



RADIO ACCESS NETWORK

OSS INTERFACE

	Written by	Approved by	Validated by
Name	Olivier MATHE	Arnaud BARBE	Philippe Cribier
Entity	DRD Core Network	DRD Core Network	DRD
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	update : attachFleetToCustomer, detachFleetFromCustomer, getFleet, getFleets, getTasks, patchCustomerCluster, getActions		
2.0.2	Method RxMessage renamed as PushRxMessage createClusterEndpoint, getClusterEndPoint, updateClusterEndpoint, createClusterEndpoints, getEndpoints, getClusterEndpoints, getEquipments, getFleetEquipments, createLnsEquipment, getLnsEquipment, patchLnsEquipment, getLnsEquipments, createLoraStation, getLoraStation, updateLoraStation, patchLoraStation, getLoraStations (see DTO changes between versions 1.1.12 and 2.0.5 to track these API breaking) create : getWebServices, getDtos, getDto, getCustomerLoraStations	OMA	2017/07/13
2.0.5	update : RxMessageStationsDto getEndpointRxMessage (messagedId type string)	OMA	2017/08/28

Method in red contains an API breaking

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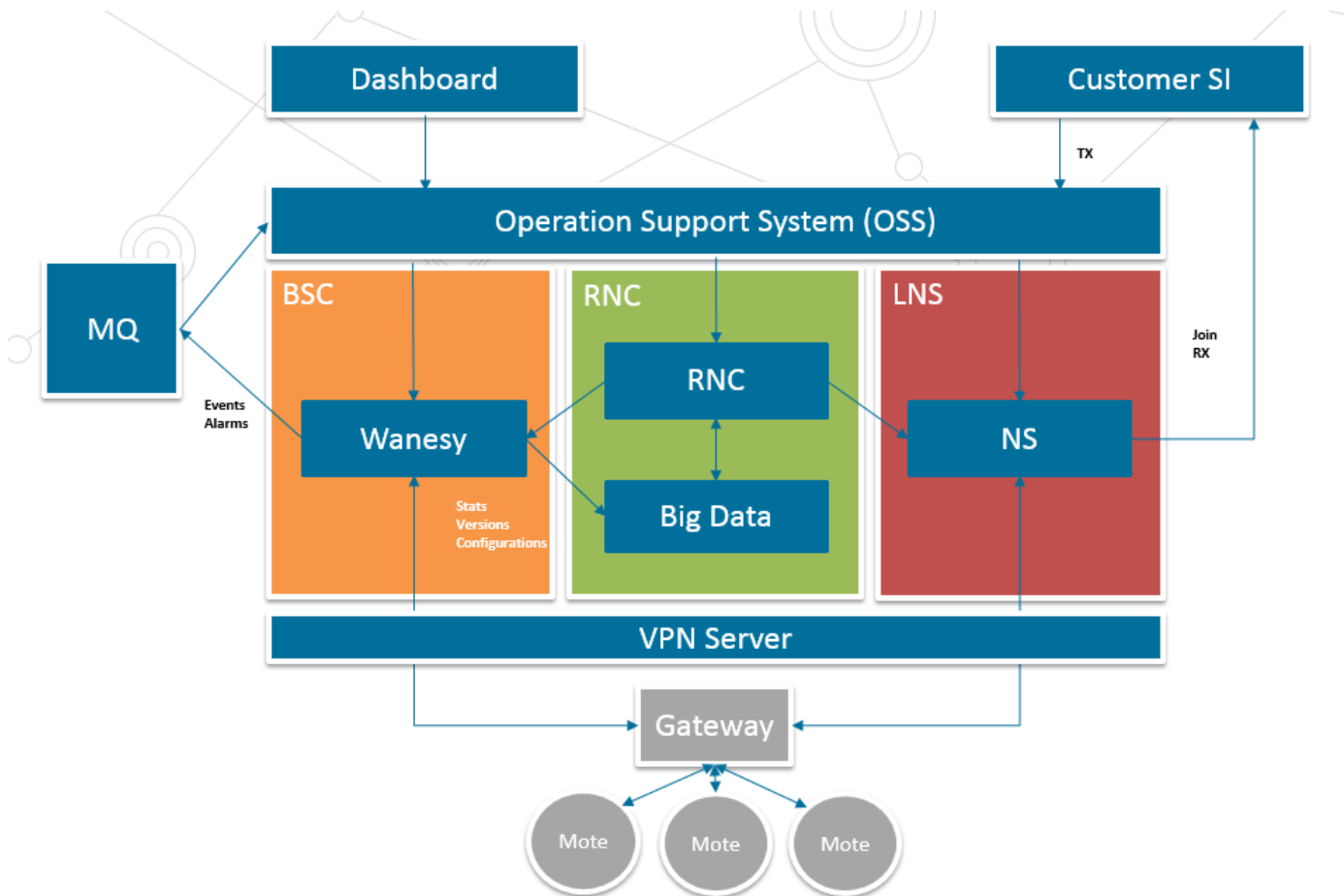
GLOSSARY

Abbreviation	Description
API	Application Programming Interface
APN	Access Point Name
BSC	Base Station Controller
CPU	Central Processor Unit
DTO	Data Transfer Object
EUI	Extended Unique Identifier (EUI-64) http://standards.ieee.org/develop/regauth/tut/eui64.pdf
GPS	Global Positioning System
GSM	Global System for Mobile communication
IP	Internet Protocol
JSON	JavaScript Object Notation
JWT	JSON Web Token
OSS	Operation Support System https://fr.wikipedia.org/wiki/Operations_Support_System
LNS	Lora Network Server
LoRa	Long Range
RAN	Radio Access Network
REST	REpresentational State Transfer
RNC	Radio Network Controller
UTC	Universal Time Coordinated

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1. Introduction

This document presents the OSS (Operational Support System) interface of the Kerlink RAN (Radio Access Network) platform.



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2. OSS REST API

2.1 Introduction

OSS stands for **O**peration **S**upport **S**ystem. It provides all the REST web services which allow you to manage the IOT platform.

The OSS web services are divided into three main functionals domains :

- The Base Station Controller **BSC**
- The LoRa Network Station **LNS**
- The Radio Network Controller **RNC**

BSC manages the fleets of equipments which belongs to customers. It also allows you to manage the users and their roles.

LNS provides the web services which concern the endpoints and clusters.

RNC contains all the web services which concern the radio aspects.

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2.2 REST architecture

REST is an architecture style which relies on a stateless, client-server, cacheable communications protocol. REST stands for **RE**presentational **State** **T**ransfer. RESTful is also used. It refers to web services implementing such an architecture.

Restful web services are Platform-independent, Language-independent, and Standards-based. They runs on top of **HTTP**.

A Restful Web services architecture follows basic design principles:

- It exposes a tree of resources via URI
- It is stateless. Each request from any client contains all the information necessary to service the request, and session state is held in the client.
- A resource is represented by an hypermedia type, for example JSON
- It uses HTTP methods explicitly (GET, POST, PUT, DELETE, ...) and other HTTP standards
- hypertext links to reference state
- hypertext links to reference-related resources

A GET request provides the content of the object pointed by the URI.

A PUT/POST request updates or creates the object pointed by the URI using provided parameters.

The request body is intended to be in JSON format.

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2.3 Overview

Let examine the following uri :

GET <http://kerlink.fr/oss/application/customers/198/fleets?page=3&PageSize=40>

This web service allows to get the page number 3 of the list of fleets of the customer 198.

Verb	Protocol		Domain	Path	Query string
GET	http	::/	kerlink.fr	/oss/application/cust omers/198/fleets	?page=3&PageSize=40

The list of possible verbs is : GET, POST, PUT, DELETE, PATCH

- POST : creates a new resource.
- GET : gets a resource.
- PUT : updates an existing resource.
- DELETE : deletes a resource.
- PATCH : updates a subset of fields of an existing resource.

2.4 General rules

Let's consider the following web service URI :

<http://kerlink.fr/oss/application/customers/198/fleets?page=3&PageSize=40>

The part of the URI in blue contains path parameters.

The query string contains the query parameters. First parameter is preceded by a ?, and others by a &.

- Some web services use a date field. Each date field value is a **timestamp** which is the difference, **measured in milliseconds**, between the current time and midnight January 1, 1970 UTC.
- Both correct an error response bodies are in JSON format.

2.4.1 Encoding the parameters of the URL

The URL parameters can contain special characters which are reserved keys, so the client must encode the URL parameters before sending it to the server.

An example of site which encode the URL : <https://www.urlencoder.org>

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Example : getCustomers with a search condition in JSON

Non encoded URL

```
http://host:8080/oss/rest/application/customers?page=1&pageSize=200&search={"operand":"name","operation":"eq","values":["foo"]}
```

Encoded URL

```
http://host:8080/oss/rest/application/customers?page=1&pageSize=200&search=%7B%22operand%22%3A%22name%22%2C%22operation%22%3A%22eq%22%2C%22values%22%3A%5B%22foo%22%5D%7D
```

2.4.2 Naming

The fields, method names, paths and objects are written using the camelCase convention:

Field : roleType (first letter in lowercase)

Path : InsEquipment (first letter in lowercase)

Method name : getLoraStation (first letter in lowercase)

Object, DTO: CustomerDto (first letter in uppercase)

When an acronym appears in the name (like for example XML), not all the acronym is upper case but just the first letter like getXmlFile instead of getXMLFile because you may encounter ambiguous cases like these: XMLFile which should be xMLFile

2.4.1 CSV files

When a CSV file is proposed as a request parameter, the following rules must be applied :

- The first line is used to define the columns
- The separator is a comma ,
- Each line ends with a line break
- The last line can have not line break

Example :

```
id,firstName
1,John
2,Paul
3,Peter
```

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2.5 HTTP status

Five families are defined for the HTTP response status codes :

- 2xx : Success
- 3xx : Redirection
- 4xx : Client side errors
- 5xx : Server side error

2.6 Response body

Almost every web services will return DTO object in JSON representation.
A DTO stands for **Data Transfer Object**. All the DTO are defined in the Annex A.

Some web services return simple strings.

2.7 Case sensitive

The strings used for both path parameters and query parameters are case sensitive.
For example `/fleets/Stations` is not equivalent to `fleets/stations`, and
`fleets/stations?fields=name` is different from `fleets/stations?fields=Name`

The DTO field name are also case sensitive. For example, a JSON body dto `{"name":"fleet1"}`
is different from `{"Name":"fleet1"}`
The DTO are defined in the Annex A.

2.8 Navigation

One of the main principle of a REST architecture is to start from an entry endpoint and to
navigate form a resource to another, as you would do with a browser. This concept is called
HATEOAS (Hypermedia as the Engine of Application State)

To do so, the response contains links which give to the client the absolute URIs to go
discover the next resources or the embedded resources.

A link contains two fields:

- `href` : absolute or relative URI of a the resource

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- rel : the goal of the resource.

Examples

rel='next' allows the client to reach the next page of paginated resources.

rel='last' allows the client to reach the last page of paginated resources.

2.8.1 Base URL

The base URL is the prefix path that is located just after the host:port section.

The value can be modified in the application.properties file via the `server.servletPath` property.

2.8.2 Entry web service

The OSS web services tree has a unique entry point.

It is called `getApplication` and URI is `GET /application`

This web service returns an `ApplicationDto` which contain the `links` to it children endpoints.

2.9 Request parameters

Request parameters are the parameters that follow the path in the URI. The first parameters start by a `?` and the followers start with `&`.

Availbale parameters depends on the web service that is called.

2.9.1 Fields parameter

The `fields` request parameter allows to define the list of DTO fields that will be displayed in the response body. When ommitted, all the fields are displayed.

Syntax

`fields=<@><!>field1, <@><!>field2, ... <@><!>fieldn`

The '@' character is used to define a group. A group is a set of fields.

The '!' character is used to exclude a field or a group.

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Examples

fields = id,name ➤ displays id and name
 fields = @time ➤ displays day,time (group time contains day and time)
 fields = name,@time ➤ displays name,day,time

fields = !id ➤ all fields but id
 fields = !id,!name ➤ all fields but id and name
 fields = !id,!@time ➤ all fields but id and group time

Note

Mix can be used, although it does not make sense to do so
 fields = id,!name ➤ displays id and hide name

2.10 Asynchronous web services (🔗)

Web services are most of time synchronous : the user sends a request and he receives the answer in a synchronous mode.

Two use cases need to use a different way because :

- The task may take a long time to be processed (for example a spectrum with a long duration)
- The task needs to be launched within another process (new thread)

The sequence diagram for those use cases is the following :

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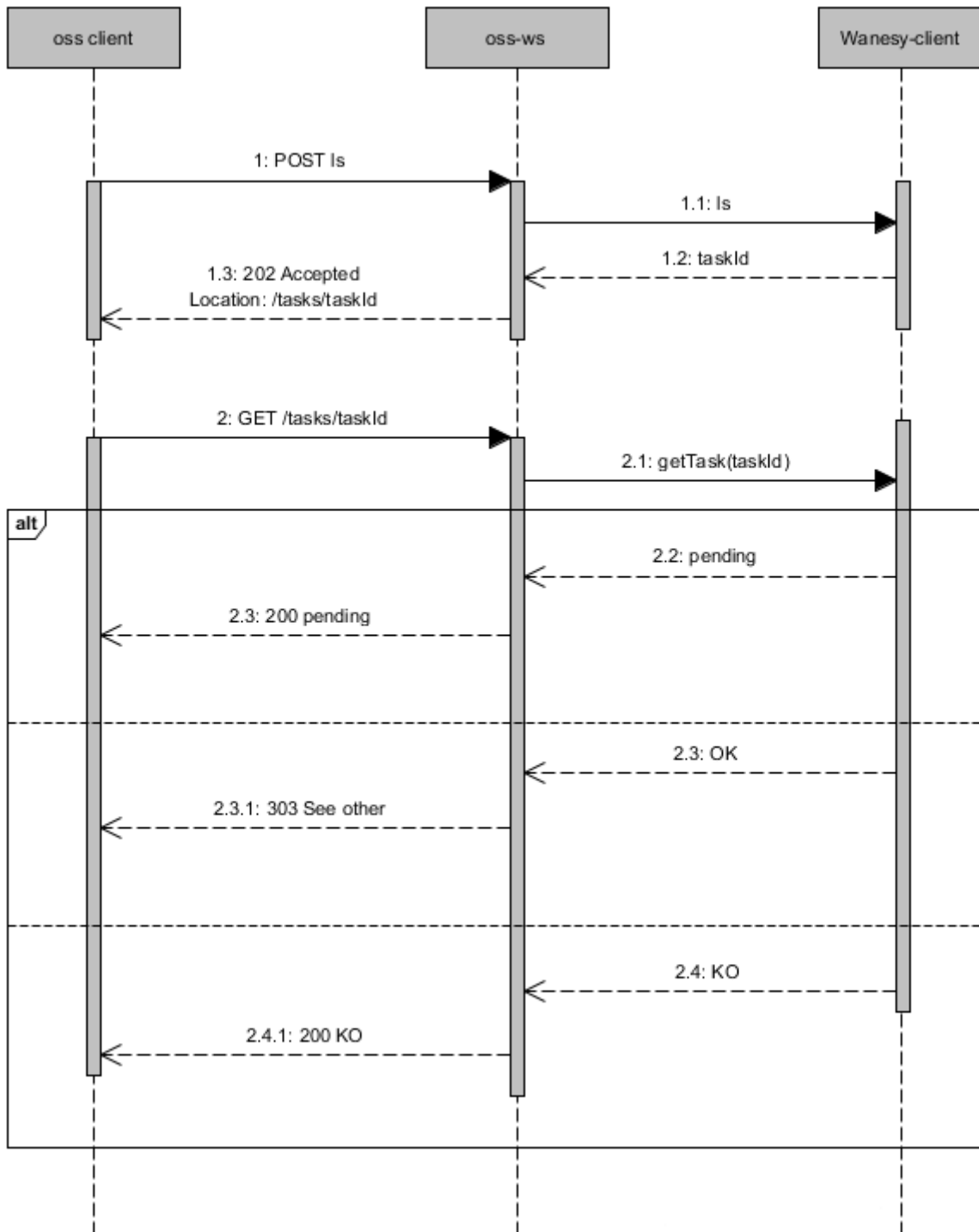


Figure 1 - Sequence diagram of asynchronous web service

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2.10.1 Criteria request parameter

A criteria is a list of (key, value) that are attached to a task during the creation phase. This criteria will be used later for searching some specific tasks.

Syntax

Criteria=<key>=<value>
criteria=key1=value1&criteria=key2=value2, ... &criteria=keyn=valuen
If the key contains leading and trailing whitespace they are deleted.

Reserved keys

A list of keys are reserved to the application usage, so the user cannot use them :

```
customerId,
userId,
fleetId,
equipmentId,
equipmentEui,
firmwareFileName,
modemLocation,
spectrumFileName
```

2.11 Simple response

A simple response is a response which contains only one entity with its fields.

For example, the request GET /users/{userId} will return a User resource.

The resources returned in the response body are called Data Transfer Object. In the above example, the object returned is more precisely a UserDto. All the DTO are described in the Annex A.

The representation of the these DTO is JSON.

The features available for a simple response are :

- Filtering

2.12 Paginated response

A multiple response is used when the response contains a list of entities.

For example the request GET /users will return a list of UserDto.

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Those entities are not sent in one time but page by page with the pagination functionality.

The features available for a paginated web services are :

- Filtering
- Pagination
- Sorting
- Searching

2.12.1 Pagination

The web services that return a list are paginated in order to avoid to send a huge amount of data to the client.

The request specifies two query parameters the user can set : the page number `page` and the page size `pageSize`, which are set to a default value when omitted.

The response body contains :

- `page` : page number (the page you want to display 1 by default)
- `pageSize` : page size (the number of elements per page, 50 by default)
- `nbPages` : total number of pages
- `count` : *number of elements in the page*
- `totalCount` : total number of elements

The response of a paginated list contains an array of `Links` which allow to navigate through the different pages :

- `first` : absolute URI to go to the first page
- `last` : absolute URI to go to the last page
- `next` : absolute URI to go to the next page
- `previous` : absolute URI to go to the previous page

Rules

- 1) If the user sets a page value which exceeds the number of pages, an error occurs with a 400 status and an error message in the body.
- 2) If the user sets a page < 1 an error occurs with a 400 status and an error message in the body.
- 3) If the user specifies a `pageSize` which exceeds the total number of elements (`totalCount`), then the `pageSize` will be set by the server to the count value.

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2.12.2 Sorting the results

The web services which return lists of DTO can use the optional parameter `sort` in order to obtain a sorted result.

The syntax of the parameter is :

`sort=[operator]<field>, [operator]<field>`
operator :

+	ascending
-	descending

field : a field of the DTO

Examples:

`sort=+name` : ascending sort by name
`sort=-name` : descending sort by name
`sort=-date,+name` : descending sort by date and ascending by name

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2.12.3 Searching

The search parameter is used to specify a search query in order to retrieve entities that matching the condition. A search is therefore used when a paginated result is sent.

Syntax

```
search = e|c
e = expression = <operator><operand><operation>[value]
c = condition = <or|and> (<c|e>, <c|e>, ...<c|e>)
operator = OR|AND|NOT
```

The operand is the name of a DTO property. For example, for a customer, it could be `id`, `name`.

Condition

Field	Type	Description
operator	string	{OR, AND, NOT}
operand	string	A DTO field
values	string[]	An array of string
conditions	Condition[]	The list of conditions to combine with an OR or AND operator

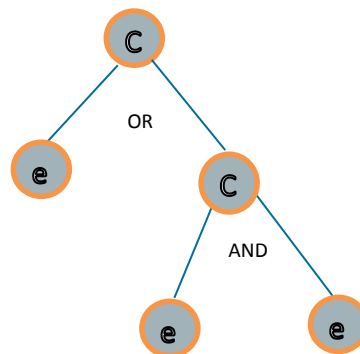


Figure 2 - Condition tree example

2.12.3.1 Nested operand

A nested operand corresponds to an operand of a child component.

Syntax: <operand>[.]<operand>

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For example, if you want to use the `cpu` property of a `state` entity, the syntax will be :
`state.cpu`

All the available operations are listed in the above table.

Operation	Description
<code>eq</code>	equals to
<code>ne</code>	not equals to
<code>gt</code>	greater than
<code>lt</code>	less than
<code>gte</code>	greater than or equals to
<code>lte</code>	less than or equals to
<code>in</code>	in set
<code>bet</code>	between
<code>like</code>	like operation, * is a special character Examples : <code>te*</code> : words starting by <code>te</code> <code>*te</code> : words ending by <code>te</code> <code>*te*</code> : words containg <code>te</code>

Examples

Example 1 : `name = foo`

```
{
  "operand": "name",
  "operation": "eq",
  "values": ["foo"]
}
```

The request param will be :

```
?search={"operand": "name", "operation": "eq", "values": ["foo"]}
```

Example 2 : `(name = foo1) OR (name = foo2)`

```
{
  "operator": "OR",
  "conditions": [
    {
      "operand": "name",
      "operation": "eq",

```

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```

    "values": ["foo1"]
  },
  {
    "operand": "name",
    "operation": "eq",
    "values": ["foo2"]
  }
]
}

```

Example 3 : (name = foo1) OR ((name = foo2) AND (id > 10))

```

{
  "operator": "OR",
  "conditions": [
    {
      "operand": "name",
      "operation": "eq",
      "values": ["foo1"]
    },
    {
      "operator": "AND",
      "conditions": [
        {
          "operand": "name",
          "operation": "eq",
          "values": ["foo2"]
        },
        {
          "operand": "id",
          "operation": "gt",
          "values": ["10"]
        }
      ]
    }
  ]
}

```

Example 4 : id in {3,5}

```

{
  "operand": "id",
  "operation": "in",
  "values": ["3", "5"]
}

```

Example 5 : name like 'fo%

```

{
  "operand": "name",
  "operation": "like",

```

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```
"values": ["fo*"]
}
```

Example 6 : **name != null**

```
{
  "operand": "name",
  "operation": "ne",
  "values": null
}
```

alternative syntax :

```
{
  "operand": "name",
  "operation": "ne",
  "values": []
}
```

other syntax (without values field)

```
{
  "operand": "name",
  "operation": "ne"
}
```

Example 7 : **connected == true**

```
{
  "operand": "connected",
  "operation": "eq",
  "values": ["true"]
}
```

Example of web service usage :

```
GET
/customers?search={"operand":"name","operation":"eq","values":["foo"]}
}}
```

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2.12.4 Versioning

Most of time the modifications done on a web service ensure a backward compatibility. But sometimes the way to request the web service, or the way to analyse the response need to define an upgraded version of the web service. If all the users agreed with this new version, the old web service may be deprecated or deleted, but it is rarely the cases : we need to satisfy the new version but also ensure that nothing has changed for the users of the old version.

The principle of the versioning adopted for the oss web services is to define a version number in the request headers `Accept` and `Content-Type`, according to the HTTP content negotiation specification.

Instead of using the common way for defining that we manipulate json (`application/json`), we define a specific application string for the Kerlink oss web services :

`application/vnd.kerlink.iot-v1+json`

If a web service is upgraded to a new version, clients will be able to access the new version via a new value :

`application/vnd.kerlink.iot-v2+json`

The way to define the version the client want to retrieve is to set the `Accept` request header:

Accept	<code>application/vnd.kerlink.iot-v1+json</code>
--------	--

If the web service does not implement this version it will send an error (status code: 406 Not Acceptable).

The way to define the version the client want to use when sending data in the request body is to set the `Content-Type` request header:

For the response the same principle is used but with the `Content-Type` header :

Content-Type	<code>application/vnd.kerlink.iot-v1+json</code>
--------------	--

If the web service does not implement this version it will send an error (status code: 415 Unsupported Media Type).

The OSS API starts with version 1 (`application/vnd.kerlink.iot-v1+json`). When a web service evolves, the client can uses it by upgrading the header.

2.13 Authorized field, mandatory field

Authorized and mandatory are two concepts that concerns the DTO fields that the client of the web services post in the request body.

- An authorized field is a field that can be provided by the client of the web service. An authorized field can be null.
An example of field that is not authorized is the identifier of a resource like the customer `id` which is managed by the server side.
- A mandatory field is a field that cannot be null.

Action	Rule
Creates a new entity	At least all the authorized and mandatory fields must be provided by the client
Updates an existing entity	All the authorized fields must be provided by the client
Partially updates an existing entity	Any authorized field can be provided by the client

2.14 Security

OSS web services are available over Transport Layer Security (TLS) layer with certificates. Most of web services require to be authenticated, so the user must first authenticate via the login web service which require to post the login and the password. This web service returns a token (JSON Web Token) which has a Time to live expiration date.

All the other web services except those which don't require any authentication will consume a token. If the token has expired, the HTTP 401 status code is sent.

A token is used by sending the token value in the `Authorization` request header.

```
Authorization: Bearer <token value>
```

Two properties can be set in the properties file :

```
jwt.secretKey      defines a key that is used to build the token
jwt.tokenTtl       Time To Live duration of each token (in seconds)
```

All the password stored in the database are encrypted.

2.14.1 JWT token

When a user call an authenticated web service, the application checks for the validity of the token:

- It is well formed and has not been modified
- It is not expired

The token contains data that are used to validate some functional rules. If one of those rules is not respected, an error will be returned. For example, the user corresponding to the token no longer exists.

2.14.2 Roles

Roles are defined to create a hierarchy in the authorized actions allowed to user.

1 READER

The user can access to the safe endpoints that belong to its customer.
Level from 10 to 19.

2 USER

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The user can access to both safe and unsafe endpoints that belong to its customer.
Level from 20 to 29.

3 ADMIN

The user can access to both safe and unsafe endpoints that belong to its customer.
ADMIN role is defined for some specific administration web services.
Level from 30 to 39.

4 SUPER_ADMIN

The user can access to both safe and unsafe endpoints belonging to any customer.
Level from 40 to 49.

A role has a level, an integer value, that allows to create the hierarchy of roles. For example the USER role is higher than the READER but less than ADMIN or SUPER_ADMIN.

2.14.2.1 User and roles

A user is attached to at least one role. The user role is used to determine if the user has the rights to access to a web service.

Note

In this document when we say for example "a user is ADMIN" it is a shortcut for a user which has role of ADMIN.

2.14.2.2 Web services authorization access

Each web service can be accessed if its required role matches the connected user role.

Example :

A web service requires an ADMIN role. The access will be authorized for ADMIN and SUPER_ADMIN users but refused for READER and USER users.

In the following description of each web service, the table contains the role pictogram:

- 1 READER
- 2 USER
- 3 ADMIN
- 4 SUPER_ADMIN

that defines the minimum requested role the user must have.

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2.15 Error management

When a web service request ends with an error, due to a client or a server, a formatted error is sent to the client in order to identify the origin of the problem and to correct it if possible.

The error sent is an ErrorDto object which is detailed in the Annex A.
The list of predefined code error is detailed in the Annex C.

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2.16 Common controller

Common controller contains the general web services that can be used by the specific domains : BSC, LNS and RNC

2.16.1 Conventions

In all the authenticated web services, the user used in the *Security access* and in the *Rules* sections is intended to be the authenticated user (via the Authorization header).

For example a rule like :

user.role = SUPER_ADMIN

means that the authenticated user must have a SUPER_ADMIN role.

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2.16.2 Application controller

This controller contains the web service that is considered to be the entry point of OSS.

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2.16.2.1 Getting the application

This web service allows to get the application data like the version, the build date.
This web service is considered to be an healthy point (checked by a supervision system)

Since
1.1.12

The application contains a kind of dashboard of the status of OSS and its components.

Request				
Signature	Method	getApplication		
	URI	GET /application		
Parameters	Name	Type	Mandatory	Description
	fields	string		List of fields to display
Header	Name	Value		
	Authorization	Bearer <token>		
	Accept	application/vnd.kerlink.iot-v1+json		
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
Body	Status	Value		
	200	ApplicationDto		
	4xx, 5xx	ErrorDto		

2.16.2.1 Creating or updating the application settings

This web service allows to create application settings.
A list of settings is sent as a parameter.

Since
1.1.12

Security access

The connected user is SUPER_ADMIN.

Rules

- All the settings must be valid otherwise none of them will be created or updated.
- If a setting already exists, it is updated.
- If a setting overrides an existing `private` setting an error message occurs and all the list is rejected.

Request					
Signature	Method	createApplicationSettings			4
	URI	POST /application/settings			
Parameters	Name	Type	Mandatory	Description	
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Authorization	Bearer <token>			
Body	applicationSettings	ApplicationSettingDto[]			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Location				
Body	Status	Value			
	201	Created			
	4xx, 5xx	ErrorDto			

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2.16.2.1 Getting the application settings

This web service allows to get the settings of the application.

Since
1.1.12

Security access
 The connected user is READER.

Rules
 Only the public settings will be returned.

Request					
Signature	Method	getApplicationSettings			4
	URI	GET /application/settings			
Parameters	Name	Type	Mandatory	Description	
	fields	integer		List of fields to display	
	page	integer		page number	
	pageSize	integer		page size value	
	sort	string		sort value	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto<ApplicationSettingDto>			
	4xx, 5xx	ErrorDto			

2.16.2.1 Getting an application setting

This web service allows to get an application setting.

Since
1.1.12

Security access

The connected user is READER.

Rules

If the applicationSetting is `private` an exception will occur.

Request					
Signature	Method	getapplicationSetting			1
	URI	GET /application/settings/{applicationSettingId}			
Parameters	Name	Type	Mandatory	Description	
	applicationSettingId	integer	✓	ApplicationSetting identifier	
	fields	integer		List of fields to display	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	ApplicationSettingDto			
	4xx, 5xx	ErrorDto			

2.16.2.2 Updating an application setting

This web service allows to update an application setting.

Since
1.1.12

Security access

The connected user is ADMIN.

Rules

If the applicationSetting is `private` an exception will occur.

Request					
Signature	Method	updateApplicationSetting			ⓘ
	URI	PUT /application/settings/{applicationSettingId}			
Parameters	Name	Type	Mandatory	Description	
	applicationSettingId	integer	✓	Application setting identifier	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Body	applicationSettingDto	ApplicationSettingDto			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	204	No content			
	4xx, 5xx	ErrorDto			

2.16.2.1 Deleting an application setting

This web service allows to delete an application setting.

Since
1.1.12

Security access

The connected user is ADMIN.

Rules

If the applicationSetting is `private` an exception will occur.

Request					
Signature	Method	deleteApplicationSetting			S
	URI	DELETE /application/settings/{applicationSettingId}			
Parameters	Name	Type	Mandatory	Description	
	applicationSettingId	integer	✓	Application setting identifier	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	204	No content			
	4xx, 5xx	ErrorDto			

2.16.2.2 Getting the list of web services

This web service allows to get the list of web services. Each web service contains metadata that describe its structure.

Although it returns a paginatedDto, this web service is not paginated. All the results are returned within the same page.

Since
2.0.2

Request				
Signature	Method	getWebServices		
	URI	GET /application/webServices		
Parameters	Name	Type	Mandatory	Description
	fields	integer		List of fields to display
Header	Name	Value		
	Authorization	Bearer <token>		
	Accept	application/vnd.kerlink.iot-v1+json		
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
Body	Status	Value		
	200	PaginatedDto<WsDto>		
	4xx, 5xx	ErrorDto		

2.16.2.3 Getting the list of DTO

This web service allows to get the list of DTO. Each DTO contains metadata that describe its structure.

Although it returns a paginatedDto, this web service is not paginated. All the results are returned within the same page.

Since
2.0.2

Request				
Signature	Method	getDtos		
	URI	GET /application/dtos		
Parameters	Name	Type	Mandatory	Description
	fields	integer		List of fields to display
Header	Name	Value		
	Authorization	Bearer <token>		
	Accept	application/vnd.kerlink.iot-v1+json		
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
Body	Status	Value		
	200	PaginatedDto<MetaDto>		
	4xx, 5xx	ErrorDto		

2.16.2.4 Getting a DTO

This web service allows to get a DTO. A DTO contains metadata that describe its structure.

Since
2.0.2

Request				
Signature	Method	getDto		
	URI	GET /application/dtos/{name}		
Parameters	Name	Type	Mandatory	Description
	name	string	✓	DTO name
	fields	integer		List of fields to display
Header	Name	Value		
	Authorization	Bearer <token>		
	Accept	application/vnd.kerlink.iot-v1+json		
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
Body	Status	Value		
	200	MetaDto		
	4xx, 5xx	ErrorDto		

2.16.1 Action controller

This controller contains the web services that manage the action.
An action represents an action done by a user on a web service

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2.16.1.1 Getting the list of actions

This web service allows to get the list of actions.

Since
1.1.12

Security access

The connected user is SUPER_ADMIN

Request					
Signature	Method	getActions			4
	URI	GET /application/actions			
Parameters	Name	Type	Mandatory	Description	
	fields	string		List of fields to display	
	page	integer		page number	
	pageSize	integer		page size value	
	sort	string		sort value	
	search	string		search condition	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto<ActionDto>			
	4xx, 5xx	ErrorDto			

2.16.1.1 Getting the logs of one action

Actions logs are the logs that are generated during the execution of an action.

Since

1.1.12

Security access

The connected user is SUPER_ADMIN

Request					
Signature	Method	getActionLogs			4
	URI	GET /application/actions/{actionId}/logs			
Parameters	Name	Type	Mandatory	Description	
	actionId	integer	✓	Action identifier	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	string[]			
	4xx, 5xx	ErrorDto			

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2.17 Base Station Controller (BSC)

The Base Station Controller is the parent controller for all the BSC controllers. It contains the web services that manage the stations.

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2.17.1 Login controller

This controller defines the web service that allows to obtain a JWT token

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2.17.1.1 Log in

The `login` web service allows a user to authenticate to the `oss` by providing its login and password fields, and in case of success getting a token that he will use for the next requests.

Note : The token has an expiration date that can be defined in the properties file.

The token contains these data :

- `groupId` : the customer identifier
- `role` : maximum role of the connected user (See the chapter Roles for the list of role names)

Since

1.1.12

Rules

- The user is enabled and not expired

Request				
Signature	Method	login		
	URI	POST /application/login		
Parameters	Name	Type	Mandatory	Description
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
Body	userDto	UserDto (login and password)		
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
Body	Status	Value		
	201	JwtDto		
	4xx, 5xx	ErrorDto		

Example:

```
POST /application/login
{
  "login": "john",
  "password": "7Q5aWTrMGG49d4tM"
}
```

Response

```
{
```

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```

    "expiredDate": 1469623598782,
    "tokenType": "Bearer",
    "token":
    "eyJhbGciOiJIUzI1NiJ9.eyJzdWIiOiJzdXB1cm9zcyIsImlzcyI6Im9zc0NsaWVudCIsImV4cCI6MTQ2OTYyMzU5OH0.8r0mK1qc315SzP3MrF3gBPlmN44oBjkXqbJVPmqrNBQ"
  }

```

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2.17.1.2 Request a new password

When the user does not remember its password, this web service will allow him to redefine a new one. After having called this web service, the user will receive an email (defined in its profile) wich will contain a link.

The user wil have 15 min to change his password. After this date, the link will be no longer valid and the user will have to repeat the procedure.

Since
1.1.12

Request				
Signature	Method	requestPassword		
	URI	POST /application/login/password/request		
Parameters	Name	Type	Mandatory	Description
	url	string	✓	The url to call for reseting the password
	email	string	✓	The user email address used to ask for a new password
Header	Name	Value		
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
Body	Status	Value		
	202	Accepted		
	4xx, 5xx	ErrorDto		

2.17.1.3 Reseting the password

This web service allows to update the user password after having requested for a new password (see requestPassword web service).

Since
1.1.12

Security access

The connected user is READER or higher.

Request					
Signature	Method	resetPassword			1
	URI	POST /application/login/password/reset			
Parameters	Name	Type	Mandatory	Description	
Header	Name	Value			
	Authorization	Bearer <token>			
Body	userDto	UserDto			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	201	JwtDto			
	4xx, 5xx	ErrorDto			

2.17.2 Customer controller

This controller defines the web services that manage the customers.

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2.17.2.1 Creating a new customer

This web service allows to create a new customer.

Since
1.1.12

Request					
Signature	Method	createCustomer			4
	URI	POST /application/customers			
Parameters	Name	Type	Mandatory	Description	
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Authorization	Bearer <token>			
Body	customerDto	CustomerDto			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Location	/application/customers/{customerId}			
Body	Status	Value			
	201	Created			
	4xx, 5xx	ErrorDto			

2.17.2.2 Getting a customer

This web service allows to get a customer.

Since
1.1.12

Security access

The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)

Request					
Signature	Method	getCustomer			1
	URI	GET /application/customers/{customerId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fields	string		List of fields to display	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	CustomerDto			
	4xx, 5xx	ErrorDto			

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2.17.2.3 Updating a customer

This web service allows to update a customer.

Since
1.1.12

Security access

The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)

Rules

Only a SUPER_ADMIN user can manage the fields `maxEquipments`, `maxEndpoints`, `maxUsers`

The value of the `maxEquipments` cannot be less than the actual number of equipments.

The value of the `maxEndpoints` cannot be less than the actual number of endpoints.

The value of the `maxUsers` cannot be less than the actual number of users.

Request					
Signature	Method	updateCustomer			3
	URI	PUT /application/customers/{customerId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Body	customerDto	CustomerDto			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	204	No content			
	4xx, 5xx	ErrorDto			

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2.17.2.4 Patching a customer

This web service allows to partially update a customer.

Since
1.1.12

Security access

The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)

Rules

- Only a SUPER_ADMIN user can manage the fields `maxEquipments`, `maxEndpoints`, `maxUsers`
- The value of the `maxEquipments` cannot be less than the actual number of equipments.
- The value of the `maxEndpoints` cannot be less than the actual number of endpoints.
- The value of the `maxUsers` cannot be less than the actual number of users.

Request					
Signature	Method	patchCustomer			3
	URI	PATCH /application/customers/{customerId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Body	customerDto	CustomerDto			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	204	No content			
	4xx, 5xx	ErrorDto			

2.17.2.5 Deleting a customer

This web service allows to delete a customer.

Since
1.1.12

Security access

The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)

Request					
Signature	Method	deleteCustomer			4
	URI	DELETE /application/customers/{customerId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	204	No content			
	4xx, 5xx	ErrorDto			

2.17.2.6 Getting the list of customers

This web service allows to get the list of customers.

Since
1.1.12

Security access

The connected user is SUPER_ADMIN.

Request					
Signature	Method	getCustomers			4
	URI	GET /application/customers			
Parameters	Name	Type	Mandatory	Description	
	fields	integer		List of fields to display	
	page	integer		page number	
	pageSize	integer		page size value	
	sort	string		sort value	
	search	string		search condition	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto<CustomerDto			
	4xx, 5xx	ErrorDto			

2.17.2.7 Creating the customer settings

This web service allows to create the customer settings.
If a customer setting already exists, it is updated.

Since
1.1.12

Security access

The connected user is ADMIN.

Request					
Signature	Method	createCustomerSettings			3
	URI	POST /application/customers/{customerId}/settings			
Parameters	Name	Type	Mandatory	Description	
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Authorization	Bearer <token>			
Body	customerSettings	CustomerSettingDto []			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Location				
Body	Status	Value			
	201	Created			
	4xx, 5xx	ErrorDto			

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2.17.2.8 Getting the customer settings

This web service allows to get the settings of a customer.

Since
1.1.12

Security access

The connected user is READER.

Request					
Signature	Method	getCustomerSettings			1
	URI	GET /application/customers/{customerId}/settings			
Parameters	Name	Type	Mandatory	Description	
	fields	integer		List of fields to display	
	page	integer		page number	
	pageSize	integer		page size value	
	sort	string		sort value	
	search	string		search condition	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	CustomerSettingDto []			
	4xx, 5xx	ErrorDto			

2.17.2.9 Getting a customer setting

This web service allows to get a setting belonging to a customer.

Since
1.1.12

Security access

The connected user is READER.

Request					
Signature	Method	getCustomerSetting			1
	URI	GET /application/customers/{customerId}/settings/{customerSettingId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	customerSettingId	integer	✓	Customer setting identifier	
	fields	integer		List of fields to display	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	CustomerSettingDto			
	4xx, 5xx	ErrorDto			

2.17.2.10 Updating a customer setting

This web service allows to update a setting belonging to a customer.

Since
1.1.12

Security access

The connected user is ADMIN.

Request					
Signature	Method	updateCustomerSetting			3
	URI	PUT /application/customers/{customerId}/settings/{customerSettingId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	customerSettingId	integer	✓	Customer setting identifier	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Body	customerSettingDto	CustomerSettingDto			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	204	No content			
	4xx, 5xx	ErrorDto			

2.17.2.11 Deleting a customer setting

This web service allows to delete a customer setting.

Since
1.1.12

Security access

The connected user is ADMIN.

Request					
Signature	Method	deleteCustomerSetting			3
	URI	DELETE /application/customers/{customerId}/settings/{customerSettingId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	customerSettingId	integer	✓	Customer setting identifier	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	204	No content			
	4xx, 5xx	ErrorDto			

2.17.2.1 Getting the customer last events counters

This web service allows to retrieve the last events counters attached to all the equipments belonging to a customer. The result are aggregated by fleet.

For each fleet you can get the number of alarms and the number of notifications.

The response is a paginatedDto with one page.

Since

1.1.12

Security access

The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)

Request					
Signature	Method	getCustomerLastEventsCounters			1
	URI	GET /application/customers/{customerId}/events/last/counters			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	search	string		Search condition	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto<ClusterLastEventCounterDto>			
	4xx, 5xx	ErrorDto			

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2.17.3 Role controller

This controller defines the web services that manage the roles.

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2.17.3.1 Creating a new role

This web service allows to create a new role.

Since
1.1.12

Security access

The connected user is SUPER_ADMIN.

Request					
Signature	Method	createRole			4
	URI	POST /application/roles			
Parameters	Name	Type	Mandatory	Description	
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Authorization	Bearer <token>			
Body	roleDto	RoleDto			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Location	/application/roles/{roleId}			
Body	Status	Value			
	201	Created			
	4xx, 5xx	ErrorDto			

2.17.3.2 Getting a role

This web service allows to get a role.

Since
1.1.12

Security access

The connected user is SUPER_ADMIN.

Request					
Signature	Method	getRole			4
	URI	GET /application/roles/{roleId}			
Parameters	Name	Type	Mandatory	Description	
	roleId	integer	✓	Role identifier	
	fields	string		List of fields to display	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	RoleDto			
	4xx, 5xx	ErrorDto			

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2.17.3.3 Updating a role

This web service allows to update a role.

Since
1.1.12

Security access

The connected user is SUPER_ADMIN.

Request					
Signature	Method	updateRole			4
	URI	PUT /application/roles/{roleId}			
Parameters	Name	Type	Mandatory	Description	
	roleId	integer	✓	Role identifier	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Body	roleDto	RoleDto			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	204	No content			
	4xx, 5xx	ErrorDto			

2.17.3.4 Deleting a role

This web service allows to delete a role.

Since
1.1.12

Security access

The connected user is SUPER_ADMIN.

Request					
Signature	Method	deleteRole			4
	URI	DELETE /application/roles/{roleId}			
Parameters	Name	Type	Mandatory	Description	
	roleId	integer	✓	Role identifier	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	204	No content			
	4xx, 5xx	ErrorDto			

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2.17.3.5 Getting the list of roles

This web service allows to get the list of roles.

Since
1.1.12

Security access

The connected user is ADMIN.

Request					
Signature	Method	getRoles			3
	URI	GET /application/roles			
Parameters	Name	Type	Mandatory	Description	
	fields	integer		List of fields to display	
	page	integer		page number	
	pageSize	integer		page size value	
	sort	string		sort value	
	search	string		search condition	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	ApplicationDto<RoleDto>			
	4xx, 5xx	ErrorDto			

2.17.4 User controller

This controller defines the web services that manage the users.

2.17.4.1 Expiration

The `expirationDate` field is used to limit the account usage over time.

When the date is expired, the user cannot access to any web services that require an authentication.

Default value is `null` which means no limit.

If the value is less than or equals to the current date, the user is considered expired.

An expired user is counted as part of the customer users.

If the user is expired an error is returned with a HTTP 403 status code. The expire duration is provided in the error message as an ISO 8601 period.

2.17.4.2 Enabled

The `enabled` field is used to enable or disable a user.

If the user is disabled, he cannot access to any web services that require an authentication.

A disabled user is counted as part of the customer users.

If the user is disabled an error is returned with a HTTP 403 status code.

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2.17.4.3 Creating a new user

This web service allows to create a new user. The default role for the new user is READER.

Since
1.1.12

Security access

The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)

Rules

If the customer has a limited number of users, then this limit cannot be exceeded.

Request					
Signature	Method	createCustomerUser			3
	URI	POST /application/customers/{customerId}/users			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Authorization	Bearer <token>			
Body	userDto	UserDto			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Location	/application/customers/{customerId}/users /{userId}			
Body	Status	Value			
	201	Created			
	4xx, 5xx	ErrorDto			

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2.17.4.4 Getting a user

This web service allows to get a user.

Since
1.1.12

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The connected user is the user identified by `userId` or the connected user is at least ADMIN

Request					
Signature	Method	getCustomerUser			1
	URI	GET /application/customers/{customerId}/users /{userId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	userId	integer	✓	User identifier	
	fields	string		List of fields to display	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	UserDto			
	4xx, 5xx	ErrorDto			

2.17.4.5 Patching a user

This web service allows to partially update a user.

Since
1.1.12

Security access

- authenticatedUser.role ≥ USER
- authenticatedUser.role = SUPER_ADMIN OR authenticatedUser.customer.id = customerId

Rules

Fields firstName, lastName, login, password, email, phone, avatar

- (authenticatedUser.id = userId) OR (authenticatedUser.role = SUPER_ADMIN) OR (authenticatedUser.role = ADMIN AND authenticatedUser.role > user.role))

Fields expirationDate, enabled

- authenticatedUser.id ≠ userId AND (authenticatedUser.role = SUPER_ADMIN OR (authenticatedUser.role = ADMIN AND authenticatedUser.role > user.role))

Request					
Signature	Method	patchCustomerUser			2
	URI	PATCH /application/customers/{customerId}/users/{userId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	userId	integer	✓	User identifier	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Body	userDto	UserDto			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	204	No content			
	4xx, 5xx	ErrorDto			

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2.17.4.6 Deleting a user

This web service allows to delete a user.

Since
1.1.12

Security access

- authenticatedUser.role ≥ ADMIN
- authenticatedUser.role = SUPER_ADMIN OR authenticatedUser.customer.id = customerId

Rules

- authenticatedUser.id ≠ userId AND (authenticatedUser.role = SUPER_ADMIN OR (authenticatedUser.role = ADMIN and authenticatedUser.role > user.role))

Request					
Signature	Method	deleteCustomerUser			3
	URI	DELETE /application/customers/{customerId}/users/{userId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	userId	integer	✓	User identifier	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	204	No content			
	4xx, 5xx	ErrorDto			

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2.17.4.7 Getting the list of users

This web service allows to get the list of users.

Since
1.1.12

Security access

The connected user can manage the customer (he is ADMIN and belongs to the customer or he is SUPER_ADMIN)

Request					
Signature	Method	getCustomerUsers			3
	URI	GET /application/customers/{customerId}/users			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fields	integer		List of fields to display	
	page	integer		page number	
	pageSize	integer		page size value	
	search	string		search condition	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto<UserDto>			
	4xx, 5xx	ErrorDto			

2.17.4.8 Changing the customer of a user

This web service allows to attach a user to another customer.

Since
1.1.12

Security access

authenticatedUser.role = SUPER_ADMIN

Rules

If the new customer has a limited number of users, then this limit cannot be exceeded.

Request					
Signature	Method	changeUserCustomer			4
	URI	PUT /application/customers/{customerId}/users/{userId}/{newCustomerId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	userId	integer	✓	User identifier	
	newCustomerId	integer	✓	The new customer identifier	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	204	No Content			
	4xx, 5xx	ErrorDto			

2.17.4.9 Getting the connected user

This web service allows to get the authenticated user.

Since
1.1.12

Security access

The connected user is READER

Request					
Signature	Method	getAuthenticatedUser			1
	URI	GET /application/authenticatedUser			
Parameters	Name	Type	Mandatory	Description	
	fields	string		List of fields to display	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	UserDto			
	4xx, 5xx	ErrorDto			

2.17.4.10 Getting the user roles

This web service retrieves the roles of a user.

Since
1.1.12

Security access

The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)

Request					
Signature	Method	getUserRoles			1
	URI	GET /application/customers/{customerId}/users/{userId}/roles			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	The customer identifier	
	fleetId	integer	✓	The fleet identifier	
	fields	string		List of fields to display	
	page	integer		page number	
	pageSize	integer		page size value	
	sort	string		sort value	
	search	string		search condition	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto<RoleDto>			
	4xx, 5xx	ErrorDto			

2.17.4.11 Adding a role to a user

This web service allows to add a role to a user.

Since
1.1.12

Security access

- authenticatedUser.role ≥ ADMIN
- authenticatedUser.role = SUPER_ADMIN OR authenticatedUser.customer.id = customerId

Rules

- authenticatedUser.id ≠ userId AND (authenticatedUser.role = SUPER_ADMIN OR (authenticatedUser.role = ADMIN AND authenticatedUser.role > user.role))
- The level role cannot be greater than the maximum role of the authenticated user

Request					
Signature	Method	addRoleToUser			3
	URI	PUT /application/customers/{customerId}/users/{userId}/roles/{roleId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	The customer identifier	
	userId	integer	✓	The user identifier	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	204	No Content			
	4xx, 5xx	ErrorDto			

2.17.4.12 Removing a role from a user

This web service allows to remove a role from the list of roles of a user.

Since

1.1.12

- authenticatedUser.role ≥ ADMIN
- authenticatedUser.role = SUPER_ADMIN OR authenticatedUser.customer.id = customerId

Rules

- authenticatedUser.id ≠ userId AND (authenticatedUser.role = SUPER_ADMIN OR (authenticatedUser.role = ADMIN AND authenticatedUser.role > user.role))

Request					
Signature	Method	removeRoleFromUser			3
	URI	DELETE /application/customers/{customerId}/users/{userId}/roles/{roleId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	The customer identifier	
	userId	integer	✓	The user identifier	
	roleId	integer	✓	The role identifier	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	204	No Content			
	4xx, 5xx	ErrorDto			

2.17.5 Fleet controller

This controller defines the web services that manage the users.

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2.17.5.1 Creating a new fleet

This web service allows to create a new fleet.

Since
1.1.12

Security access

The connected user is ADMIN.

Request					
Signature	Method	createFleet			3
	URI	POST /application/fleets			
Parameters	Name	Type	Mandatory	Description	
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Authorization	Bearer <token>			
Body	fleetDto	FleetDto			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Location	/application/fleets/{fleetId}			
Body	Status	Value			
	201	Created			
	4xx, 5xx	ErrorDto			

2.17.5.1 Creating a new customer fleet

This web service allows to create a new fleet attached to a customer.

Since
1.1.12

Security access

The connected user is USER.

Request					
Signature	Method	createCustomerFleet			3
	URI	POST /application/customers/{customerId}/fleets			
Parameters	Name	Type	Mandatory	Description	
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Authorization	Bearer <token>			
Body	fleetDto	FleetDto			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Location	/application/fleets/{fleetId}			
Body	Status	Value			
	201	Created			
	4xx, 5xx	ErrorDto			

2.17.5.2 Getting a fleet

This web service allows to get a fleet.

Since
1.1.12

Security access

The connected user is at least ADMIN.

Rules

If the role is not SUPER_ADMIN, the fleet must be attached and belong to the same customer as the connected user.

Request					
Signature	Method	getFleet			3
	URI	GET /application/fleets/{fleetId}			
Parameters	Name	Type	Mandatory	Description	
	fleetId	integer	✓	Fleet identifier	
	fields	string		List of fields to display	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	FleetDto			
	4xx, 5xx	ErrorDto			

2.17.5.3 Updating a fleet

This web service allows to update a fleet.

Since
1.1.12

Security access

The connected user is ADMIN.

Request					
Signature	Method	updateFleet			3
	URI	PUT /application/fleets/{fleetId}			
Parameters	Name	Type	Mandatory	Description	
	fleetId	integer	✓	Fleet identifier	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Body	fleetDto	FleetDto			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	204	No content			
	4xx, 5xx	ErrorDto			

2.17.5.4 Updating a customer fleet

This web service allows to update a fleet attached to a customer

Since
1.1.12

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer

Request					
Signature	Method	updateCustomerFleet			3
	URI	UPDATE /application/customers/{customerId}/fleets/{fleetId}			
Parameters	Name	Type	Mandatory	Description	
	fleetId	integer	✓	Fleet identifier	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Body	fleetDto	FleetDto			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	204	No content			
	4xx, 5xx	ErrorDto			

2.17.5.5 Deleting a fleet

This web service allows to delete a fleet.

Since
1.1.12

Security access

The connected user is SUPER_ADMIN.

Request					
Signature	Method	deleteFleet			4
	URI	DELETE /application/fleets/{fleetId}			
Parameters	Name	Type	Mandatory	Description	
	fleetId	integer	✓	Fleet identifier	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	204	No content			
	4xx, 5xx	ErrorDto			

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2.17.5.6 Deleting a customer fleet

This web service allows to delete a fleet attached to a customer

Since
1.1.12

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer

Request					
Signature	Method	deleteCustomerFleet			3
	URI	DELETE /application/customers/{customerId}/fleets/{fleetId}			
Parameters	Name	Type	Mandatory	Description	
	fleetId	integer	✓	Fleet identifier	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	204	No content			
	4xx, 5xx	ErrorDto			

2.17.5.7 Getting the list of fleets

This web service allows to get the list of fleets.

Since
1.1.12

Security access

The connected user is at least ADMIN.

If the role is ADMIN, only the fleets belonging to the customer are returned.

Request					
Signature	Method	getFleets			3
	URI	GET /application/fleets			
Parameters	Name	Type	Mandatory	Description	
	fields	integer		List of DTO fields to display	
	page	integer		page number	
	pageSize	integer		page size value	
	sort	string		sort value	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto<FleetDto>			
	4xx, 5xx	ErrorDto			

2.17.5.8 Getting the fleet last operations

This web service allows to retrieve the last operations of a fleet.

Since
1.1.12

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer

Request					
Signature	Method	getFleetLastOperations			1
	URI	GET /application/customers/{customerId}/fleets/{fleetId}/lastOperations			
Parameters	Name	Type	Mandatory	Description	
	fields	integer		List of DTO fields to display	
	page	integer		page number	
	pageSize	integer		page size value	
	sort	string		sort value	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto<LastOperationDto>			
	4xx, 5xx	ErrorDto			

2.17.5.9 Getting the fleet statistics

This web service allows to retrieve the statistics of all the equipments of a fleet.
The statistics consists of counting the number of equipments for which a numeric metric belongs to a range.

Since
1.1.12

Note
The statistic of each metric concerns the average value.

Although it returns a paginatedDto, this web service is not paginated. All the results are returned within the same page.

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer

Request					
Signature	Method	getEquipmentsStatistics			1
	URI	GET /application/customers/{customerId}/fleets/{fleetId}/equipments/statistics			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	metricNames	string	✓	List of metric names : m1 , m2 , m3 { ALTITUDE, CPU, EXTRA_DISK, GPS_LOCK_RATIO, GPS_SATELLITES_NUMBER, LATITUDE, LONGITUDE, RAM, RSSI, SUPPLY_POWER_MILLI_VOLT, SYSTEM_DISK, TEMPERATURE, USER_DISK }	
ranges	string	✓	Range values ranges : min,max; ... min,max Example : 10,20 means $10 \leq \text{value} \leq 20$ min : integer or null max: integer or null		

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				null means no limit. For example null, 10 means value ≤ 10 35, null means value ≥ 35
	page	integer		page number
	pageSize	integer		page size value
	fields	integer		List of DTO fields to display
Header	Name	Value		
	Authorization	Bearer <token>		
	Accept	application/vnd.kerlink.iot-v1+json		
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
Body	Status	Value		
	200	PaginatedDto<FleetEquipmentsStatisticDto>		
	4xx, 5xx	ErrorDto		

2.17.5.10 Getting the customer fleets

This web service allows to retrieve the customer list of fleets.

Since
1.1.12

Security access

The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)

Counting the last events

If the `fields` parameter contains the value `lastEventCounters` a treatment is launched to count the last events attached to this fleet.

Request					
Signature	Method	getCustomerFleets			1
	URI	GET /application/customers/{customerId}/fleets			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	The customer identifier	
	page	integer		Page number	
	pageSize	integer		Page size value	
	sort	string		Sort value	
	search	string		Search condition	
Header	fields	integer		List of DTO fields to display	
	Name	Value			
	Authorization	Bearer <token>			
Accept	application/vnd.kerlink.iot-v1+json				
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto<FleetDto>			
	4xx, 5xx	ErrorDto			

2.17.5.11 Getting a customer fleet

This web service allows to retrieve a fleet from the customer list of fleets.

Since
1.1.12

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer
- fleet.customer.id = customerId

Counting the last events

If the `fields` parameter contains the value `lastEventCounters` a treatment is launched to count the last events attached to this fleet.

Request					
Signature	Method	getCustomerFleet			1
	URI	GET /application/customers/{customerId}/fleets/{fleetId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	userId	integer	✓	User identifier	
	fields	string		List of fields to display	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	FleetDto			
	4xx, 5xx	ErrorDto			

2.17.5.12 Attaching a fleet to a customer

A fleet belongs to zero or one customer.
This web service allows to attach a fleet to a customer.

Since
1.1.12

Security access

The connected user is SUPER_ADMIN.

Rules

- The fleet must be detached before executing the attachment.
- If the customer has a limited number of equipments, then this limit cannot be exceeded.

Request					
Signature	Method	attachFleetToCustomer			4
	URI	PUT /application/fleets/{fleetId}/{customerId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	204	No Content			
	4xx, 5xx	ErrorDto			

2.17.5.13 Detaching a fleet from its customer

A fleet belongs to zero or one customer.

This web service allows to detach the fleet from its customer. After this operation the fleet is an orphan fleet.

Since
1.1.12

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer

Request					
Signature	Method	detachFleetFromCustomer			3
	URI	PUT /application/customers/{customerId}/fleets/{fleetId}/attachedFleet			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	204	No Content			
	4xx, 5xx	ErrorDto			

2.17.5.1 Changing the fleet customer

This web service allows to attach the fleet to another customer.

Since
1.1.12

Security access

The connected user is SUPER_ADMIN

Rules

If the new customer has a limited number of equipments, then this limit cannot be exceeded.

Request					
Signature	Method	changeFleetCustomer			4
	URI	PUT /application/customers/{customerId}/fleets/{fleetId}/attachedFleet/{newCustomerId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	204	No Content			
	4xx, 5xx	ErrorDto			

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2.17.5.2 Getting the fleet events

This web service retrieves the list of events of a fleet.

Since
1.1.12

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer

Request					
Signature	Method	getFleetEvents			1
	URI	GET /application/customers/{customerId}/fleets/{fleetId}/events			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	type	string		Event type { CPU_ON, CPU_OFF, DISK_SYSTEM_ON, DISK_SYSTEM_OFF, DISK_USER_ON, DISK_USER_OFF, DOOR_OPEN, DOOR_CLOSED, GPS_UNLOCKED, GPS_LOCKED, RAM_ON, RAM_OFF, RSSI_ON, RSSI_OFF, TEMPERATURE_ON, TEMPERATURE_OFF, START, SHUTDOWN, RESTART, POWER_LOST, AUTOMATIC_SYSTEM_RESTORATION, AUTOMATIC_SYSTEM_RESTORATION_FACT ORY, PREVIOUS_CONFIG_RESTORATION, HELLO (15) }	
	page	integer		Page number	

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	pageSize	integer		Page size value
	startDate	integer	✓	The start date of the period
	endDate	integer	✓	The end date of the period
	fields	string		List of DTO fields to display
Header	Name	Value		
	Authorization	Bearer <token>		
	Accept	application/vnd.kerlink.iot-v1+json		
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
Body	Status	Value		
	200	PaginatedDto<Erreur ! Source du renvoi introuvable.>		
	4xx, 5xx	ErrorDto		

2.17.5.3 Getting the fleet last events

This web service allows to retrieve the last events attached to all the equipments belonging to a fleet.

An event can be an alarm or a notification or both, depends on its value.

For example, a disconnection will produce an alarm but a reconnection will produce a notification.

Since
1.1.12

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer

Request					
Signature	Method	getFleetLastEvents			1
	URI	GET /application/customers/{customerId}/fleets/{fleetId}/events/last			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	page	integer		Page number	
	pageSize	integer		Page size value	
	startDate	integer	✓	The start date of the period	
	endDate	integer	✓	The end date of the period	
fields	string		List of DTO fields to display		
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto<LastEventDto>			
	4xx, 5xx	ErrorDto			

2.17.5.4 Getting the fleet last events counters

This web service allows to retrieve the last events counters attached to all the equipments belonging to a fleet.

The response is a paginatedDto with one page.

Since
1.1.12

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer

Request					
Signature	Method	getFleetLastEventsCounters			1
	URI	GET /application/customers/{customerId}/fleets/{fleetId}/events/last/counters			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	search	string		Search condition	
	fields	string		List of DTO fields to display	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	FleetLastEventCounterDto			
	4xx, 5xx	ErrorDto			

2.17.6 Repository controller

This controller defines the web services that manage the repository.

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2.17.6.1 Getting a file from the repository

This web service allows to get a file from the repository.

Three kinds of files can be retrieved :

- a spectrum file
- a firmware file
- a general file (exchange)

Since
1.1.12

Request				
Signature	Method	getFile		
	URI	GET /application/repo		
Parameters	Name	Type	Mandatory	Description
	location	string	✓	The location type {exchange, spectrum, firmware}
	fileName	string	✓	The file name
Header	Name	Value		
Response				
Header	Name	Value		
	Content-Type	application/octet-stream		
Body	Status	Value		
	200	OK		
	4xx, 5xx	ErrorDto		

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2.17.6.2 Putting a file on the repository

This web service allows to put a file from the repository. Three kinds of files can be put :

- a spectrum file
- a firmware file
- a general file (exchange)

Since
1.1.12

Request				
Signature	Method	putFile		
	URI	POST /application/repo		
Parameters	Name	Type	Mandatory	Description
	file	multipart/ form-data	✓	The file stream
	location	string	✓	The location type {exchange, spectrum, firmware}
	fileName	string	✓	The file name
Header	Name	Value		
Response				
Header	Name	Value		
Body	Status	Value		
	204	No content		
	4xx, 5xx	ErrorDto		

2.17.7 Equipment controller

This controller defines the web services that manage the equipments.

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2.17.7.1 Getting the list of equipments

This web service allows to get the list of equipments.

If the field `lastStatistics` is provided in the list of visible fields then the response will contain the `lastStatistics` of the equipment.
Last events are not provided.

Since
1.1.12

Security access

The connected user is SUPER_ADMIN.

Request					
Signature	Method	getEquipments			4
	URI	GET /application/equipments			
Parameters	Name	Type	Mandatory	Description	
	fields	integer		List of DTO fields to display	
	page	integer		page number	
	pageSize	integer		page size value	
	sort	string		sort value	
	search	string		search condition	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto<EquipmentDto>			
	4xx, 5xx	ErrorDto			

2.17.7.2 Getting a fleet equipment

This web service retrieves an equipment of a fleet.

Since
1.1.12

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer
- The equipment belongs to the fleet

Request					
Signature	Method	getFleetEquipment			i
	URI	GET /application/customers/{customerId}/fleets/{fleetId}/equipments/{equipmentId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	equipmentId	integer	✓	Equipment identifier	
Header	fields	string		List of DTO fields to display	
	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto<EquipmentSnmpLogDto>			
	4xx, 5xx	ErrorDto			

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2.17.7.3 Getting the list of equipments of a fleet

This web service retrieves the list of equipments.

Since
1.1.12

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer

Request					
Signature	Method	getFleetEquipments			1
	URI	GET /application/customers/{customerId}/fleets/{fleetId}/equipments			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	page	integer		Page number	
	pageSize	integer		Page size value	
	sort	string		Sort value	
	search	string		Search condition	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto<EquipmentDto>			
	4xx, 5xx	ErrorDto			

2.17.7.4 Getting the events of an equipment

This web service allows to retrieve the events attached to an equipment.

Since
1.1.12

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer
- The equipment belongs to the fleet

Request					
Signature	Method	getEquipmentEvents			1
	URI	GET /application/customers/{customerId}/fleets/{fleetId}/equipments/{equipmentId}/events			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	equipmentId	integer	✓	Equipment identifier	
	type	String		Event type belonging to the set : { CPU_ON, CPU_OFF, DISK_SYSTEM_ON, DISK_SYSTEM_OFF, DISK_USER_ON, DISK_USER_OFF, DOOR_OPEN, DOOR_CLOSED, GPS_UNLOCKED, GPS_LOCKED, RAM_ON, RAM_OFF, RSSI_ON, RSSI_OFF, TEMPERATURE_ON, TEMPERATURE_OFF, START, SHUTDOWN, RESTART, POWER_LOST, AUTOMATIC_SYSTEM_RESTITUTION, AUTOMATIC_SYSTEM_RESTITUTION_FACTORY, PREVIOUS_CONFIG_RESTITUTION,	

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				HELLO }
	page	integer		page number
	pageSize	integer		page size value
	startDate	integer	✓	The start date of the period
	endDate	integer	✓	The end date of the period
	fields	string		List of DTO fields to display
Header	Name	Value		
	Authorization	Bearer <token>		
	Accept	application/vnd.kerlink.iot-v1+json		
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
Body	Status	Value		
	200	PaginatedDto<Erreur ! Source du renvoi introuvable.>		
	4xx, 5xx	ErrorDto		

2.17.7.1 Getting the last events of an equipment

This web service allows to retrieve the last events attached to an equipment.
An event can be an alarm or a notification or both, depends on its value.
For example, a disconnection will produce an alarm but a reconnection will produce a notification.

Since
1.1.12

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer
- The equipment belongs to the fleet

Request					
Signature	Method	getEquipmentLastEvents			1
	URI	GET /application/customers/{customerId}/fleets/{fleetId}/equipments/{equipmentId}/events/last			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	equipmentId	integer	✓	Equipment identifier	
	page	integer		Page number	
	pageSize	integer		Page size value	
	startDate	integer	✓	The start date of the period	
	endDate	integer	✓	The end date of the period	
fields	string		List of DTO fields to display		
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto<LastEventDto>			
	4xx, 5xx	ErrorDto			

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2.17.7.2 Getting the last statistics of an equipment

This web service allows to retrieve the last statistics attached to an equipment.

Since

1.1.12

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer
- The equipment belongs to the fleet

Request					
Signature	Method	getEquipmentLastStatistics			1
	URI	GET /application/customers/{customerId}/fleets/{fleetId}/equipments/{equipmentId}/lastStatistics			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	equipmentId	integer	✓	Equipment identifier	
	page	integer		Page number	
	pageSize	integer		Page size value	
	startDate	integer	✓	The start date of the period	
	endDate	integer	✓	The end date of the period	
fields	string		List of DTO fields to display		
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto<LastStatisticDto>			
	4xx, 5xx	ErrorDto			

2.17.7.1 Patching a last event of an equipment

This web service allows to patch a lastEvent of an equipment.
The main use case is for marking the LastEvent as read by setting the field `markAsRead` to `true`.

Since
1.1.12

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer
- The equipment belongs to the fleet

Request					
Signature	Method	patchEquipmentLastEvent			2
	URI	PATCH /application/customers/{customerId}/fleets/{fleetId}/equipments/{equipmentId}/events/last/{lastEventId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	equipmentId	integer	✓	Equipment identifier	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Body	lastEventDto	LastEventDto			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	204	No Content			
	4xx, 5xx	ErrorDto			

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2.17.7.2 Getting the equipment connections

This web service allows to retrieve the list of connections of an equipment.

Since
1.1.12

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer
- The equipment belongs to the fleet

Request					
Signature	Method	getEquipmentConnections			i
	URI	GET /application/customers/{customerId}/fleets/{fleetId}/equipments/{equipmentId}/connections			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	equipmentId	integer	✓	Equipment identifier	
	untilDate	integer		Until the date of (EPOCH date in ms), default is current time	
	page	integer		page number	
	pageSize	integer		page size value	
fields	string		List of fields to display		
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto< EquipmentConnectionDto>			
	4xx, 5xx	ErrorDto			

2.17.7.3 Getting the last equipment connection

This web service allows to retrieve the last connection of an equipment.
If no EquipmentConnection has been found, for the never connected equipments, the response body will be empty.

Since
1.1.12

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer
- The equipment belongs to the fleet

Request					
Signature	Method	getLastEquipmentConnection			1
	URI	GET /application/customers/{customerId}/fleets/{fleetId}/equipments/{equipmentId}/connections/last			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	equipmentId	integer	✓	Equipment identifier	
	fields	string		List of fields to display	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	EquipmentConnectionDto			
	4xx, 5xx	ErrorDto			

2.17.7.4 Getting the current equipment control



This web service allows to retrieve the control data of an equipment.

Since
1.1.12

Note
This web service is asynchronous.

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer
- The equipment belongs to the fleet

Request					
Signature	Method	getCurrentEquipmentControl			 
	URI	GET /application/customers/{customerId}/fleets/{fleetId}/equipments/{equipmentId}/control			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	equipmentId	integer	✓	Equipment identifier	
	fields	string		List of fields to display	
	groups	string		List of EquipmentControl groups to retrieve, (example: ram,cpu, temperature)	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	202	TaskDto			
	4xx, 5xx	ErrorDto			

2.17.7.5 Getting the current equipment control task

Retrieves the result of the createEquipmentLsCommand task.

Since
1.1.12

Security access

The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN).

Rules

The status of the task must be "OK".

Request					
Signature	Method	getCurrentEquipmentControlTask			2
	URI	GET /application/customers/{customerId}/fleets/{fleetId}/equipments/{equipmentId}/control/{taskId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	equipmentId	integer	✓	Equipment identifier	
	taskId	integer	✓	Task identifier	
	fields	string		List of fields to display	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	EquipmentControlDto			
	4xx, 5xx	ErrorDto			

2.17.7.6 Updating the current equipment control

This web service allows to update the control data of an equipment.

Since
1.1.12

Note
This web service is asynchronous.

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer
- The equipment belongs to the fleet

Request					
Signature	Method	updateCurrentEquipmentControl			(i) 2
	URI	PATCH /application/customers/{customerId}/fleets/{fleetId}/equipments/{equipmentId}/control			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	equipmentId	integer	✓	Equipment identifier	
	criteria	String		Task criteria	
fields	string		List of fields to display		
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Body	equipmentControlDto	EquipmentControlDto			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	202	TaskDto			
	4xx, 5xx	ErrorDto			

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2.17.7.7 Getting the equipment SNMP logs

This web service retrieves the SNMP logs of an equipment.

Since

1.1.12

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer
- The equipment belongs to the fleet

Request					
Signature	Method	getEquipmentSnmLogs			i
	URI	GET /application/customers/{customerId}/fleets/{fleetId}/equipments/{equipmentId}/snmpLogs			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	equipmentId	integer	✓	Equipment identifier	
	page	integer		page number	
	pageSize	integer		page size value	
	startDate	integer	✓	The start date of the period	
	endDate	integer	✓	The end date of the period	
fields	string		List of DTO fields to display		
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto<EquipmentSnmLogDto>			
	4xx, 5xx	ErrorDto			

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2.17.7.8 Getting the SNMP logs of a transaction

This web service retrieves the SNMP logs which correspond to the same transaction.

Since

1.1.12

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer

Request					
Signature	Method	getEquipmentsSnmpLogs			1
	URI	GET /application/customers/{customerId}/fleets/{fleetId}/equipments/snmpLogs			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	transactionId	string		The task transaction value	
	page	integer		Page number	
	pageSize	integer		Page size value	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto<EquipmentSnmpLogDto>			
	4xx, 5xx	ErrorDto			

2.17.7.9 Getting the equipment last operations

This web service retrieves the last operations of an equipment.


An operation is an action done on an equipment which results in an asynchronous task.

Since

1.1.12

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer
- The equipment belongs to the fleet

Request					
Signature	Method	getEquipmentLastOperations			
	URI	GET /application/customers/{customerId}/fleets/{fleetId}/equipments/{equipmentId}/lastOperations			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	equipmentId	integer	✓	Equipment identifier	
	page	integer		page number	
	pageSize	integer		page size value	
	sort	string		sort value	
	search	string		search criteria	
fields	integer		List of DTO fields to display		
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto<LastOperationDto>			
	4xx, 5xx	ErrorDto			

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2.17.7.10 Getting the equipment versions

This web service allows to retrieve the versions of an equipment.

Since
1.1.12

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer
- The equipment belongs to the fleet

Request					
Signature	Method	getEquipmentVersions			i
	URI	GET /application/customers/{customerId}/fleets/{fleetId}/equipments/{equipmentId}/versions			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	equipmentId	integer	✓	Equipment identifier	
	startDate	integer	✓	The start date of the period	
	endDate	integer	✓	The end date of the period	
	fields	string		List of DTO fields to display	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto< EquipmentVersionDto>			
	4xx, 5xx	ErrorDto			

2.17.7.11 Getting the last equipment versions

This web service allows to retrieve the last version of an equipment.

Since
1.1.12

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer
- The equipment belongs to the fleet

Request					
Signature	Method	getLastEquipmentVersion			i
	URI	GET /application/customers/{customerId}/fleets/{fleetId}/equipments/{equipmentId}/versions/last			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	equipmentId	integer	✓	Equipment identifier	
Header	fields	string		List of DTO fields to display	
	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto< EquipmentVersionDto>			
	4xx, 5xx	ErrorDto			

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2.17.7.12 Getting the equipment current version

This web service allows to retrieve the current version of an equipment. This web service is asynchronous. The result will be accessible via `getCurrentEquipmentVersionTask`.

Since
1.1.12

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN).
- The fleet belongs to the customer.
- The equipment belongs to the fleet.

Request					
Signature	Method	getCurrentEquipmentVersion			 
	URI	GET /application/customers/{customerId}/fleets/{fleetId}/equipments/{equipmentId}/versions/current			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	equipmentId	integer	✓	Equipment identifier	
	criteria	string		Task criteria	
	fields	string		List of DTO fields to display	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	TaskDto			
	4xx, 5xx	ErrorDto			

2.17.7.13 Getting the equipment current version task

This web service allows to retrieve the current version result of an equipment.


Since
1.1.12

Security access

The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN).

Rules

The status of the task must be "OK".

Request					
Signature	Method	getCurrentEquipmentVersionTask			
	URI	GET /application/customers/{customerId}/fleets/{fleetId}/equipments/{equipmentId}/versions/current/{taskId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	equipmentId	integer	✓	Equipment identifier	
	taskId	integer	✓	Task identifier	
	criteria	string		Task criteria	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	EquipmentVersionDto			
	4xx, 5xx	ErrorDto			

2.17.7.14 Changing the equipment fleet

This web service allows to move an equipment from a fleet to another.

Since
1.1.12

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer
- The equipment belongs to the fleet

Rules

- If the new fleet has a limited number of equipments, then this limit cannot be exceeded.

Request					
Signature	Method	changeEquipmentFleet			2
	URI	PUT /application/customers/{customerId}/fleets/{fleetId}/equipments/{equipmentId}/{newFleetId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	equipmentId	integer	✓	Equipment identifier	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	204	No Content			
	4xx, 5xx	ErrorDto			

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2.17.7.15 Getting the current equipment management



This web service allows to retrieve the management part of an equipment.

Since
1.1.12

Note
This web service is asynchronous.

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer
- The equipment belongs to the fleet

Request					
Signature	Method	getCurrentEquipmentManagement			 
	URI	GET /application/customers/{customerId}/fleets/{fleetId}/equipments/{equipmentId}/management			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	equipmentId	integer	✓	Equipment identifier	
	criteria	string		Task criteria. Pre-registered are customerId, userId, fleetId, equipmentId	
fields	string		List of fields to display		
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	202	TaskDto			
	4xx, 5xx	ErrorDto			

2.17.7.16 Getting the current equipment management task

Retrieves the result of the `getCurrentEquipmentManagement` task.

Since
1.1.12

Security access

The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)

Request					
Signature	Method	getCurrentEquipmentManagementTask			2
	URI	GET /application/customers/{customerId}/fleets/{fleetId}/equipments/{equipmentId}/management/{taskId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	equipmentId	integer	✓	Equipment identifier	
	taskId	integer	✓	Task identifier	
	fields	string		List of fields to display	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	EquipmentManagementDto			
	4xx, 5xx	ErrorDto			

2.17.7.17 Updating the current equipment management

This web services allow to update the current equipment management data.

Since
1.1.12

Note
This web service is asynchronous.

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer
- The equipment belongs to the fleet

Request					
Signature	Method	updateCurrentEquipmentManagement			↻ 4
	URI	PUT /application/customers/{customerId}/fleets/{fleetId}/equipments/{equipmentId}/management			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	equipmentId	integer	✓	Equipment identifier	
	taskId	integer	✓	Task identifier	
	criteria	string		Task criteria. Pre-registered are customerId, userId, fleetId, equipmentId	
	fields	string		List of fields to display	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Body	equipmentManagementDto	EquipmentManagementDto			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	202	TaskDto			
	4xx, 5xx	ErrorDto			

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2.17.7.18 Updating the firmware of a list of equipments

This web services allow to update the firmware of a list of equipments identified by their EUI.

Since
1.1.12

Notes

- This web service is asynchronous.
- The firmware file name is renamed like this :
<originFileName>_<UUID>.<extension> where UUID is a unique string
Example : `firmware_2016.05v1.5_cd31160f-95b3-471b-a0a4-f524ed7d53b9.tar.gz`

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer

Rules

- The file extension of the firmware must belong to the list : {tar.gz, tgz, ipk}

Request				
Signature	Method	updateEquipmentsFirmware		
	URI	PUT /application/customers/{customerId}/fleets/{fleetId}/equipments/firmware		
Parameters	Name	Type	Mandatory	Description
	customerId	integer	✓	Customer identifier
	fleetId	integer	✓	Fleet identifier
	euis	string	✓	A comma separated list of EUI
	when	string		The date when to execute the update (EPOCH ms)
	file	multipart /form-data	✓	The firmware file
	criteria	string		Task criteria. Pre-registered are customerId, userId, fleetId, firmwareFileName
Header	Name	Value		
	Authorization	Bearer <token>		
	Accept	application/vnd.kerlink.iot-v1+json		
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
Body	Status	Value		

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	204	
	4xx, 5xx	ErrorDto

2.17.8 Command controller

Commands are 'line commands' the user can execute on an equipment.

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2.17.8.1 Executing a `ls` command on an equipment

This web service allows to execute the command `ls` on the equipment. It browses the directory non recursively.

Since
1.1.12

Note
This web service is asynchronous.

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer
- The equipment belongs to the fleet

Request					
Signature	Method	createEquipmentLsCommand			↺ 2
	URI	POST /application/customers/{customerId}/fleets/{fleetId}/equipments/{equipmentId}/commands/ls			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	equipmentId	integer	✓	Equipment identifier	
	directory	string	✓	The absolute path to browse (example : /tmp/dir)	
	criteria	string		Task criteria. Pre-registered are customerId, userId, fleetId, equipmentId	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	202	TaskDto			
	4xx, 5xx	ErrorDto			

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2.17.8.2 Getting the ls command result

Retrieves the result of an ls command on an equipment (createEquipmentLsCommand)

Since
1.1.12

Security access

The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN).

Rules

The status of the task must be "OK".

Request					
Signature	Method	getEquipmentLsCommandTask			2
	URI	GET /application/customers/{customerId}/fleets/{fleetId}/equipments/{equipmentId}/commands/ls/{taskId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	equipmentId	integer	✓	Equipment identifier	
	taskId	integer	✓	Task identifier	
	fields	string		List of fields to display	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto<FileDto>			
	4xx, 5xx	ErrorDto			

2.17.8.3 Executing a `mkdir` command on an equipment



This web service allows to execute the command `mkdir` on an equipment.

Since
1.1.12

Note
This web service is asynchronous.

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer
- The equipment belongs to the fleet

Request					
Signature	Method	createEquipmentMkdirCommand			 
	URI	POST /application/customers/{customerId}/fleets/{fleetId}/equipments/{equipmentId}/commands/mkdir			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	equipmentId	integer	✓	Equipment identifier	
	directory	string	✓	absolute path of the directory to create (ex: /tmp/conf)	
	criteria	string		Task criteria. Pre-registered are <code>customerId</code> , <code>userId</code> , <code>fleetId</code> , <code>equipmentId</code>	
fields	string		List of fields to display		
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	202	TaskDto			
	4xx, 5xx	ErrorDto			

2.17.8.4 Executing a get command on an equipment



This web service allows to retrieve a file from an equipment.

Since
1.1.12

Note
This web service is asynchronous.

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer
- The equipment belongs to the fleet

Request					
Signature	Method	createEquipmentGetFileCommand			 
	URI	POST /application/customers/{customerId}/fleets/{fleetId}/equipments/{equipmentId}/commands/get			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	equipmentId	integer	✓	Equipment identifier	
	filePath	string	✓	absolute path of the equipment file (ex: /tmp/conf/foo.txt)	
	criteria	string		Task criteria. Pre-registered are customerId, userId, fleetId, equipmentId, fileExchangeName	
fields	string		List of fields to display		
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	202	TaskDto			
	4xx, 5xx	ErrorDto			

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2.17.8.5 Getting the get command task

Retrieves the result of a get command on an equipment
(createEquipmentGetFileCommand)

Since
1.1.12

Security access

The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN).

Rules

The status of the task must be "OK".

Request					
Signature	Method	getEquipmentGetFileCommandTask			2
	URI	GET/customers/{customerId}/fleets/{fleetId}/equipments/{equipmentId}/commands/get/{taskId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	equipmentId	integer	✓	Equipment identifier	
Header	taskId	integer	✓	Task identifier	
	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/octet-stream			
Body	Status	Value			
	200				
	4xx, 5xx	ErrorDto			

2.17.8.6 Executing a put command on an equipment



This web service allows to put a file from on an equipment.

Since
1.1.12

Note
This web service is asynchronous.

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer
- The equipment belongs to the fleet

Request					
Signature	Method	createEquipmentPutFileCommand			 
	URI	POST /application/customers/{customerId}/fleets/{fleetId}/equipments/{equipmentId}/commands/put			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	equipmentId	integer	✓	Equipment identifier	
	file	string	✓	The file to put on the equipment	
	destinationPath	string	✓	absolute path of the equipment directory that will receive the file (ex: /tmp/destination)	
	criteria	string		Task criteria. Pre-registered are customerId, userId, fleetId, equipmentId, fileExchangeName	
fields	string		List of fields to display		
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	202	TaskDto			
	4xx, 5xx	ErrorDto			

2.17.8.7 Executing a mv command on an equipment

This web service allows to rename or move a file on an equipment.

Examples :

```
mv /tmp/foo.txt /tmp/foo2.txt    Renames foo.txt to foo2.txt
mv /tmp/foo.txt /tmp/subdir      Moves foo.txt to /tmp/subdir directory
```

Since
1.1.12

Note
This web service is asynchronous.

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer
- The equipment belongs to the fleet

Request				
Signature	Method	createEquipmentMvCommand		
	URI	POST /application/customers/{customerId}/fleets/{fleetId}/equipments/{equipmentId}/commands/mv		
Parameters	Name	Type	Mandatory	Description
	customerId	integer	✓	Customer identifier
	fleetId	integer	✓	Fleet identifier
	equipmentId	integer	✓	Equipment identifier
	source	string	✓	absolute source path to move or rename
	destination	string	✓	Absolute destination path of the new name or the destination directory
	criteria	string		Task criteria. Pre-registered are customerId, userId, fleetId, equipmentId
fields	string		List of fields to display	
Header	Name	Value		
	Authorization	Bearer <token>		
	Accept	application/vnd.kerlink.iot-v1+json		
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
Body	Status	Value		
	202	TaskDto		

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	4xx, 5xx	ErrorDto
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2.17.8.8 Executing a `rm` command on an equipment

This web service allows to delete file on an equipment.

Examples :

```
rm /tmp/foo.txt      Deletes the file foo.txt
rv /tmp              Deletes /tmp directory
```

Since

1.1.12

Note

This web service is asynchronous.

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer
- The equipment belongs to the fleet

Request				
Signature	Method	createEquipmentRmCommand		
	URI	POST /customers/{customerId}/fleets/{fleetId}/equipments/{equipmentId}/commands/mv		
Parameters	Name	Type	Mandatory	Description
	customerId	integer	✓	Customer identifier
	fleetId	integer	✓	Fleet identifier
	equipmentId	integer	✓	Equipment identifier
	file	string	✓	Absolute path of the file to delete
	criteria	string		Task criteria. Pre-registered are customerId, userId, fleetId, equipmentId
fields	string		List of fields to display	
Header	Name	Value		
	Authorization	Bearer <token>		
	Accept	application/vnd.kerlink.iot-v1+json		
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
Body	Status	Value		
	202	TaskDto		
	4xx, 5xx	ErrorDto		

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2.17.8.9 Executing a cp command on an equipment

This web service allows to copy file from source to destination on an equipment.
If the source contains sub directories they will be recursively copied.

Since
1.1.12

Note
This web service is asynchronous.

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer
- The equipment belongs to the fleet

Request				
Signature	Method	createEquipmentCpCommand		
	URI	POST /application/customers/{customerId}/fleets/{fleetId}/equipments/{equipmentId}/commands/cp		
Parameters	Name	Type	Mandatory	Description
	customerId	integer	✓	Customer identifier
	fleetId	integer	✓	Fleet identifier
	equipmentId	integer	✓	Equipment identifier
	source	string	✓	absolute source path to copy
	destination	string	✓	Absolute directory destination where to copy source
	criteria	string		Task criteria. Pre-registered are customerId, userId, fleetId, equipmentId
fields	string		List of fields to display	
Header	Name	Value		
	Authorization	Bearer <token>		
	Accept	application/vnd.kerlink.iot-v1+json		
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
Body	Status	Value		
	202	TaskDto		
	4xx, 5xx	ErrorDto		

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2.17.8.10 Executing a command on an equipment

This web services allows to execute a not preformatted command on the remote equipment.
Caution : Only the commands based on a request ⇔ response will be correctly managed; a command like `vi file.txt` will not work as it needs an interactive mode.

Since
1.1.12

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer
- The equipment belongs to the fleet

Request					
Signature	Method	createEquipmentCommand			 
	URI	POST /application/customers/{customerId}/fleets/{fleetId}/equipments/{equipmentId}/commands			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	equipmentId	integer	✓	Equipment identifier	
	command	string	✓	The linux command to execute	
	criteria	string		Task criteria. Pre-registered are customerId, userId, fleetId, equipmentId	
	fields	string		List of fields to display	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	202	TaskDto			
	4xx, 5xx	ErrorDto			

2.17.8.11 Getting the command result

This web services allows to retrieve the result of a command on an equipment (createEquipmentCommand)

Since
1.1.12

Security access

The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN).

Rules

The status of the task must be "OK".

Request					
Signature	Method	getEquipmentCommandTask			4
	URI	GET /application/customers/{customerId}/fleets/{fleetId}/equipments/{equipmentId}/commands/{taskId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	equipmentId	integer	✓	Equipment identifier	
	taskId	integer	✓	Task identifier	
	fields	string		List of fields to display	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	CommandDto			
	4xx, 5xx	ErrorDto			

2.17.9 LORA station controller

This controller defines the web services that manage the LoRa stations.

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2.17.9.1 Creating a new LORA station

Creates a new LORA station. A LORA station inherits from Equipment.

Since

1.1.12

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN).
- The fleet belongs to the customer.
- The equipment belongs to the fleet.

Rules

- The fields `maxTxPower`, `allowGPSPosition`, `networkMaxDelayUp`, `networkMaxDelayDown` are set in the LNS domain if the role is at least ADMIN.

Rules

- If the customer has a limited number of equipments, then this limit cannot be exceeded.

Request					
Signature	Method	createLoraStation			2
	URI	POST /application/customers/{customerId}/fleets/{fleetId}/loraStations			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Authorization	Bearer <token>			
Body	loraStationDto	LoraStationDto			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Location	/application/customers/{customerId}/fleets/{fleetId}/loraStations/{loraStationId}			
Body	Status	Value			
	201	Created			
	4xx, 5xx	ErrorDto			

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2.17.9.2 Getting a LORA station

This web service retrieves a LORA station.

Since
1.1.12

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer
- The equipment belongs to the fleet

Request					
Signature	Method	getLoraStation			2
	URI	GET application/customers/{customerId}/fleets/{fleetId}/loraStations/{loraStationId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	loraStationId	integer	✓	LoraStation identifier	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	LoraStationDto			
	4xx, 5xx	ErrorDto			

2.17.9.3 Updating a LORA station

This web service updates a LORA station.

Since
1.1.12

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN).
- The fleet belongs to the customer.
- The equipment belongs to the fleet.

Rules

- The fields `maxTxPower`, `allowGPSPosition`, `networkMaxDelayUp`, `networkMaxDelayDown` are updated in the LNS domain if the role is at least ADMIN.

Request				
Signature	Method	updateLoraStation		2
	URI	PUT /application/customers/{customerId}/fleets/{fleetId}/loraStations/{loraStationId}		
Parameters	Name	Type	Mandatory	Description
	customerId	integer	✓	Customer identifier
	fleetId	integer	✓	Fleet identifier
	loraStationId	integer	✓	LoraStation identifier
Header	Name	Value		
	Authorization	Bearer <token>		
	Accept	application/vnd.kerlink.iot-v1+json		
Body	loraStationDto	LoraStationDto		
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
Body	Status	Value		
	204	No content		
	4xx, 5xx	ErrorDto		

2.17.9.4 Patching a LORA station

This web service allows to patch a LORA station that is updating a subset of fields.

Since
1.1.12

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN).
- The fleet belongs to the customer.
- The equipment belongs to the fleet.

Rules

- The fields `maxTxPower`, `allowGPSPosition`, `networkMaxDelayUp`, `networkMaxDelayDown` can be updated only if the role is at least ADMIN.

Request					
Signature	Method	patchLoraStation			2
	URI	PATCH /application/customers/{customerId}/fleets/{fleetId}/loraStations/{loraStationId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Body	loraStationDto	LoraStationDto			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	204	No content			
	4xx, 5xx	ErrorDto			

2.17.9.5 Deleting a LORA station

This web service deletes a LORA station.

Since

1.1.12

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer
- The equipment belongs to the fleet

Request					
Signature	Method	deleteLoraStation			2
	URI	DELETE /application/customers/{customerId}/fleets/{fleetId}/loraStations/{loraStationId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	loraStationId	integer	✓	LoraStation identifier	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	204	No content			
	4xx, 5xx	ErrorDto			

2.17.9.6 Getting the list of LORA stations

This web service retrieves the list of LORA stations.

Since
2.0.2

Security access

The connected user is SUPER_ADMIN

Request					
Signature	Method	getLoraStations			4
	URI	GET /application/loraStations			
Parameters	Name	Type	Mandatory	Description	
	page	integer		Page number	
	pageSize	integer		Page size value	
	sort	string		Sort value	
	search	string		Search condition	
	fields	string		List of DTO fields to display	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto<LoraStationDto>			
	4xx, 5xx	ErrorDto			

2.17.9.1 Getting the list of LORA stations attached to a customer

This web service retrieves the list of LORA stations belonging to a customer

Since
2.0.2

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer

Request					
Signature	Method	getCustomerLoraStations			1
	URI	GET /application/customers/{customerId}/loraStations			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	page	integer		Page number	
	pageSize	integer		Page size value	
	sort	string		Sort value	
	search	string		Search condition	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto<LoraStationDto>			
	4xx, 5xx	ErrorDto			

2.17.9.2 Getting the list of LORA stations attached to a fleet

This web service allows to retrieve the list of LORA stations belonging to a fleet

Since
1.1.12

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer

Request					
Signature	Method	getFleetLoraStations			1
	URI	GET /application/customers/{customerId}/fleets/{fleetId}/loraStations			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	page	integer		Page number	
	pageSize	integer		Page size value	
	sort	string		Sort value	
	search	string		Search condition	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto<LoraStationDto>			
	4xx, 5xx	ErrorDto			

2.17.9.3 Getting a list of LORA station configurations

Retrieves the configurations historic of a LORA station from the persistence layer.

Since
1.1.12

Note

The response is a paginatedDto but the pagination feature is not available: all the LoraStationConfigurationDto objects are set in the same page.

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer
- The equipment belongs to the fleet

Request					
Signature	Method	getLoraStationConfigurations			1
	URI	GET /application/customers/{customerId}/fleets/{fleetId}/loraStations/{loraStationId}/configurations			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	loraStationId	integer	✓	LORA station identifier	
	starDate	string	✓	Start date (EPOCH ms)	
	endDate	string	✓	End date (EPOCH ms)	
	fields	string		List of fields to retrieve	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	202	PaginatedDto<LoraStationConfigurationDto>			
	4xx, 5xx	ErrorDto			

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2.17.9.4 Getting the last LORA station configuration

Retrieves the last configuration of a LORA station.
The configuration comes from the persistence layer.

Since
1.1.12

Note

The response is a paginatedDto but the pagination feature is not available: all the LoraStationConfigurationDto objects are set in the same page.

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer
- The equipment belongs to the fleet

Request					
Signature	Method	getLastLoraStationConfiguration			1
	URI	GET /application/customers/{customerId}/fleets/{fleetId}/loraStations/{loraStationId}/configurations/last			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	loraStationId	integer	✓	LORA station identifier	
	fields	string		List of fields to retrieve	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	202	LoraStationConfigurationDto			
	4xx, 5xx	ErrorDto			

2.17.9.5 Getting the current LORA station configuration



This web service allows to retrieve the current configuration of a LORA station.
The configuration comes directly from the equipment.

Since
1.1.12

Note
This web service is asynchronous.

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer
- The equipment belongs to the fleet

Request					
Signature	Method	getCurrentLoraStationConfiguration			 
	URI	POST /application/customers/{customerId}/fleets/{fleetId}/loraStations/{loraStationId}/configurations/current			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	loraStationId	integer	✓	LORA station identifier	
	criteria	string		Task criteria. Pre-registered are customerId, userId, fleetId, equipmentId	
	fields	string		List of fields to display	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	202	TaskDto			
	4xx, 5xx	ErrorDto			

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2.17.9.6 Getting the current LORA station configuration task

Retrieves the result of the web service `getCurrentLoraStationConfiguration`.

Since
1.1.12

Security access

The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN).

Rules

The status of the task must be "OK".

Request					
Signature	Method	getCurrentLoraStationConfigurationTask			2
	URI	GET /application/customers/{customerId}/fleets/{fleetId}/loraStations/{loraStationId}/configurations/current/{taskId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	loraStationId	integer	✓	LORA station identifier	
	taskId	integer	✓	Task identifier	
	fields	string		List of fields to display	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	LoraStationConfigurationDto			
	4xx, 5xx	ErrorDto			

2.17.9.7 Updating the current LORA station configuration

This web service allows to update the current LORA station configuration.

Since
1.1.12



Note
This web service is asynchronous.

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer
- The equipment belongs to the fleet

Rules

- The field `configVpn` can be set only by a user with role ADMIN or higher

Request					
Signature	Method	updateCurrentLoraStationConfiguration			 
	URI	PATCH /application/customers/{customerId}/fleets/{fleetId}/loraStations/{loraStationId}/configurations/current			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	loraStationId	integer	✓	LoraStation identifier	
	criteria	string		Task criteria. Pre-registered are customerId, userId, fleetId, equipmentId	
	fields	string		List of fields to display	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Body	loraStationConfigurationDto	LoraStationConfigurationDto			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	202	TaskDto			
	4xx, 5xx	ErrorDto			

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2.17.9.8 Getting the LORA station modems



This web service retrieves the list of LORA station modems.

Since
1.1.12

Note
This web service is asynchronous.

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer
- The equipment belongs to the fleet

Request					
Signature	Method	getLoraStationModems			 
	URI	GET /application/customers/{customerId}/fleets/{fleetId}/loraStations/{loraStationId}/modems			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	loraStationId	integer	✓	LORA station identifier	
	criteria	string		Task criteria. Pre-registered are customerId, userId, fleetId, equipmentId	
	fields	string		List of fields to display	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	202	TaskDto			
	4xx, 5xx	ErrorDto			

2.17.9.9 Getting the LORA station modems task

Retrieves the result of the web service `getLoraStationModems`.
Although it returns a `paginatedDto`, this pagination functionalities are not available.
Therefore all the results are returned within the same page.

Since
1.1.12

Security access

The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN).

Rules

The status of the task must be "OK".

Request					
Signature	Method	getLoraStationModemsTask			2
	URI	GET /application/customers/{customerId}/fleets/{fleetId}/loraStations/{loraStationId}/modems/{taskId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	loraStationId	integer	✓	LORA station identifier	
	taskId	integer	✓	Task identifier	
	fields	string		List of fields to display	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto<LoraStationModemDto>			
	4xx, 5xx	ErrorDto			

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2.17.9.10 Creating a LORA station modem spectrum

This web service allows to create a new spectrum analysis on one modem of a LORA station.

Since
1.1.12

Note
This web service is asynchronous.

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer
- The equipment belongs to the fleet

Request					
Signature	Method	createLoraStationModemSpectrum			🔗
	URI	POST /application/customers/{customerId}/fleets/{fleetId}/loraStations/{loraStationId}/modems/{modemLocation}/spectrums			2
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	X	Customer identifier	
	fleetId	integer	X	Fleet identifier	
	loraStationId	integer	X	Lora station identifier	
	modemLocation	integer	X	Modem location (starting at 1)	
	duration	string	X	Duration of the spectrum analysis in seconds	
	modemSerialNumber	string	X	Modem serial number	
criteria	string		Task criteria. Pre-registered are customerId, userId, fleetId, equipmentId, modemLocation, spectrumFileName		
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	202	TaskDto			
	4xx, 5xx	ErrorDto			

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2.17.9.11 Getting a LORA station modem spectrum task

Retrieves the result of the web service `createLoraStationModemSpectrum`.

Since
1.1.12

Security access

The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN).

Rules

The status of the task must be "OK".

Request					
Signature	Method	getLoraStationModemSpectrumTask			2
	URI	GET /application/customers/{customerId}/fleets/{fleetId}/loraStations/{loraStationId}/modems/{modemLocation}/spectrums/{taskId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	loraStationId	integer	✓	Lora station identifier	
	modemLocation	integer	✓	Modem location (starting at 1)	
	taskId	integer	✓	Task identifier	
	fields	string		List of fields to display	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/octet-stream			
Response					
Header	Name	Value			
	Content-Type	application/octet-stream			
Body	Status	Value			
	200				
	4xx, 5xx	ErrorDto			

2.17.10 *LORA station statistics controller*

Statistics computed on a LORA station can be retrieved within this controller.

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2.17.10.1 Getting the numeric statistics of a LORA station

This web service retrieves the numeric statistics of a LORA station.

Since

1.1.12

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer
- The equipment belongs to the fleet

Request					
Signature	Method	getLoraStationNumericStatistics			1
	URI	GET /application/customers/{customerId}/fleets/{fleetId}/loraStations/{loraStationId}/statistics/numeric			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	loraStationId	integer	✓	LORA station identifier	
	temporalUnit	string	✓	{DAY, HOUR, MONTH, YEAR}	
	metricNames	string		A comma separated list of metric from this set : It is extracted from the LoraStationStatisticsDto fields (numeric fields). Groups can be used too (example: @ram, @cpu) { abortCrash, abortReboot, cpuAvg, cpuHysteresis, cpuMax, cpuMin, cpuThreshold, extraDiskHysteresis, extraDiskThreshold, extraDiskUsed, gpsLockRatio, gpsSatellitesNumber, gsmAvgRssi, gsmMaxRssi, gsmMinRssi, gsmRssiHysteresis, gsmRssiThreshold, ramAvg,	

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				<pre>ramHysteresis, ramMax, ramMin, ramThreshold, startNumber, supplyPowerMilliVolts, systemDiskHysteresis, systemDiskThreshold, systemDiskUsed, temperatureAvg, temperatureHysteresis, temperatureMax, temperatureMin, temperatureThreshold, userDiskHysteresis, userDiskThreshold, userDiskUsed }</pre>
	page	integer		page number
	pageSize	integer		page size value
	startDate	integer	✓	The start date of the period
	endDate	integer	✓	The end date of the period
	fields	string		List of DTO fields to display
Header	Name	Value		
	Authorization	Bearer <token>		
	Accept	application/vnd.kerlink.iot-v1+json		
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
Body	Status	Value		
	200	PaginatedDto<LoraStationNumericStatisticsDto>		
	4xx, 5xx	ErrorDto		

2.17.10.2 Getting the term statistics of a LORA station

This web service retrieves the term statistics of a Lora station.

Since

1.1.12

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer
- The equipment belongs to the fleet

Request					
Signature	Method	getLoraStationTermStatistics			1
	URI	GET /application/customers/{customerId}/fleets/{fleetId}/loraStations/{loraStationId}/statistics/term			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	loraStationId	integer	✓	LORA station identifier	
	temporalUnit	string	✓	A value from this set : {DAY, HOUR, MONTH, YEAR}	
	metricName	string	✓	A value from this set : { bootCause, doorState, gsmServingCell, gpsStatus, supplyPowerSource }	
	page	integer		page number	
	pageSize	integer		page size value	
	startDate	integer	✓	The start date of the period	
	endDate	integer	✓	The end date of the period	
fields	string		List of DTO fields to display		
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					

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Header	Name	Value
		Content-Type
Body	Status	Value
	200	PaginatedDto<LoraStationTermStatisticsDto>
	4xx, 5xx	ErrorDto

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2.17.10.3 Getting the last LORA station statistics

This web service retrieves the last statistics of a Lora station.

Since
1.1.12

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer
- The equipment belongs to the fleet

Request					
Signature	Method	getLastLoraStationStatistics			i
	URI	GET /application/customers/{customerId}/fleets/{fleetId}/loraStations/{loraStationId}/statistics/last			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	loraStationId	integer	✓	LORA station identifier	
	fields	string		List of DTO fields to display	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	LoraStationStatisticsDto			
	4xx, 5xx	ErrorDto			

2.17.11 *Task controller*

Asynchronous tasks are built and stored when an asynchronous web service is called. It is possible to retrieve the informations of these tasks with the following web services.

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2.17.11.1 Getting a task

This web service allows to retrieve a task.

Since
1.1.12

If the task status is OK, the header "Location" contains the uri that will provide the task result.

If the parameter `redirect` is set to true (default), the response status is 303 See other otherwise response status is 200 OK and the response body is the TaskDto.

Security access

The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN).

Request					
Signature	Method	getTask			1
	URI	GET /application/tasks/{taskId}			
Parameters	Name	Type	Mandatory	Description	
	taskId	integer	✓	Task identifier	
	redirect	boolean		If true the response status is 303 else 200. Default is true.	
	fields	string		List of fields to display	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Location	Content location uri (if the task status is OK)			
Body	Status	Value			
	200 or 303	TaskDto or a the contextual DTO			
	4xx, 5xx	ErrorDto			

2.17.11.2 Getting a list of tasks

This web service retrieves a list of tasks matching the parameters.

Since
1.1.12

Security access

The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)

Request					
Signature	Method	getTasks			1
	URI	GET /application/tasks			
Parameters	Name	Type	Mandatory	Description	
	startDate	integer		The start date of the period	
	endDate	integer		The end date of the period	
	eui	string		The equipment EUI	
	criteria	string[][]		A comma separated list of status key=value A logical OR operation is used between the members. ex: criteria=customerId=10, fleetId=78 =>(customerId=10) OR (fleetId=78)	
	status	string[]		A comma separated list of status {PENDING, OK, KO} A logical OR operation is used between the members. ex: status=PENDING, OK =>(status=PENDING) OR (status=OK)	
action	string[]		A comma separated list of action { FILE_EXCHANGE_ABORT, FILE_EXCHANGE_EXECUTE, GET_CONFIGURATION, GET_CONFIGURATIONS, GET_CONTROLS, GET_LAN_MODULES GET_STATISTICS, GET_VALUES, GET_VERSIONS, MANAGEMENT_EXECUTE, MANAGEMENT_GET_VALUES, SET_CONFIGURATION, SET_CONTROLS, SET_VALUES, SPECIFIC_COMMAND_ABORT, SPECIFIC_COMMAND_EXECUTE, SPECTRUM_ANALYSIS_ABORT,		

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				<pre>SPECTRUM_ANALYSIS_EXECUTE, UPDATE_ABORT, UPDATE_EXECUTE, } Example: action= SPECTRUM_ANALYSIS_EXECUTE, GET_VERSION =>(action= SPECTRUM_ANALYSIS_EXECUTE) OR (action=GET_VERSION)</pre>
	taskIds	string[]		A comma separated list of task identifiers
	fields	string		List of fields to display
	page	integer		page number
	pageSize	integer		page size value
Header	Name	Value		
	Authorization	Bearer <token>		
	Accept	application/vnd.kerlink.iot-v1+json		
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
Body	Status	Value		
	200	PaginatedDto<TaskDto>		
	4xx, 5xx	ErrorDto		


2.17.11.3 Getting the messages of a task

This web service allows to retrieve the messages of a task.
Although it returns a paginatedDto, this pagination functionalities are not available.
Therefore all the results are returned within the same page.

Since
1.1.12

Security access

The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)

Request					
Signature	Method	getTaskMessages			
	URI	GET /application/tasks/{taskId}/messages			
Parameters	Name	Type	Mandatory	Description	
	taskId	integer	✓	Task identifier	
	redirect	boolean		If true the response status is 303 else 200. Default is true.	
	fields	string		List of fields to display	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto<TaskMessageDto>			
	4xx, 5xx	ErrorDto			

2.18 Radio Network Controller (RNC)

The Radio Network Controller is the parent of all the RNC controllers. It contains the web services that manage the modems, the spectrum analysis, the radio configuration and the modem statistics.

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2.18.1 Lora Station Modem controller

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2.18.1.1 Getting the statistics of LORA station modem

This web service retrieves the statistics of a LORA station modem.

Since

1.1.12

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The fleet belongs to the customer
- The equipment belongs to the fleet

Request					
Signature	Method	getModemStatistics			1
	URI	GET /application/customers/{customerId}/fleets/{fleetId}/loraStations/{loraStationId}/modems/{serialNumber}/statistics			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	loraStationId	integer	✓	LORA station identifier	
	serialNumber	string	✓	Modem serial number	
	startDate	string	✓	Start date (EPOCH ms)	
	endDate	string	✓	End date (EPOCH ms)	
	page	integer		page number	
pageSize	integer		page size value		
fields	string		List of fields to retrieve		
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto<LoraStationModemStatisticDto>			
	4xx, 5xx	ErrorDto			

2.19 LoRa Network Server LNS

The LoRa Network Server is the parent of all the LNS controllers.
It contains the web services that manage the clusters, the endpoints and the equipments.

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2.19.1 Group controller

This controller manages the web services related to a customer

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2.19.1.1 Getting the customer last LNS events counters

This web service allows to retrieve the last events counters attached to all the LNS equipments and clusters belonging to a customer.

Since
1.1.12

Security access

The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)

Request					
Signature	Method	getCustomerLnsLastEventsCounters			1
	URI	GET /application/customers/{customerId}/lnsEvents/last/counters			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	FleetLastEventCounterDto			
	4xx, 5xx	ErrorDto			

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2.19.2 Cluster controller

This controller defines the web services that manage the clusters.

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2.19.2.1 Creating a new cluster

This web service allows to create a new cluster.
The cluster is not attached to any customer.

Since
1.1.12

Security access

The connected user is ADMIN

Request					
Signature	Method	createCluster			3
	URI	POST /application/clusters			
Parameters	Name	Type	Mandatory	Description	
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Authorization	Bearer <token>			
Body	clusterDto	ClusterDto			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Location	/application/clusters/{clusterId}			
Body	Status	Value			
	201	Created			
	4xx, 5xx	ErrorDto			

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2.19.2.2 Creating a new customer cluster

This web service allows to create a new cluster.

Since
1.1.12

Security access

The connected user is ADMIN

Request					
Signature	Method	createCustomerCluster			3
	URI	POST /application/customers/{customerId}/clusters			
Parameters	Name	Type	Mandatory	Description	
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Authorization	Bearer <token>			
Body	clusterDto	ClusterDto			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Location	/application/clusters/{clusterId}			
Body	Status	Value			
	201	Created			
	4xx, 5xx	ErrorDto			

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2.19.2.3 Getting a cluster

This web service allows to get a cluster.

Since
1.1.12

Security access

The connected user is ADMIN

Request					
Signature	Method	getCluster			3
	URI	GET /application/clusters/{clusterId}			
Parameters	Name	Type	Mandatory	Description	
	clusterId	integer	✓	Cluster identifier	
	fields	string		List of fields to display	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	ClusterDto			
	4xx, 5xx	ErrorDto			

2.19.2.4 Patching a cluster

This web service allows to update a cluster.

Since
1.1.12

Security access

The connected user is ADMIN

Request					
Signature	Method	patchCluster			3
	URI	PATCH /application/clusters/{clusterId}			
Parameters	Name	Type	Mandatory	Description	
	clusterId	integer	✓	Cluster identifier	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Body	clusterDto	ClusterDto			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	204	No content			
	4xx, 5xx	ErrorDto			

2.19.2.5 Deleting a cluster

This web service allows to delete a cluster.

Since
1.1.12

Security access

The connected user is SUPER_ADMIN

Request					
Signature	Method	deleteCluster			4
	URI	DELETE /application/clusters/{clusterId}			
Parameters	Name	Type	Mandatory	Description	
	clusterId	integer	✓	Cluster identifier	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	204	No content			
	4xx, 5xx	ErrorDto			

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2.19.2.6 Getting a customer cluster

This web service allows to get a customer cluster.

Since
1.1.12

Security access

The connected user is READER

Request					
Signature	Method	getCustomerCluster			1
	URI	GET /application/customers/{customerId}/clusters/{clusterId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	clusterId	integer	✓	Cluster identifier	
	fields	string		List of fields to display	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	ClusterDto			
	4xx, 5xx	ErrorDto			

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2.19.2.7 Patching a customer cluster

This web service allows to patch a cluster belonging to a customer.

Since

1.1.12

Security access

The connected user is at least ADMIN

Rules

If the customer has a limited number of endpoints, then this limit cannot be exceeded.

Request					
Signature	Method	patchCustomerCluster			5
	URI	PATCH /application/customers/{customerId}/clusters/{clusterId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	clusterId	integer	✓	Cluster identifier	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Body	clusterDto	ClusterDto			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	204	No content			
	4xx, 5xx	ErrorDto			

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2.19.2.8 Deleting a customer cluster

This web service allows to delete a cluster that belongs to a customer.

Since
1.1.12

Security access

The connected user is USER

Request					
Signature	Method	deleteCustomerCluster			3
	URI	DELETE /application/customers/{customerId}/clusters/{clusterId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	clusterId	integer	✓	Cluster identifier	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	204	No content			
	4xx, 5xx	ErrorDto			

2.19.2.9 Getting the clusters of a customer

This web service allows to get the list of cluster belonging to a customer.

Since
1.1.12

Security access

The connected user is READER.

Request					
Signature	Method	getCustomerClusters			1
	URI	GET /application/customers/{customerId}/clusters			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fields	integer		List of fields to display	
	page	integer		page number	
	pageSize	integer		page size value	
	sort	string		sort value	
	search	string		search condition	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto<ClusterDto>			
	4xx, 5xx	ErrorDto			

2.19.2.1 Getting the not sent RX messages of a cluster

This web service allows a customer to get a cluster RX messages for which an error occurred during the push process.

Although it returns a paginatedDto, this web service is not paginated. All the results are returned within the same page.

Since

1.1.12

Security access

The connected user is USER.

Rules

A SUPER_ADMIN user cannot access to this web service.

Request				
Signature	Method	getClusterUnsentRxMessages		2
	URI	GET /application/customers/{customerId}/clusters/{clusterId}/unsentRxMessages		
Parameters	Name	Type	Mandatory	Description
	customerId	integer	✓	Customer identifier
	clusterId	integer	✓	Cluster identifier
	count	integer		Number of unsent RX messages, default to 10
	fields	string		List of fields to display
Header	Name	Value		
	Authorization	Bearer <token>		
	Accept	application/vnd.kerlink.iot-v1+json		
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
Body	Status	Value		
	200	PaginatedDto<UnsentRxMessageDto>		
	4xx, 5xx	ErrorDto		

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2.19.2.2 Marking an unsent RX message as read

This web service allows to mark an unsent RX message as read. This will allow to purge the message automatically.

Since
1.1.12

Security access

The connected user is USER.

Rules

A SUPER_ADMIN user cannot access to this web service.

Request					
Signature	Method	markRxUnsentMessageAsRead			2
	URI	PATCH /application/customers/{customerId}/clusters/{clusterId}/unsentRxMessages/{rxUnsentMessageId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	clusterId	integer	✓	Cluster identifier	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	204				
	4xx, 5xx	ErrorDto			

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2.19.2.3 Getting the cluster last events

This web service allows to retrieve the last events of a cluster. The events concern all the endpoints of this cluster. The field `objectEui` allows to identify each endpoint. An event can be an alarm or a notification or both, depends on its value.

Since
1.1.12

Security access

The connected user can manage the cluster or he is SUPER_ADMIN

Request					
Signature	Method	getClusterLastEvents			1
	URI	GET /application/customers/{customerId}/clusters/{clusterId}/events/last			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	clusterId	integer	✓	Cluster identifier	
	page	integer		Page number	
	pageSize	integer		Page size value	
	startDate	integer		The start date of the period	
	endDate	integer		The end date of the period	
	fields	string		List of DTO fields to display	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto<LnsLastEventDto>			
	4xx, 5xx	ErrorDto			


2.19.2.4 Getting the cluster last events counters

This web service allows to retrieve the last events counters of a cluster. The events concern all the endpoints of this cluster. The field `objectEui` allows to identify each endpoint. An event can be an alarm or a notification or both, depends on its value.

Since
1.1.12

Security access

The connected user can manage the cluster or he is SUPER_ADMIN

Request					
Signature	Method	getClusterLastEventsCounters			
	URI	GET /application/customers/{customerId}/clusters/{clusterId}/events/last/counters			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	clusterId	integer	✓	Cluster identifier	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	ClusterLastEventCounterDto			
	4xx, 5xx	ErrorDto			

2.19.3 Endpoint controller

This controller defines the web services that manage the endpoints.

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2.19.3.1 Creating a new cluster endpoint

This web service allows to create a new endpoint belonging to a cluster.

Since
1.1.12

Security access

- The connected user is USER
- The cluster belongs to the customer

- If the customer has a limited number of endpoints, then this limit cannot be exceeded.

Request					
Signature	Method	createClusterEndpoint			2
	URI	PUT /application/customers/{customerId}/clusters/{clusterId}/endpoints			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	clusterId	integer	✓	Cluster identifier	
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Authorization	Bearer <token>			
Body	endpointDto	EndpointDto			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	201	Created			
	4xx, 5xx	ErrorDto			

2.19.3.2 Getting a cluster endpoint

This web service allows to get a cluster endpoint.

Since
1.1.12

Security access

- The connected user is READER
- The cluster belongs to the customer
- The endpoint belongs to the cluster

Request					
Signature	Method	getClusterEndPoint			3
	URI	GET /application/customers/{customerId}/clusters/{clusterId}/endpoints/{endpointId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	clusterId	integer	✓	Cluster identifier	
	endpointId	integer	✓	Endpoint identifier	
Header	fields	string		List of fields to display	
	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	EndpointDto			
	4xx, 5xx	ErrorDto			

2.19.3.3 Updating an endpoint

This web service allows to update an endpoint belonging to a cluster.

Since
1.1.12

Security access

- The connected user is ADMIN
- The cluster belongs to the customer
- The endpoint belongs to the cluster

Rules

- If the customer has a limited number of endpoints, then this limit cannot be exceeded.

Request					
Signature	Method	updateClusterEndpoint			③
	URI	PATCH /application/customers/{customerId}/clusters/{clusterId}/endpoints/{endpointId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	clusterId	integer	✓	Cluster identifier	
	endpointId	integer	✓	Endpoint identifier	
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Authorization	Bearer <token>			
Body	endpointDto	EndpointDto			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	204	No Content			
	4xx, 5xx	ErrorDto			

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2.19.3.4 Deleting a cluster endpoint

This web service allows to delete an endpoint belonging to a cluster.

Since
1.1.12

Security access

- The connected user is at least ADMIN
- The cluster belongs to the customer
- The endpoint belongs to the cluster

Request					
Signature	Method	deleteClusterEndpoint			3
	URI	DELETE /application/customers/{customerId}/clusters/{clusterId}/endpoints/{endpointId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	clusterId	integer	✓	Cluster identifier	
	endpointId	integer	✓	Endpoint identifier	
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Authorization	Bearer <token>			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	204	No Content			
	4xx, 5xx	ErrorDto			

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2.19.3.5 Moving a cluster endpoint

This web service allows to move an endpoint from a cluster to another.

Since

1.1.12

Security access

- The connected user is SUPER_ADMIN
- The cluster belongs to the customer
- The endpoint belongs to the cluster
- The new cluster belongs to the customer

Rules

- If the customer has a limited number of endpoints, then this limit cannot be exceeded.

Request					
Signature	Method	moveEndpoint			4
	URI	PUT /application/customers/{customerId}/clusters/{clusterId}/endpoints/{endpointId}/{newClusterId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	clusterId	integer	✓	Cluster identifier	
	endpointId	integer	✓	Endpoint identifier	
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Authorization	Bearer <token>			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	204	No Content			
	4xx, 5xx	ErrorDto			

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2.19.3.6 Getting the positions of an endpoint

This web service allows to get the positions of an endpoint.

Since
1.1.12

Security access

- The connected user is READER
- The cluster belongs to the customer
- The endpoint belongs to the cluster

Request					
Signature	Method	getEndpointPositions			1
	URI	GET /application/customers/{customerId}/clusters/{clusterId}/endpoints/{endpointId}/positions			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	clusterId	integer	✓	Cluster identifier	
	endpointId	integer	✓	Endpoint identifier	
	fields	integer		List of fields to display	
	page	integer		page number	
	pageSize	integer		page size value	
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Authorization	Bearer <token>			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto<EndpointPositionDto>			
	4xx, 5xx	ErrorDto			

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2.19.3.7 Getting the LnsEquipments of an endpoint

This web service allows to get the LNS equipments who manage or have managed an endpoint.

Since
1.1.12

Security access

- The connected user is READER
- The cluster belongs to the customer
- The endpoint belongs to the cluster

Request					
Signature	Method	getEndpointLnsEquipments			1
	URI	GET /application/customers/{customerId}/clusters/{clusterId}/endpoints/{endpointId}/LnsEquipments			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	clusterId	integer	✓	Cluster identifier	
	endpointId	integer	✓	Endpoint identifier	
	fields	integer		List of fields to display	
	startDate	integer	✓	The start date of the period	
	endDate	integer	✓	The end date of the period	
	page	integer		page number	
	pageSize	integer		page size value	
sort	string	✓	sort value : {-lastDate, +lastDate} default is -lastDate		
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Authorization	Bearer <token>			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto<LnsEquipmentWhichSawEndpointDto>			
	4xx, 5xx	ErrorDto			

2.19.3.8 Creating a list of endpoints for a cluster

This web service allows to create a list of endpoints belonging to a cluster.

Since
1.1.12

Security access

- The connected user is USER
- The cluster belongs to the customer

Rules

- If the customer has a limited number of endpoints, then this limit cannot be exceeded.

Request					
Signature	Method	createClusterEndpoints			③
	URI	POST /application/customers/{customerId}/clusters/{clusterId}/endpoints/bulk			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	clusterId	integer	✓	Cluster identifier	
	file	multipart/ form-data	✓	The CSV file wich contains the endpoints.	
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Authorization	Bearer <token>			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	201	Created			
	4xx, 5xx	ErrorDto			

2.19.3.9 Getting the list of endpoints

This web service allows to get the list of endpoints.

Since
1.1.12

Security access

The connected user is USER.

Request					
Signature	Method	getEndpoints			1
	URI	GET /application/endpoints			
Parameters	Name	Type	Mandatory	Description	
	fields	integer		List of fields to display	
	page	integer		page number	
	pageSize	integer		page size value	
	sort	string		sort value	
	search	string		search condition	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto<EndpointDto>			
	4xx, 5xx	ErrorDto			

2.19.3.10 Getting the list of endpoints of a cluster

This web service allows to get the list of endpoints of a cluster.

Since
1.1.12

Security access

- The connected user is ADMIN
- The cluster belongs to the customer

Request					
Signature	Method	getClusterEndpoints			3
	URI	GET /application/customers/{customerId}/clusters/{clusterId}/endpoints			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	clusterId	integer	✓	Cluster identifier	
	fields	integer		List of fields to display	
	page	integer		page number	
	pageSize	integer		page size value	
	sort	string		sort value	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto<EndpointDto>			
	4xx, 5xx	ErrorDto			

2.19.3.11 Getting the last events of an endpoint

This web service allows to retrieve the last events of one endpoint
A lastEvent can be an alarm or a notification.

Since
1.1.12

Security access

The connected user can manage the customer

Request					
Signature	Method	getEndpointLastEvents			1
	URI	GET /application/customers/{customerId}/clusters/{clusterId}/endpoints/{endpointId}/events/last			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	clusterId	integer	✓	Cluster identifier	
	endpointId	string	✓	Endpoint identifier (EUI)	
	fields	integer		List of fields to display	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto<LnsLastEventDto>			
	4xx, 5xx	ErrorDto			

2.19.3.12 Patching a last event of an endpoint

This web service allows to patch a event of an endpoint.

The main use case is for marking the event as read by setting the field `markAsRead` to `true`.

Since
1.1.12

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The cluster belongs to the customer
- The endpoint belongs to the cluster

Request					
Signature	Method	patchEndpointLastEvent			2
	URI	PATCH /application/customers/{customerId}/clusters/{clusterId}/endpoints/{endpointId}/events/last/{lastEventId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fleetId	integer	✓	Fleet identifier	
	equipmentId	integer	✓	Equipment identifier	
	lastEventId	integer	✓	LastEvent identifier	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Body	lastEventDto	LastEventDto			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	204	No Content			
	4xx, 5xx	ErrorDto			

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2.19.3.13 Getting the events of one endpoint

This web service allows to retrieve the events of one endpoint.

Since
1.1.12

Security access

The connected user can manage the customer

Request					
Signature	Method	getEndpointEvents			1
	URI	GET /application/customers/{customerId}/clusters/{clusterId}/endpoints/{endpointId}/events			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	clusterId	integer	✓	Cluster identifier	
	endpointId	string	✓	Endpoint identifier (EUI)	
	startDate	integer	✓	The start date of the period	
	endDate	integer	✓	The end date of the period	
	fields	integer		List of fields to display	
	page	integer		page number	
	pageSize	integer		page size value	
	sort	string		sort value	
search	string		search condition		
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto<LnsEventDto>			
	4xx, 5xx	ErrorDto			

2.19.3.14 Resetting the frame counter down of an endpoint

This web service allows to reset the frame counter down of an endpoint. It consists of setting the value of the field `fcntDown` to 0.

Since
1.1.12

Security access

- The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)
- The cluster belongs to the customer
- The endpoint belongs to the cluster

Request					
Signature	Method	resetEndpointFrameCounterDown			3
	URI	PUT /application/customers/{customerId}/clusters/{clusterId}/endpoints/{endpointId}/frameCounterDown			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	clusterId	integer	✓	Cluster identifier	
	endpointId	integer	✓	Endpoint identifier	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	204	No Content			
	4xx, 5xx	ErrorDto			

2.19.4 LnsEquipment controller

This controller defines the web services that manage the LNS equipments.
A LNS equipment is an equipment which is managed by the LNS side project.

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2.19.4.1 Creating a new LNS equipment

This web service allows to create a new LNS equipment.

Since
1.1.12

Security access

The connected user is ADMIN

Request					
Signature	Method	createLnsEquipment			3
	URI	PUT /application/customers/{customerId}/LnsEquipments			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Authorization	Bearer <token>			
Body	LnsEquipmentDto	LnsEquipmentDto			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Location	/application/customers/{customerId}/LnsEquipments/{LnsEquipmentId}			
Body	Status	Value			
	201	Created			
	4xx, 5xx	ErrorDto			

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2.19.4.2 Getting a LNS equipment

This web service allows to get a LNS equipment.

Since
1.1.12

Security access

The connected user is READER

Request					
Signature	Method	getLnsEquipment			1
	URI	GET /application/customers/{customerId}/lnsEquipments/{lnsEquipmentId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	lnsEquipmentId	string	✓	LNS equipment identifier	
	fields	string		List of fields to display	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	LnsEquipmentDto			
	4xx, 5xx	ErrorDto			

2.19.4.3 patching a LNS equipment

This web service allows to update a LNS equipment.

Since
1.1.12

Security access

The connected user is ADMIN

Rules

If the customer has a limited number of equipments, then this limit cannot be exceeded.

Request					
Signature	Method	patchLnsEquipment			3
	URI	PATCH /application/customers/{customerId}/LnsEquipments/{LnsEquipmentId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	LnsEquipmentId	string	✓	LNS equipment identifier	
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Authorization	Bearer <token>			
Body	InsEquipmentDto	LnsEquipmentDto			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	204	No Content			
	4xx, 5xx	ErrorDto			

2.19.4.4 Deleting a LNS equipment

This web service allows to delete a LNS equipment.

Since
1.1.12

Security access

The connected user is SUPER_ADMIN

Request					
Signature	Method	deleteLnsEquipment			4
	URI	DELETE /application/customers/{customerId}/LnsEquipments/{LnsEquipmentId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	LnsEquipmentId	string	✓	LNS equipment identifier	
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Authorization	Bearer <token>			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	204	No Content			
	4xx, 5xx	ErrorDto			

2.19.4.5 Getting the LNS equipments

This web service allows to get the list of LNS equipments.

Since
1.1.12

Security access

The connected user is READER.

Request					
Signature	Method	getLnsEquipments			i
	URI	GET /application/customers/{customerId}/lnsEquipments			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fields	integer		List of fields to display	
	page	integer		page number	
	pageSize	integer		page size value	
	sort	string		sort value	
	search	string		search condition	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto<LnsEquipmentDto>			
	4xx, 5xx	ErrorDto			

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2.19.4.6 Getting the LNS equipment last TX messages

This web service allows to get the last TX messages sent by a LNS equipment.

Since
1.1.12

Security access

- The connected user is READER
- The LNS equipment belongs to the customer

Request					
Signature	Method	getLnsEquipmentLastTxMessages			1
	URI	GET /application/customers/{customerId}/lnsEquipments/{lnsEquipmentId}/txMessages/last			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	lnsEquipmentId	string	✓	LNS equipment identifier	
	fields	integer		List of fields to display	
	count	integer		Number of TX messages, default to 10	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto<TxMessageDto>			
	4xx, 5xx	ErrorDto			

2.19.4.7 Getting the LNS equipment last RX messages

This web service allows to get the last RX messages received by a LNS equipment.

Since
1.1.12

Security access

- The connected user is READER
- The LNS equipment belongs to the customer

Request					
Signature	Method	getLnsEquipmentLastRxMessages			1
	URI	GET /application/customers/{customerId}/lnsEquipments/{lnsEquipmentId}/rxMessages/last			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	lnsEquipmentId	string	✓	LNS equipment identifier	
	fields	integer		List of fields to display	
	count	integer		Number of RX messages, default to 10	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto<RxMessageDto>			
	4xx, 5xx	ErrorDto			

2.19.4.8 Getting all LNS equipments last events

This web service allows to retrieve the last events of all the LNS equipments (equivalent of fleet).

An event can be an alarm or a notification or both, depends on its value.

Since
1.1.12

Security access

The connected user can manage the customer

Request					
Signature	Method	getLnsEquipmentsLastEvents			1
	URI	GET /application/customers/{customerId}/lmsEquipments/events/last			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	fields	integer		List of fields to display	
	page	integer		page number	
	pageSize	integer		page size value	
	sort	string		sort value	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto<LmsLastEventDto>			
	4xx, 5xx	ErrorDto			

2.19.4.9 Getting the events of one LNS equipment

This web service allows to retrieve the events of one LNS equipment.

Since
1.1.12

Security access

The connected user can manage the customer

Request					
Signature	Method	getLnsEquipmentEvents			1
	URI	GET /application/customers/{customerId}/LnsEquipments/{LnsEquipmentId}/events			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	LnsEquipmentId	string	✓	LNS equipment identifier (EUI)	
	startDate	integer	✓	The start date of the period	
	endDate	integer	✓	The end date of the period	
	fields	integer		List of fields to display	
	page	integer		page number	
	pageSize	integer		page size value	
	search	string		search condition	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto<LnsEventDto>			
	4xx, 5xx	ErrorDto			

2.19.4.10 Getting a LNS equipment last events

This web service allows to retrieve the last events of one LNS equipment.
A lastEvent can be an alarm or a notification.

Since
1.1.12

Security access

The connected user can manage the customer

Request					
Signature	Method	getLnsEquipmentLastEvents			1
	URI	GET /application/customers/{customerId}/LnsEquipments/{LnsEquipmentId}/events/last			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	LnsEquipmentId	string	✓	LNS equipment identifier (EUI)	
	fields	string		List of DTO fields to display	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto<LnsLastEventDto>			
	4xx, 5xx	ErrorDto			

2.19.4.11 Patching a last event of an LNS equipment

This web service allows to patch a event of a LNS equipment.
The main use case is for marking the event as read by setting the field `markAsRead` to `true`.

Since
1.1.12

Security access

The connected user can manage the customer (he belongs to the customer or he is SUPER_ADMIN)

Request					
Signature	Method	patchLnsEquipmentLastEvent			2
	URI	PATCH /application/customers/{customerId}/lnsEquipments/{lnsEquipmentId}/events/last/{lastEventId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	lnsEquipmentId	integer	✓	LNS equipment identifier	
	lastEventId	integer	✓	LastEvent identifier	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Body	lnsLastEventDto	LastEventDto			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	204	No Content			
	4xx, 5xx	ErrorDto			

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2.19.4.12 Getting the LNS equipments last events counters

This web service allows to retrieve the last events counters of all the LNS equipments.
It is the equivalent of the BSC getFleetLastEventsCounters.

Since
1.1.12

Security access

The connected user can manage the cluster or he is SUPER_ADMIN

Request					
Signature	Method	getLnsEquipmentsLastEventsCounters			
	URI	GET /application/customers/{customerId}/LnsEquipments/events/last/counters			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	LnsEquipmentsLastEventCountersDto			
	4xx, 5xx	ErrorDto			

2.19.5 LnsEquipment AES key controller

This controller defines the web services that manage the modems of an LNS equipment.

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2.19.5.1 Creating a new LNS equipment AES key

This web service allows to create a new AES key for a LNS equipment.

Since
1.1.12

Security access

The connected user is ADMIN

Request					
Signature	Method	createLnsEquipmentAesKey			3
	URI	POST /application/customers/{customerId}/LnsEquipments/{LnsEquipmentId}/aesKeys			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	LnsEquipmentId	integer	✓	LNS equipment identifier	
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Authorization	Bearer <token>			
Body	aesKeyDto	AesKeyDto			
Response					
Header	Name	Value			
	Location	/application/customers/{customerId}/LnsEquipments/{LnsEquipmentId}/aesKeys/{aesKeyId}			
Body	Status	Value			
	201	Created			
	4xx, 5xx	ErrorDto			

2.19.5.2 Deleting a LNS equipment AES key

This web service allows to delete an equipment AES key.

Since
1.1.12

Security access

The connected user is ADMIN

Request					
Signature	Method	deleteLnsEquipmentAesKey			3
	URI	DELETE /application/customers/{customerId}/LnsEquipments/{LnsEquipmentId}/aesKeys/{aesKeyId}			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	LnsEquipmentId	integer	✓	LNS equipment identifier	
	aesKeyId	string	✓	AES key identifier	
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Authorization	Bearer <token>			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	204	No content			
	4xx, 5xx	ErrorDto			

2.19.5.3 Getting the LNS equipment list of AES keys

This web service allows to get the list of the LNS equipment AES keys.

Since
1.1.12

Security access

The connected user is ADMIN.

Request					
Signature	Method	getLnsEquipmentAesKeys			ⓘ
	URI	GET /application/customers/{customerId}/LnsEquipments/{LnsEquipmentId}/aesKeys			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	LnsEquipmentId	integer	✓	LNS equipment identifier	
	fields	integer		List of fields to display	
	page	integer		page number	
	pageSize	integer		page size value	
	sort	string		sort value	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto<AesKeyDto>			
	4xx, 5xx	ErrorDto			

2.19.6 RX message controller

This controller defines the web services that manage the messages which are received by a LNS equipment, or an endpoint.

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2.19.6.1 Getting the endpoint RX messages

This web service allows to get the RX messages that are received by a LNS equipment and coming from this endpoint.

Since
1.1.12

Security access

- The connected user is READER
- The cluster belongs to the customer
- The endpoint belongs to the cluster

Request					
Signature	Method	getEndpointRxMessages			1
	URI	GET /application/customers/{customerId}/clusters/{clusterId}/endpoints/{endpointId}/rxMessages			
Parameters	Name	Type	Mandatory	Description	
	clusterId	integer	✓	Cluster identifier	
	customerId	integer	✓	Customer identifier	
	endpointId	string	✓	Endpoint identifier	
	fields	integer		List of fields to display	
	page	integer		page number	
	pageSize	integer		page size value	
	sort	string		sort value	
search	string		search condition		
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto<RxMessageDto>			
	4xx, 5xx	ErrorDto			

2.19.6.2 Getting an endpoint RX message

This web service allows to get one RX message that are received by an endpoint.

Since
1.1.12

Security access

- The connected user is READER
- The cluster belongs to the customer
- The endpoint belongs to the cluster

Request					
Signature	Method	getEndpointRxMessage			1
	URI	GET /application/customers/{customerId}/clusters/{clusterId}/endpoints/{endpointId}/rxMessages/{messageId}			
Parameters	Name	Type	Mandatory	Description	
	clusterId	integer	✓	Cluster identifier	
	customerId	integer	✓	Customer identifier	
	endpointId	string	✓	Endpoint identifier	
	messageId	string	✓	RX message identifier	
	fields	integer		List of fields to display	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	RxMessageDto			
	4xx, 5xx	ErrorDto			

2.19.7 TX message controller

This controller defines the web services that manage the messages which are transmitted from a LNS equipment, or an endpoint.

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2.19.7.1 Getting the endpoint TX messages

This web service allows to get the TX messages that are transmitted by a LNS equipment and received by this endpoint.

Since
1.1.12

Security access

- The connected user is READER
- The cluster belongs to the customer
- The endpoint belongs to the cluster

Request					
Signature	Method	getEndpointTxMessages			1
	URI	GET /application/customers/{customerId}/clusters/{clusterId}/endpoints/{endpointId}/txMessages			
Parameters	Name	Type	Mandatory	Description	
	clusterId	integer	✓	Cluster identifier	
	customerId	integer	✓	Customer identifier	
	endpointId	string	✓	Endpoint identifier	
	fields	integer		List of fields to display	
	page	integer		page number	
	pageSize	integer		page size value	
	sort	string		sort value	
search	string		search condition		
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	PaginatedDto<TxMessageDto>			
	4xx, 5xx	ErrorDto			

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2.19.7.2 Getting an endpoint TX message

This web service allows to get one TX message that are received by an endpoint.

Since
1.1.12

Security access

- The connected user is READER
- The cluster belongs to the customer
- The endpoint belongs to the cluster

Request					
Signature	Method	getEndpointTxMessage			1
	URI	GET /application/customers/{customerId}/clusters/{clusterId}/endpoints/{endpointId}/txMessages/{messageId}			
Parameters	Name	Type	Mandatory	Description	
	clusterId	integer	✓	Cluster identifier	
	customerId	integer	✓	Customer identifier	
	endpointId	string	✓	Endpoint identifier	
	messageId	integer	✓	TX message identifier	
	fields	integer		List of fields to display	
Header	Name	Value			
	Authorization	Bearer <token>			
	Accept	application/vnd.kerlink.iot-v1+json			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	200	TxMessageDto			
	4xx, 5xx	ErrorDto			

2.19.7.3 Sending an endpoint TX message

This web service allows to send a TX message to an endpoint.

Since
1.1.12

Security access

- The connected user is READER.
- The cluster belongs to the customer.
- The endpoint belongs to the cluster.

Rules

- If the field `fcntDown` is not provided and `cluster.decryptPayload` is true, the `fcntDown` value of the endpoint is used.
- If the field `keySessionId` is not provided and `cluster.decryptPayload` is true, the `appSKey` value of the endpoint is used.

Request					
Signature	Method	sendEndpointTxMessage			3
	URI	POST /application/customers/{customerId}/clusters/{clusterId}/endpoints/{endpointId}/txMessages			
Parameters	Name	Type	Mandatory	Description	
	customerId	integer	✓	Customer identifier	
	clusterId	integer	✓	Cluster identifier	
	endpointId	string	✓	Endpoint identifier	
Header	messageId	integer	✓	TX message identifier	
	Name	Value			
	Authorization	Bearer <token>			
Body	Accept	application/vnd.kerlink.iot-v1+json			
	txMessageDto	TxMessageDto			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
Body	Status	Value			
	201	Created			
	4xx, 5xx	ErrorDto			

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2.20 Location Based Service (LBS)

The LBS is a service that provide location of an endpoint.

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2.20.1 LBS Error Controller

2.20.1.1 Getting the LBS errors

This web service allows getting the errors which happened on the LBS.

Since

1.1.12

Security access

The connected user is ADMIN

Request				
Signature	Method	getLbsErrors		
	URI	GET /application/lbsErrors		
Parameters	Name	Type	Mandatory	Description
	Search	String		Search criteria
	fields	integer		List of fields to display
	page	integer		page number
	pageSize	integer		page size value
	sort	string		sort value
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Authorization	Bearer <token>		
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
Body	Status	Value		
	200	PaginatedDto<ErrorLbsDto>		
	4xx, 5xx	ErrorDto		

The only accepted search criteria is a filter on « timestamp ». Searched timestamp can be lt, gt or bet specified value(s).

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3. OSS PUSH API

The current chapter describes the web services to be implemented by the customer. The OSS server will send the following information to the pulling url defined when creating an endpoint cluster.

If the decryptPayload parameter of the cluster is set to false, the customer's front-end web service will support the decryption of the content of the message.

Kerlink guarantees to its customers that the data of the stations will not be lost. Messages from stations will be stored and pushed to the customer. If a http 200 status is returned during push, the message is deleted. Otherwise, the message remains in the storage space for the duration of its TTL (time to live). Each pushed message contains an additional attribute to indicate that there are still messages waiting.

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3.1 Join request

An endpoint asks to join. Note: joinAcceptFrame is the hexadecimal representation of the Join-Accept message to be returned to the device, composed of the MHDR, the Payload and the MIC.

Since
1.1.12

Request				
Signature	Method	joinRequest		
	URI	POST {pushurl}/joinrequest		
Parameters	Name	Type	Mandatory	Description
	devEui	string	✓	endPoint identifier
	appEui	string	✓	
	joinRequestFrame	string	✓	The hexadecimal representation of the Join request received from the device, composed of the MHDR, the Payload and the MIC.
	joinAcceptFrame	string	✓	The hexadecimal representation of the plaintext Join-Accept message without the MIC, formatted by the LoRa Network Server: MHDR, AppNonce (will be replaced), NetID, DevAddr, DLSettings, RxDelay and optionally CFList (26 or 58 characters).
	loraWanVersion	string		default value : "1.0"
Header	Name	Value		
	Authorization	Bearer <token>		
	Accept	application/vnd.kerlink.iot-v1+json		
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
Body	Status	Value		
	200	Join accepted - AcceptDto		
	403	Join rejected		
	4xx, 5xx	ErrorDto		

3.2 PushRxMessage

Sending a RX message to the customer. The cluster's msgDetailLevel property sets the granularity of the returned information. 3 levels are available:

- Payload: Returns only the userdata tag without motetx.
- Radio: Returns the userdata.
- Network: Returns userdata tag and gwrx.

Since
1.1.12

Request				
Signature	Method	pushRxMessage		
	URI	POST {pushurl}/rxmessage		
Parameters	Name	Type	Mandatory	Description
	unsentMessages	bool	✓	true if there are still unsent messages
	content	string	✓	
Header	Name	Value		
	Authorization	Bearer <token>		
	Accept	application/vnd.kerlink.iot-v1+json		
Body	rxMessageDto	UnsentRxMessageDto		
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
Body	Status	Value		
	201			
	4xx, 5xx	ErrorDto		

3.3 TXMessageStatus

Returns the different status of a TX message (Sent to the station).

Since
1.1.12

Request				
Signature	Method	txMessage		
	URI	POST {pullurl}/txmessage		
Parameters	Name	Type	Mandatory	Description
	msgId	integer	✓	true if there are still "pending" messages
	nbRetry	integer		
	txEvent	string	✓	{sent, ack, noack, error, timeout}
	txStatus	string	✓	{ok, ko, inprogress}
Header	Name	Value		
	Authorization	Bearer <token>		
	Accept	application/vnd.kerlink.iot-v1+json		
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
Body	Status	Value		
	200			
	4xx, 5xx	ErrorDto		

4. Annex A : Data Transfer Objects

A Data Transfer Object is used to send and receive an object representation in the request and response bodies.

The representation format is JSON. See the chapter Versioning for the exact syntax of the Content-Type.

The field `id` represent a surrogate key (technical unique key). It is an integer that identify the entity within the SGBDR and is therefore not provided by the client of the API.

4.1 Types

The types defined in the above arrays are not types used in a language, but generic types. For example a type integer means that the field is a mathematical integer but not a java type.

4.2 Data Transfer Objects changes between versions 1.1.12 and 2.0.5

Changes in red contribute to an API breaking

Dto	Change description
ClusterDto	customer field added tkmUrl, tkmUser and tkmPassword fields' description modified
CustomerDto	maxEquipments, maxEndpoints and maxUsers fields added
DetailedRXMessageDto	Dto removed
DetailedUserDataRXMessageDto	Dto removed
EndpointDto	List of values of the region field modified devAddr field's description modified
EquipmentDto	List of values of the region field modified
EquipmentControlDto	systemUptime field added
EquipmentSnmpLogDto	origine field renamed as origin
GatewayRxItemsDto	Dto removed
LnsEquipmentDto	List of values of the region field modified
LoraStationDto	connected field renamed as connection List of values of the region field modified Field stationId removed
MetaDto	Dto added
MetaFieldDto	Dto added
RxMessageStationsDto	fineTimestamp and fineTimestampStatus fields added

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TaskDto	callerPath field's description modified
UserDto	expirationDate and enabled fields added
WsDto	method, path, role, returnType, scope and since fields added

4.3 AcceptDto

Field	Type	Description
devEui	string	Endpoint identifier
joinAcceptFrame	string	The hexadecimal representation of the plaintext Join-Accept message
networkSessionKey	string	

4.4 ActionDto

Field	Type	Description
id	string	Action identifier
date	integer	Date of the action
webServiceName	string	Web service name
userLogin	string	User login
status	integer	Reponse HTTP status
duration	integer	Duration in ms
parameters	ActionParameter[]	Input and output parameters

4.5 ActionParameter

Field	Type	Description
direction	string	Direction {request, response}
location	string	Location {header, query, body, path}
key	string	Parameter key
value	string	Parameter value

4.6 AesKeyDto

Field	Type	Description
id	integer	Aes key identifier

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aesKey	string	Aes key value
rfch	string	Radio frequency channel
startValidityDate	integer	Start date of validity (EPOCH date in ms)
endValidityDate	integer	End date of validity (EPOCH date in ms)

4.7 ApplicationDto

Field	Type	Description
name	string	Application name
status	string	Status {OK, KO}
vendor	string	Application provider
description	string	Description
version	string	Version
date	integer	Build date (EPOCH date in ms)
components	ApplicationDto[]	List of components of the application

4.8 ApplicationSettingDto

Field	Type	Description
id	integer	identifier
category	string	A string used for grouping keys.
key	string	key
value	string	value corresponding to the key

4.9 CommandDto

Field	Type	Description
content	string	The command result

4.10 ClusterDto

Field	Type	Description
id	integer	Cluster identifier
groupId	integer	Group identifier (customer)
customer	CustomerDto	Customer
name	string	Cluster name

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decryptPayload	boolean	if true, payload will be decrypted
pushUrl	string	Url where the data will be pushed
pushUser	string	user credentials
pushPassword	string	password credentials
accessType	string	{ WEB_SOCKET, REST }
msgDetailLevel	string	{ PAYLOAD, RADIO, NETWORK }
geolocEnabled	boolean	
geolocAlgorithm	string[]	List of algorithms to use Exemples : RSSI, Kerlink, ...
tkmManagement	boolean	enabled tkm
tkmUrl	string	the url to use tkm services mandatory if tkmManagement is true
tkmUser	string	user credentials mandatory if tkmManagement is true
tkmPassword	string	password credentials mandatory if tkmManagement is true
lastEventCounters	LnsLastEventCounterDto[]	List of LastEvents counters

4.11 ClusterLastEventCounterDto

Field	Type	Description
id	integer	Cluster identifier
name	string	Cluster name
counters	LnsCounterDto[]	LNS counters

4.12 CustomerDto

Field	Type	Description
id	integer	identifier
name	string	name
logo	string	logo URL
maxEquipments	integer	maximum number of equipments attached to the customer

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maxEndpoints	integer	maximum number of endpoints attached to the customer
maxUsers	integer	maximum number of users attached to the customer

4.13 FleetLastEventCounterDto

Field	Type	Description
stations	StationsLastEventCounterListDto	
clusters	ClusterLastEventCounterDto []	

4.13.1 StationsLastEventCounterListDto

Field	Type	Description
counters	CounterDto[]	

4.13.2 ClusterLastEventCounterDto

Field	Type	Description
cluster	ClusterLastEventCounterListDto	

4.13.3 ClusterLastEventCounterListDto

Field	Type	Description
id	integer	
name	string	
counters	CounterDto[]	

4.13.4 CounterDto

Field	Type	Description
type	string	LNS last event counter
name	string	Last event name
count	integer	Number of not read last events of type

4.14 CustomerSettingDto

Field	Type	Description
id	integer	identifier
category	string	a string used for grouping keys
key	string	key

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value	string	value corresponding to the key
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Unicity : {customer, category, key}

4.15 DetailedMoteRXMessageDto

Field	Type	Description
freq	real	The transmission frequency in units of MHz
modu	string	{ LORA, FSK }
datr	string	data rate (example SF7BW125)
codr	string	ECC code rate
adr	boolean	True when adaptative data rate is enabled

4.16 EndpointDto

Field	Type	Description
devEui	string	64 bit end-device id, EUI-64 (unique)
groupId	integer	Group identifier (customer)
appEui	string	Global application identifier in IEEE EUI64 (mandatory if activation = OTAA)
devAddr	string	32 bit device address (non-unique) within the current network mandatory if activation = ABP
classType	string	{ A, B, C }
region	string	Endpoint region { AMERICAS_902_928, ASIA_915_928, CHINA_779_787, EUROPE_433_433, EUROPE_863_870 }
fcntDown	integer	Frequency count down messages
geolocation	string	{ MANUAL, COMPUTED, INHERITED }

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clusterId	integer	cluster identifier
profile	string	{ STATIC, WALKING, VEHICLE, RANDOM }
status	string	{ NEVER_SEEN, No packet has ever been received (no join, no data), JOINED A valid join request has been received and answered, JOIN_MIC_ERROR, JOIN_DEVNONCE_ERROR, MIC_ERROR, Last packet from mote had an invalid MIC signature FCOUNT_ERROR, Last packet from mote had an incoherent frame counter UPLINK_OK Mote is joined and at least a valid packet has been received }
longitude	real	Longitude in decimal degrees
latitude	real	Latitude in decimal degrees
altitude	real	meters above sea level
nwkSKey	string	AES 128 network session key
appSKey	string	AES 128 application session key
appKey	string	AES 128 application key
activation	string	{ OTAA, ABP }
rx1Delay	integer	delay between TX and RX1 window
rx2Sf	integer	RX2 spreading factor
rx2Freq	integer	RX2 frequency
rxWindows	string	{ RX1, RX2, AUTO }
lastTxMessageTimestamp	integer	last transmitted message timestamp (epoch unix)
lastRxMessageTimestamp	integer	last received message timestamp (epoch unix)

4.17 EndpointPositionDto

Field	Type	Description
devEui	string	64 bit end-device id, EUI-64 (unique)
timestamp	integer	EPOCH date in ms
coordinates	real[]	Double [longitude, latitude, altitude]
type	string	Value is « Point »
algorithm	string	Exemple : RSSI

4.18 EquipmentDto

Field	Type	Description
id	integer	Equipment identifier
eui	string	Extended Unique Identifier. Value from the 'EUI-64' number space managed by the IEEE. An 16 digit hexadecimal string value (in uppercase) Example : 7276FF00080200AE
name	string	Name
type	string	wirnet.station <type><(freq)> type { UNKNOWN, TYPE_169_OR_868, TYPE_LORA_MONO, TYPE_LORA_DUAL, TYPE_LORA_LOC } freq in MHz Example : wirnet.station TYPE_LORA_MONO(50)
ip	string	IP address
port	integer	Port
coordinates	Array[3]	Double [longitude, latitude, altitude]
Type	String	Value is « Point »
connection	boolean	connection status
door	string	Door status { OPEN, CLOSED }
gps	string	GPS status { LOCKED, UNLOCKED }

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bearer	string	network bearer value { GSM, ETHERNET, WLAN, UNKNOWN }
region	string	Equipment region { AMERICAS_902_928, ASIA_915_928, CHINA_779_787, EUROPE_433_433, EUROPE_863_870 }
maxTxPower	integer	maximum transmission power (dBm) min = 0, max = 30 dBm, default = 27dBm
allowGPSPosition	boolean	Authorizes the update of the GPS location default = true
networkMaxDelayUp	integer	Duration of the upstream paquet transfer to LNS (ms) min = 0 ms, max = 9999 ms, default = 350 ms
networkMaxDelayDown	integer	Duration of the downstream paquet transfer from LNS (ms) min = 0 ms, max = 9999 ms, default = 350 ms
visibility	string	Equipment visibility { PRIVATE, PUBLIC } Default : true
lastEvents	LastEventDto[]	List of last events
lastStatistics	LastStatisticDto[]	List of last statistics

4.19 EquipmentConnectionDto

Field	Type	Description
id	string	Connection identifier
networkBearer	string	Network bearer {GSM, ETHERNET, WLAN, UNKNOWN}
startDate	integer	The start date of the period (EPOCH date in ms)
endDate	integer	The end date of the period (EPOCH date in ms)
eui	string	Equipment EUI
ip	string	Equipment IP address
failCause	string	Failure cause
tx	integer	Accumulated bytes transmitted to station during the period
rx	integer	Accumulated bytes received from station during the period

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connected	boolean	true: connected, false: disconnected, null: never connected
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4.20 EquipmentControlDto

Field	Group	Type	Description
cpuCurrent	cpu	integer	CPU current value (%)
cpuAlarmState	cpu	string	CPU alarm state {ON, OFF}
cpuAlarmThreshold	cpu	integer	CPU alarm threshold [0..100]
cpuAlarmHysteresis	cpu	integer	CPU alarm hysteresis
diskSystemVolumeCurrent	diskSystem	integer	Disk system current value
diskSystemAlarmState	diskSystem	string	Disk system alarm state {ON, OFF}
diskSystemAlarmThreshold	diskSystem	integer	Disk system alarm threshold [0..100]
diskSystemAlarmHysteresis	diskSystem	integer	Disk system alarm hysteresis
diskUserVolumeCurrent	diskUser	integer	Disk user current value
diskUserAlarmState	diskUser	string	Disk user alarm state {ON, OFF}
diskUserAlarmThreshold	diskUser	integer	Disk user alarm threshold [0..100]
diskUserAlarmHysteresis	diskUser	integer	Disk user alarm hysteresis
doorStateCurrent	door	string	Door state {OPEN, CLOSED}
doorThreshold	door	integer	Door threshold (lux) [0..80000]
gpsStatusCurrent	gps	string	GPS state {LOCKED, UNLOCKED}
gpsThreshold	gps	integer	GPS threshold (s) [0..3600]
ramCurrent	ram	integer	RAM current value (%)
ramAlarmState	ram	string	RAM alarm state {ON, OFF}
ramAlarmThreshold	ram	integer	RAM alarm threshold
ramAlarmHysteresis	ram	integer	RAM alarm hysteresis
rsiCurrent	rsi	integer	RSSI current value
rsiAlarmState	rsi	string	RSSI alarm state {ON, OFF}
rsiAlarmThreshold	rsi	integer	RSSI alarm threshold [0..100]
rsiAlarmHysteresis	rsi	integer	RSSI alarm hysteresis
temperatureCurrent	temperature	integer	Temperature current value (°C)
temperatureAlarmState	temperature	string	Temperature alarm state {ON, OFF}
temperatureAlarmThreshold	temperature	integer	Temperature alarm threshold
temperatureAlarmHysteresis	temperature	integer	Temperature alarm hysteresis
systemUptime		integer	Elapsed time since the system is up (ms)

4.21 EquipmentEventDto

Field	Type	Description
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id	integer	identifer
eui	string	Equipment EUI
name	string	name
createTimeStamp	integer	Date of the event (EPOCH date in ms)
type	string	Event type { AUTOMATIC_SYSTEM_RESTITUTION, AUTOMATIC_SYSTEM_RESTITUTION_FACTORY, CPU_OFF, CPU_ON, DISK_SYSTEM_OFF, DISK_SYSTEM_ON, DISK_USER_OFF, DISK_USER_ON, DOOR_CLOSED, DOOR_OPEN, GPS_LOCKED, GPS_UNLOCKED, HELLO, POWER_LOST, RAM_OFF, RAM_ON, RESTART, RSSI_OFF, RSSI_ON, SHUTDOWN, START, TEMPERATURE_OFF, TEMPERATURE_ON }
port	integer	port
connected	boolean	connection status

4.22 EquipmentManagementDto

Field	Type	Description
addressType	string	The address type {UNKNOWN, IPV4, IPV6, IPV4Z, IPV6Z, DNS}
address	string	equipment IP address
managerPort	integer	equipment management port (supervision port)
managerCommunity	string	equipment manager community
agentPort	integer	equipment agent port

4.23 EquipmentSnmpLogDto

Field	Type	Description
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id	integer	identifier
eui	string	Equipment EUI
createTimeStamp	integer	creation date (EPOCH date in ms)
origin	string	Origin { FROM_EQUIPMENT, TO_EQUIPMENT }
content	string	log content
action	string	Task action : { FILE_EXCHANGE_EXECUTE, FILE_EXCHANGE_ABORT, SPECTRUM_ANALYSIS_EXECUTE, SPECTRUM_ANALYSIS_ABORT, UPDATE_EXECUTE, UPDATE_ABORT, SPECIFIC_COMMAND_EXECUTE, SPECIFIC_COMMAND_ABORT, MANAGEMENT_EXECUTE, MANAGEMENT_GET_VALUES, SET_CONFIGURATION, GET_CONFIGURATION, GET_CONFIGURATIONS, GET_STATISTICS, GET_VERSIONS, GET_VERSION, GET_VALUES, SET_VALUES, GET_CONTROLS, SET_CONTROLS, GET_LAN_MODULES }
transactionId	string	<wanesy key>.<task id>

4.24 EquipmentStateDto

Field	Type	Description
date	integer	Date of the state (EPOCH date in ms)
cpuMin	integer	minimum CPU value
cpuAvg	integer	average CPU value
cpuMax	integer	maximum CPU value
ramMin	integer	minimum RAM value
ramAvg	integer	average RAM value
ramMax	integer	maximum RAM value

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systemDiskUsed	integer	used space for system disk
userDiskUsed	integer	used space for user disk
extraDiskUsed	integer	used space for extra disk
temperatureMin	integer	minimum temperature value
temperatureAvg	integer	average temperature value
temperatureMax	integer	maximum temperature value
gsmRssiMin	integer	RSSI minimum
gsmRssiAvg	integer	RSSI average
gsmRssiMax	integer	RSSI maximum
doorStatus	string	door status {OPEN, CLOSED}
gpsStatus	string	GPS status {LOCKED, UNLOCKED}
gpsLockRatio	integer	GPS lock ratio
gpsSatellitesNumber	integer	Number of satellites for GPS
gpsLatitude	real	Latitude in decimal degrees
gpsLongitude	integer	Longitude in decimal degrees
gpsAltitude	integer	GPS altitude in meters
supplyPowerSource	string	supply power {ON, OFF}
supplyPowerMillivolts	integer	supply power in millivolts

4.25 EquipmentVersionDto

Field	Type	Description
lastSuccessQueryDate	integer	Query date (EPOCH date in ms)
eui	string	Equipment EUI
hash	string	Hash code
versions	VersionDto[]	List of VersionDto
queryReports	QueryReportDto[]	List of QueryReportDto

4.26 ErrorDto

Field	Type	Description
code	string	Message code
message	string	Error message
params	object[]	The array objects used to build the message

4.27 FleetDto

Field	Type	Description
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id	integer	identifier
customer	CustomerDto	The customer owner of this fleet
name	string	name

4.28 FleetEquipmentsStatisticDto

Field	Type	Description
metricName	string	Metric name
numericStatistics	list	List of numericStatisticDto

4.29 FleetLastEventCounterDto

Field	Type	Description
fleet	FleetDto	The Fleet (visible fields : name)
counters	LastEventCounterDto[]	list of LastEventCounterDto

4.30 FileDto

Field	Type	Description
directory	boolean	boolean indicator
name	string	File name
size	integer	File size
date	integer	Last modified date (EPOCH date in ms)

4.31 JwtDto

Field	Type	Description
token	string	Token value
tokenType	string	Token type {Bearer}
expiredDate	integer	Expiration date as an (EPOCH date in ms)

4.32 LastEventCounterDto

Field	Type	Description
id	integer	LastEventCounter identifier
fleet	FleetDto	The fleet

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type	string	LastEvent type { ALARM, NOTIFICATION }
name	string	LastEvent name
count	integer	Number of last events of the fleet of the type

4.33 LastEventDto

Field	Type	Description
id	integer	Last event identifier
equipment	EquipmentDto	The equipment
date	integer	Last event date (EPOCH date in ms)
domain	string	Functional domain this lastEvent come from { BSC, LNS }
type	string	Last event type { ALARM, NOTIFICATION }
name	string	Last event name (alarms in red, notifications in blue, both alarms and notifications in violet) { AUTOMATIC_SYSTEM_RESTITUTION, AUTOMATIC_SYSTEM_RESTITUTION_FACTORY, CONNECTION, CPU, DOOR, GPS, POWER_LOST, PREVIOUS_CONFIG_RESTITUTION, RAM, RESTART, RSSI, SHUTDOWN, START, SYSTEM_DISK, TEMPERATURE, USER_DISK }
value	string	Last event value
markedAsRead	boolean	Last event has been read (true)

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4.34 LastOperationDto

Field	Type	Description
id	integer	Last operation identifier
equipment	EquipmentDto	The equipment
date	integer	EPOCH date in ms
type	string	The operation type { FILE_EXCHANGE, GET_CONFIGURATION, GET_CONTROLS, GET_LAN_MODULES, GET_MANAGEMENT, GET_VALUES, GET_VERSIONS, SET_CONFIGURATION, SET_CONTROLS, SET_MANAGEMENT, SET_VALUES, SPECIFIC_COMMAND, SPECTRUM_ANALYSIS, UPDATE_FIRMWARE }
status	string	The operation status {PENDING, OK, KO, CANCELLED}
transactionId	string	The task transaction identifier

4.35 LastStatisticDto

Field	Type	Description
id	integer	Statistic identifier
equipment	EquipmentDto	The equipment
date	integer	EPOCH date in ms
name	string	{ ALTITUDE, CPU, EXTRA_DISK, GPS_LOCK_RATIO, GPS_SATELLITES_NUMBER, LATITUDE, LONGITUDE, RAM, RSSI, SUPPLY_POWER_MILLI_VOLT, SYSTEM_DISK, TEMPERATURE, USER_DISK }

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		}
min	real	Minimum value
max	real	Minimum value
average	real	Average value

4.36 LbsErrorDto

Field	Type	Description
timestamp	Int	Date at which the error occurred
component	String	The component which threw the error
message	String	The error message
severity	String	WARNING, ERROR or FATAL

4.37 LnsCounterDto

Field	Type	Description
type	string	LNS LastEvent type {ALARM, NOTIFICATION}
count	integer	Number of last Events

4.38 LnsEquipmentDto

Field	Type	Description
stationId	string	LNS equipment identifier (Extended Unique Identifier)
groupId	integer	Group identifier
longitude	real	LNS equipment longitude
latitude	real	LNS equipment latitude (decimal degrees)
altitude	real	LNS equipment altitude (decimal degrees)
region	string	LNS equipment region { AMERICAS_902_928, ASIA_915_928, CHINA_779_787, EUROPE_433_433, EUROPE_863_870 }
maxTxPower	integer	maximum transmission power (dBm) min = 0, max = 30 dBm, default = 27dBm
allowGPSPosition	boolean	Authorizes the update of the GPS location default = true
networkMaxDelayUp	integer	Duration of the upstream paquet transfer to LNS (ms)

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		min = 0 ms, max = 9999 ms, default = 350 ms
networkMaxDelayDown	integer	Duration of the downstream paquet transfer from LNS (ms) min = 0 ms, max = 9999 ms, default = 350 ms
visibility	string	Equipment visibility { PRIVATE, PUBLIC }

4.39 LnsEventDto

Field	Type	Description
id	integer	LNS event identifier
date	integer	Event date (EPOCH date in ms)
objectEui	string	The object Extended Unique Identifier. Object can be a LnsEquipment or an Endpoint.
type	string	Event type { ALARM, NOTIFICATION }
name	string	Event name { NEVER_SEEN, JOINED, JOIN_MIC_ERROR, JOIN_DEV_NONCE_ERROR, UPLINK_OK, FCOUNT_ERROR, MIC_ERROR, APP_NOT_EXIST, QUEUE, NET_ADDR, REQUEST_NOT_EXIST, CLUSTER_NOT_EXIST, MOTE_NOT_EXIST, APP_KEY, TX_TIMEOUT, TX_NO_ACK, TX_ERROR, RX_ERROR, FCOUNT_UPDATE, CNT_NOT_SYNC }
value	string	Last event value

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4.40 LnsEquipmentsLastEventCountersDto

Field	Type	Description
stations	StationsLastEventCounterListDto	

4.40.1 StationsLastEventCounterListDto

Field	Type	Description
counters	CounterDto[]	

4.40.2 CounterDto

Field	Type	Description
type	string	LNS last event counter
name	string	Last event name
count	integer	Number of not read last events of type

4.41 LnsEquipmentWhichSawEndpointDto

Field	Type	Description
lastDate	integer	EPOCH date in ms when the equipment "saw" the endpoint.
lnsEquipment	LnsEquipmentDto	The LNS equipment

4.42 LnsLastEventDto

Field	Type	Description
id	integer	LNS last event identifier
date	integer	Last event date (EPOCH date in ms)
objectEui	string	The object Extended Unique Identifier. Object can be a LnsEquipment or an Endpoint.
type	string	Last event type { ALARM, NOTIFICATION }
name	string	Last event name { NEVER_SEEN,

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		<pre> JOINED, JOIN_MIC_ERROR, JOIN_DEV_NONCE_ERROR, UPLINK_OK, FCOUNT_ERROR, MIC_ERROR, APP_NOT_EXIST, QUEUE, NET_ADDR, REQUEST_NOT_EXIST, CLUSTER_NOT_EXIST, MOTE_NOT_EXIST, APP_KEY, TX_TIMEOUT, TX_NO_ACK, TX_ERROR, RX_ERROR, FCOUNT_UPDATE, CNT_NOT_SYNC } </pre>
value	string	Last event value
read	boolean	Last event has been read (true)

4.43 LnsLastEventCounterDto

Field	Type	Description
InsEvent	LnsEventDto	LNS last event
count	integer	Number of LNS last event occurrences which are not marked as read

4.44 LoraStationDto

Field	Type	Description
id	integer	LoraStation identifier
eui	string	Extended Unique Identifier. Value from the 'EUI-64' number space managed by the IEEE
name	string	Name
type	string	Description of the type
ip	string	ip address
port	integer	ip port
connection	boolean	the connection status (null means never connected)
latitude	real	Latitude in decimal degrees
longitude	real	Longitude in decimal degrees
altitude	integer	Altitude in meters

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bearer	string	network bearer value { GSM, ETHERNET, WLAN, UNKNOWN }
region	string	Lora station region { AMERICAS_902_928, ASIA_915_928, CHINA_779_787, EUROPE_433_433, EUROPE_863_870 }
maxTxPower	integer	maximum transmission power (dBm) min = 0, max = 30 dBm, default = 27dBm
allowGPSPosition	boolean	Authorizes the update of the GPS location default = true
networkMaxDelayUp	integer	Duration of the upstream paquet transfer to LNS (ms) min = 0 ms, max = 9999 ms, default = 350 ms
networkMaxDelayDown	integer	Duration of the downstream paquet transfer from LNS (ms) min = 0 ms, max = 9999 ms, default = 350 ms
visibility	string	Lora station visibility { PRIVATE, PUBLIC }
lastEvents	LastEventDto[]	List of last events
lastStatistics	LastStatisticDto[]	List of last statistics

Background grey : fields inherited from EquipmentDto

4.45 LoraStationConfigurationDto

Field	Group	Type	Description
lastSuccessQueryDate		integer	Date of the last success query
eui		string	Equipment EUI
hash		string	Configuration hash code
rollbackTmoMn	deviceManagement	integer	
statsPeriod	deviceManagement	integer	
whitelist	deviceManagement	string	
configRadio	lan	string	Radio configuration (JSON)
powerThreshold	lan	integer	

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durationThreshold	lan	integer	
sourceAux	time	string	
periodResolution	time	string	{ PR16SEC, PR1MIN, PR17MIN, PR1HOUR, PR9HOUR, PR18HOUR, PR36HOUR }
ntp1	time	string	
ntp2	time	string	
ptpMaster	time	string	{TRUE, FALSE}
configVpn	vpn	string	VPN configuration (JSON)
wanInterfaceTypes	wan	WanInterfaceTypeDto	
apn	wan	string	
pinCode	wan	string	
login	wan	string	
password	wan	string	
dhcp	wan	string	{TRUE, FALSE}
defaultIp	wan	string	
defaultBroadcast	wan	string	
defaultGateway	wan	string	
ssid	wan	string	
mode	wan	string	{WEP, WPA}
passwordWlan	wan	string	
queryReports		QueryReportDto[]	

4.46 LoraStationModemDto

Field	Type	Description
serialNumber	string	Modem serial number
lanRadioType	string	{ TYPE_169_OR_868, TYPE_LORA_MONO, TYPE_LORA_DUAL, TYPE_LORA_LOC }
location	integer	Position of the modem pn the board
lanRadioHwVersion	string	Hardware version
lanRadioFrontRfHwVersion	string	Font radio frequency version
lanRadioSwVersion	string	Software version

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lanRadioAntennaNumber	integer	Number of antenna
lanRadioRfFrontInputPathNumber	integer	Number of input radio path
lanRadioCentralFrequency	integer	Central frequency in MHz
lanRadioRfPathNumber	integer	Number of radio path
lanRadioPathWidth	integer	Width of radio path in KHz
lanRadioMinTxFrequency	integer	Min frequency on tx path
lanRadioMaxTxFrequency	integer	Max frequency on tx path
lanRadioMinRxFrequency	integer	Min frequency on rx path
lanRadioMaxRxFrequency	integer	Max frequency on rx path

4.47 LoraStationModemStatisticDto

Field	Type	Description
date	integer	Statistics date (EPOCH date in ms)
scanData	Map<Long, Map<String, Integer>>	Statistics data
interferers	ModemStatisticInterferDto[]	List of interferers

4.48 LoraStationNumericStatisticsDto

Field	Type	Description
eui	string	Lora station EUI
timestamp	integer	Date of the statistic (EPOCH date in ms)
data	Map<String, Double>	Statistic data

4.49 LoraStationStatisticsDto

Field	Group	Type	Description
fleetId		integer	Fleet identifier
instant		integer	The instant of the statistics (format : YYYYMMDDHH)
instantInTimestamp		integer	instant in timestamp format (EPOCH date in ms)
rollTimestamp		integer	roll timestamp (EPOCH date in ms)
bootCause		string	Boot cause
abortCrash		integer	Abort crash
abortReboot		integer	Abort reboot
startNumber		integer	Start number
ramMin	ram	integer	Minimum RAM utilization (%)

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ramAvg	ram	integer	Average RAM utilization (%)
ramMax	ram	integer	Maximum RAM utilization (%)
ramThreshold	ram	integer	RAM alarm threshold (%)
ramHysteresis	ram	integer	RAM alarm hysteresis
cpuMin	cpu	integer	Minimum CPU utilization (%)
cpuAvg	cpu	integer	Average CPU utilization (%)
cpuMax	cpu	integer	Maximum CPU utilization (%)
cpuThreshold	cpu	integer	CPU alarm threshold (%)
cpuHysteresis	cpu	integer	CPU alarm hysteresis
systemDiskUsed	system	integer	System disk utilization (%)
systemDiskThreshold	system	integer	System disk threshold (%)
systemDiskHysteresis	system	integer	System disk hysteresis
userDiskUsed	user	integer	User disk utilization (%)
userDiskThreshold	user	integer	User disk threshold (%)
userDiskHysteresis	user	integer	User disk hysteresis
extraDiskUsed	extra	integer	Extra disk utilization (%)
extraDiskThreshold	extra	integer	Extra disk threshold (%)
extraDiskHysteresis	extra	integer	Extra disk hysteresis
gsmMinRssi	gsm	integer	Minimum GSM RSSI (db)
gsmAvgRssi	gsm	integer	Average GSM RSSI (db)
gsmMaxRssi	gsm	integer	Maximum GSM RSSI (db)
gsmRssiThreshold	gsm	integer	GSM RSSI alarm threshold (db)
gsmRssiHysteresis	gsm	integer	GSM RSSI alarm hysteresis
gsmServingCell	gsm	string	GSM ser
temperatureMin	tempe rature	integer	Minimum temperature utilization (%)
temperatureAvg	tempe rature	integer	Average temperature utilization (%)
temperatureMax	tempe rature	integer	Maximum temperature utilization (%)
temperatureThreshold	tempe rature	integer	temperature alarm threshold (%)
temperatureHysteresis	tempe rature	integer	temperature alarm hysteresis
gpsStatus	gps	string	GPS status
gpsLockRatio	gps	integer	GPS lock ratio
gpsLatitude	gps	real	GPS latitude (decimal degrees)
gpsLongitude	gps	integer	GPS longitude (decimal degrees)
gpsAltitude	gps	integer	GPS altitude (meters)
gpsSatellitesNumber	gps	integer	Number of satellites
doorState	door	string	Door state {OPEN, CLOSED}

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doorLastOpen	door	integer	Door last open date (EPOCH date in ms)
doorLastClose	door	integer	Door last closed date (EPOCH date in ms)
supplyPowerSource	supply	string	Power source {MAIN, AUX}
supplyPowerMilliVolts	supply	integer	Power supply (mv)
modemStats		List<LoraStationModemStatisticsDto>	

4.50 LoraStationTermStatisticsDto

Field	Type	Description
eui	string	Lora station EUI
timestamp	integer	Date of the statistic (EPOCH date in ms)
data	Map<String, Double>	Statistic data

4.51 ModemStatisticInterferDto

Field	Type	Description
frequencyMin	integer	Interferer minimum frequency (Hz)
frequencyMax	integer	Interferer maximum frequency (Hz)
powerAvg	integer	Interferer average power (dBm)
powerMax	integer	Interferer maximum power (dBm)
dutyCycle	integer	Interferer duty cycle

4.52 MetaDto

Field	Type	Description
name	string	DTO name
fields	List<MetaFieldDto>	List of metaFields

4.53 MetaFieldDto

Field	Type	Description
name	string	Field name
group	string	Group name
type	string	Type {string, integer, real, boolean}

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description	string	Description
association	string	The type used in a collection (example List<string>, List<CustomerDto>)
mandatory	boolean	True for a mandatory field (a not null field)
authorized	boolean	True if the field can be provided in the request body
minLength	integer	Minimum length of the field value (example minLength=1 means that the field cannot be empty)
maxLength	integer	Maximum length of the field value
min	object	Minimum field value (example: 10, 20.4)
max	object	Maximum field value
set	object[]	Finite set of possible values for a field example ["A", "B", "C"]
regex	string[]	List of regex to apply to the field
defaultValue	object	Default value (example: 0, 2.1)

4.54 NumericStatisticDto

Field	Type	Description
min	integer	Minimum range value
max	integer	Maximum range value
value	integer	Statistic value

4.55 PaginatedDto

Field	Type	Description
page	integer	Page number [1..n]
nbPages	integer	Number of pages
pageSize	integer	The page size
count	integer	The number of elements per page
totalCount	integer	The total number of elements

4.56 QueryReportDto

Field	Type	Description
startInstant	integer	start date of period (format: YYYYMMDD)
endInstant	integer	end date of period (format: YYYYMMDD)
comparisonDone	boolean	true if comparison has been done, false otherwise

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4.57 RoleDto

Field	Type	Description
id	integer	role identifier
name	string	Role name. Predefined roles names are { READER, USER, ADMIN, SUPER_ADMIN }
roleType	string	Role type { READER, USER, ADMIN, SUPER_ADMIN }
level	integer	Role level { READER: [10,19], USER: [20,29], ADMIN: [30,39], SUPER_ADMIN: [40,49] }

4.58 RxMessageDto

Field	Type	Description
msgId	string	internal identifier
port	integer	frame port number
timestamp	integer	epoch unix
devAddr	string	32 bit device address (non-unique) within the current network
fcntUp	integer	frame counter upstream
fcntDown	integer	frame counter downstream
frequency	real	reception frequency
modulation	string	{ LORA, FSK }
bandwidth	integer	reception bandwidth (kHz)
sf	integer	spreading factor

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adr	string	True when adaptative data rate is enabled
codingRate	string	
devEui	string	64 bit end-device id, EUI-64 (unique)
payload	string	message content
encrypted	boolean	if true, message content is encrypted
keySessionId	string	Key session identifier
stations	RxMessageStationsDto[]	List of station RX messages

4.59 RxMessageStationsDto

Field	Type	Description
stationId	integer	LNS equipment identifier
timestamp	integer	RX message date (EPOCH date in ms)
fineTimestamp	integer	The Base 64 encoding of the encrypted precise time
fineTimestampStatus	string	timestamp status { NOT_FOUND, NO_KEYS, FAIL_DECRYPT, DECRYPTED }
rxPath	RxPathDto[]	List of RX paths

4.60 RxPathDto

Field	Type	Description
channel	integer	Channel
radioId	integer	Radio identifier
rsi	real	Received signal strength, in units of dBm.
snr	real	The signal to noise ratio, in units of dB.

4.61 TaskDto

Field	Type	Description
id	integer	Task identifier
status	string	Task status { PENDING,

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		OK, KO }
action	string	Task predefined action
callerPath	string	Path of the caller
eui	string	Equipment EUI
creationDate	integer	Creation date of the task (EPOCH date in ms)
sendParameters	string[][]	Sent parameters
receivedParameters	string[][]	Received parameters
criteria	string[][]	Map of criteria for retrieving tasks
message	string	Message for describing the task status
errorCode	integer	Error code
errorMessage	string	Error message

4.62 TaskMessageDto

Field	Type	Description
id	integer	Task message identifier
message	string	The text of the message
date	integer	Message date (EPOCH date in ms)
step	string	Step description { RECEIVED_FROM_APPLICATION, RECEIVED_FROM_EQUIPMENT, ROUTING_TO_EQUIPMENT, ROUTING_TO_APPLICATION, SEND_TO_EQUIPMENT }
location	string	Location within the step Exemples : Message sending to equipment, RouterService.routeToApplication()
next	boolean	True for executing next step, false otherwise

4.63 TxMessageDto

Field	Type	Description
msgId	string	internal message identifier
timestamp	integer	epoch unix
devEui	string	64 bit end-device id, EUI-64 (unique)
port	integer	Port number
payload	string	message content (base64)

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txEvent	string	{ SENT, ACK, NO_ACK, ERROR, TIMEOUT }
txStatus	string	current message status { OK, KO, IN_PROGRESS }
ack	boolean	if true acknowledge is requested
nbRetry	integer	retry number status
maxRetry	integer	max allowed retry
timeToLive	integer	maximum time to live
keySessionId	string	The identifier of the generated session keys NwkSKey and AppSKey
fcntDown	integer	frame counter downstream
historic	TxMessageHistoricDto[]	

4.64 TxMessageHistoricDto

Field	Type	Description
timestamp	integer	epoch unix
txStatus	string	{ SENT, ACK }

4.65 UnsentRxMessageDto

Field	Type	Description
devEui	string	Endpoint identifier
appEui	string	Global application identifier
devAddr	string	Network endpoint identifier
clusterId	integer	Cluster identifier
msgId	integer	Message identifier
fcntUp	integer	frame counter upstream
fcntDown	integer	frame counter downstream
token	real	Arbitrary value set by Gateway

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userdata	UnsentRxMessageUserDataDto	User data
motetx	DetailedMoteRXMessageDto	Endpoint RX message details
gwrx	UnsentRxMessageGatewayDto []	List of gateway Rx

4.66 UnsentRxMessageUserDataDto

Field	Type	Description
fport	integer	port
payload	string	content
maxretry	integer	max allowed retry
ttl	integer	Time to live
conf	boolean	If true message is confirmed

4.67 UnsentRxMessageGatewayDto

Field	Type	Description
eui	string	Extended Unique Identifier
ant	integer	Identifies the antenna, within the GW card. The value does not identify the antenna within the GW
tmms	integer	Approximate UTC time of receipt of the LoRa frame in the form of the number of milliseconds since the beginning of the first second of 1970
ftime	integer	The precise time of receipt, in units of nanoseconds.
etime	integer	The Base 64 encoding of the encrypted precise time of receipt. The encryption algorithm is AES-128. The un-encrypted value contains 16 octets. The final six contain the time since the most recent second boundary, in big endian ordering and in 5 units of nanoseconds/2 . The remaining ten octets are zero.
time	integer	Approximate UTC time of receipt of the LoRa frame. The precision is one microsecond. The format is ISO 8601 'compact' format
timefromgateway	boolean	True when the accompanying 'time' value is generated by the gateway
chan	integer	Concentrator "IF" channel on which the frame was

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		received
rfch	integer	A decimal integer representing an 8 bit field. The four more significant bits contain the identity of the radio board on which the frame was received. The four less significant bits are unused.
rssic	integer	The measured received signal strength in units of dBm
rssis	integer	The measured strength of the received LoRa signal in units of dBm . Never used if the "modu" component of containing "rxpk" object does not equal "LoRa".
rssid	integer	Standard deviation of the measured strength of the received LoRa signal in units of dBm (rssi) during the LoRa frame preamble. Never used if the "modu" component of containing "rxpk" object does not equal "LoRa"
lsnr	integer	The measured received signal to noise ratio in units of dB. Not used when modulation technique is FSK
foff	integer	The offset of the received signal centre frequency from the "freq" value of the containing "rxpk" object. The value is in units of Hertz. A positive value indicates that the measured signal is of higher frequency than the "rxpk"."freq" value
ft2d	integer	The correction that should be applied to the fine timestamp carried in the JSON object "etime". The corrected timestamp is the sum of "ft2d" and the decrypted "etime"
rfbsb	integer	The ratio of the energy of the full band signal to that of the sum of the sub band signals, expressed as a percentage
rs2s1	integer	The ratio of the entergy of the Sub-band 2 signal to the energy of the Sub-band 1 signal

4.68 UserDto

Field	Type	Description
id	integer	identifier
firstName	string	firstname
lastName	string	lastname
login	string	login

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password	string	password
email	string	email address
phone	string	phone number
avatar	string	avatar url
expirationDate	integer	expiration date (EPOCH date in ms). Default to <code>null</code> which means no limit
enabled	boolean	enabled means that the user can use the authenticated web services. Default to <code>true</code>

4.69 VersionDto

Field	Type	Description
index	integer	Table index number
description	string	Version number

4.70 WanInterfaceTypeDto

Field	Type	Description
index	Integer	Table index
wanInterfaceType	String	wan interface type { GSM, ETHERNET, LAN }

4.71 WsDto

Field	Type	Description
id	integer	identifier
name	string	web service name
method	string	HTTP method { GET, POST, PUT, DELETE, PATCH }
path	string	web service URI path
role	string	the role required to use the web service { READER, USER, ADMIN, SUPER_ADMIN }

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returnType	string	the Dto returned by the web service
scope	string	The scope defines the general access to the web service { PRIVATE, PUBLIC }
since	string	the oss version since the web service exists

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5. Annex B : Configuration file

The configuration file contains the application properties that can be set in order to define correctly your specific requirements. It also contains some framework specific properties that can be useful to tune.

Each property is a key/value pair formatted like this

<name>=<value>

A line starting by the character '#' is a comment line so it has no effect on the application behavior.

Category	Name	Description	Default value
SGBDR	spring.datasource.url	PostgreSQL url	
SGBDR	spring.datasource.username	PostgreSQL login	
SGBDR	spring.datasource.password	PostgreSQL password	
SGBDR	spring.datasource.driver-class-name	PostgreSQL driver	org.postgresql.Driver
SGBDR	spring.datasource.max-active	Maximum connections pool size	20
SGBDR	spring.datasource.initial-size	Initial connections pool size	5
SGBDR	spring.datasource.max-idle	Maximum idle connections in the pool	10
SGBDR	spring.datasource.min-idle	Minimum idle connections in the pool	1
SGBDR	spring.datasource.test-on-borrow		true
SGBDR	spring.datasource.validation-query		SELECT 1
JPA	spring.jpa.database-platform	JPA dialect	org.hibernate.dialect.PostgreSQLDialect
JPA	spring.jpa.show-sql	Shows the SQL queries	false
Hibernate	spring.jpa.hibernate.ddl-auto	none: nothing done concerning the schema	validate

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		<p>validate: validate the schema, makes no changes to the database</p> <p>update: update the schema</p> <p>create: ⚠ creates the schema, destroying previous data (do not use)</p> <p>create-drop: ⚠ drop the schema at the end of the session (do not use)</p>	
Security	jwt.secretKey	The JWT secret key (must be a strong string)	
Security	jwt.tokenTtl	Token Time To Live in seconds	64800
Server	server.address	Server name or IP address	
Server	server.port	Server port	8080
Server	server.servletPath	server path	
Application	page.size	Default page size	50
Application	page.size.max	Maximum number of elements per page	1000
Application	fields.group.prefix	Prefix for the group used with the <code>fields</code> parameter	@
Application	resource.relative.uri	<p>Defines if the built URI in the links and in the Location and Content-Location are :</p> <p>Relative : /application/customers</p> <p>Absolute : http://localhost:8080/application/customers</p>	true
RabbitMQ	spring.rabbitmq.host	RabbitMQ host name or IP address	
RabbitMQ	spring.rabbitmq.virtual-host	RabbitMQ virtual host name	
RabbitMQ	spring.rabbitmq.username	RabbitMQ virtual user	
RabbitMQ	spring.rabbitmq.password	RabbitMQ virtual password	
Wanesy	wanesy.client.key	Wanesy unique identifier	<i>Contact support for getting your identifier</i>
Wanesy	wanesy.server.baseurl	Wanesy server URL	
Wanesy	wanesy.client.task.ttl	Wanesy Time to live for tasks (day)	15

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Wanesy	wanesy.client.event.ttl	Wanesy Time to live for events (day)	15
Wanesy	wanesy.client.consumer.count	Number of consumers	4
Wanesy	spring.main.web-environment	Run the application in a web environment	true
LNS	lns.server.baseurl	LNS server URL	
LBS	lbs.server.baseurl	LBS server URL	
MULTIPART	spring.http.multipart.max-request-size	Multipart max request size	100 Mb
MULTIPART	spring.http.multipart.max-file-size	Multipart max file size Values can use the suffixed "MB" or "KB" to indicate a Megabyte or Kilobyte size	100 Mb
REPOSITORY	oss.to.repo	The URI used by OSS to communicate with the repository	file:/opt/repo
REPOSITORY	equipment.to.repo	The URI used by an equipment to communicate with the repository	http://<ip>:<port>/application/repo
REPOSITORY	spectrum.file.extension	Spectrum file extension	gzip
LOGGING	logging.level.root	Logging level for root package possible values are {DEBUG, INFO, WARN, ERROR, FATAL}	INFO
LOGGING	logging.level.fr.kerlink.iot	Logging level for fr.kerlink.iot package	INFO
LOGGING	logging.level.org.hibernate	Logging level for org.hibernate package	INFO
LOGGING	logging.level.org.springframework	Logging level for org.springframework package	INFO
LOGGING	logging.level.org.elasticsearch	Logging level for org.elasticsearch package	INFO
LOGGING	logging.pattern.console	Logging display pattern for console	%d{yyyy-MM-dd HH:mm:ss.SSS} %-5p %c:%L - %m%n
LOGGING	logging.file	File path to log format : /path	/opt/oss/logs/oss.log
LOGGING	logging.pattern.file	Logging display pattern for file	%d{yyyy-MM-dd HH:mm:ss.SSS} %-5p %c:%L - %m%n

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MAILING	spring.mail.default-encoding	Encoding	UTF-8
MAILING	spring.mail.host	host	
MAILING	spring.mail.port	port	
MAILING	spring.mail.username	user name	
MAILING	spring.mail.password	user password	
MAILING	spring.mail.protocol	protocol	smtps
ACTION	action.ttl	Time to live for actions in days	5

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6. Annex C : Error codes

When an error occurs the response body should contain an ErrorDto object which consists of a code and a message.

```
{
  "code": "RESOURCE_NOT_FOUND",
  "message": "Customer '10' not found.",
  "params": [
    "Customer",
    10
  ]
}
```

Figure 3 - Example of error sent in the response body

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6.1 Error code list

Generic messages

FIELD_INCORRECT = The field '{0}' is incorrect. Specification is : {1}.
 RESOURCE_ALREADY_EXISTS = {0} '{1}' already exists.
 RESOURCE_INCORRECT = The resource has a bad syntax. Error details : {0}
 RESOURCE_NOT_FOUND = {0} '{1}' not found.
 CONFIGURATION_INCORRECT = The configuration of '{0}' is incorrect.
 PARAMETER_INCORRECT = The parameter '{0}' is incorrect. Specification is : {1}
 PARAMETER_MISSING = The parameter '{0}' is missing.
 FIELD_INCORRECT = The field '{0}' is incorrect. Specification is : {1}
 MAPPING_INCORRECT = The mapping from resource '{0}' to '{1}' has failed.
 SECURITY_FORBIDDEN = User is forbidden to access to the web service. Check his roles.
 SECURITY_UNAUTHORIZED = An authorization is required. Bad user or/and password.
 URI_INCORRECT = The URI '{0}' is incorrect. Specification : {1}

Specific messages

CUSTOMER_MAXIMUM_EQUIPMENTS = The value of the field 'maxEquipments' ({0}) cannot be less than the actual number of equipments ({1}).
 CUSTOMER_MAXIMUM_EQUIPMENTS_REACHED = The customer '{0}' has reached its maximum number of equipments ({1}).
 CUSTOMER_MAXIMUM_ENDPOINTS = The value of the field 'maxEndpoints' ({0}) cannot be less than the actual number of endpoints ({1}).
 CUSTOMER_MAXIMUM_ENDPOINTS_REACHED = The customer '{0}' has reached its maximum number of endpoints ({1}).
 CUSTOMER_MAXIMUM_USERS = The value of the field 'maxUsers' ({0}) cannot be less than the actual number of users ({1}).
 CUSTOMER_MAXIMUM_USERS_REACHED = The customer '{0}' has reached its maximum number of users ({1}).
 FILE_TRANSFER_FAILED = Failed to transfer the file. Error message : {0}
 RESOURCE_INCORRECT_PROVIDED_FIELDS = The resource is incorrect. {0}. Specification is : {1}
 SECURITY_BAD_CREDENTIALS = Unknown user. Bad login or/and password.
 SECURITY_CUSTOMER_FLEET = The fleet '{0}' does not belong to the customer '{1}'.

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SECURITY_CUSTOMER_USER = The user '{0}' does not belong to the customer '{1}'.

SECURITY_DELETE_CUSTOMER = You cannot delete your own customer.

SECURITY_DELETE_ROLE = You cannot delete the role '{0}'.

SECURITY_FLEET_EQUIPMENT = The equipment '{0}' does not belong to the fleet '{1}'.

SECURITY_EQUIPMENT_LAST_EVENT = The lastEvent '{0}' does not belong to the equipment '{1}'.

SECURITY_FORBIDDEN_CUSTOMER = The user '{0}' cannot manage the customer '{1}'.

SECURITY_FORBIDDEN_FIELD = The field '{0}' cannot be managed with this role or this user.

SECURITY_FORBIDDEN_ROLE = The user '{0}' cannot have the role '{1}'.

SECURITY_FORBIDDEN_TASK = The user '{0}' cannot manage the task because it belongs to another customer.

SECURITY_BUILD_TOKEN = The token built has failed.

SECURITY_UPDATE_ROLE = You cannot update the role '{0}'.

SECURITY_USER_ROLE = The user '{0}' has not the role '{1}'.

SECURITY_USER_EXPIRED = The user '{0}' is expired since {1}.

SECURITY_USER_DISABLED = The user '{0}' is disabled.

SERVER_ERROR = Server error, details : {0}

SERVICE_UNAVAILABLE = Service unavailable '{0}'

TASK_KO = The task has failed, see error message for more details.

TASK_NOT_OK = The task status must be 'OK' for retrieving the result.

TASK_OK = The task has successfully been processed.

TASK_PENDING = The task is currently being processed.

6.1.1 LNS Error code list

001 = parameter {0} cannot be null or empty

002 = {0} entity with id {1} not found

003 = {0} is not a valid format for a {1}

004 = Role {0} is not authorized to perform this action

005 = Unexpected error, please contact your administrator

006 = Invalid token

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007 = Token has expired
 008 = Error JOSE on authentication
 009 = {0}={1}, {2} cannot be null or empty
 010 = Invalid value for parameter {0}, accepted values :{1}
 011 = Argument mismatch
 012 = Credential error
 100 = An error has been received from {0} : {1}
 101 = LoraCmd: deleteGatewaykey failed.
 102 = reload configuration error
 103 = set NS Master error
 104 = LoRa command error
 200 = devEui is already present in the system
 300 = stationId is already present in the system
 301 = Station {0} must be detached first.
 302 = AesKey already exist for this station
 400 = Error accepting TCP client connection
 401 = Error closing TCP server
 402 = Cannot open port {0}
 403 = Server host and port have to be initialized
 404 = Could not get local IP address of interface {0}
 500 = Unable to watch node with path: {0}
 501 = Unable to create/access LNS node with path: {0}
 600 = Cluster name {0} is already used

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6.2 Exchanges samples

Two examples of request/response. First web example one does not require any authentication, and the second needs one.

6.2.1 login

```
curl -v -H 'Content-Type: application/vnd.kerlink.iot-v1+json' -X
POST -d '{"login":"<login>","password":"<pwd>"}'
'http://<host>/oss/application/login'
```

replace :

- <host> by your server domain
- <login> by your login
- <pwd> by your password associated to your login

6.2.1.1 Request

```
POST /oss/application/login HTTP/1.1
User-Agent: curl/7.35.0
Host:wanesy.fr
Accept: */*
Content-Type: application/vnd.kerlink.iot-v1+json
Content-Length: 41

upload completely sent off: 41 out of 41 bytes
HTTP/1.1 201
Server nginx/1.11.10 is not blacklisted
Server: nginx/1.11.10
Date: Fri, 07 Jul 2017 08:09:44 GMT
Content-Type: application/vnd.kerlink.iot-v1+json;charset=UTF-8
Content-Length: 246
Connection: keep-alive
X-Application-Context: application:docker:8080
X-Content-Type-Options: nosniff
X-XSS-Protection: 1; mode=block
Cache-Control: no-cache, no-store, max-age=0, must-revalidate
Pragma: no-cache
Expires: 0
X-Frame-Options: DENY
```

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6.2.1.2 Response

```
{
  "expiredDate": 1499479934660,
  "tokenType": "Bearer",
  "token":
  "eyJhbGciOiJIUzI1NiJ9.eyJzdWIiOiJzdXB1cmFkbWluIiwicm9sZSI6ImlNVUEVSX0FETU1OIiwiz3JvdXBjZCI6IjEiLCJpc3MiOiJvc3NDbGllbnQiLCJleHAiOjE0OTk0Nzk5MzR9.Cyopr2Fp-Uffk24Lie3RJqWlugaJGUolZ7lEdHG-n7U"
}
```

6.2.2 getRoles

```
curl -v -i --header "Authorization: Bearer
eyJhbGciOiJIUzI1NiJ9.eyJzdWIiOiJzdXB1cm9zcyIsInJvbGUiOiJTVVBFU19BRE1JTIIsImdyb3VwSWQiOiJ1IiwiaWF0Ijoi16Im9zc0NsaWVudCIsImV4cCI6MTQ5OTc1NjgxMX0.5NsTR_OiK9tuBpUJ3tyJbXK9o1JFiT4MQfxQ__ULvOg" -X GET
http://<host>/oss/application/roles
```

replace host by your server domain or IP address

6.2.3 request

```
GET /oss/application/roles HTTP/1.1
Host: 192.168.4.25
User-Agent: curl/7.44.0
Accept: */*
Authorization: Bearer
eyJhbGciOiJIUzI1NiJ9.eyJzdWIiOiJzdXB1cm9zcyIsInJvbGUiOiJTVVBFU19BRE1JTIIsImdyb3VwSWQiOiJ1IiwiaWF0Ijoi16Im9zc0NsaWVudCIsImV4cCI6MTQ5OTc1NjgxMX0.5NsTR_OiK9tuBpUJ3tyJbXK9o1JFiT4MQfxQ_ULvOg
```

6.2.4 Response

```
HTTP/1.1 200
Server: nginx/1.13.1
Date: Mon, 10 Jul 2017 13:15:10 GMT
Content-Type: application/vnd.kerlink.iot-v1+json; charset=UTF-8
Content-Length: 298
Connection: keep-alive
X-Content-Type-Options: nosniff
```

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```
X-XSS-Protection: 1; mode=block
Cache-Control: no-cache, no-store, max-age=0, must-revalidate
Pragma: no-cache
Expires: 0
X-Frame-Options: DENY
X-Application-Context: application:docker:8080

{
  "count": 4,
  "pageSize": 50,
  "page": 1,
  "totalCount": 4,
  "list": [
    {
      "id": 1,
      "name": "READER",
      "roleType": "READER",
      "level": 10
    },
    {
      "id": 2,
      "name": "USER",
      "roleType": "USER",
      "level": 20
    },
    {
      "id": 3,
      "name": "ADMIN",
      "roleType": "ADMIN",
      "level": 30
    },
    {
      "id": 4,
      "name": "SUPER_ADMIN",
      "roleType": "SUPER_ADMIN",
      "level": 40
    }
  ],
  "nbPages": 1
}
```

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