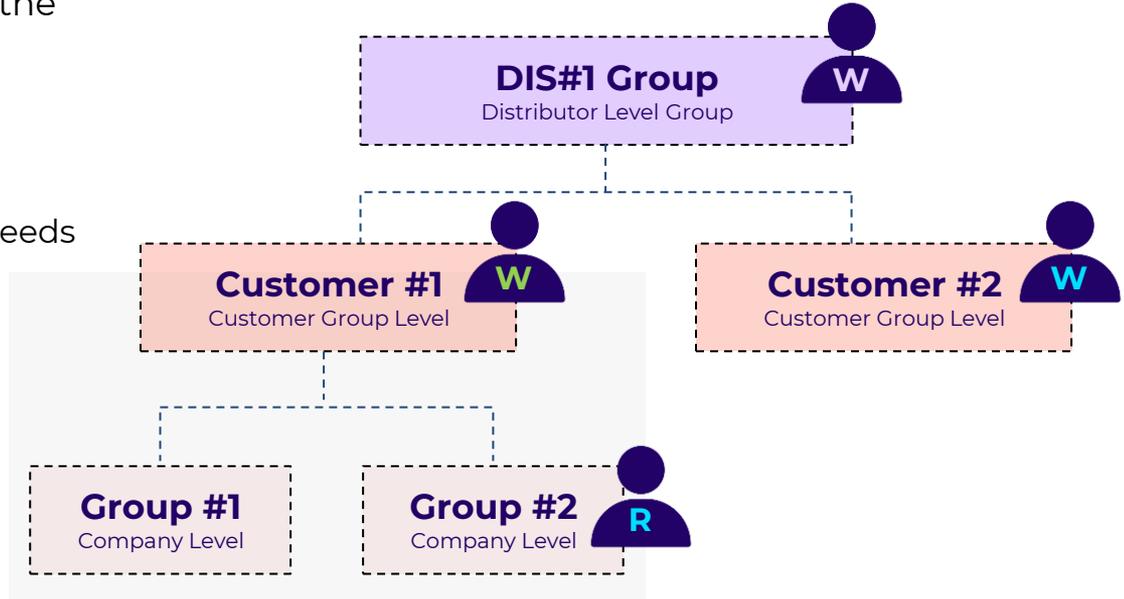


User roles

User creation is linked to **rights allocation on groups**.

A specific attention shall be given to the user role allocation:

- SIGFOX CORP predefines user roles
- DIS/Customers are granted with the rights that correspond to their needs
- User rights can be fine tuned (R/W)



User Creation in detail (1/2)

Step 1: Click on New button in User tab

The screenshot shows the Sigfox OG Technology user management interface. The top navigation bar includes 'DEVICE', 'DEVICE TYPE', 'USER' (selected), and 'GROUP'. A 'New' button is highlighted with a dashed orange box. Below the navigation bar, there are search filters for Name/Email, Profile (set to 'All'), and Group (with a 'Select a group' dropdown). Action buttons for 'RESET' and 'FILTER' are visible. A table header shows columns for Name, Email, Last login, and Groups. A 'page 1' indicator is present below the filters.

Step 2: Enter user information

The 'New user' form contains the following fields:

- User information
- First name
- Last Name
- Email
- Position
- Timezone: UTC

User Creation in detail (2/2)



Helpful resources:
Backend user roles



Step 3: Click select a group button and choose a group

Profiles

Group

Profiles Select the profiles below

Select a group

Search

CORP_SD_Support

Step 4: Choose profiles

Profiles

Group

Profiles Select the profiles below

Info	Name	Select
?	DEVICE MANAGER [R]	<input type="checkbox"/>
?	DEVICE MANAGER [W]	<input type="checkbox"/>
?	LIMITED_ADMIN	<input type="checkbox"/>
?	ONLINE_HELP	<input type="checkbox"/>
?	OPT_DEVICETYPE_ORDER [W]	<input type="checkbox"/>
?	OPT_DEVICETYPE_READ	<input type="checkbox"/>
?	OPT_NOC_ENHANCED	<input type="checkbox"/>
?	OPT_SERVICE_MAP	<input type="checkbox"/>
?	PUBLIC_SERVICE_MAP	<input type="checkbox"/>
?	TEST_RIGHT_DEVICE_CREATE	<input type="checkbox"/>

Click on question marks to get full description of profiles

3

Devices & device type

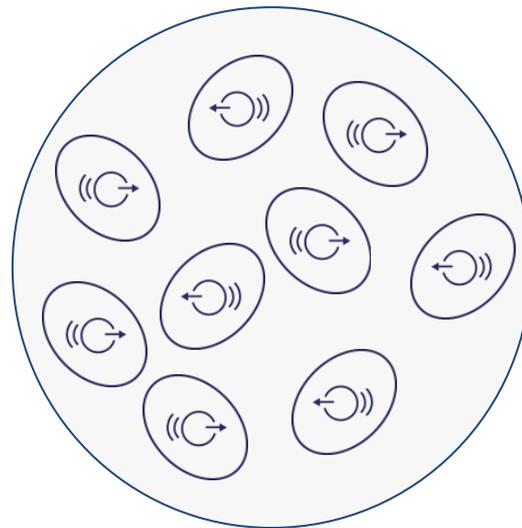
Device & device types

Device notions:

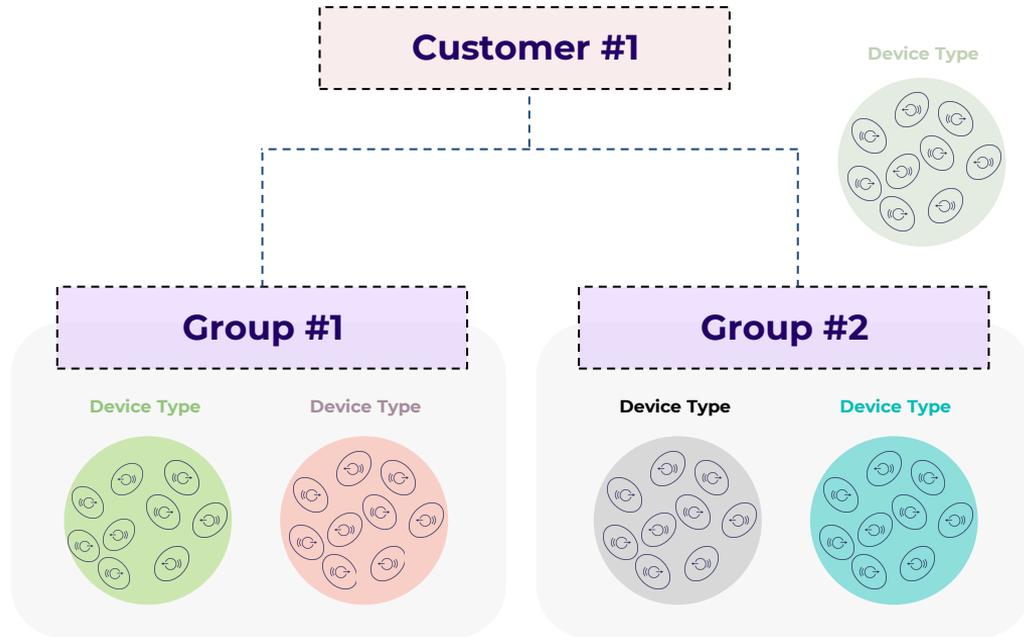
- Unique ID per device
- One property title for each one: PAC (Porting Authorization Code)

Device type notions:

- Set of devices with the same behavior
- Linked to a single order (same subscription levels and duration)
- Belongs to a unique group
- Callback availability to retrieve messages



Device & Device type

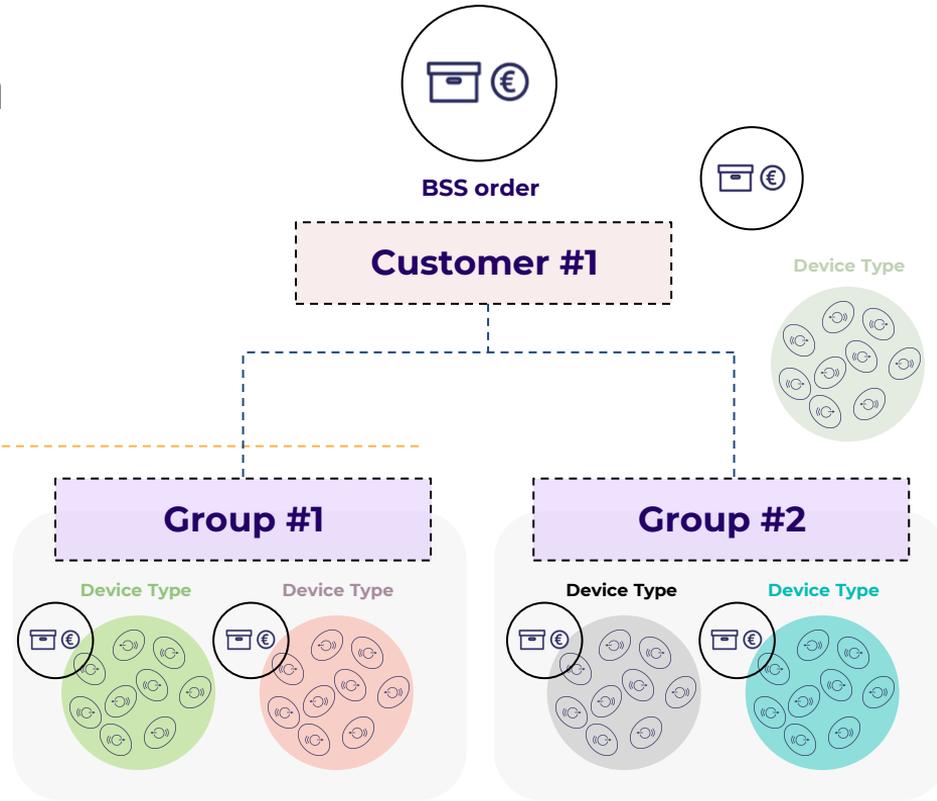


Order allocation

Customers validate order:

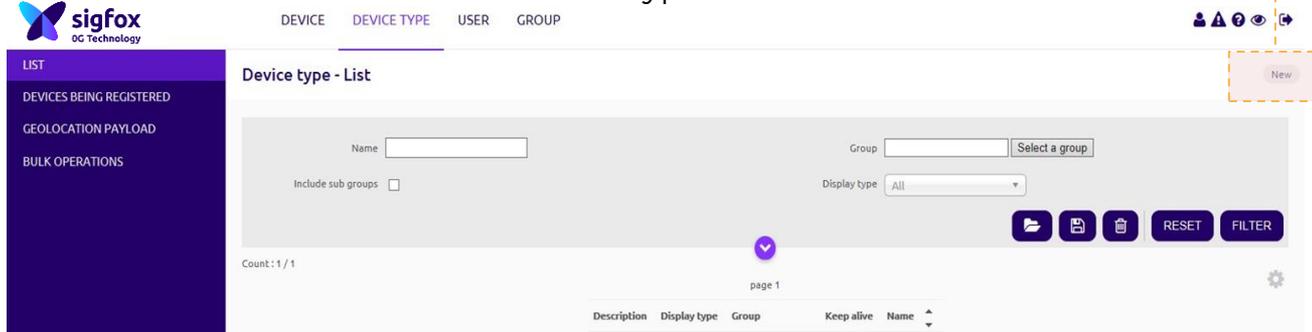
Customers allocate contracts to Groups and possibly to device type.

Groups allocate contracts to device type in their group or in sub-groups below



Device type creation in details (1/2)

Step 1: Click on New button in Device type tab



The screenshot shows the Sigfox OG Technology interface for the 'Device type - List' page. The top navigation bar includes 'DEVICE', 'DEVICE TYPE', 'USER', and 'GROUP'. A 'New' button is highlighted with a dashed orange box. The main content area contains a form with fields for 'Name', 'Group' (with a 'Select a group' dropdown), and 'Display type' (set to 'All'). There are also checkboxes for 'Include sub groups' and a 'Count: 1 / 1' indicator. A table header is visible at the bottom with columns: 'Description', 'Display type', 'Group', 'Keep alive', and 'Name'. Action buttons for 'RESET' and 'FILTER' are present.

Step 2: Select a group



The screenshot shows the 'Select a group' dialog box open over the 'Device type - List' page. The dialog has a search bar and a list of groups. One group, 'CORP_SD_Support', is selected and highlighted. The 'Count: 4 / 4' indicator is visible at the bottom left of the dialog. The background page shows the 'Include sub groups' checkbox and 'RESET' and 'FILTER' buttons.

Device type creation in details (2/2)

Step 3: Enter device type information

Device type - New

The screenshot shows a form titled "Device type - New" with several sections and fields. Annotations with dashed orange lines and orange dots point to specific fields:

- Device type name:** Points to the "Name" input field in the "Device type information" section.
- Enable/disable Subscription automatic renewal for all devices:** Points to the "Subscription automatic renewal" checkbox, which is checked.
- Keep-alive configuration:** Points to the "Keep-alive (in minutes)" input field, which has the value "0".
- Select a contract:** Points to the "Contract" dropdown menu, which is set to "Contract_ServiceDesk (9 tokens left, geoloc: yes)".
- Email address configured for callback failure:** Points to the "Alert email" input field.
- Direct=> Downlink data sent by the backend:** Points to the "Downlink mode" dropdown menu, which is set to "DIRECT".
- Callback=> Downlink data sent through callback:** Points to the "Downlink data in hexa" input field, which contains the expression "(tapId)0000{rssI}".
- Downlink data sent in DIRECT mode:** Points to the "Downlink data in hexa" input field.
- Display customization (Data encoding):** Points to the "Payload parsing" dropdown menu, which is set to "Regular (raw payload)".

Additional text in the form includes: "If we fail to call one of your callbacks, an email will be sent to the" above the "Alert email" field, and "Expression must either include hexadecimal encoded bytes (ex: c" above the "Downlink data in hexa" field.

Device management in details (1/5)

Device - List New New series Edit series Transfer series Replace series Delete series SIGFOX_Singapore_Unabiz

Id State All

Last seen from date Last seen to date

Count: 151476 / 151476

page 1

Communication status	Device type	Group	Id	Last seen	Name	Token state	PAC
----------------------	-------------	-------	----	-----------	------	-------------	-----

Step 1 : Select a way to register devices

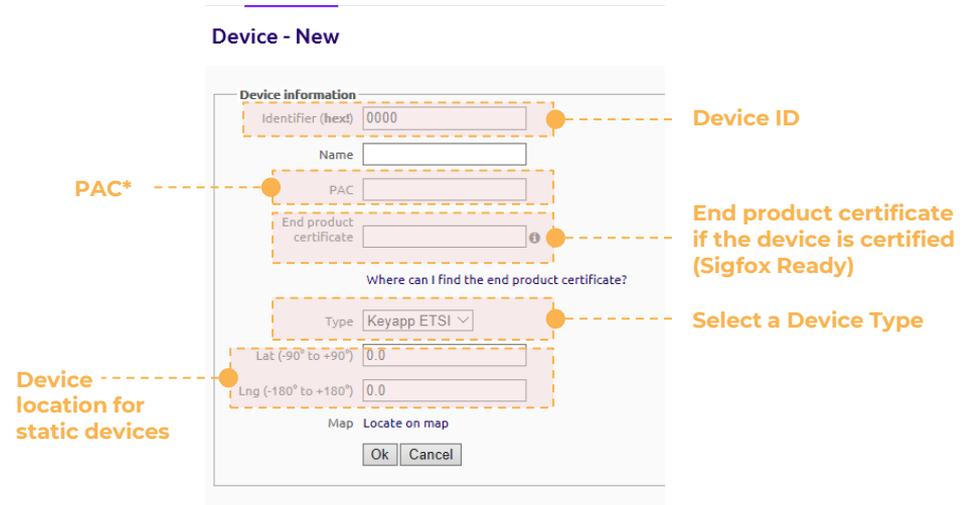
- New: register devices one by one
- New series: register batch of devices
- Edit series: edit device information
- Transfer series: move devices from device types (same or different contract)
- Replace series: replace a broken device by a new
- Delete series: batch of devices deletion

Device management in details (2/5)

Step 2a : If New has been chosen, select a group to register the device



Step 3a : Enter device information



The screenshot shows the 'Device - New' form with several fields and annotations:

- Device ID:** Identifier (hex) 0000
- PAC*:** PAC
- End product certificate:** End product certificate
- Select a Device Type:** Type Keyapp ETSI
- Device location for static devices:** Lat (-90° to +90°) 0.0, Lng (-180° to +180°) 0.0

Additional fields include 'Name', 'Where can I find the end product certificate?', and 'Map Locate on map'. There are 'Ok' and 'Cancel' buttons at the bottom.

Device management in details (3/5)

Step 2B : If **New series** has been chosen

Device - Bulk creation

Use this feature to create several devices simultaneously

Device information

Batch name

Batch description

Devices names prefix

Group: **test_onboarding**

Type

Identifiers Aucun fichier sélectionné.

End product certificate

Where can I find the end product certificate?

Subscription automatic renewal

Activable

Ok Cancel

Device name = prefix + increment

Device type

csv or txt file with ID/PAC

End product certificate if the devices are certified (Sigfox Ready)

Allows device to keep communicate after the end of its subscription date

Allows device to take a token after the end of its subscription date

Step 2C : If **Edit series** has been chosen

Device - Bulk edition

Use this feature to edit several devices simultaneously

Device information

Devices Browse... ?

Ok Cancel

csv or txt file with devices information



Helpful resources:

[Register a batch of devices in one go](#)

[Edit multiple devices simultaneously](#)



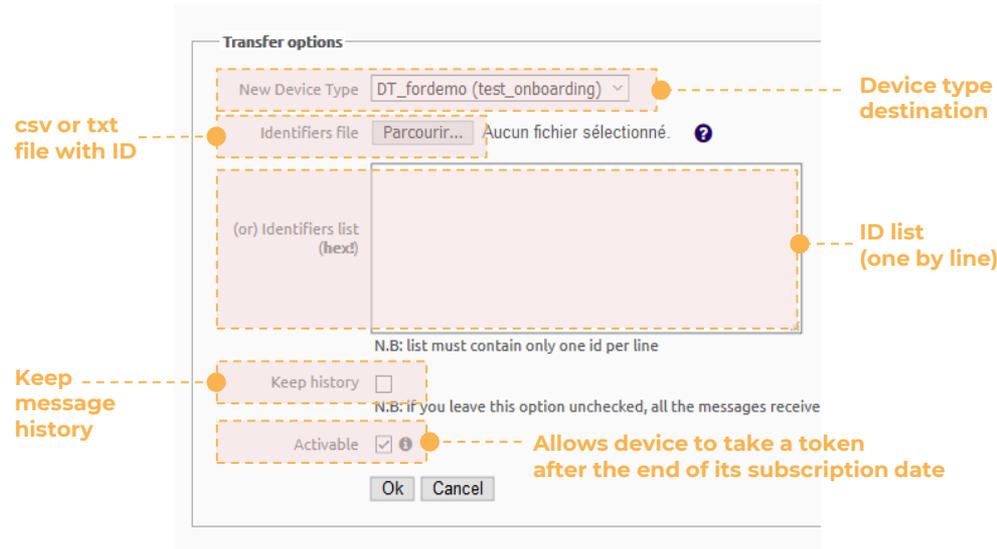
Device management in details (4/5)

Step 2D : If **Transfer series** has been chosen, select the destination group



Step 3D : Enter transfer information

Device - Bulk Transfer



The screenshot shows the 'Device - Bulk Transfer' form with several annotations:

- Device type destination:** Points to the 'New Device Type' dropdown menu, which is set to 'DT_fordemo (test_onboarding)'.
- csv or txt file with ID:** Points to the 'Identifiers file' field, which has a 'Parcourir...' button and the text 'Aucun fichier sélectionné.'.
- ID list (one by line):** Points to the '(or) Identifiers list (hex)' text area, which is currently empty.
- Keep message history:** Points to the 'Keep history' checkbox, which is unchecked.
- Allows device to take a token after the end of its subscription date:** Points to the 'Activable' checkbox, which is checked.

Additional text in the form includes: 'N.B: list must contain only one id per line' and 'N.B: if you leave this option unchecked, all the messages receive'.

Device management in details (5/5)

Step 2E : If **Replace series** has been chosen

Device - Bulk replacement

Use this feature to transfer information from several devices to others simultaneously

Device information

Devices 



Helpful resources:
[Replace a device](#)



Step 2F : If **Delete series** has been chosen

Device - Bulk Delete

Delete options

Identifiers file Aucun fichier choisi 

Format of the file to choose

The format of the file has to be `.txt` or `.csv`
per line : one device identifier (hex)

Example file :

```
0017B46C
0017B46D
0017B46E
0017B46F
0017B470
0017B471
0017B472
0017B473
```

(or) Identifiers list (hex)

N.B: list must contain only one id per line

csv or txt file with identifier only (hex) to be deleted

OR enter the list of devices you want to delete in this field



Helpful resources:
[Deleting devices](#)



Check device messages

Step 1: Go to Device tab



Step 2: Select a device by clicking on the ID

Communication status	Device type	Id	Last seen	Name	Token state
	TestSD	77FFF	2019-02-20 12:54:33	00077FFF	

Step 3:

Go to the message tab



Step 4: Send a message and check that the message has been received by the backend

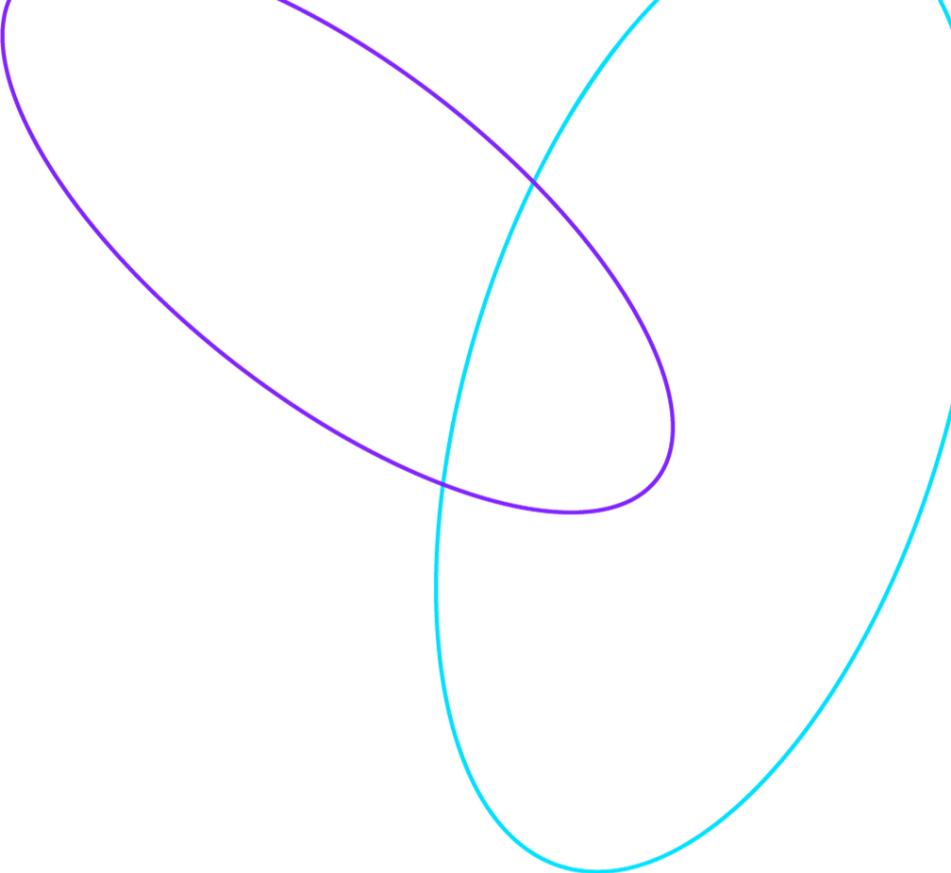
Time	Seq Num	Data / Decoding	LQI	Callbacks	Location
2023-04-13 05:28:59	4037	00000000000000000000000000000000			



Helpful resources:
[Communication status indicator](#)



[Link Quality: general knowledge](#)



4

Service Prediction

Service Prediction



DEVICE DEVICE TYPE USER GROUP



NEWS

1 SERVICE MAPS

KNOWN ISSUES

Sigfox service maps

OPERATOR SERVICE MAP

4 MONARCH COVERAGE MAP

Select your product uplink class and desired radiolink margin to obtain Sigfox service map corresponding to your application
Select "max" for outdoor and "20dB" for indoor.
For other specific product operating condition please contact Sigfox directly

5 ⓘ The last complete coverage calculation ended at 2019-09-26 17:00:00 (time zone: Europe/Paris)

3 Service overlap for max link budget

Product class

OU

Forecast

Current service

7 Search for an address or coordinates (e.g. 41.40338, 2.17403)

2 Operators

SIGFOX_France X



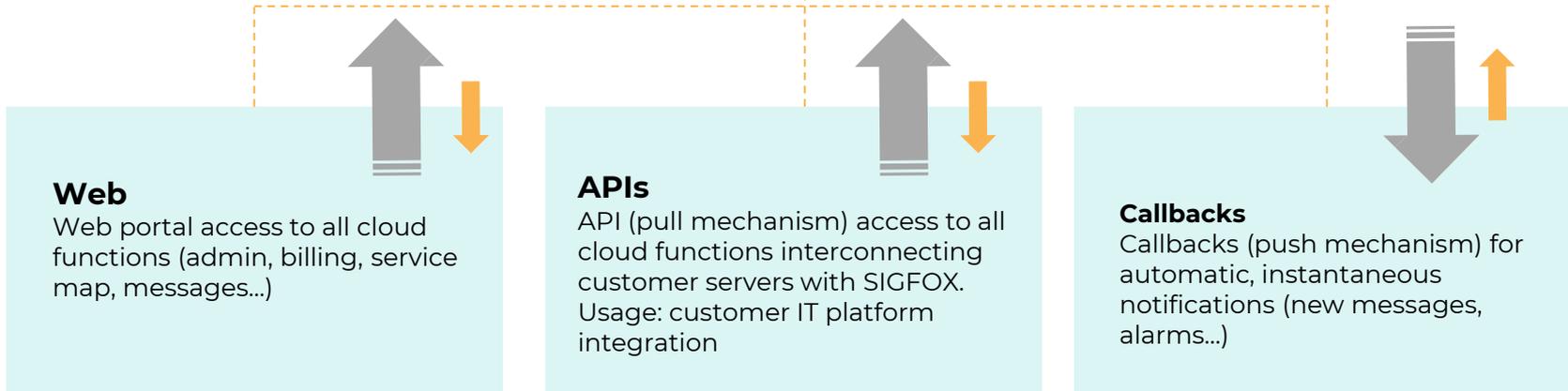
- 1 Service map
- 2 Territory selection
- 3 Installation type
- 4 Monarch service map
- 5 SIGFOX Ready Device class
- 6 Forecast
- 7 Specific place selection



5

APIs & callbacks

Cloud Interfaces



API Creation (1/2)



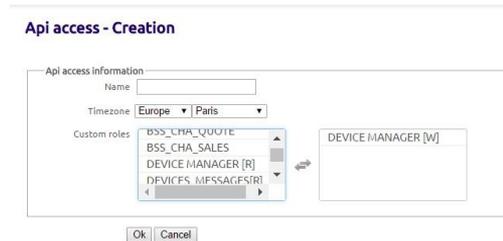
Helpful resources:
[API credential creation](#)



Step 1 : Click on New in API access tab (in Group tab)



Step 2 : Grant API the appropriate rights



Step 3 : Retrieve credentials to use API



API Creation (2/2)

Step 4: API documentation is generated according to API access rights

Api access 'CORP_SD_Support' - List

Check out the [Public documentation](#) and the [API v2 Documentation article](#) on the Sigfox Support site for more details.



SITE BASE STATION DEVICE DEVICE TYPE USER GROUP RADIO PLANNING BILLING



HOW TO? find documentation

online documentation links

HOW TO? register devices

SIGFOX Device registration for
modern manufacturers and product
integrators

HOW TO? read Basestation Built-In
tests

HOW TO? Customize Device Type

HOW TO? read devices events

How to? Read Signal Indicators

Devices management

HOW TO? find documentation

Export section

Export all

online documentation links

Online documentation is available and contains exhaustive interface description.
It can be accessed using the following links:

- Callback documentation: <https://support.sigfox.com/docs/callbacks-documentation>

- API documentation: <https://support.sigfox.com/apidocs>
-> Please note that an API Access has to be created beforehand (Click on New under Group/API Access)



Callback creation (1/5)

Step 1 : Click on New in Callback tab (for a given device type)

The screenshot displays the Sigfox management interface. On the left is a dark purple sidebar with a menu containing: INFORMATION, LOCATION, ASSOCIATED DEVICES, DEVICES BEING REGISTERED, STATISTICS, EVENT CONFIGURATION, CALLBACKS (highlighted in a lighter purple), and BULK OPERATIONS. The top navigation bar includes tabs for DEVICE, DEVICE TYPE (selected), USER, and GROUP. On the right side of the navigation bar are icons for user management, alerts, help, and a share icon. The main content area is titled "Device type 'Keyapp ETSI' - Callbacks" and contains the text: "These callbacks transfer data received from the devices associated to this device type to your infrastructure. For more informations, please refer to the [Callback documentation](#)". A dashed orange box highlights a "New" button in the top right corner of the main content area.

Callback creation (2/5)

Step 2: Choose a callback type (e.g. Custom callback)

The screenshot shows the Sigfox management console interface. At the top left is the Sigfox logo. A navigation menu includes: SITE, BASE STATION, DEVICE, **DEVICE TYPE**, USER, GROUP, RADIO PLANNING, and BILLING. On the right, there are icons for user, help, and share. A dark blue sidebar on the left contains the following menu items: INFORMATION, LOCATION, ASSOCIATED DEVICES, DEVICES BEING REGISTERED, STATISTICS, EVENT CONFIGURATION, **CALLBACKS**, and BULK OPERATIONS. The main content area is titled "Device type 'KeyApp ETSI' - New Callback". Below the title, there is a general instruction: "Create callbacks to connect Sigfox cloud to your server/platform. A callback is a custom http request containing your device(s) data, along with other variables, sent to a given server/platform when the aforesaid device(s) message is received by Sigfox cloud." The page then lists five callback options, each with an icon and a description:

- Custom callback**: Creates a new callback from Sigfox cloud to your own server. This is the "default" callback type. You can create a full custom request (http method, content type, headers, etc).
- UnaConnect Middleware Platform**: UnaConnect allows you to remotely onboard and update a large and diverse fleet of IoT devices, to collect and process data across different networks. Simplify devices integration and deliver aggregated data to multiple end platforms in a secure, reliable and cost-efficient manner.
- AWS IoT**: AWS IoT is a managed cloud platform that lets connected devices easily and securely interact with cloud applications and other devices. AWS IoT can support billions of devices and trillions of messages, and can process and route those messages to AWS endpoints and to other devices reliably and securely.
- AWS Kinesis**: Amazon Kinesis is a platform for streaming data on AWS, offering powerful services to make it easy to load and analyze streaming data, and also providing the ability for you to build custom streaming data applications for specialized needs.
- Microsoft Azure™ Event hub**: Event Hubs is an event processing service that provides event and telemetry ingress to the cloud at massive scale, with low latency and high reliability. This service is especially useful for: application instrumentation, user experience or workflow processing, Internet of Things (IoT) scenarios.

Callback creation (3/5)

Step 3A : Enter callback information

Device type Keyapp_PA_BSS - Callback new

Callback Type
(DATA, SERVICE, ERROR)

The screenshot shows a form titled 'Callbacks' with two dropdown menus. The first dropdown is labeled 'Type' and has 'DATA' selected. The second dropdown is labeled 'Channel' and has 'URL' selected. Dashed orange lines connect these dropdowns to external text labels: 'Callback Type (DATA, SERVICE, ERROR)' on the left and 'Communication channel (URL, Batch_URL, email)' on the right.



Helpful resources:

[Custom Callback Creation](#)

[Downlink acknowledgement](#)

[Callbacks and connectors](#)



DATA :

- *Uplink*: send uplink messages to customer platform
- *BIDIR* : send uplink messages to customer platform and wait for DOWNLINK messages from the same platform;

ERROR : in case of communication failure, it allows to know if it is a device (based on keepalive value defined in the device type edition page) or a network issue

SERVICE : provide additional services based on service messages or network information

- *STATUS*: device battery and temperature information provided by service messages (e.g. keepalive messages)
- *ACKNOWLEDGE*: status about the downlink emission. This does not ensure that the device received the message
- *REPEATER*: service messages (battery, number of repeated messages,...) from repeater devices
- *DATA_ADVANCED*: Some variables are computed over the different BS which received the messages and thus this callback is delayed by approximately 30s. The list of available variables is displayed on the backend upon creation.

Using batch_URL is strongly recommended to limit the number of request when retrieving messages. Batch_URL gathers messages within 1 seconds prior to sending the HTTP request.

Callback creation (4/5)

Step 3B : Enter callback information

The screenshot shows a configuration window titled "Device type KeyApp ETSI - Callback new" with a "Callbacks" section. The window contains the following fields and options:

- Type:** A dropdown menu with "DATA" selected and "UPLINK" highlighted by a dashed orange box. An annotation "Callback mode (Uplink or BIDIR)" points to this box.
- Channel:** A dropdown menu with "URL" selected.
- Custom payload config:** A text input field with a question mark icon.
- URL pattern:** A text input field containing "http://host/path?id={device}&time={time}&key1={var1}&key2={var2}...". Below it, "Available variables: device, time, data, seqNumber, deviceTypeid" and "Custom variables:" are listed. An annotation "Customized payload decoding" points to this field.
- Use HTTP Method:** A radio button is selected, and a dropdown menu shows "POST". An annotation "HTTP method (GET, POST, PUT)" points to this field.
- Send SNI:** A checked checkbox with the text "(Server Name Indication) for SSL/TLS connections".
- Headers:** A table with columns "header" and "value".
- Content type:** A dropdown menu with "application/x-www-form-urlencoded" selected.
- Body:** A large text input area. An annotation "HTTP body (if applicable)" points to this area.
- Variables to be used in callback:** An annotation points to the "Available variables" and "Custom variables" text.

At the bottom of the window are "OK" and "Cancel" buttons.

Callback creation (5/5)

Step 4: Check that Callback is **ENABLED** and downlink (if BIDIR callback configured)

Device type 'Keyapp_PA_BSS' - Callbacks

New

These callbacks transfer data received from the devices associated to this device type to your infrastructure. For more informations, please refer to the [Callback documentation](#)

DATA callbacks

Downlink	Enable	Channel	Subtype	Duplicate	Batch	Information	Edit	Errors	Delete
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	UPLINK	<input type="checkbox"/>	<input type="checkbox"/>	Test (john.doe@sigfox.com)	Test {device}			

Link to Callback documentation



Thank you!

For more information, visit www.sigfox.com

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Taiwan 10F, No. 618, Ruiguang Rd., Neihu District, 114 Taipei, Taiwan, Phone: +886 2 2657 7123

Japan Shibuya Scramble Square 39F 2-24-12 Shibuya Shibuya-ku Tokyo 150-6139

France 425 Rue Jean Rostand, 31670 Labège, Phone: +33 5 34 31 03 16

Spain P.º de La Habana, 9, 11, 28036 Madrid

Netherlands Seggeweg 32a 3237MK Vierpolders, Phone:+31 10 8 92 91 90