

# kerlink

communication is everything

## Wanesy™ Management Center

User guide version 3.2.7

# Wanesy™ Management Center 3.2 User manual

	Redaction	Approbation	Validation
Trigram	GPI		
Date	02/09/2020		
Signature			

Abbreviation	Description
WMC	Wanesy™ Management Center
IOT	Internet Of Things
GMS	Gateway Management Service
BSC	Base Station Controller
RNC	Radio Network Controller
LNS	LoRa Network Server
EIRP	Effective Isotropic Radiated Power
KPI	Key Performance Indicator
BSCC	Base Station Client Controller
SNMP	Simple Network Management Protocol
HAL	Hardware Abstraction Layer
VPN	Virtual Private Network

Version	Edits
0.1	Creation
0.2	beta.1
0.3	
0.4	Replaced SPF Packet Forwarder section by a link to the CPF in the Wiki WMC 3.x (TDA)
0.5	Add import gateway software part
0.6	beta.2
0.7	3.2.0
0.8	Version 3.2.1, add KTI
0.9	Version 3.2.2
0.10	Version 3.2.3
0.11	Version 3.2.4
0.12	Version 3.2.5
0.13	Version 3.2.6
0.14	Version 3.2.7



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## 1 Wanesy™ Management Center

### 1.1 Introduction

This user manual is intended for final users and administrators of the WMC Dashboard. It explains how to connect to the platform and use the interfaces to:

- Read statistics and alarms.
- Communicate with gateways and end-devices.
- Administrate the application data.

This version of the manual is written and usable for the version 3.1 of the WMC

### 1.2 Dashboard supported browsers

To have an optimal experience with the Wanesy Management Center, we encourage users to use [evergreen browsers](#) like the latest versions of Chrome, Firefox, Edge, and Safari.

Older browsers may run the application but experience random issues.

## 2 Concepts

### 2.1 Roles

Four roles are available in the application:

- A **SUPER\_ADMIN** user is a global administrator. He can access and configure all data of all customers.
- An **ADMIN** user is a customer administrator. He can only access and configure the data of its customer.
- A **USER** user can access and configure some data of its customer.
- A **READER** user can only access some data of its customer.

### 2.1.1 Fleets

	Reader	User	Admin	Super Admin
Consult fleets overview	✓	✓	✓	✓
Search and list gateway	✓	✓	✓	✓

### 2.1.2 Gateway

	Reader	User	Admin	Super Admin
Consult gateway overview	✓	✓	✓	✓
Delete gateway	-	-	✓	✓
Reboot gateway	-	-	✓	✓
Edit gateway	-	-	✓	✓
Mark gateway alarms and events as read	✓	✓	✓	✓
Configure gateway	-	-	✓	✓
Consult gateway KPI	✓	✓	✓	✓
Consult gateway Data Up and Down	✓	✓	✓	✓
Access gateway file explorer	-	-	✓	✓
Access gateway through SSH	-	-	✓	✓
Access gateway through remote commands	-	-	✓	✓
Consult gateway spectrum analysis	-	✓	✓	✓
List gateway tasks	-	-	✓	✓
List gateway SNMP logs	-	-	✓	✓
List gateway events	-	-	✓	✓
List network events	-	-	✓	✓

### 2.1.3 Cluster

	Reader	User	Admin	Super Admin
Consult clusters overview	✓	✓	✓	✓
Search and list end-devices	✓	✓	✓	✓

### 2.1.4 Multicast groups

	Reader	User	Admin	Super Admin
Search and list multicast groups	✓	✓	✓	✓
Consult multicast group overview	✓	✓	✓	✓

List Data Down	✓	✓	✓	✓
Send data Down messages	-	✓	✓	✓

### 2.1.5 End-device

	Reader	User	Admin	Super Admin
Consult end-device overview	✓	✓	✓	✓
Delete end-device	-	-	✓	✓
Edit end-device	-	-	✓	✓
Reset frame counter down	-	✓	✓	✓
Send MAC commands	-	-	✓	✓
Consult end-device KPI	✓	✓	✓	✓
List Data UP and DOWN	✓	✓	✓	✓
Send data DOWN messages	-	✓	✓	✓
List messages	✓	✓	✓	✓
List events	✓	✓	✓	✓

### 2.1.6 Alarms

	Reader	User	Admin	Super Admin
Consult gateways alarms	✓	✓	✓	✓
Consult end-devices alarms	✓	✓	✓	✓
Consult network alarms	✓	✓	✓	✓
Mark alarm as read	✓	✓	✓	✓

### 2.1.7 Selection

	Reader	User	Admin	Super Admin
Save a selection	✓	✓	✓	✓
Delete a selection	✓	✓	✓	✓
Import a saved selection into current selection	✓	✓	✓	✓

### 2.1.8 Workflows

	Reader	User	Admin	Super Admin
Create a template	-	-	-	✓
Edit a template	-	-	-	✓
Delete a template	-	-	-	✓

Preview a template	-	✓	✓	✓
Execute a workflow on a selection	-	✓	✓	✓
Consult running workflows	-	✓	✓	✓
Consult completed workflows	-	✓	✓	✓
Consult workflows results	-	✓	✓	✓

### 2.1.9 KPI

	Reader	User	Admin	Super Admin
Consult customer KPI	✓	✓	✓	✓
Consult gateway KPI	✓	✓	✓	✓
Consult end-device KPI	✓	✓	✓	✓

### 2.1.10 Administration

	Reader	User	Admin	Super Admin
Manage customers	-	-	-	✓
Manage users	-	-	✓	✓
Manage fleets	-	-	✓	✓
Manage gateways	-	-	✓	✓
Manage clusters	-	-	✓	✓
Manage multicast groups	-	-	✓	✓
Manage end-devices	-	-	✓	✓
Manage gateway softwares	-	-	-	✓

### 2.1.11 Settings

	Reader	User	Admin	Super Admin
Update application settings	-	-	-	✓

### 2.1.12 Logs

	Reader	User	Admin	Super Admin
Consult activity logs	-	-	-	✓

### 2.1.13 Profile

	Reader	User	Admin	Super Admin
Update your profile	✓	✓	✓	✓
Update another profile	-	-	✓	✓

#### 2.1.14 About and documentations

	Reader	User	Admin	Super Admin
Check services status	✓	✓	✓	✓
Check services metrics	-	-	-	✓
Consult documentation	✓	✓	✓	✓

## 3 Quick start

In this part we assuming that you have a Kerlink Gateway and a LoRa compatible end-device.

### 3.1 Gateway

#### 3.1.1 How to install packages for your gateway for a first Install on the WMC platform?

To connect a gateway to the WMC, we recommend to install the latest version of the Megapackage specified in the Resource page of the [WMC Wiki](#)

This Megapackage includes a homogeneous and a compatible set of the following software packages:

- Firmware package
- BSCC package
- SNMP package
- HAL package
- Packet Forwarder package

For a first install, you should install an additional package in order to setup a VPN tunnel between your gateway and the WMC Server:

- OpenVPN package

To obtain the specific OpenVPN package for your gateway, please contact [support@kerlink.fr](mailto:support@kerlink.fr).

Install can be performed either over the network, either by USB.

You need also a local debug link or open a SSH session in order to send commands to the gateway and get the feedback.

Package installation procedure is described on the product dedicated wiki page:

- [Wirnet™ iBTS](#)



- [Wirnet™ iFemtoCell](#)
- [Wirnet™ Station](#)

We recommend to follow the procedure below:

1. Install the OpenVPN package
2. Install the Megapackage
3. Check the VPN connection to the WMC
4. Check Packet Forwarding

### 3.1.2 How to update packages for the WMC connectivity?

There are 3 ways to update your Gateway:

- via the WMC Dashboard interface (recommended)
- over the network
- via the use of an USB key

To upgrade via the network or via the use of an USB key, the update procedure is the same than first install procedure except you don't need to reinstall the OpenVPN package.

#### 3.1.2.1 Update via the Dashboard interface

Since you are already connected to the WMC, you can update your packages through the Dashboard interface via the Drag and Drop feature you can access from Management -> Configurations -> Software menu. Refer to §4.25 Configuration – Software section

#### 3.1.2.2 Checking configuration

You can either check all points in the checklist either check the 2 following points to go faster.

#### 3.1.2.3 Checking VPN connection to the WMC

Your gateway must be declared in an existing fleet (create it first if necessary) using its EUI in the administration menu.

This EUI can be found in the field `gateway_ID` of the generated JSON file (you need obviously a local or remote access to the gateway):

- Wirnet™ station: `grep gateway_ID /mnt/fsuser-1/spf/etc/local_conf.json`
- Wirnet™ iBTS: `grep gateway_ID /user/spf2/etc/config.json`
- Wirnet™ iFemtoCell: `grep gateway_ID /user/spf/etc/local_conf.json`

Then add your gateway into an existing fleet (see section above §4.77).

The Gateway should appear in the list of gateways and its status should be “Connected”.  
Wait few minutes and force F5 page refresh if not the case.

#### 3.1.2.4 Checking Packet Forwarding

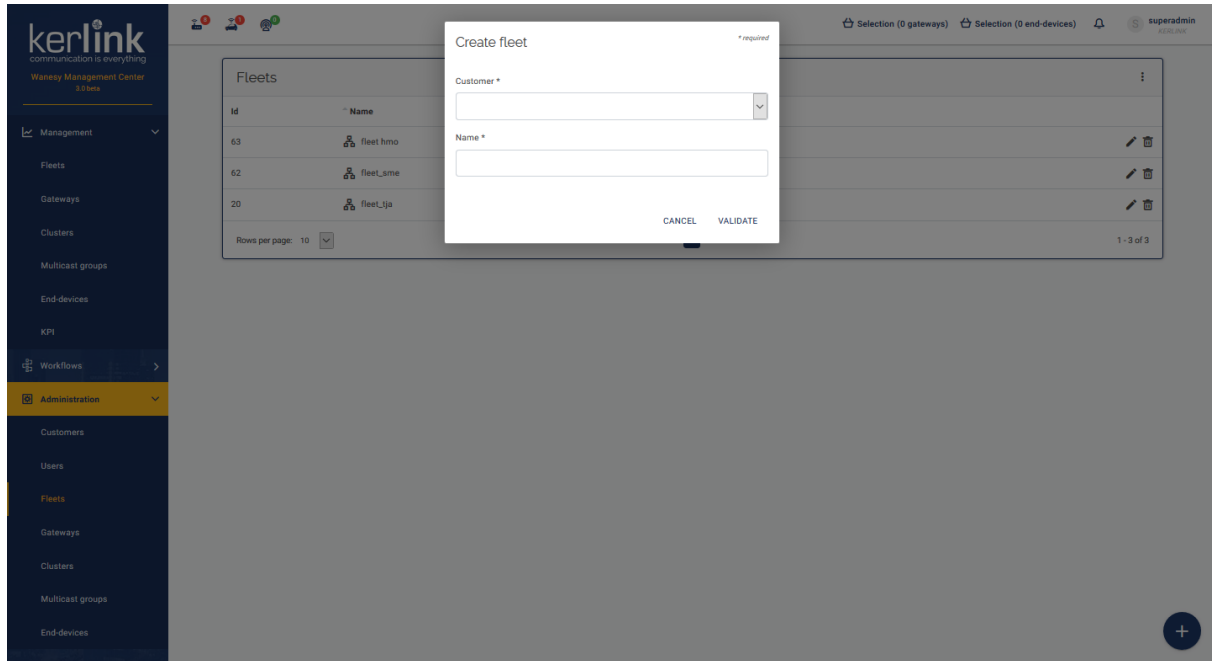
From gateway’s embedded software release 3.1.x, the Semtech packet forwarder has been replaced by the (Kerlink) Common Packet Forwarder (CPF).

Refer to the section in the Wiki to get details about the way to enable packet forwarder logs:

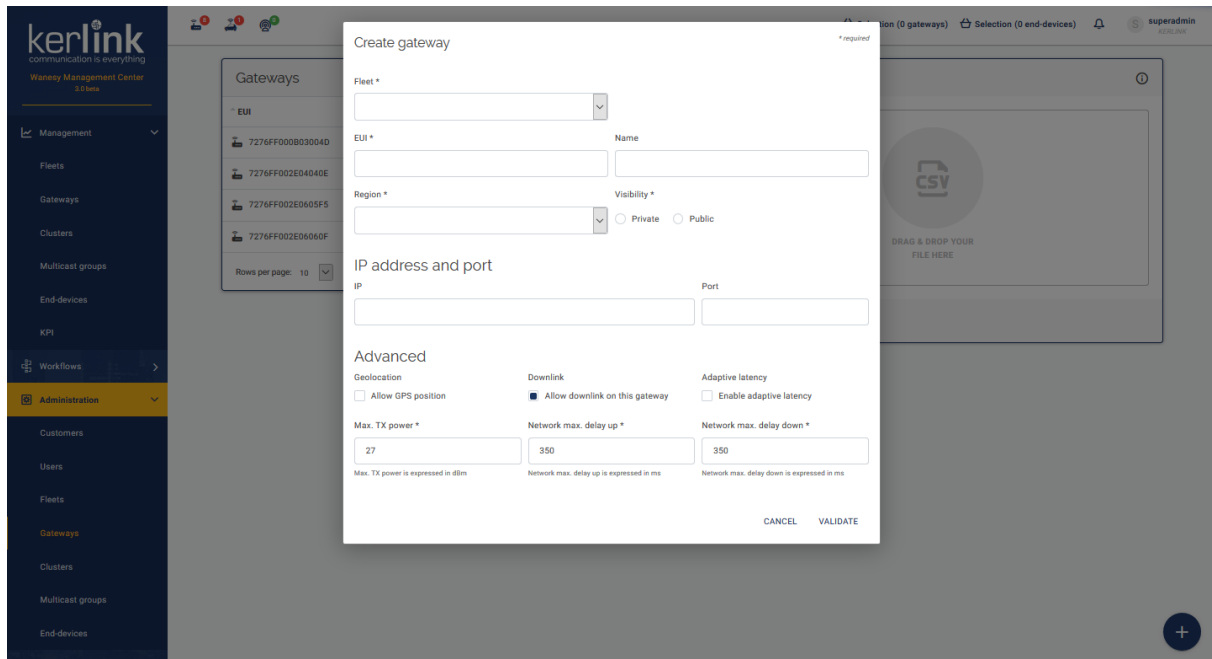
[http://wikikerlink.fr/wanesy-ran/doku.php?id=wiki:wiki3:faq\\_packet\\_forwarder](http://wikikerlink.fr/wanesy-ran/doku.php?id=wiki:wiki3:faq_packet_forwarder)

### 3.1.3 How to declare the gateway?

#### 3.1.3.1 Create a fleet



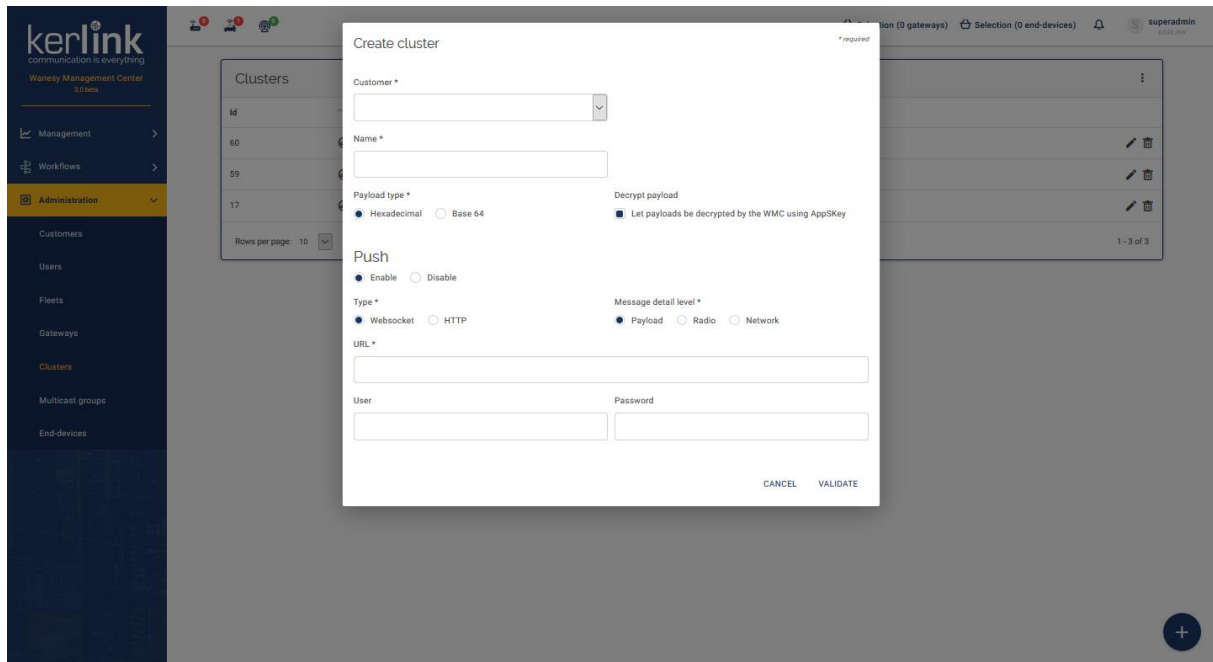
#### 3.1.3.2 Create a gateway



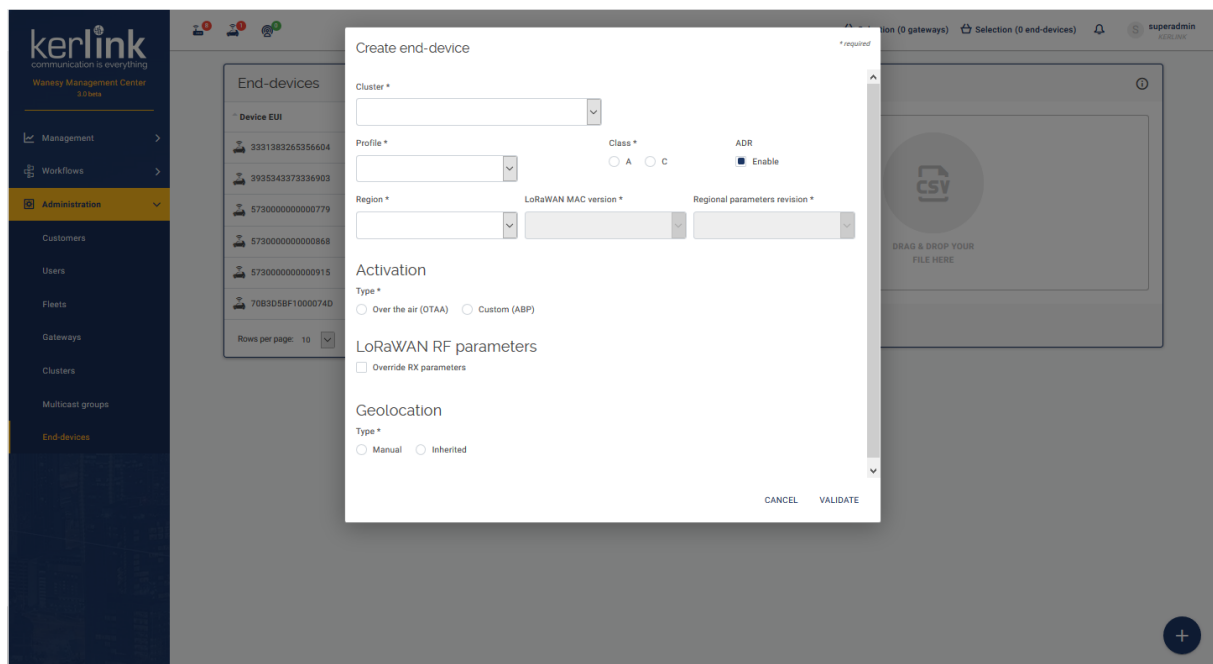
## 3.2 End-device

### 3.2.1 How to declare the end-device?

#### 3.2.1.1 Declare a new cluster

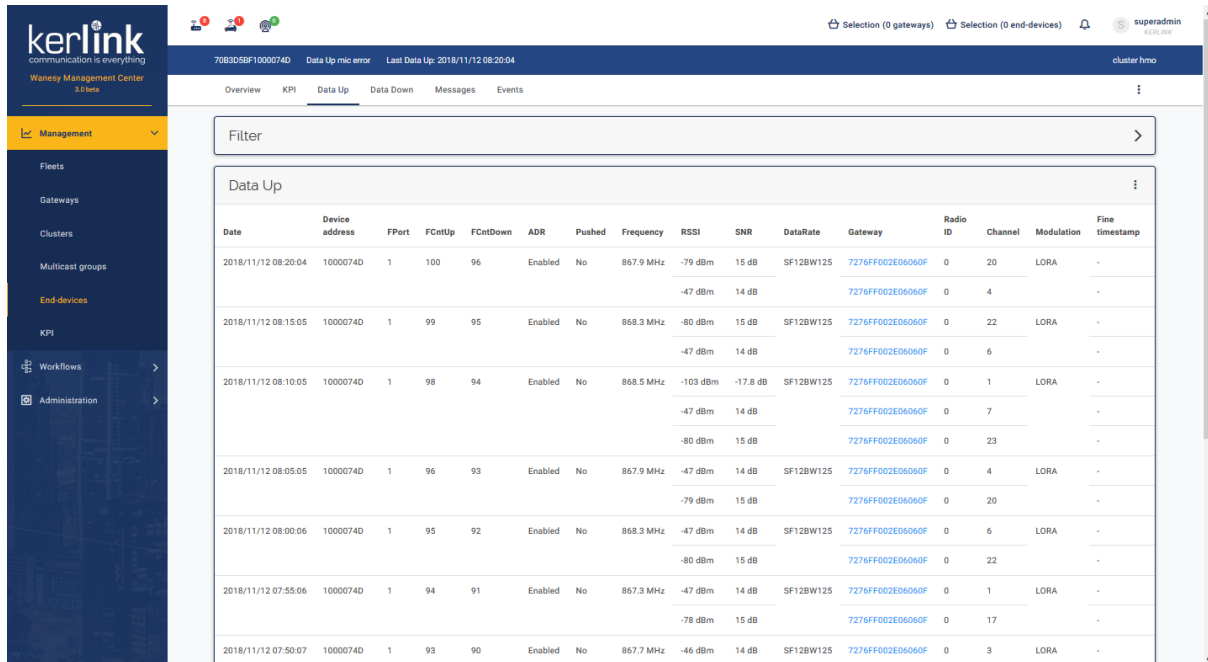


#### 3.2.1.2 Declare a new end-device



### 3.3 How to check that it works?

In WMC dashboard go to the end-device (previously configured) page and click on “Data Up” menu. You should have some messages.



Date	Device address	FPort	FCntUp	FCntDown	ADR	Pushed	Frequency	RSSI	SNR	DataRate	Gateway	Radio ID	Channel	Modulation	Fine timestamp
2018/11/12 08:20:04	1000074D	1	100	96	Enabled	No	867.9 MHz	-79 dBm	15 dB	SF12BW125	7276FF002ED06060F	0	20	LORA	-
								-47 dBm	14 dB		7276FF002ED06060F	0	4	-	
2018/11/12 08:15:05	1000074D	1	99	95	Enabled	No	868.3 MHz	-80 dBm	15 dB	SF12BW125	7276FF002ED06060F	0	22	LORA	-
								-47 dBm	14 dB		7276FF002ED06060F	0	6	-	
2018/11/12 08:10:05	1000074D	1	98	94	Enabled	No	868.5 MHz	-103 dBm	-17.8 dB	SF12BW125	7276FF002ED06060F	0	1	LORA	-
								-47 dBm	14 dB		7276FF002ED06060F	0	7	-	
								-80 dBm	15 dB		7276FF002ED06060F	0	23	-	
2018/11/12 08:05:05	1000074D	1	96	93	Enabled	No	867.9 MHz	-47 dBm	14 dB	SF12BW125	7276FF002ED06060F	0	4	LORA	-
								-79 dBm	15 dB		7276FF002ED06060F	0	20	-	
2018/11/12 08:00:06	1000074D	1	95	92	Enabled	No	868.3 MHz	-47 dBm	14 dB	SF12BW125	7276FF002ED06060F	0	6	LORA	-
								-80 dBm	15 dB		7276FF002ED06060F	0	22	-	
2018/11/12 07:55:06	1000074D	1	94	91	Enabled	No	867.3 MHz	-47 dBm	14 dB	SF12BW125	7276FF002ED06060F	0	1	LORA	-
								-78 dBm	15 dB		7276FF002ED06060F	0	17	-	
2018/11/12 07:50:07	1000074D	1	93	90	Enabled	No	867.7 MHz	-46 dBm	14 dB	SF12BW125	7276FF002ED06060F	0	3	LORA	-

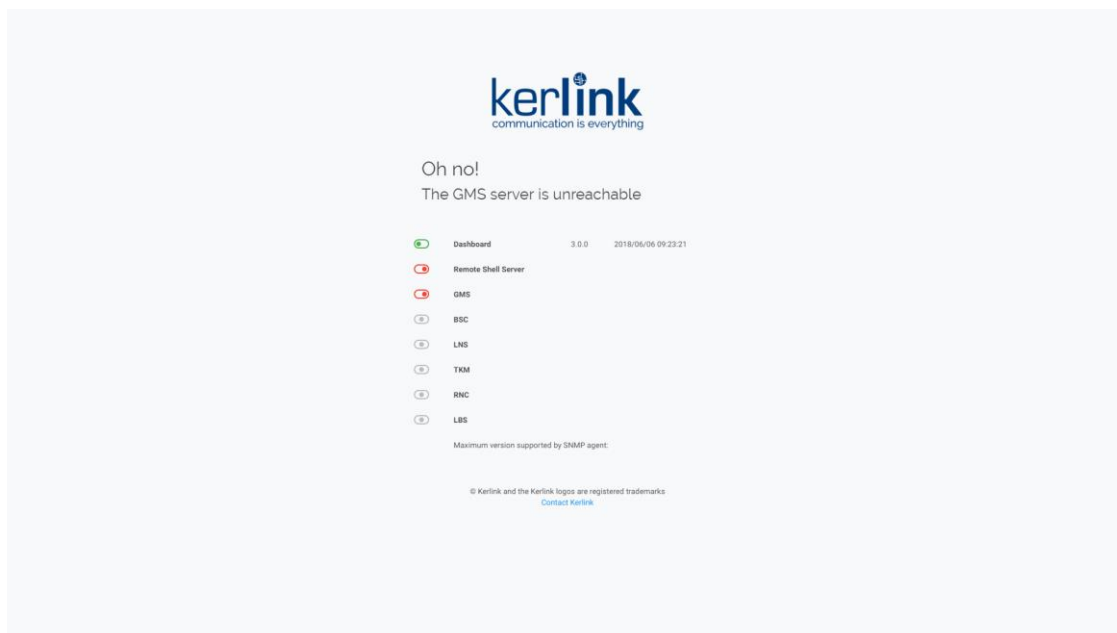
## 4 Dashboard screens

### 4.1 Cannot start

*Since: 3.0*

This screen is displayed when the Wanesy Management Center initialization fails.

#### 4.1.1 Screenshot



#### 4.1.2 Rules

This screen shows all components statuses: - *green*: the component is running - *red*: the component is not running - *grey*: the component status is unknown

#### 4.1.3 Errors

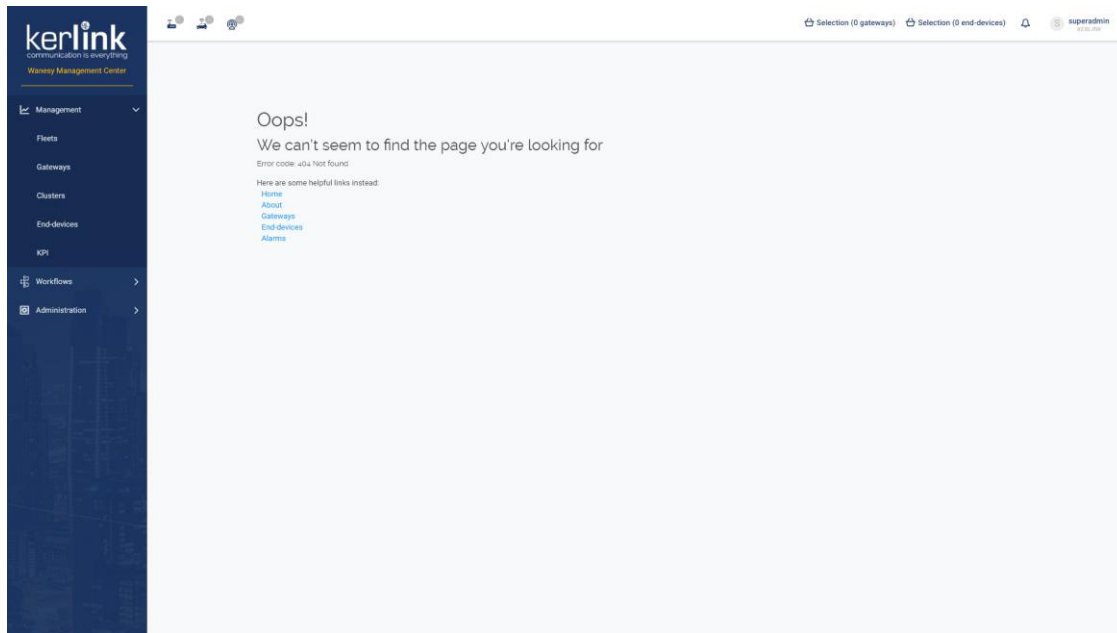
- *The GMS server is unreachable*
- *The dashboard is not compatible with the installed GMS webservice*
- *The license has expired*
- *The license is not valid*
- *The license does not exist*

### 4.2 Forbidden / Not found

*Since: 3.0*

This screen is displayed when the user accesses a page he is not allowed to access (403), or a non-existent page (404).

#### 4.2.1 Screenshot



#### 4.2.2 Errors

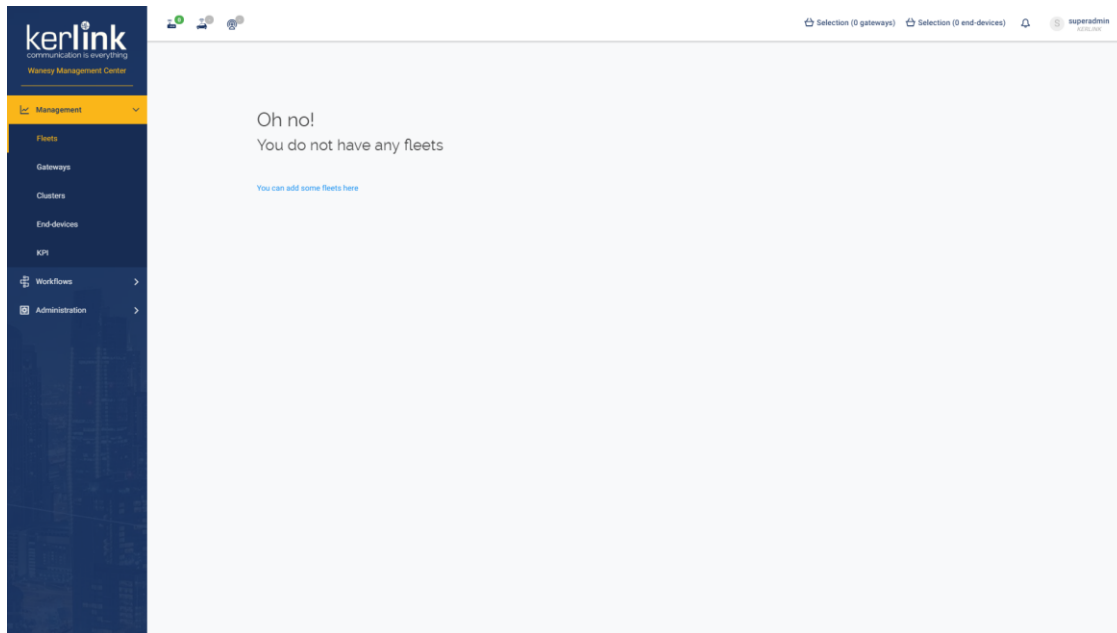
- 403 Forbidden: *It seems you're not supposed to be here*
- 404 Not Found: *We can't seem to find the page you're looking for*

### 4.3 No fleets / clusters

*Since: 3.0*

This screen is displayed when there are no fleets / clusters associated with the user's customer, and the user wants to access a page needing a fleet / cluster.

#### 4.3.1 Screenshot



#### 4.3.2 Errors

- No fleets and accessing fleets or gateways related pages in the management section: *You do not have any fleets*
- No clusters and accessing clusters or end-devices related pages in the management section: *You do not have any clusters*

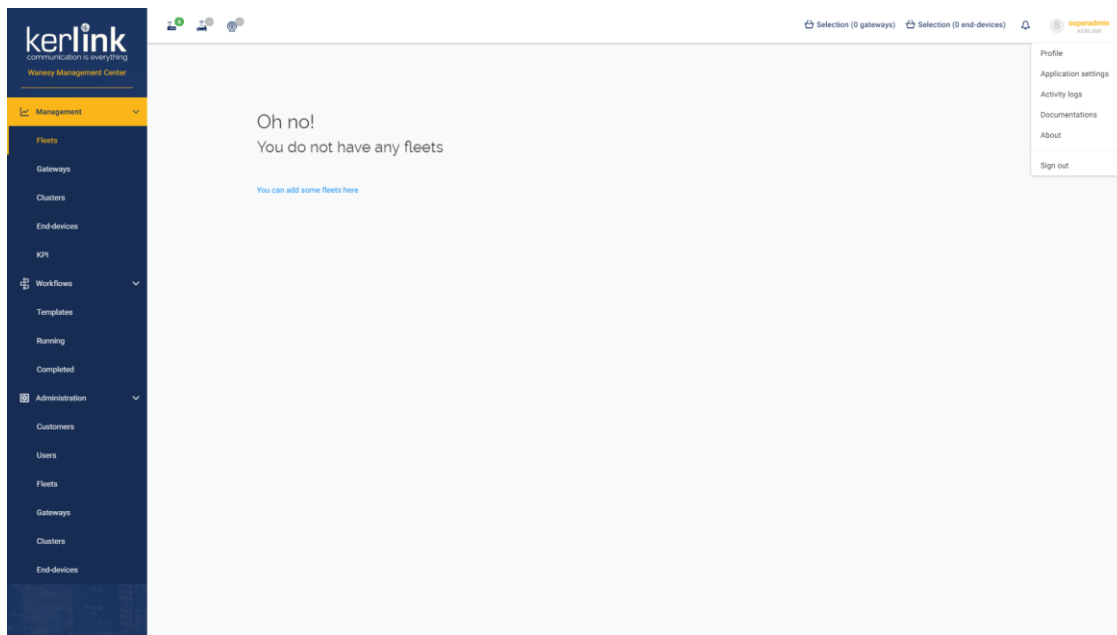
### 4.4 Main menu

*Since: 3.0*

The main menu is the left sidebar with the blue background and the Kerlink logo.

#### 4.4.1 Screenshot





#### 4.4.2 Rules

- The main menu is divided in multiple collapsible categories with an icon and a label
- Each category has several links with only a label
- If the current page is accessible through the main menu, the corresponding category should be open and highlighted, and the link should also be highlighted

#### 4.4.3 Mobile behaviour

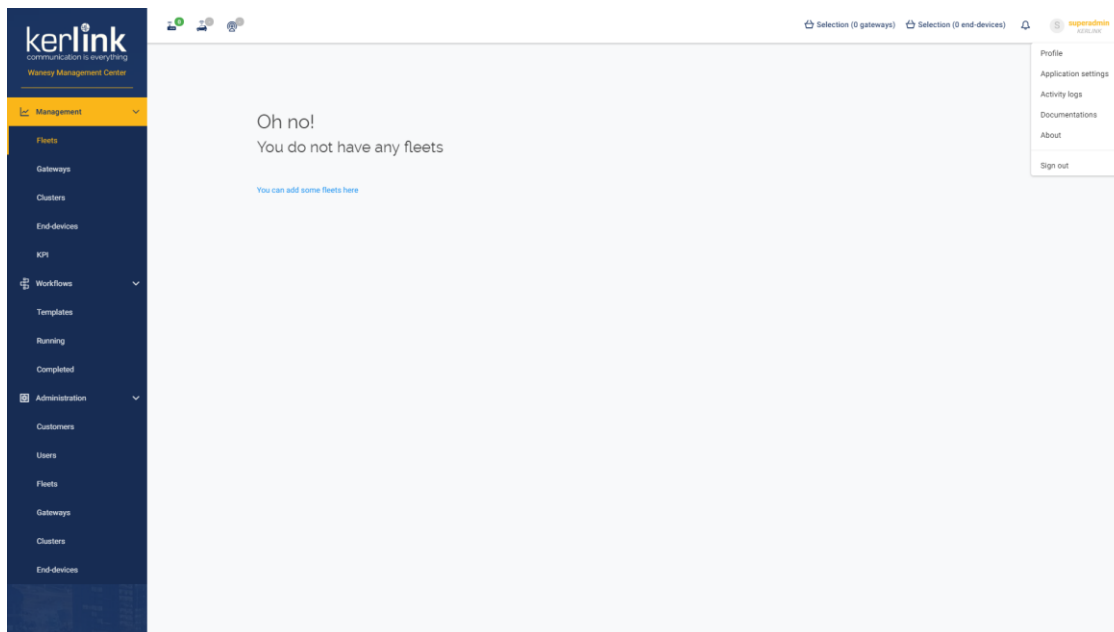
- On small devices, the main menu is hidden. A button near the title allows the user to open the sidebar.
- On small devices, all links and menu from the navbar should be present in the sidebar.

### 4.5 Navbar

*Since: 3.0*

The navbar is the top bar with the white background and the connected user.

#### 4.5.1 Screenshot



#### 4.5.2 Rules

- The alarms notification icons for gateways, end-devices and radio display the number of alarms and allow the user to go to the relevant alarm page
- The profile menu displays the user avatar, username / user names, and the user customer. A click on the profile displays a menu:
  - Profile
  - Application settings
  - Activity logs
  - Documentations
  - About
  - Sign out
- The notification center displays the number of last messages displayed in the application. A click on the notification icon displays the list of those last messages
- The links to the gateways and end-devices selections display the number of elements in the selections and allow the user to go to the selection screen
  - **Mobile behaviour**
- On small devices, the navbar is hidden, and replaced by a title bar with a menu button to show the sidebar.
- On small devices, all links and menu from the navbar should be present in the sidebar.

#### 4.6 Login

*Since: 3.0*

This screen allows the user to sign in the Wanasy™ Management Center

#### 4.6.1 Screenshot



#### 4.6.2 Rules

- Clicking on the **SIGN IN** button with valid credentials should redirect to the home page
- Clicking on the **SIGN IN** button without valid credentials should display an error
- If the user has expired, is disabled or has not validated his email, clicking on the **SIGN IN** button with valid credentials should display an error
- Clicking on the **Forgot password** link should redirect to the page allowing to ask for a password reset
- Activating CAPS LOCK in the password field should display a message **caps lock is activated**

#### 4.6.3 Form

Name	Input type	Required	Validation
Username	text	✓	-
Password	text	✓	-

#### 4.6.4 Errors

- No username but a password: **Username is mandatory**
- No password but a username: **Password is mandatory**
- No password nor username: **Username and password are mandatory**
- Bad username and / or password: **Username and password are not correct**
- User has expired: **The user \_\_user\_\_ has expired**

- User is disabled: *The user \_\_user\_\_ has been disabled*
- User email is not validated: *The email of \_\_user\_\_ has not been validated*
- Unknown error: *Server error, please try again later*

## 4.7 Forgot password

*Since: 3.0*

This screen allows the user to ask for a reset password link. The link sent is valid for 72 hours

### 4.7.1 Screenshot



### 4.7.2 Rules

- Clicking on the **CONTINUE** button with a valid and existing email should send an email and display a confirmation message *an email has been sent to \_\_email\_\_*
- Clicking on the **CONTINUE** button without an email should display an error
- Clicking on the **CONTINUE** button without a non existing email should display an error
- Entering an invalid email should display an error

### 4.7.3 Form

Name	Input type	Required	Validation
Email	email	✓	email

### 4.7.4 Errors

- No email: *The email field is required.*
- Invalid email: *The email field must be a valid email.*
- Unknown error: *Server error, please try again later*

## 4.8 Reset password

Since: 3.0

This screen allows the user to reset his password

### 4.8.1 Screenshot



### 4.8.2 Rules

- If the link has expired (72 hours), the screen should display an error message with a back button
- Clicking on the **CHANGE PASSWORD** button with two identical passwords should change the password and log in the user
- Clicking on the **CHANGE PASSWORD** button with two different passwords should display an error
- Clicking on the **CHANGE PASSWORD** button without any passwords should display an error
- If the user has expired, is disabled or has not validated his email, clicking on the **CHANGE PASSWORD** button with two identical passwords should display an error
- Activating CAPS LOCK in the password fields should display a message *caps Lock is activated*

### 4.8.3 Form

Name	Input type	Required	Validation
New password	password	✓	confirmed
Retype password	password	✓	confirmed

#### 4.8.4 Errors

- Expired link: *This link has expired. Please, ask a new reset password Link*
- Not strong enough password: *The password is not strong enough.*
- Non matching passwords: *The password confirmation does not match.*
- No passwords: *The password field is required.*
- User has expired: *The user \_\_user\_\_ has expired*
- User is disabled: *The user \_\_user\_\_ has been disabled*
- User email is not validated: *The email of \_\_user\_\_ has not been validated*
- Unknown error: *Server error, please try again later*

#### 4.9 Validate user

*Since: 3.0*

When he needs to validate his account, the user gets an email with a link to this page to validate his email and account.

##### 4.9.1 Screenshot



##### 4.9.2 Rules

- If the link has expired (72 hours), the screen should display an error message
- If the link is correct and the email validated, the screen should display a confirmation message *your email has been validated* and a link to the login page

##### 4.9.3 Errors

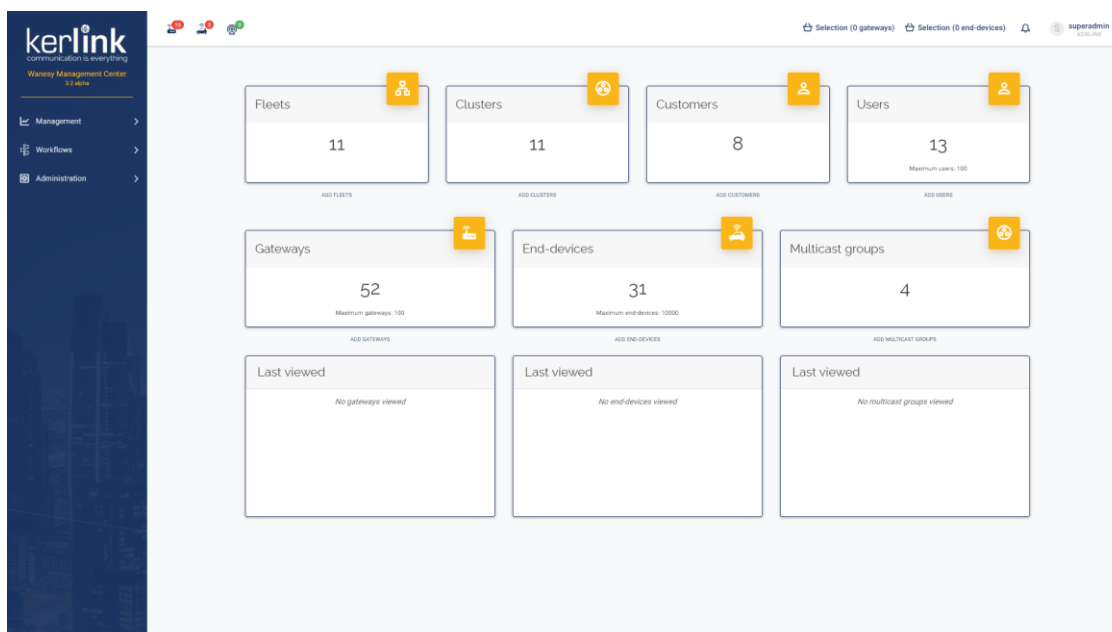
- Expired link: *This Link has expired. Please, ask a new reset password Link*
- Unknown error: *Server error, please try again later*

## 4.10 Home

Since: 3.2

This screen displays the status, version and build date of each component of the Wanesy Management Center.

### 4.10.1 Screenshot



Home

### 4.10.2 Rules

- The first and second lines show statistics panels. Each panel displays:
  - The count of elements
    - For a **SUPER\_ADMIN**, it counts all items of all customers
    - For a **READER**, **USER** or **ADMIN**, it counts all items of his customer
  - A click on the panel should redirect to the corresponding screen (for example, a click on the “Fleets” panel should redirect to the fleets page)
    - The “Customers” and “Users” panels have no link attached because there are no “customers” nor “users” pages outside the administration.
  - If there is a limit for users, gateways and / or end-devices:
    - For a **SUPER\_ADMIN**, the limit is the limit set in the license
    - For a **READER**, **USER** or **ADMIN**, the limit is the limit set when creating its customer

- The limit is displayed under the count
- If the limit is exceeded, the panel is displayed in red
- For an **ADMIN** or a **SUPER\_ADMIN**, a link to the administration page to add a new element
- The first line displays statistics for:
  - Fleets
  - Clusters
  - Customers (only for **SUPER\_ADMIN**)
  - Users
- The second line displays statistics for:
  - Gateways
  - End-devices
  - Multicast groups
- The third line displays a list of 5 items recently viewed
  - The name should be displayed if exists, if not the identifier should be displayed instead
  - These lists are saved in the browser local storage and reset on log out (like selections)

## 4.11 Profile

*Since: 3.0*

This screen allows a user to modify his profile. An **ADMIN** or **SUPER\_ADMIN** can also modify other user profiles.

### 4.11.1 Screenshot



#### 4.11.2 Rules

- Any user can edit his own profile
- An **ADMIN** can edit any **READER**, **USER** and **ADMIN** profiles of his own customer
- A **SUPER\_ADMIN** can edit any user profile
- The username cannot be edited
- Only a **SUPER\_ADMIN** can edit a user customer
- Only an **ADMIN** or a **SUPER\_ADMIN** can edit user limitations (activation and expiration date)
- An **ADMIN** cannot edit a **SUPER\_ADMIN** limitations
- A user can see but cannot edit his own expiration date
- A user can see but cannot edit his own role
- Only an **ADMIN** or a **SUPER\_ADMIN** can edit a user role
- An **ADMIN** cannot edit a **SUPER\_ADMIN** role
- An **ADMIN** can only set a user role to **READER**, **USER** and **ADMIN**
- A **SUPER\_ADMIN** can set a user role to **READER**, **USER**, **ADMIN** and **SUPER\_ADMIN**
- The expiration date cannot be set in the past

#### 4.11.3 Form

Name	Input type	Required	Validation
------	------------	----------	------------

Username	text (disabled)	-	-
First name	text	-	-
Last name	text	-	-
Customer	select	-	-
Email	email	✓	email
Phone number	text	-	-
Avatar URL	text	-	url
Role	select	-	-
Password	password	-	confirmed
Confirm password	password	-	confirmed
Activation	radio	✓	-
Expirationdate	date-picker	-	-

#### 4.11.4 Additional screenshots

##### 4.11.4.1 Authenticated user profile

The screenshot shows the 'User profile' form in the WMC interface. The form is titled 'User profile' and includes a '\* required' label. The fields are as follows:

- Username:** superadmin (disabled, with a note 'Username cannot be modified')
- First name:** (empty text input)
- Last name:** (empty text input)
- Customer:** KERLINK (dropdown menu)
- Contact information:**
  - Email \*:** oma@kerlink.fr
  - Phone number:** (empty text input)
- Profile picture:**
  - Picture url:** (empty text input)
  - External url of the picture. Recommended size is 150x150 pixels:** (empty text input)
  - S:** Profile picture icon
- Account:**
  - Role:** SUPER\_ADMIN (dropdown menu)
  - Password:** (empty password input)
  - Retype password:** (empty password input)

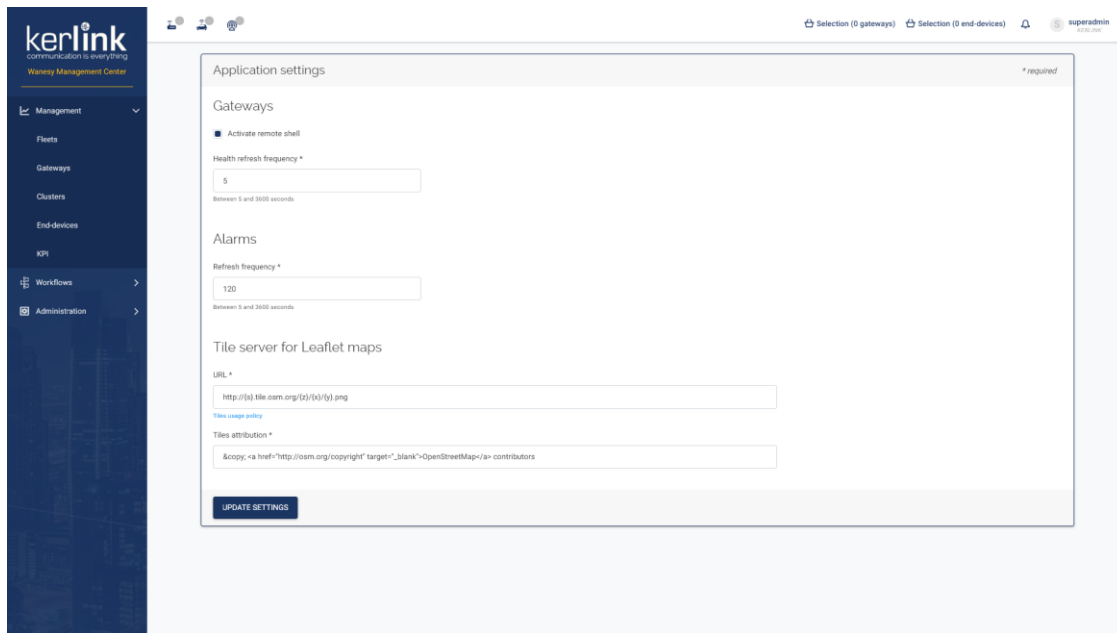
At the bottom of the form is a button labeled 'UPDATE USER PROFILE'.

## 4.12 Settings

*Since: 3.0*

This screen allows the user to change the application settings.

### 4.12.1 Screenshot



### 4.12.2 Rules

#### 4.12.2.1 Gateways

- Unchecking *Activate remote shell* should deactivate the access to the remote shell in the gateway page
- Changing *Health refresh frequency* should modify the health polling timer in the gateway overview

#### 4.12.2.2 Alarms

- Changing *Refresh frequency* should modify the alarms polling in the navbar
  - Tile server for maps
- Changing the *URL* should change the tiles server used by all maps
- Changing the *Tiles attribution* should change the copyright notice in all maps

### 4.12.3 Form

Name	Input type	Required	Validation
Activate remote shell	checkbox	-	-
Health refresh frequency	text	✓	number, between:5/3600
Alarms refresh frequency	text	✓	number, between:5/3600
Tiles URL	text	✓	tilesProviderUrl
Tiles attribution	text	✓	-

## 4.13 Activity logs

Since: 3.0

This page lists all requests made to the GMS API.

### 4.13.1 Screenshot

### Activity

#### 4.13.2 Rules

- In the logs table, parameters are clickable. It will open a modal with the details of the parameters of the request.

#### 4.13.3 Filters

Name	Input type	Required	Validation
Username	text	-	-
IP	text	-	ip
GMS web service	select + search	-	-
Period	datepicker	-	-
Duration: from	text	-	number, between:0/30000
Duration: to	text	-	number, between:0/30000
HTTP status code	text	-	number, between:100/527

#### 4.13.4 Columns

Name	Sortable
Date	-

Username	-
IP	-
CMS web service	-
Parameters	-
HTTP status code	-
Duration	-

### 4.13.5 Additional screenshots

#### 4.13.5.1 Activity log details

The screenshot shows the 'Activity logs' section of the Kerlink WMC 3.2 interface. A modal window displays the following JSON log entry:

```

{
  "direction": "REQUEST",
  "location": "QUERY",
  "key": "requestURL",
  "value": "http://wmc-gea/application/wedDevices/5238355794760/events/last"
}
{
  "direction": "REQUEST",
  "location": "QUERY",
  "key": "method",
  "value": "192.168.5.13"
}
{
  "direction": "REQUEST",
  "location": "QUERY",
  "key": "page",
  "value": "13"
}
{
  "direction": "REQUEST",
  "location": "QUERY",
  "key": "pageSize",
  "value": "10"
}
{
  "direction": "REQUEST",
  "location": "BODY",
  "key": "requestBody",
  "value": ""
}

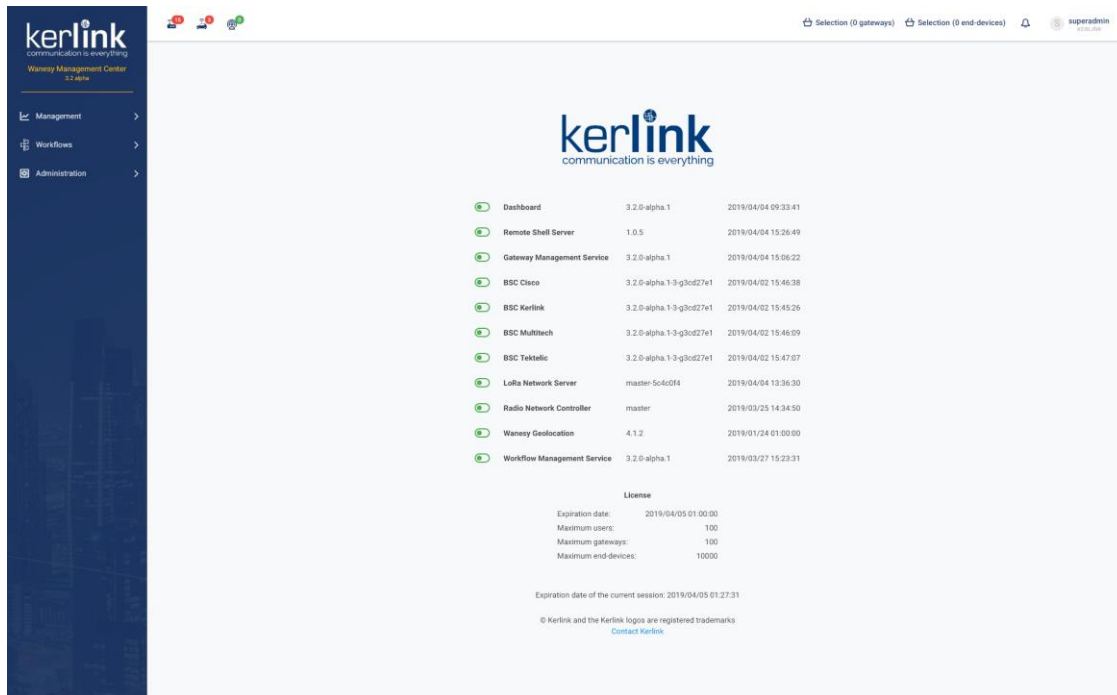
```

## 4.14 About

*Since: 3.0*

This screen displays the status, version and build date of each component of the Wanesy™ Management Center.

### 4.14.1 Screenshot

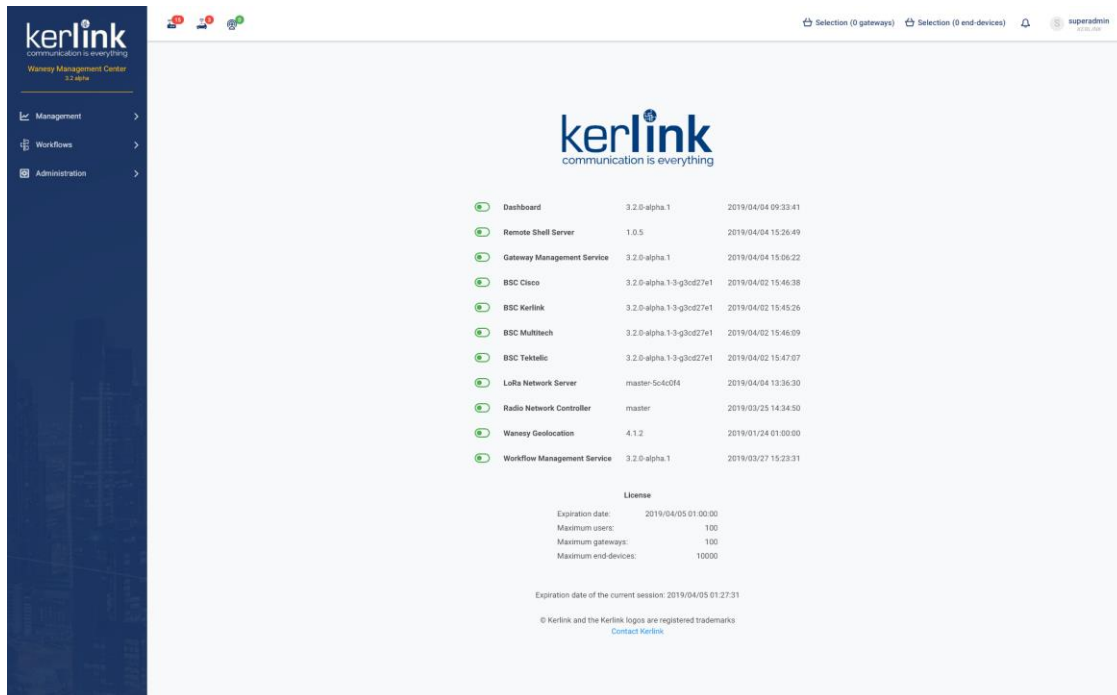


#### 4.14.2 Rules

- The statuses can have three colors:
  - **green**: the component is running
  - **red**: the component is not running
  - **grey**: the component status is unknown
- The Dashboard will always be **green**
- The version and build date are only displayed when the status is **green**
- If a license is installed on the Wanasy™ Management Center, the limitations are displayed under the component list
- Only a **SUPER\_ADMIN** can see the license information
- License limitations can be:
  - Expiration date
  - Maximum number of users
  - Maximum number of gateways
  - Maximum number of end-devices
- If an element is not limited, the ∞ symbol is displayed

#### 4.14.3 Additional screenshots

#### 4.14.3.1 About page with license

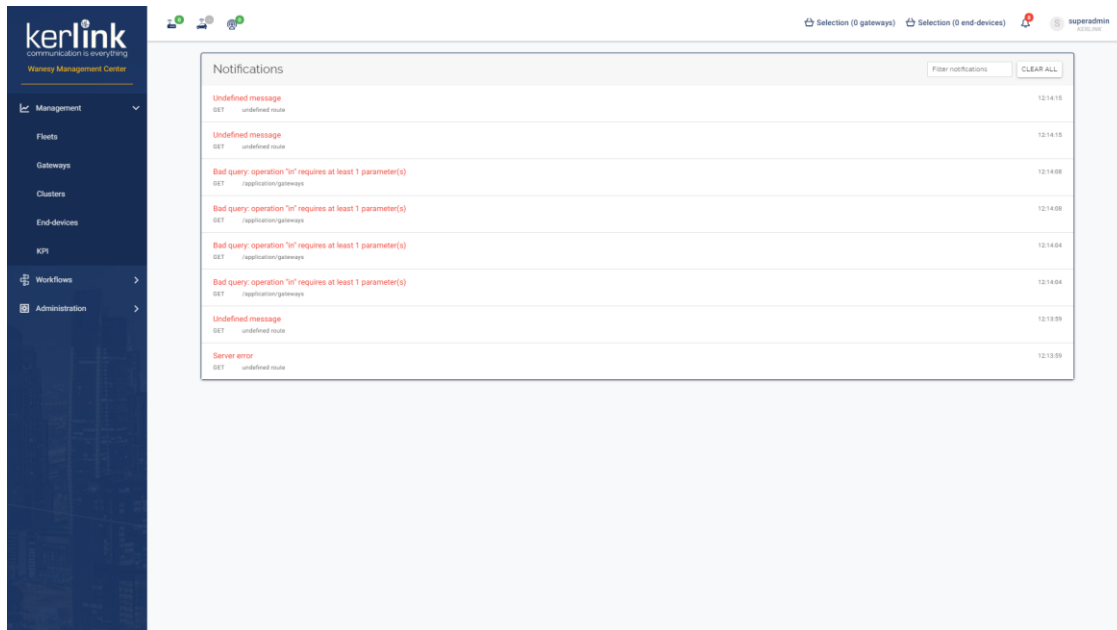


## 4.15 Notifications

*Since: 3.0*

Notifications are the messages displayed in the Wanasy™ Management Center dashboard during the current session

### 4.15.1 Screenshot



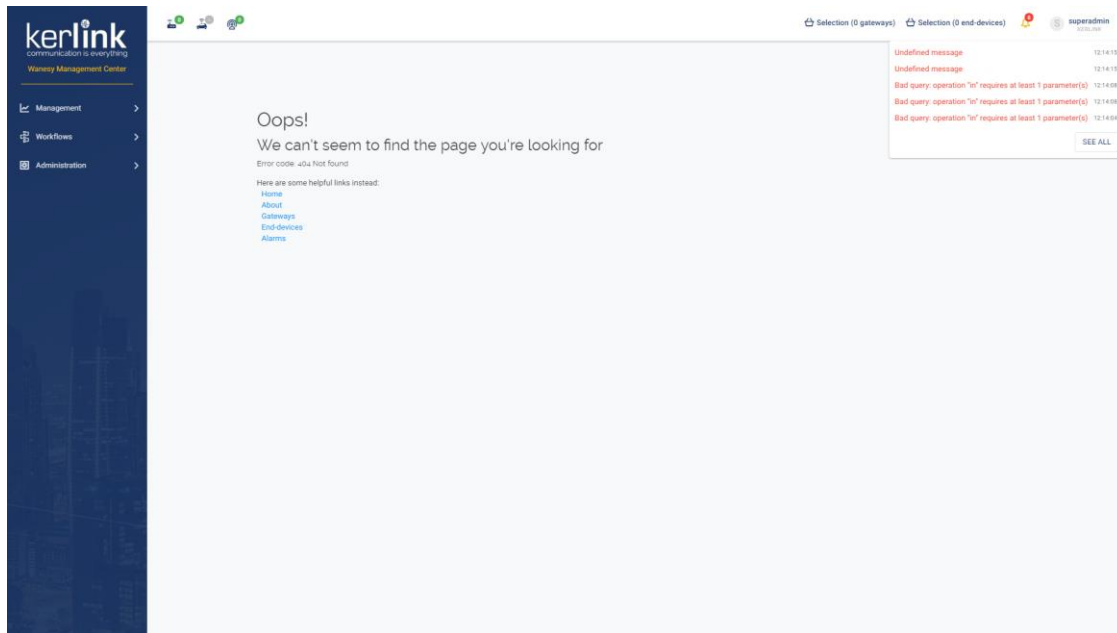
#### 4.15.2 Rules

- Notifications are stored only in browser memory, a refresh should reset this list
- The notification icon should display the number of notifications
- A click on the notification icon should display the last 5 notifications
- A click on *see all* button should redirect to the notification page
- The notification page should display all messages of the current session, without pagination
- The *filter notifications* input should filter the notifications. It should be possible to filter across:
  - Messages
  - Types: *error, warning, success, info*
  - URL
  - Method: *GET, POST, PUT, PATCH, DELETE*

#### 4.15.3 Additional screenshots



### 4.15.3.1 Notification pop-up

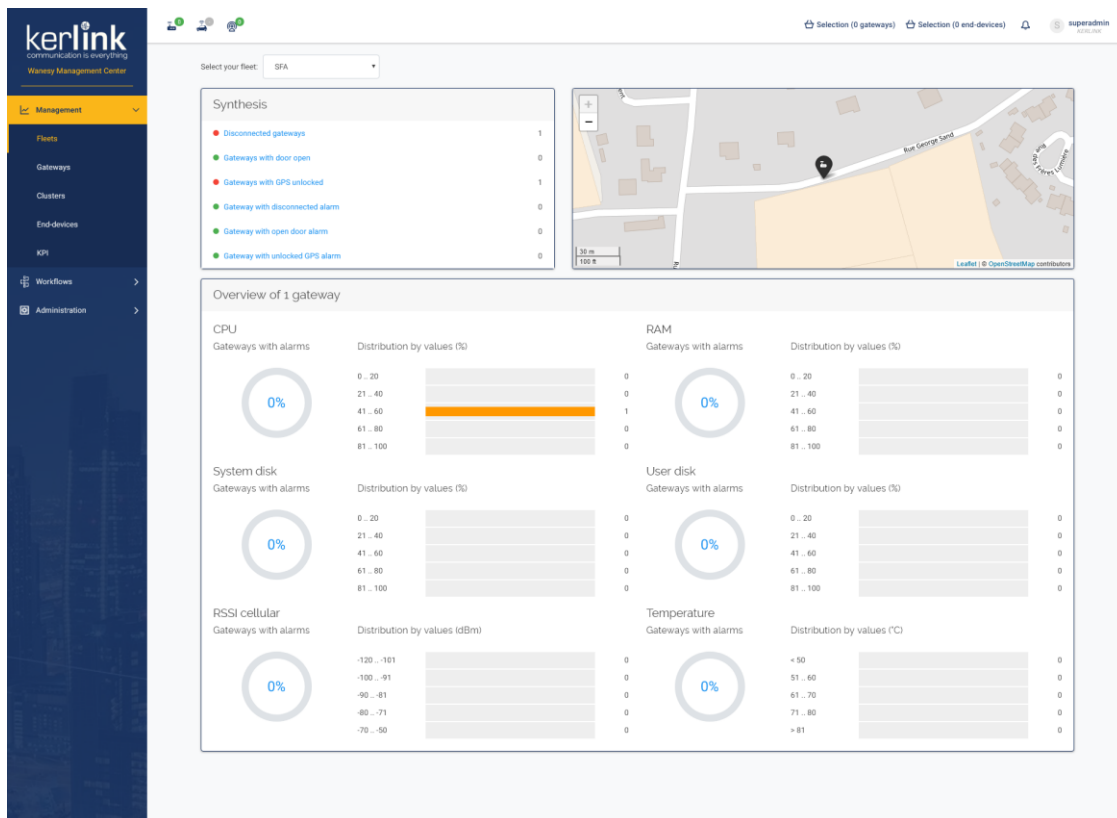


## 4.16 Fleet overview

*Since: 3.0*

This page displays an overview of the selected fleet

### 4.16.1 Screenshot



#### 4.16.2 Rules

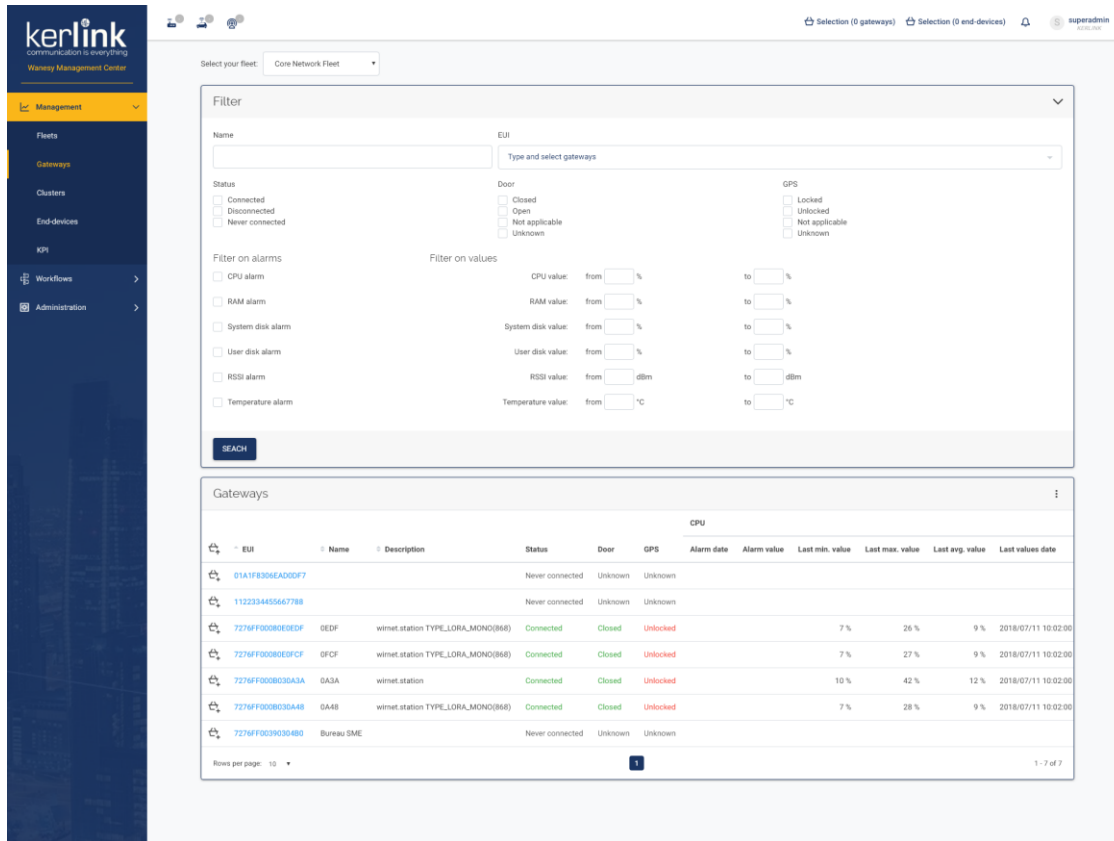
- A user can select a fleet from his customer
- A **SUPER\_ADMIN** can select a fleet from all customers
- The top left panel displays a synthesis of the gateway's statuses and alarms for connection, door and GPS
  - A click on a link should redirect to the gateways list or the alarms page with the corresponding filter applied
- The top right panel displays a map of the gateways
- A click on gateway marker displays a pop-up with its EUI, type and status
  - A click on the EUI should redirect to the gateway overview page
- The bottom panel displays an overview of the gateways values and alarms for CPU, RAM, system disk, user disk, cellular RSI and temperature
  - A donut chart displays the number (in %) of gateways with an alarm
  - A horizontal bar chart displays the distribution of the gateway's values in the fleet
  - A click on a chart should redirect to the gateways list with the corresponding filter applied

#### 4.17 Gateways

Since: 3.0

This screen allows the user to list all gateways from a fleet

### 4.17.1 Screenshot



### 4.17.2 Rules

- A user can select a fleet from his customer
- A user can select the *all fleets* choice to list all gateways of all fleets of his customer
- A **SUPER\_ADMIN** can select a fleet from all customers
- A **SUPER\_ADMIN** can select the *all fleets* choice to list all gateways of all fleets of all customers
- The table displays the gateways of the selected fleet
- The user can add all the gateways of the page in the current selection
- The user can add a specific gateway of the page in the current selection
- Each EUI has a link to the gateway overview
- By default, the CPU, RAM, system disk, user disk, RSSI and temperature columns (alarm and values) are not displayed

### 4.17.3 Form

Name	Input type	Required	Validation
Name	text	-	text
Type	select	-	

Description	text	-	text
EUI	multiple	-	-
Status	checkboxes	-	-
Backhaul	checkboxes	-	-
Door	checkboxes	-	-
GPS	checkboxes	-	-
CPU alarm	checkbox	-	-
RAM alarm	checkbox	-	-
System disk alarm	checkbox	-	-
User disk alarm	checkbox	-	-
RSSI alarm	checkbox	-	-
Temperature alarm	checkbox	-	-
CPU value	text	-	number, between:0/100
RAM value	text	-	number, between:0/100
System disk value	text	-	number, between:0/100
User disk value	text	-	number, between:0/100
RSSI value	text	-	number, between:-120/-50
Temperature value	text	-	number

#### 4.17.3.1 Saved filters

To keep the list filtered when using the back button from a gateway page, the filters of this list are saved in local memory while the user navigates through gateways pages. When the user navigates to another page, the filters are reset.

**Example:** - The user filters the gateways list - He clicks on a gateway check its overview page - He clicks on the back button of his browser and goes back to the gateways list: the list is still filtered - He clicks on another gateway an navigates through its pages - He clicks on the "gateways" menu and goes back to the gateways list: the list is still filtered - Now, he clicks on the "end-devices" menu and clicks on the "gateways" menu: the gateways list is no more filtered

#### 4.17.4 Columns

Name	Sortable
[Add to cart]	-
EUI	✓

Fleet (when <i>all fleets</i> selected)	✓
Name	✓
Type	✓
Description	✓
Status	-
Backhaul	-
Door	-
GPS	-
CPU	-
RAM	-
System disk	-
User disk	-
RSSI	-
Temperature	-

CPU, RAM, System disk, User disk, RSSI and temperature columns have sub-columns:

Name	Sortable
Alarm date	-
Alarm value	-
Last min. value	-
Last max. value	-
Last avg. value	-
Last value date	-

## 4.18 Adaptive interface

*Since: 3.1*

The Wanesy™ Management Center can declare multiple types of gateways, but all features of the WMC cannot be used by all types of gateways. Therefore, the dashboard will disable or hide unavailable functionalities to prevent errors.

The functionalities are divided in two levels:

- BSC functionalities
- Gateway functionalities

### 4.18.1 BSC functionalities

These functionalities are macro functionalities and are mainly represented as a menu entry in the dashboard. If a functionality is not available, the menu entry will not be displayed. If it represents an element in a page, it will be disabled or hidden.

Functionality	Menu entry	Element in page
Configuration	Gateway > Configuration > [all menu except software and SNMP]	
Control	Gateway > Overview	Health
	Gateway > Configuration > Alarms	
File exchange	Gateway > Remote access > File explorer	Upload button
		Right click > download
Link status	Gateway > KPI	Link status
Management	Gateway > Configuration > SNMP	
Message step	Gateway > Diagnostic > Tasks	Click on a task > task messages
Modem	<i>Gateway -&gt; Modems</i>	
Remote SSH	Gateway > Remote access > Shell	
Snmp logs	Gateway > Diagnostic > Tasks	Click on a task > SNMP logs
	Gateway > Diagnostic > SNMP	
Specific command	Gateway Gateway > Remote access > File explorer	Reboot gateway button
	Gateway > Remote access > Command	
Spectrum analysis	Gateway > Spectrum	
Statistics	Gateway > KPI	Gateway
Update	Gateway > Configuration > Software	Update
Version	Gateway > Configuration > Software	

#### 4.18.2 Gateway functionalities

These functionalities are specific gateway features and are mainly represented as an element in the gateway pages. If a functionality is not available, the element will be disabled or hidden. If it represents a menu entry, it will be hidden.

Functionality	Menu entry	Element in page
Door	Gateway > Overview	Door status
Fine timestamp keys	Gateway > Configuration > Geolocation	

GPS	Gateways	GPS column
	Gateway > Overview	GPS status
	Gateway > Overview	GPS position & remote coordinates
	Gateway > Overview > Edit	Allow GPS position
	Gateway > Configuration > Alarms	GPS
	Gateway > Configuration > Geolocation	

## 4.19 Overview

Since: 3.0

The page displays an overview of the selected gateway

### 4.19.1 Screenshot

### 4.19.2 Rules

- The title bar, above the tabs, should display the gateway name, EUI, type, status and fleet name
- The menu, at the right of the tab bar, allow to add/remove the gateway to the selection, copy gateway information, reboot and delete the gateway
  - ADMIN can only reboot and delete a gateway of its own customer
  - SUPER\_ADMIN can reboot and delete any gateway
- The floating button (bottom right) allows to display the gateway edition pop-up

#### 4.19.2.1 Properties card

- List of displayed properties:
  - EUI
  - Name
  - Fleet name
  - Type
  - Region, and country if selected
  - Visibility
  - IP address and port
  - Connection status and bearer
  - Door status
  - GPS status

#### 4.19.2.2 Map

- Display the gateway position on the map
- List of displayed properties:
  - Allow GPS position activation
  - Last remote coordinates
  - Manual coordinates

#### 4.19.2.3 Last alarms

- Display the last 6 alarms of the gateway

Name	Sortable
Date	-
Name	-
Value	-

#### 4.19.2.4 Last events

- Display the last 6 events of the gateway

Name	Sortable
Date	-
Name	-
Value	-

#### 4.19.2.5 Health

- Display a list of metrics of the gateway
  - CPU usage
  - RAM usage
  - System disk usage



- User disk usage
- RSSI cellular
- Temperature
- Uptime / Downtime
- If the gateway is connected, these values are refreshed 10 times
  - In the title, a timer displays how old these values are
  - The refresh interval is configured in the application settings
- If the gateway is not connected, these values are empty, except for the downtime which is refresh regularly (no refresh limit)
  - The refresh interval is configured in the application settings

#### 4.19.2.6 Modems

- Display modems list of the gateway

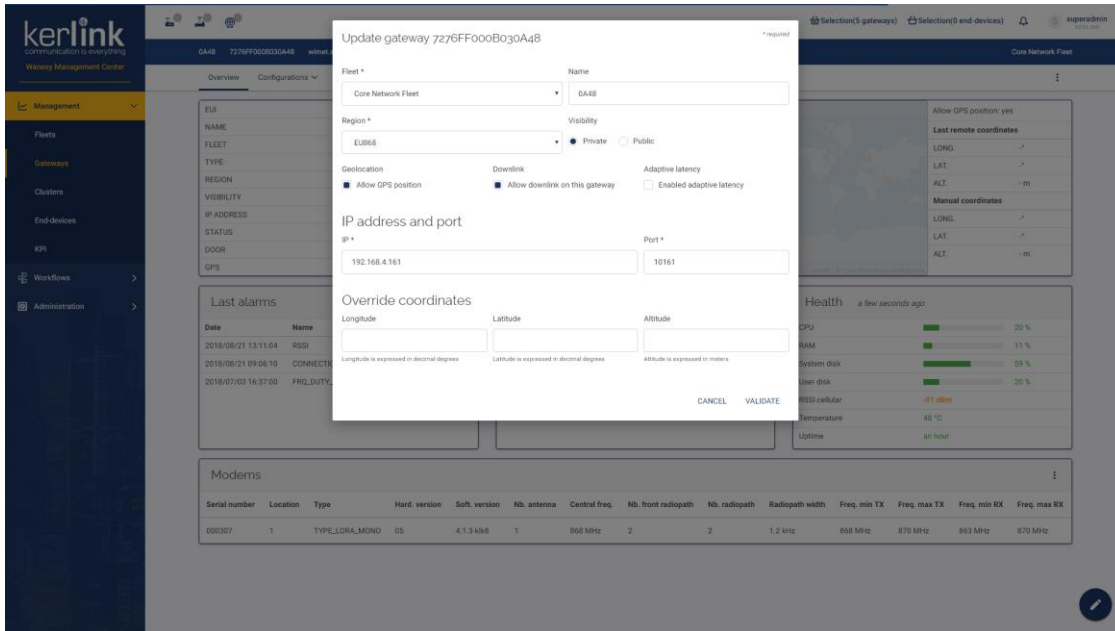
Name	Sortable
Serial number	-
Location	-
Type	-
Hard. version	-
Soft. version	-
Nb. antenna	-
Central freq.	-
Nb. front radiopath	-
Nb. radiopath	-
Radiopath width	-
Freq. min TX	-
Freq. max TX	-
Freq. min RX	-
Freq. max RX	-

## 4.20 Overview - Edit gateway

*Since: 3.0*

From the overview, this modal allows to edit a gateway.

### 4.20.1 Screenshot



#### 4.20.2 Rules

- An **ADMIN** can only move gateway to a cluster of his customer
- A **SUPER\_ADMIN** can move gateway to a cluster of any customers

#### 4.20.3 Form

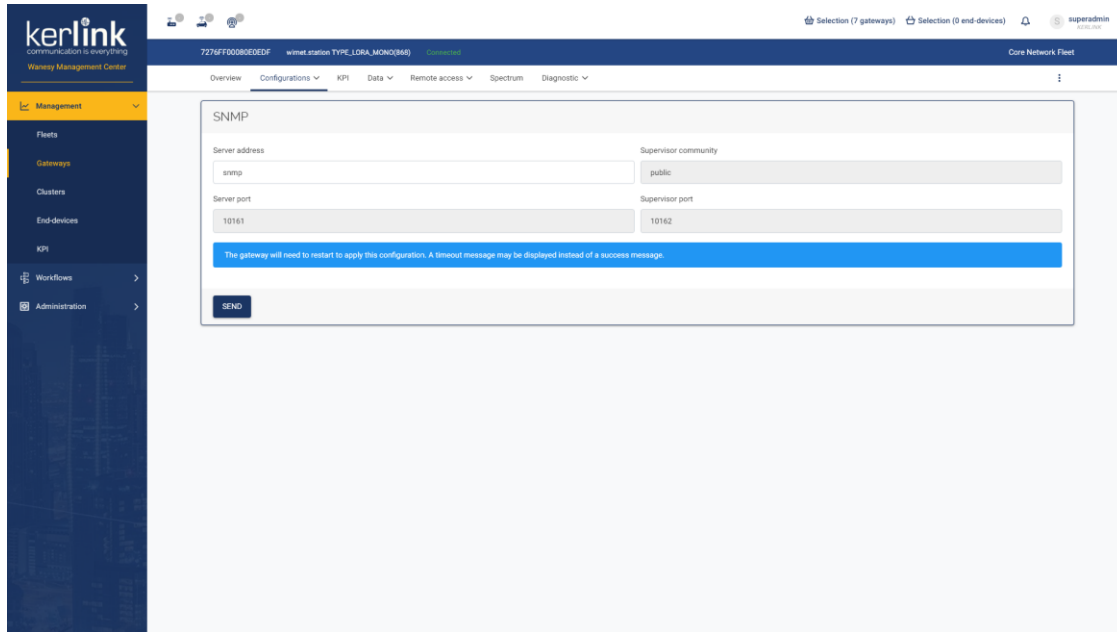
Name	Input type	Required	Validation
Fleet	select	✓	
Name	text	-	text
Region	select	✓	
Visibility	radio	✓	
Geolocation	checkbox	-	
Downlink	checkbox	-	
IP	text	-	ip (if port not empty)
Port	text	-	number, between:1/65535 (if IP not empty)
Longitude	text	-	number, between:-180/180
Latitude	text	-	number, between:-90/90
Altitude	text	-	number

### 4.21 Configuration - SNMP

Since: 3.0

This screen allows the user to configure the SNMP values of the gateway

### 4.21.1 Screenshot



### 4.21.2 Rules

- Only *server address* is editable, all other fields are disabled

### 4.21.3 Form

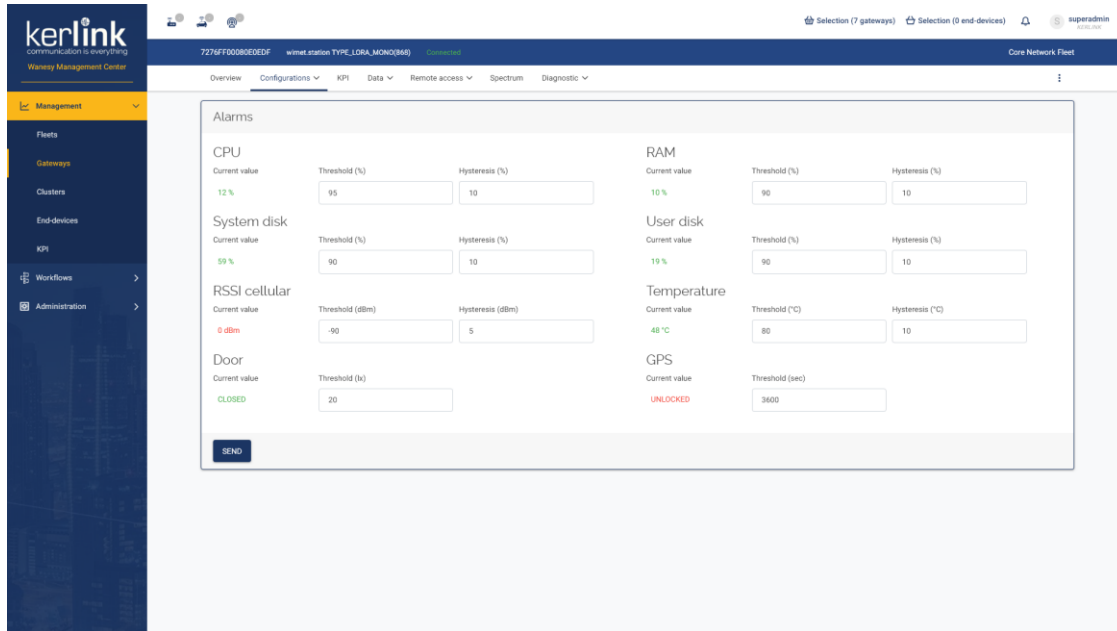
Name	Input type	Required	Validation
Server address	text	-	ipHostname
Server port	text	-	number, between:1/65535
Supervisor community	text	-	-
Supervisor port	text	-	number, between:1/65535

## 4.22 Configuration - Alarms

Since: 3.0

This screen allows the user to configure the alarms thresholds and hysteresis of the gateway

### 4.22.1 Screenshot



#### 4.22.2 Rules

- The page should load the thresholds, hysteresis and current values

#### 4.22.3 Form

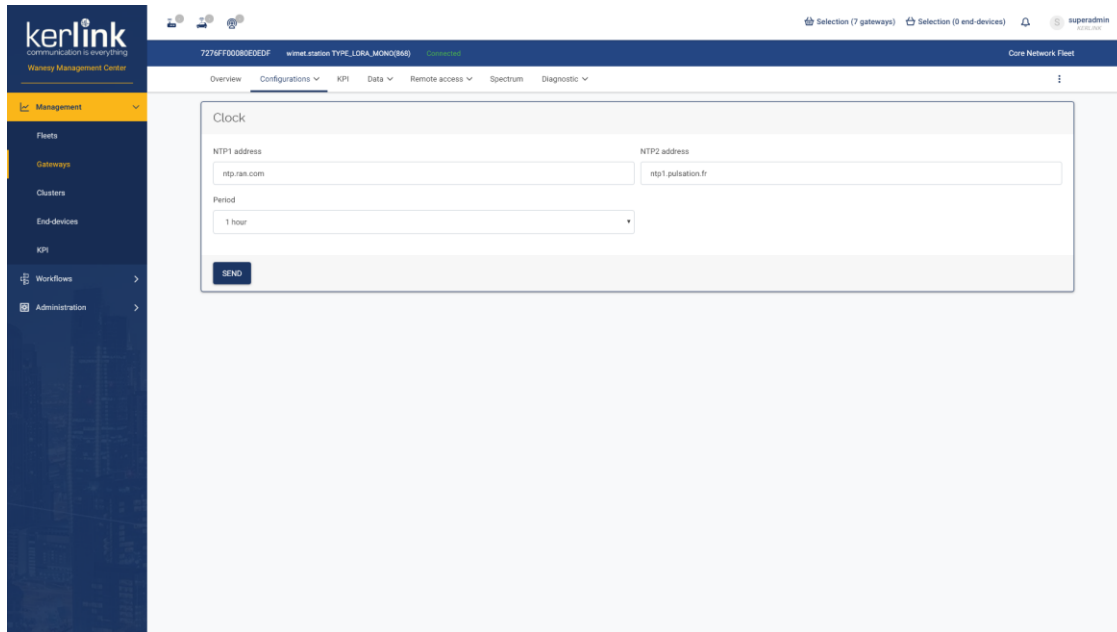
Name	Input type	Required	Validation
CPU threshold	text	✓	between:0/100
CPU hysteresis	text	✓	between:0/100
RAM threshold	text	✓	between:0/100
RAM hysteresis	text	✓	between:0/100
System disk threshold	text	✓	between:0/100
System disk hysteresis	text	✓	between:0/100
User disk threshold	text	✓	between:0/100
User disk hysteresis	text	✓	between:0/100
RSSI threshold	text	✓	between:-120/-50
RSSI hysteresis	text	✓	between:0/50
Temperature threshold	text	✓	between:0/90
Temperature hysteresis	text	✓	between:0/90
Door threshold	text	✓	between:0/80000
GCP threshold	text	✓	between:0/3600

## 4.23 Configuration - Clock

Since: 3.0

This screen allows the user to configure the clock values of the gateway

### 4.23.1 Screenshot



### 4.23.2 Form

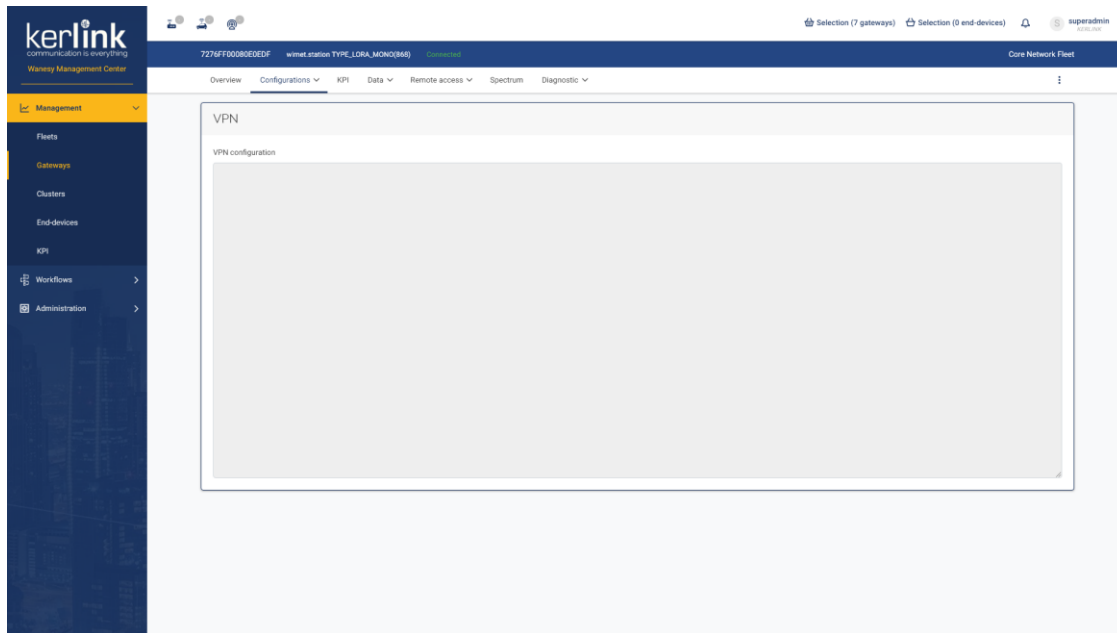
Name	Input type	Required	Validation
NTP1 address	text	-	url
NTP2 address	text	-	url
Period	select	-	-

## 4.24 Configuration - VPN

Since: 3.0

This screen allows the user to configure the clock values of the gateway

### 4.24.1 Screenshot



#### 4.24.2 Rules

- The VPN configuration should be read only

#### 4.24.3 Form

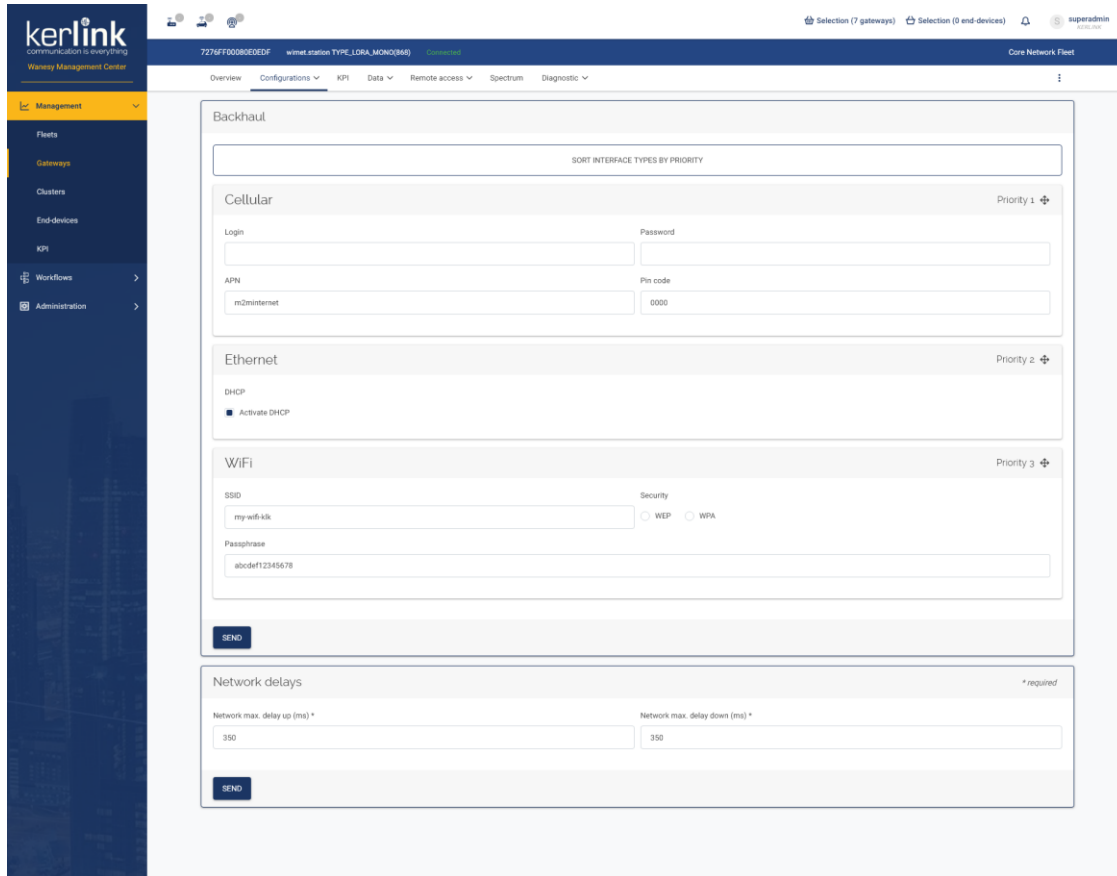
Name	Input type	Required	Validation
VPN configuration	textarea	-	-

### 4.25 Configuration - Backhaul

*Since: 3.0*

This screen allows the user to configure the network values of the gateway

#### 4.25.1 Screenshot



## 4.25.2 Rules

### 4.25.2.1 Backhaul

- Backhaul connection should be sortable by drag & drop
- Initial order should be the one configured on the gateway
- DNS 1 and DNS 2 fields are only available for gateway with interface version  $\geq 4$
- For gateway with interface version  $\geq 4$ , the cellular configuration can contain up to 10 operators
  - A clic on the button **ADD** open a modal to add a new operator
  - Each operator can be edited or deleted
  - The user must click on **SEND** to save the operators

#### 4.25.2.1.1 Cellular (interface version $< 4$ )

Name	Input type	Required	Validation
Login	text	-	
Password	password	-	
APN	text	-	

Pin code	text	-	regex:1[0-9][0-9][0-9][0-9]?[0-9]?[0-9]?\$
----------	------	---	--

#### 4.25.2.1.1 Cellular (interface version >= 4)

Name	Input type	Required	Validation
MMC	text	✓	operatorCode
MNC	text	✓	operatorCode
APN	text	-	
Login	text	-	
Password	password	-	

#### 4.25.2.1.2 Ethernet

Name	Input type	Required	Validation
DHCP	checkbox	-	
IP address (if DHCP not checked)	text	-	ip
Subnet mask (if DHCP not checked)	text	-	ip
Default gateway (if DHCP not checked)	text	-	ip
DNS 1 (if DHCP not checked)	text	-	iphostname
DNS 2 (if DHCP not checked)	text	-	iphostname

#### 4.25.2.1.3 WiFi

Name	Input type	Required	Validation
SSID	text	-	-
Security	radio	-	-
Passphrase	text	-	-

#### 4.25.2.2 Network delays

Name	Input type	Required	Validation
Network max. delay up	text	✓	number, between:0/1000
Network max. delay down	password	✓	number, between:0/1000

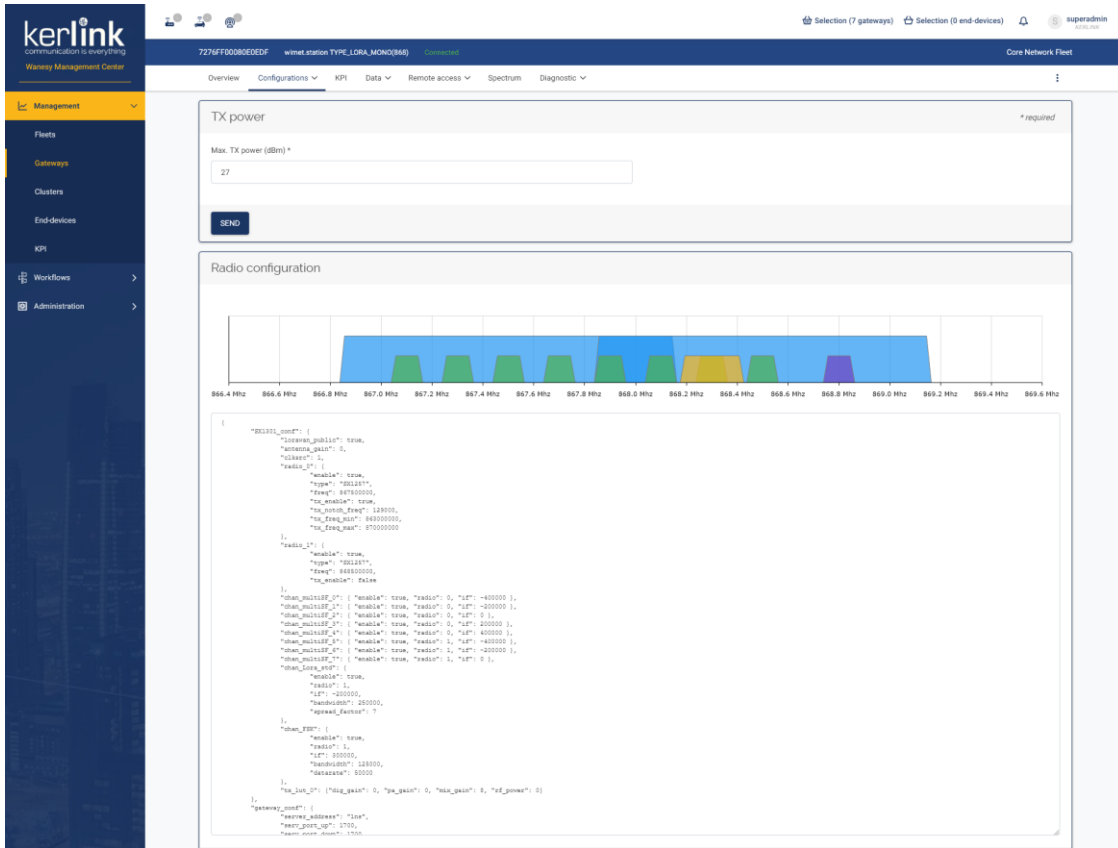
## 4.26 Configuration - Radio

*Since: 3.0*

This screen allows the user to configure the modems of the gateway



### 4.26.1 Screenshot



### 4.26.2 TX power

Name	Input type	Required	Validation
Max TX power	text	✓	number, between:0/36

### 4.26.3 Radio configuration

#### 4.26.3.1 Rules

- For **TYPE\_LORA\_MONO** and **TYPE\_LORA\_LOC** gateways:
  - a graphical representation of the configuration should be displayed
  - a form should allow the user to modify some values of the configuration
  - a raw editor should allow the user to modify all the values of the configuration in the JSON object
  - a button should allow the user to switch between the form and the raw editor
- For other gateways:
  - a raw editor should allow the user to modify all the values of the configuration in the JSON object
- Updating the form values should update the graphical representation
- Updating the JSON object should update the graphical representation

- There is no validation on the JSON object, therefore a bad JSON can lead to errors in the form

#### 4.26.3.2 TYPE\_LORA\_MONO form

##### 4.26.3.2.1 Screenshot

The screenshot displays the 'wimnet station TYPE\_LORA\_MONO(B48)' configuration page. It features a 'TX power' section with a 'Max. TX power' input field set to 27 dBm. Below this is a 'Radio configuration' section with a frequency spectrum visualization. The 'Visual editor' section contains several configuration parameters:

- Modem: Frequency interval (863 MHz - 873 MHz), Nb radiopath (2), Radiopath width (1.2 MHz), Radiopath intervals (866.9 MHz - 867.5 MHz - 868.1 MHz and 867.9 MHz - 868.5 MHz - 869.1 MHz), Antenna gain (0), and Insertion loss (0).
- Channels table:

Name	Effective	Radiopath	Spreading factor	Frequency interval	Bandwidth	Bitrate
chan_multiSF_0	■	0	Multi SF	867.0375 MHz - 867.1 MHz - 867.1625 MHz	125 kHz	
chan_multiSF_1	■	0	Multi SF	867.2375 MHz - 867.3 MHz - 867.3625 MHz	125 kHz	
chan_multiSF_2	■	0	Multi SF	867.4375 MHz - 867.5 MHz - 867.5625 MHz	125 kHz	
chan_multiSF_3	■	0	Multi SF	867.6375 MHz - 867.7 MHz - 867.7625 MHz	125 kHz	
chan_multiSF_4	■	0	Multi SF	867.8375 MHz - 867.9 MHz - 867.9625 MHz	125 kHz	
chan_multiSF_5	■	1	Multi SF	868.0375 MHz - 868.1 MHz - 868.1625 MHz	125 kHz	
chan_multiSF_6	■	1	Multi SF	868.2375 MHz - 868.3 MHz - 868.3625 MHz	125 kHz	
chan_multiSF_7	■	1	Multi SF	868.4375 MHz - 868.5 MHz - 868.5625 MHz	125 kHz	
chan_Lora_std	■	1	7	868.175 MHz - 868.3 MHz - 868.425 MHz	210 kHz	
chan_FSK	■	1		868.7375 MHz - 868.8 MHz - 868.8625 MHz	125 kHz	50 kbps

##### 4.26.3.2.2 Modem

- The modem part displays the modem properties:
  - Frequency interval
  - Radiopaths width
  - Radiopaths interval
  - Antenna gain
  - Insertion loss
- It allows the user to configure the radiopaths intervals, antenna gain and insertion loss

Name	Input type	Required	Validation
Radiopaths intervals	text	✓	number
Antenna gain	text	✓	number
Insertion loss	text	✓	number

#### 4.26.3.2.3 Channels

- The channels part displays channels properties:
  - Name
  - Activation
  - Radiopath used
  - Spreading factor
  - Bandwidth
- It allows the user to configure some properties:
  - Activation
  - Radiopath
  - Spreading factor (chan\_Lora\_std only)
  - Channel frequency
  - Bandwidth (chan\_Lora\_std only)

Name	Input type	Required	Validation
Activation	checkbox	-	-
Radiopath	select	✓	-
Spreading factor	select	✓	-
Channel frequency	text	✓	number
Bandwidth	select	✓	-

### 4.26.3.3 TYPE\_LORA\_LOC form

The screenshot displays the configuration interface for a LORA device. It is divided into several sections:

- TX power:** A form with a 'Max. TX power' input field set to 27 and a 'SEND' button.
- Radio configuration:** A section for 'Modem 0' showing a spectrum plot with frequency from 860 MHz to 876 MHz. Below the plot are settings for 'Full duplex', 'RF chain 0', and 'RF chain 1', each with checkboxes for 'Enable Data Up' and 'Enable Data Down', and input fields for 'Antenna gain' and 'Insertion loss'.
- Visual editor:** A section for 'Modems' with a 'Modem 0' tab. It includes an 'Add modem' button, 'Activation' settings, and a 'Channels' table.

Name	Spreading factor	Frequency interval	Bandwidth	Bitrate
chan_multisf_0	Multi SF	867.0375 MHz - 867.1 MHz - 867.1625 MHz	125 kHz	
chan_multisf_1	Multi SF	867.2375 MHz - 867.3 MHz - 867.3625 MHz	125 kHz	
chan_multisf_2	Multi SF	867.4375 MHz - 867.5 MHz - 867.5625 MHz	125 kHz	
chan_multisf_3	Multi SF	867.6375 MHz - 867.7 MHz - 867.7625 MHz	125 kHz	
chan_multisf_4	Multi SF	867.8375 MHz - 867.9 MHz - 867.9625 MHz	125 kHz	
chan_multisf_5	Multi SF	868.0375 MHz - 868.1 MHz - 868.1625 MHz	125 kHz	
chan_multisf_6	Multi SF	868.2375 MHz - 868.3 MHz - 868.3625 MHz	125 kHz	
chan_multisf_7	Multi SF	868.4375 MHz - 868.5 MHz - 868.5625 MHz	125 kHz	
chan_LoRa_std	?	868.175 MHz - 868.3 MHz - 868.425 MHz	250 kHz	
chan_FSK		868.7375 MHz - 868.8 MHz - 868.8625 MHz	125 kHz	50 kbps

#### 4.26.3.3.1 Modems

- The modems part allows the user to configure:
  - Frequency interval
  - Bandwith
  - Data Up and Down activation, antenna gain and insertion loss for the two RF chains
- The user can add modems up to 8 modems
- When adding a modem, the new modem configuration is created from an existing modem
- The user cannot delete the last modem

Name	Input type	Required	Validation
Frequency interval	text	✓	number

Bandwith	select	✓	-
Full duplex	checkbox	-	-
Enable Data Up/Down	checkbox	-	-
Antenna gain	text	✓	number
Insertion loss	text	✓	number

#### 4.26.3.3.2 Chips

- The chip part displays chips properties of the selected modem
- It allows the user to configure some properties:
  - Frequency interval
  - RF chain

#### 4.26.3.3.3 Channels

- The channels part displays channels properties of the selected chip:
  - Name
  - Activation
  - Spreading factor
  - Bandwidth
- It allows the user to configure some properties:
  - Spreading factor (chan\_Lora\_std only)
  - Channel frequency
  - Bandwidth (chan\_Lora\_std only)

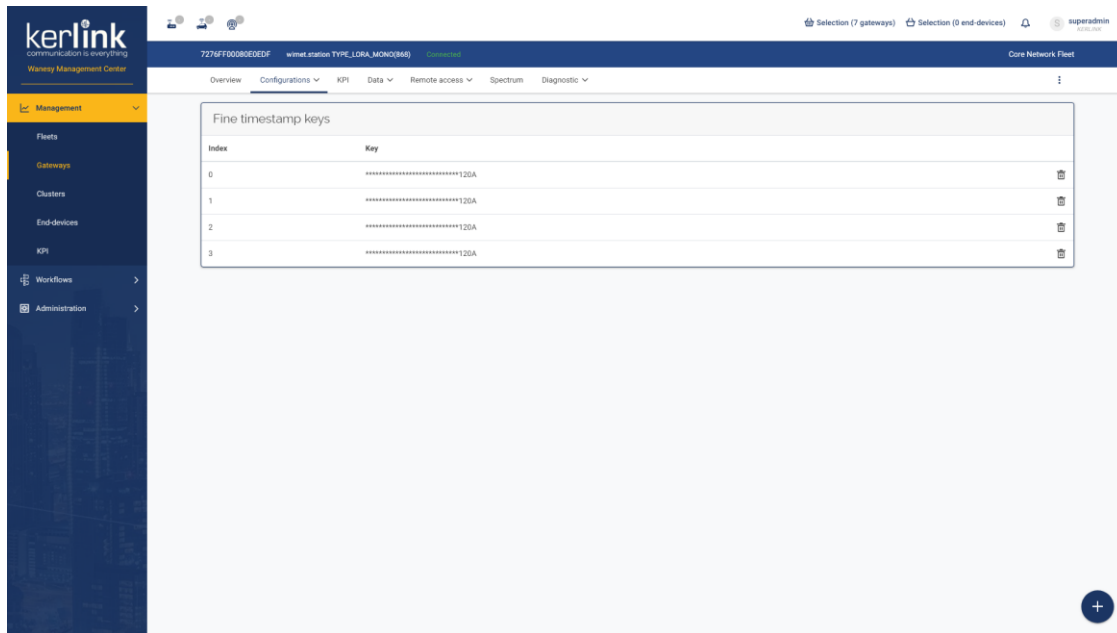
Name	Input type	Required	Validation
Activation	checkbox	-	-
Spreading factor	select	✓	-
Channel frequency	text	✓	number
Bandwidth	select	✓	-

## 4.27 Configuration - Geolocation

*Since: 3.0*

This screen allows the user to configure the fine timestamp keys for the geolocation of the gateway

### 4.27.1 Screenshot



#### 4.27.2 Rules

- A click on a trash icon allow the user to delete a key
- A click on the bottom right + button should open the add fine timestamp key modal

#### 4.27.3 Columns

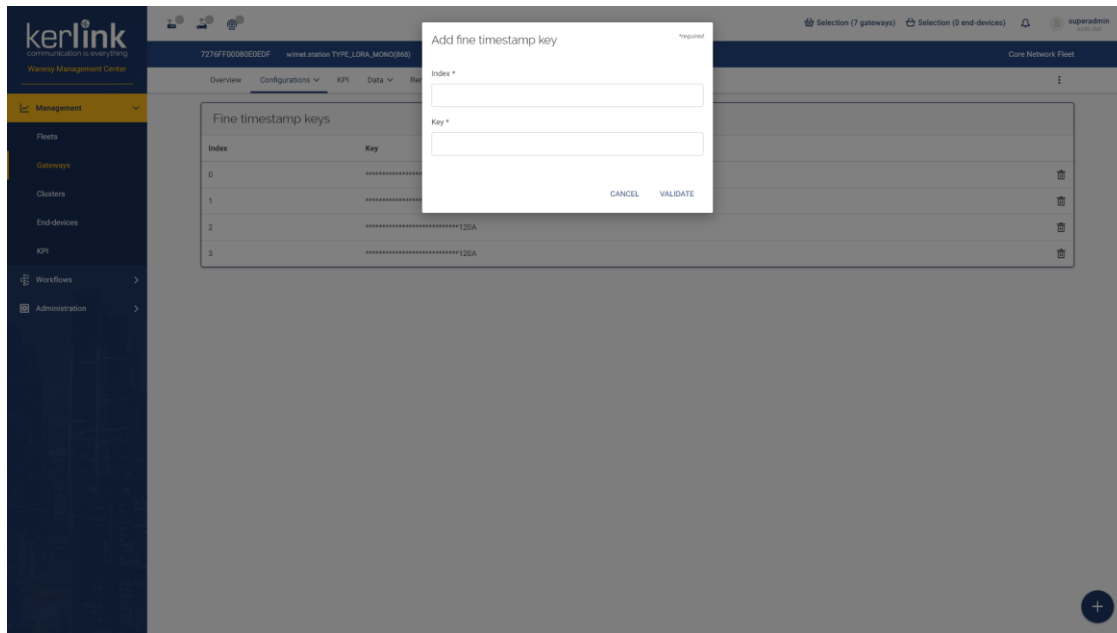
Name	Sortable
Index	-
Key	-
[Actions]	

### 4.28 Configuration - Geolocation: add key

*Since: 3.0*

From the geolocation configuration screen, this modal allows to add a fine timestamp key

#### 4.28.1 Screenshot



#### 4.28.2 Form

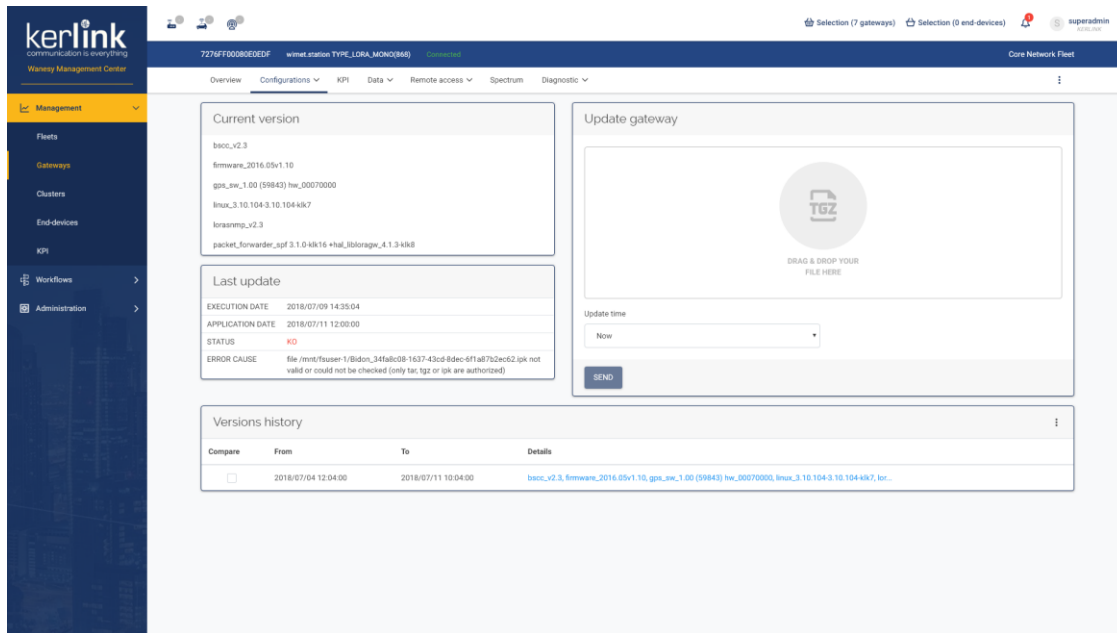
Name	Input type	Required	Validation
index	text	✓	number, between:0/3
key	text	✓	hexa32

### 4.29 Configuration - Software

*Since: 3.0*

This screen allows the user to update the gateway and check the version information

#### 4.29.1 Screenshot



## 4.29.2 Rules

### 4.29.2.1 Current version

- This panel should display the version of each packages of the gateway

### 4.29.2.2 Last update

- This panel should display the status of the last update:
  - Execution date
  - Application date
  - Status
  - Error cause

### 4.29.2.3 Update gateway

- A click on the drop zone should open the native file picker
- The user should also be able to drag & drop a file to drop zone
- A date-picker should be displayed if the *update time* is *planned* and not *now*

### 4.29.2.4 Versions history

- A click on the detail cell should open a modal displaying the full version
- The checkbox of the first column allow the user to compare different entries
  - The *compare* button should only be visible if two entries are selected
  - The differences of the configuration should be highlighted in the comparison modal

Name	Sortable
Compare	-



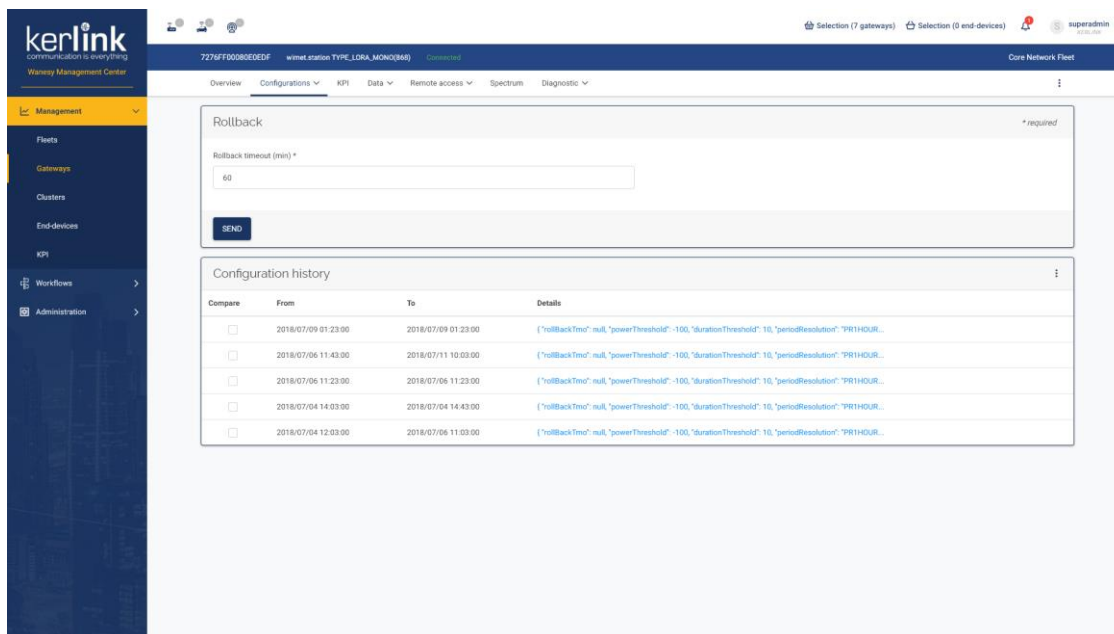
From	-
To	-
Details	-

### 4.30 Configuration - History

Since: 3.0

This screen allows the user to configure the rollback timeout of the gateway and check the configuration history

#### 4.30.1 Screenshot



#### 4.30.2 Rules

N/A

#### 4.30.3 Rollback

Name	Input type	Required	Validation
Rollback timeout	text	✓	number, between:0/1440

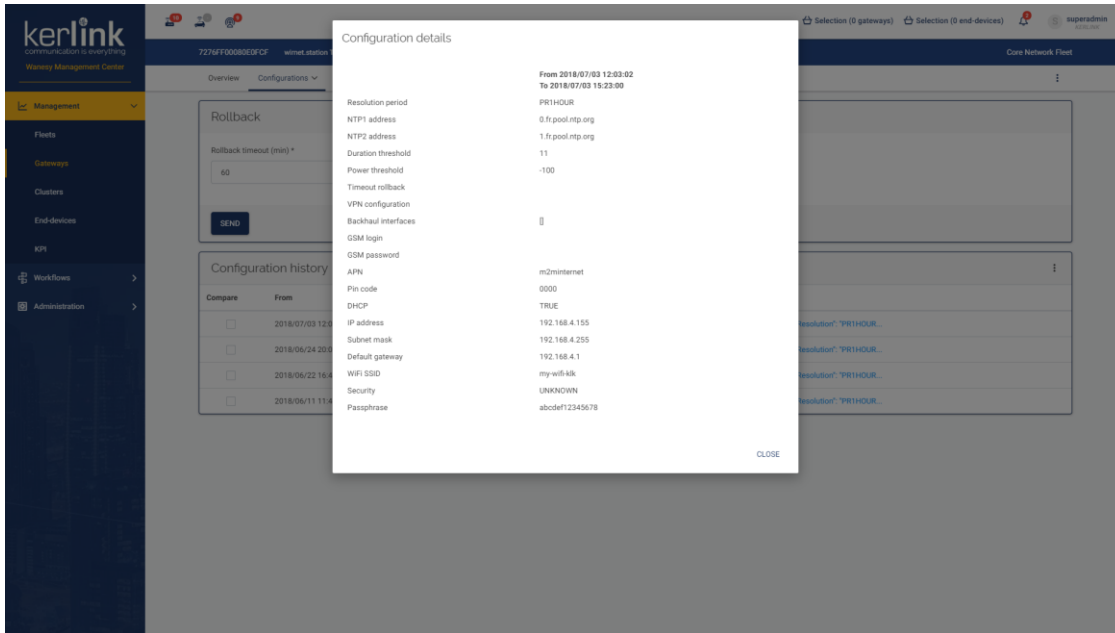
#### 4.30.4 Configuration history

- A click on the detail cell should open a modal displaying the full configuration
- The checkbox of the first column allow the user to compare different entries
  - The *compare* button should only be visible if two entries are selected
  - The differences of the configuration should be highlighted in the comparison modal

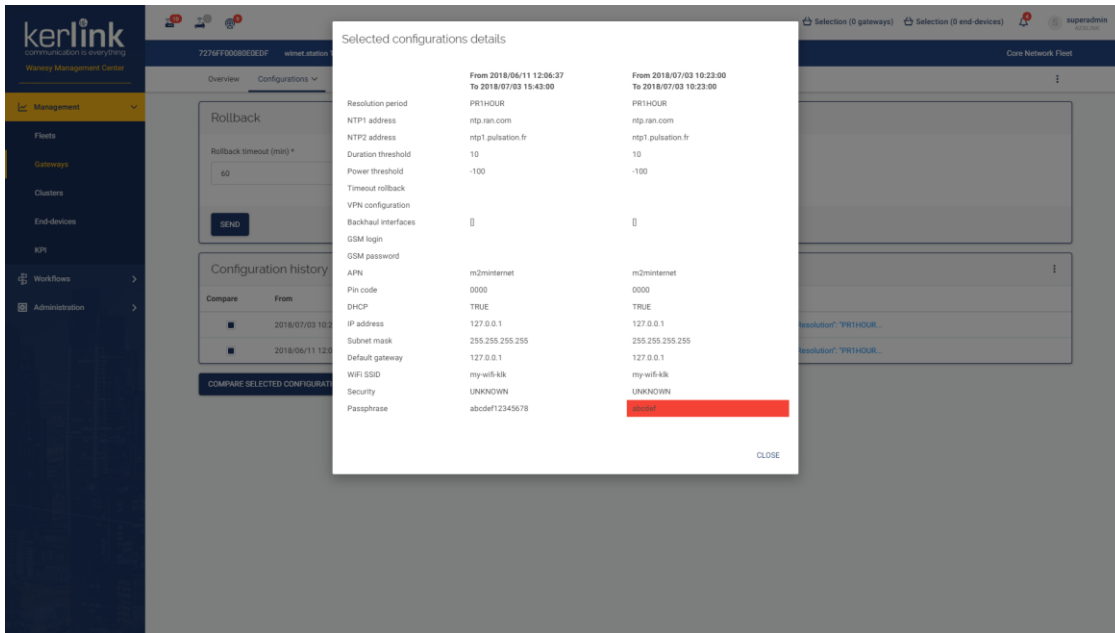
Name	Sortable
Compare	-
From	-
To	-
Details	-

#### 4.30.5 Additional screenshots

### 4.30.5.1 History details



### 4.30.5.2 History comparison

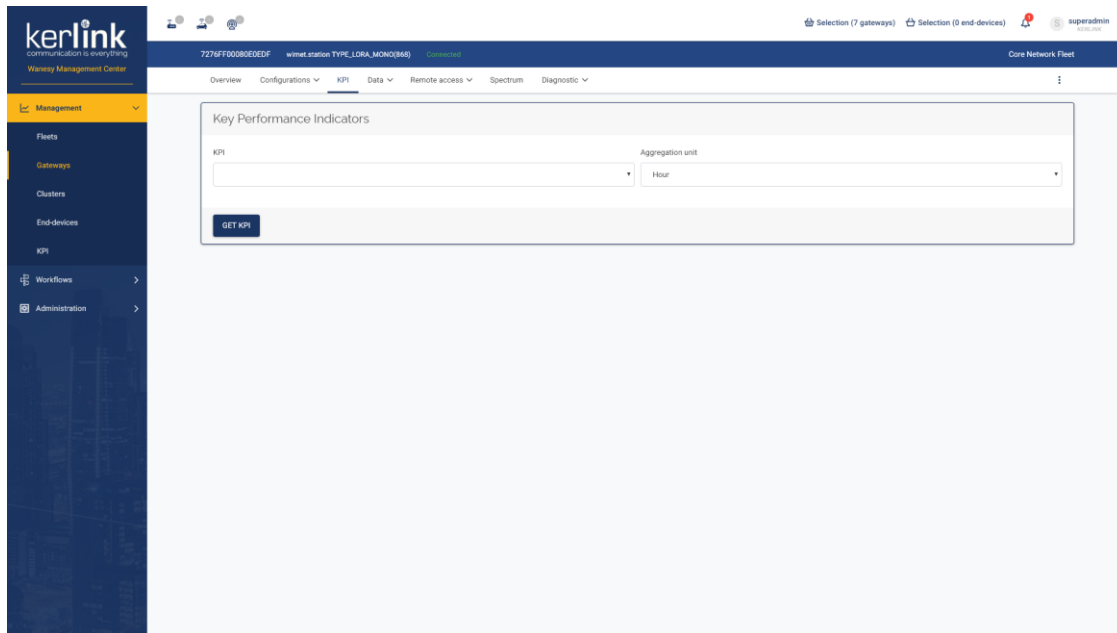


## 4.31 Gateways KPI

Since: 3.0

This screen allows the user to analyse all kinds of data through different charts

### 4.31.1 Screenshot



#### 4.31.2 Rules

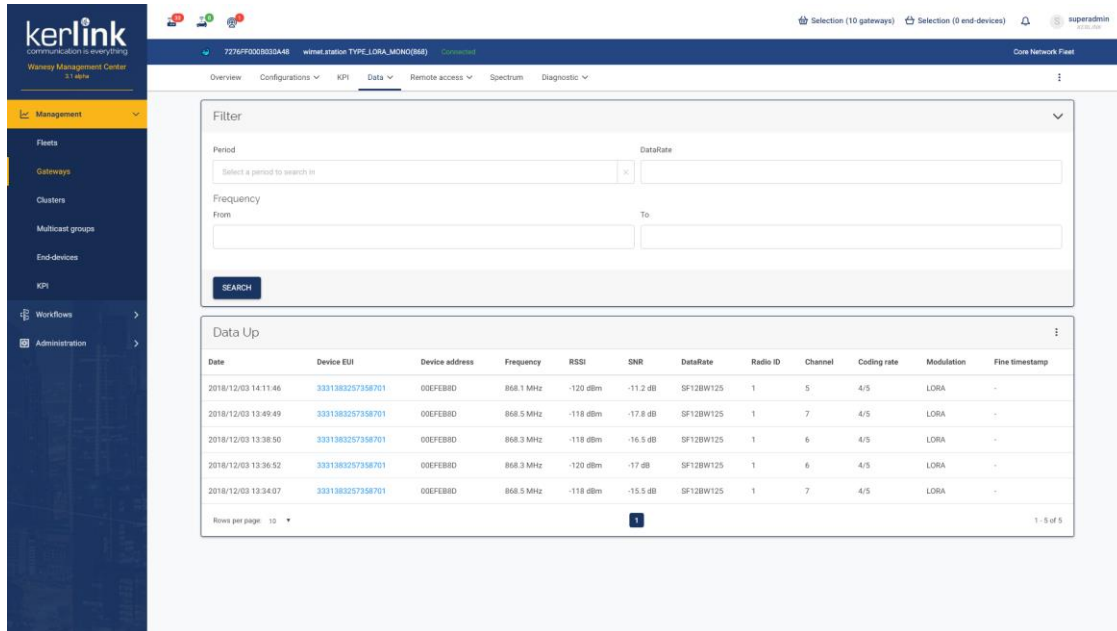
- This is the same screen as the main KPI screen, except:
  - The customer is pre-selected to be the customer of the current gateway
  - The fleet is pre-selected to be the fleet of the current gateway
  - The gateway is pre-selected to be the current gateway
  - Customer, fleet and gateway cannot be changed

#### 4.32 Data Up

*Since: 3.0*

This screen lists all data up received by the gateway

##### 4.32.1 Screenshot



#### 4.32.2 Rules

- A click on a row should open the detail modal, displaying the status and payload of the message
- A click on the device EUI should redirect to the page of this device

#### 4.32.3 Form

Name	Input type	Required	Validation
Period	period-picker	-	-
DataRate	text	-	text
Frequency from	text	-	number, between:0/1000
Frequency to	text	-	number, between:0/1000

#### 4.32.4 Columns

Name	Sortable
Date	-
Device EUI	-
Device address	-
Frequency	-
Modulation	-
DataRate	-
Coding rate	-
Radio ID	-
Channel	-

RSSI	-
SNR	-
Fine timestamp	-
Delayed	-

## 4.32.5 Additional screenshots

### 4.32.5.1 Data Up details

The screenshot shows the 'Data Up' section of the Kerlink WMC 3.2 interface. A 'Details of message' popup is open, displaying the following information:

- Status: Plain
- Payload: 0027209f803c1000000000000000ff

The 'Data Up' table below the popup contains the following data:

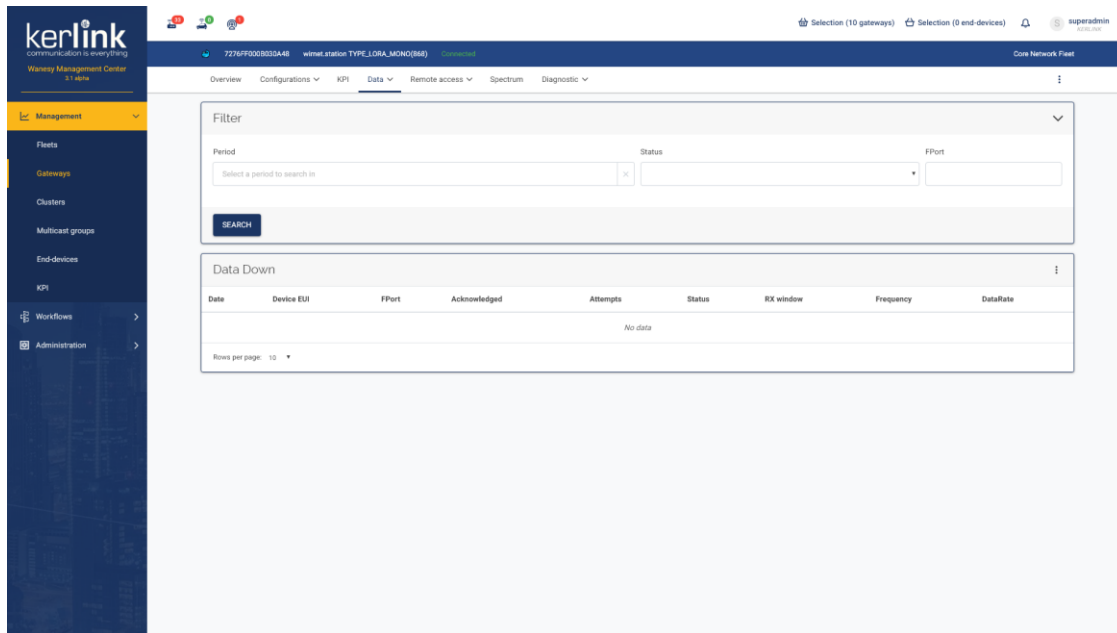
Date	Device EUI	Device address	Frequency	RSSI	SNR	DataRate	Radio ID	Channel	Coding rate	Modulation	Fine timestamp
2018/12/03 14:14:46	3331380257358701	00FE8BD	868.1 MHz	-120 dBm	-11.3 dB	SF12BW125	1	5	4/5	LORA	-
2018/12/03 13:49:49	3331380257358701	00FE8BD	868.5 MHz	-118 dBm	-17.8 dB	SF12BW125	1	7	4/5	LORA	-
2018/12/03 13:38:50	3331380257358701	00FE8BD	868.3 MHz	-118 dBm	-16.8 dB	SF12BW125	1	8	4/5	LORA	-
2018/12/03 13:36:52	3331380257358701	00FE8BD	868.3 MHz	-120 dBm	-17 dB	SF12BW125	1	6	4/5	LORA	-
2018/12/03 13:34:07	3331380257358701	00FE8BD	868.5 MHz	-118 dBm	-15.5 dB	SF12BW125	1	7	4/5	LORA	-

## 4.33 Data Down

*Since: 3.0*

This screen lists all data down sent by the gateway

### 4.33.1 Screenshot



#### 4.33.2 Rules

- A click on a row should open the detail modal, displaying the status, payload, encoding type and history of the message
- A click on the device EUI should redirect to the page of this device

#### 4.33.3 Form

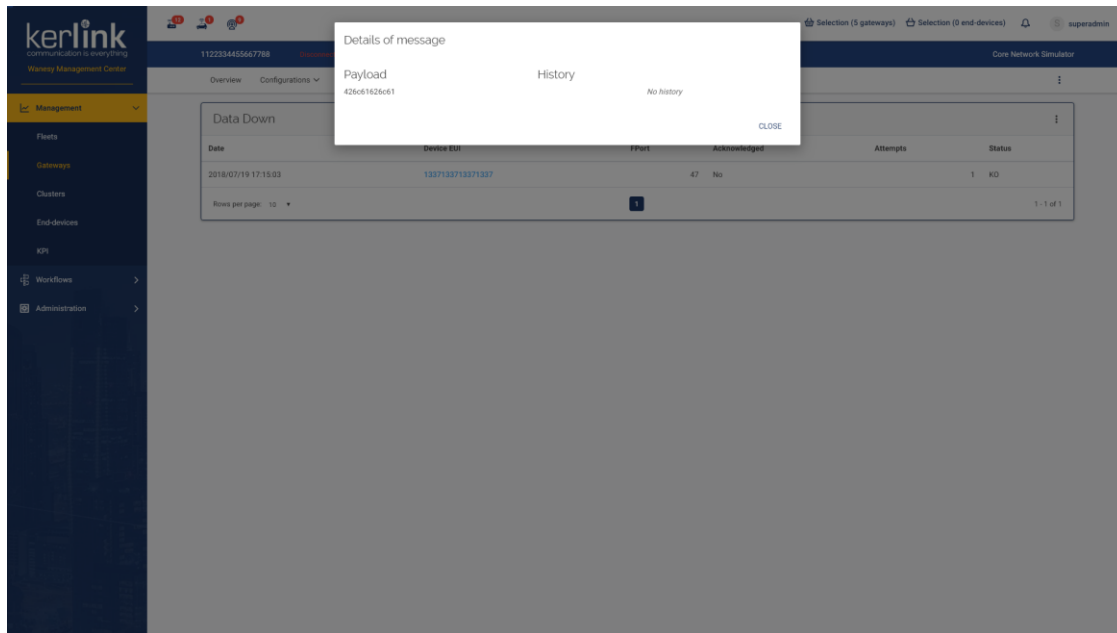
Name	Input type	Required	Validation
Period	period-picker	-	-
Status	select	-	-
FPort	text	-	number, between:0/223

#### 4.33.4 Columns

Name	Sortable
Date	
Device EUI	
FPort	
Acknowledged	
Attempts	
Status	

#### 4.33.5 Additional screenshots

### 4.33.5.1 Data Down details

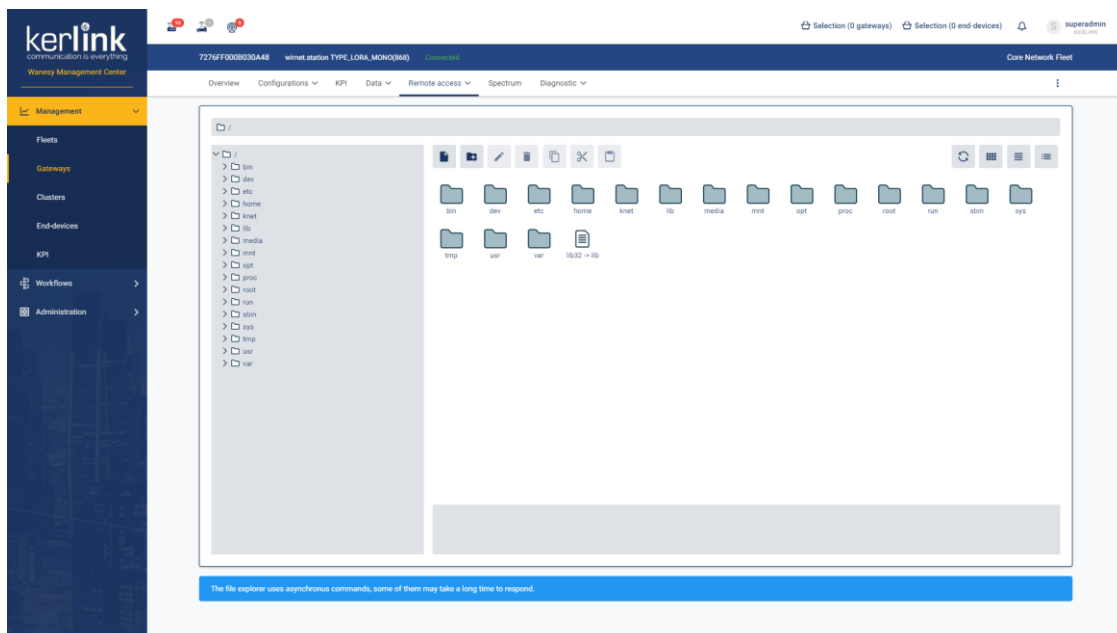


## 4.34 Remote - File explorer

Since: 3.0

This page allows the user to access the gateways files and directory in a “visual explorer” way

### 4.34.1 Screenshot



### 4.34.2 Rules

- The file explorer is divided in 5 areas:
  - The breadcrumb



- The tree
- The buttons bar
- The explorer
- The information panel

#### 4.34.2.1 Breadcrumb

- The breadcrumb should show the path of the current directory
- Each directory of the path should be clickable
- A click on a directory of the path should load and display its content in the explorer

#### 4.34.2.2 Tree

- The tree should display the list of directories
- Each directory of the tree should be clickable
- A click on a directory of the tree should load and display its content in the explorer
- A click on the arrow next to each directory should load and display all sub-directories under the parent directory
- If it's already open, a click on the arrow will close the parent directory
- A right click on a directory should open the context menu with some actions:
  - Open
  - Copy
  - Cut
  - Delete

#### 4.34.2.3 Button bar

The button bar allows the user to do multiple actions:

- Create a new file in the current directory
- Create a new folder in the current directory
- If a file/folder is selected:
  - Edit the selected element
  - Delete the selected element
  - Copy the selected element
  - Cut the selected element
  - Paste the selected element
- Refresh the explorer
- Display the explorer as a grid
- Display the explorer as a list
- Display the explorer as a list with element details

#### 4.34.2.4 Explorer

The explorer lists the content of the current directory

- A click on an element should display the element details in the information panel
- A right click should open the context menu with some actions:
  - Refresh
  - New folder

#### 4.34.2.5 Information

The information panel displays the selected element details:

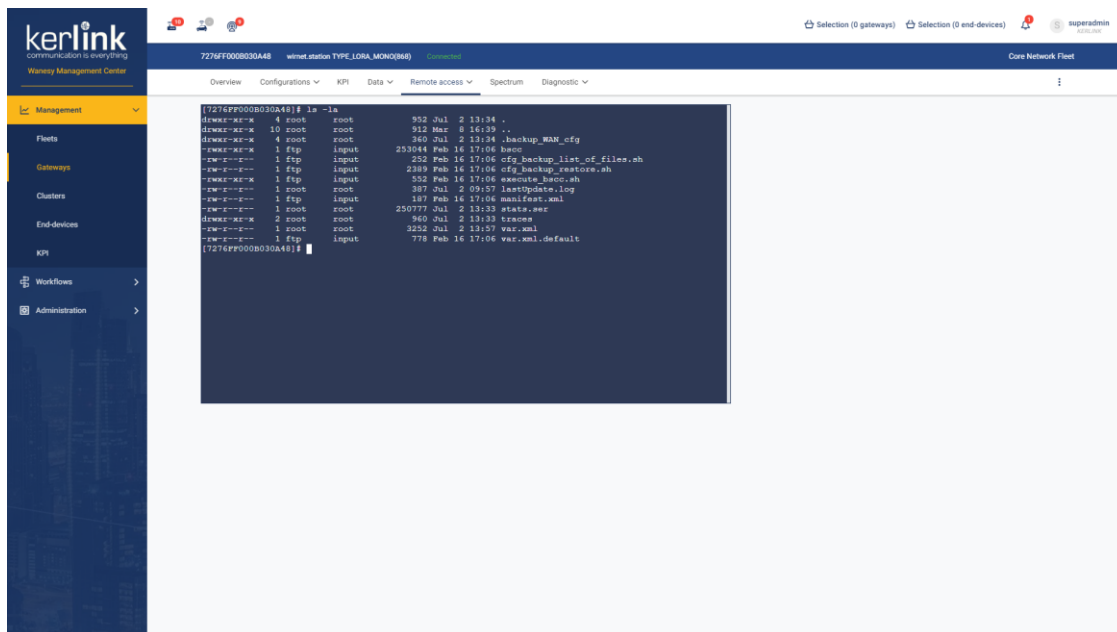
- Icon (file/folder)
- Name
- Last update
- Size (file only)

### 4.35 Remote - Shell

*Since: 3.0*

This screen allows the user to access to the gateway through a remote SSH interface

#### 4.35.1 Screenshot



#### 4.35.2 Rules

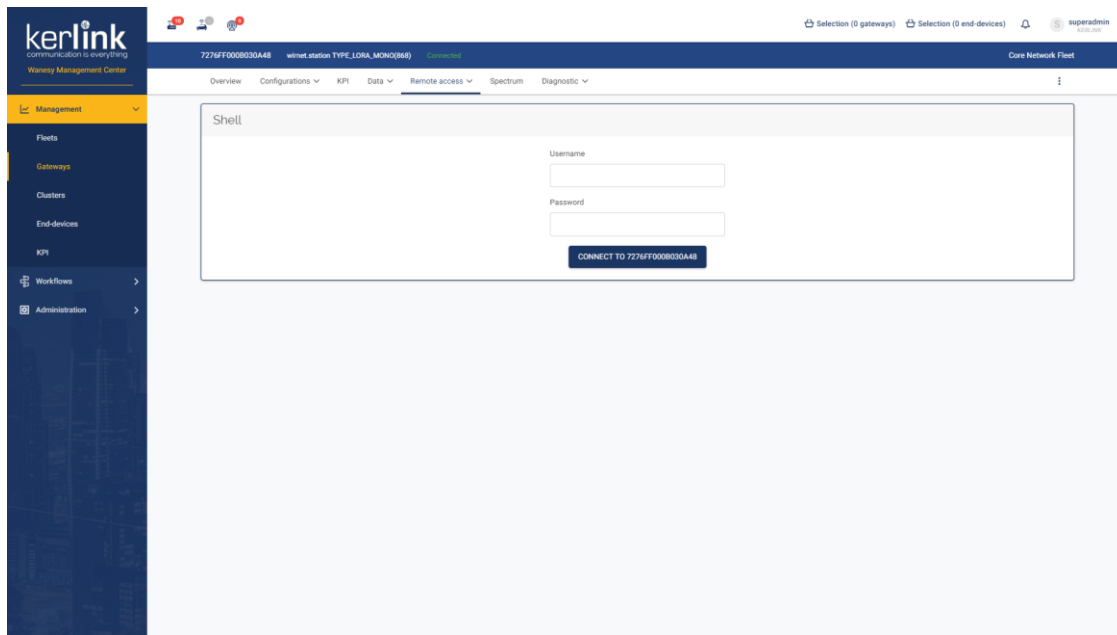
- The user needs to enter correct username and password to access the terminal
- Once the connection with the gateway is closed, the login form is displayed

#### 4.35.3 Form

Name	Input type	Required	Validation
Username	text	✓	-
Password	password	✓	-

## 4.35.4 Additional screenshots

### 4.35.4.1 Remote shell login

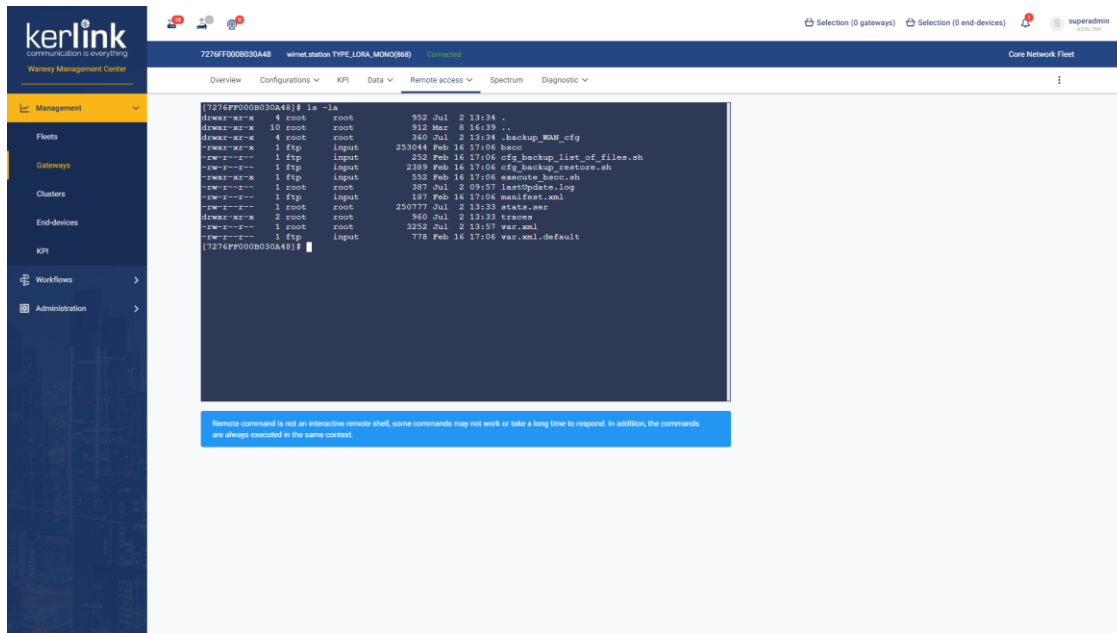


## 4.36 Remote - Command

*Since: 3.0*

This screen allows the user to access to the gateway through a remote command interface

### 4.36.1 Screenshot



#### 4.36.2 Rules

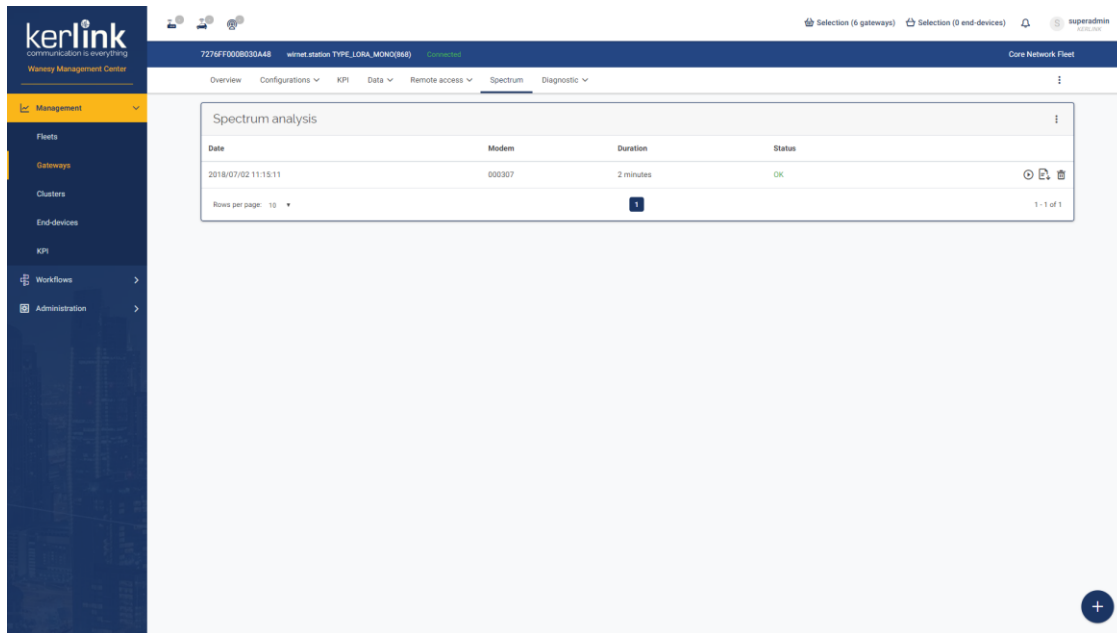
- Only “ask-answer” commands are supported, interactive commands are not supported
- All commands are always executed in the same context

#### 4.37 Spectrum

Since: 3.0

This page allows the user to create, visualize and delete gateway spectrums

##### 4.37.1 Screenshot



## 4.37.2 Rules

### 4.37.2.1 Spectrum list

- The list displays all spectrum related to the current gateway
- From the list, each spectrum can be visualized, downloaded and deleted
- A click on the bottom right + button should open the add cluster modal

Name	Sortable
Date	-
Modem	-
Duration	-
Status	-
[Actions]	-

### 4.37.2.2 Spectrum viewer

- The spectrum viewer should display:
  - Spectrum information
    - gateway EUI
    - date
    - modem
    - duration
  - A 3 dimensions representation of the spectrum
  - A slider representing the spectrum duration, and allowing the user to see the 3D representation at a specific time frame
  - Play/pause, stop and download buttons

- If the spectrum analysis contains only one value, the slider, the play/pause button and the stop button will not be displayed

#### 4.37.3 Create spectrum form

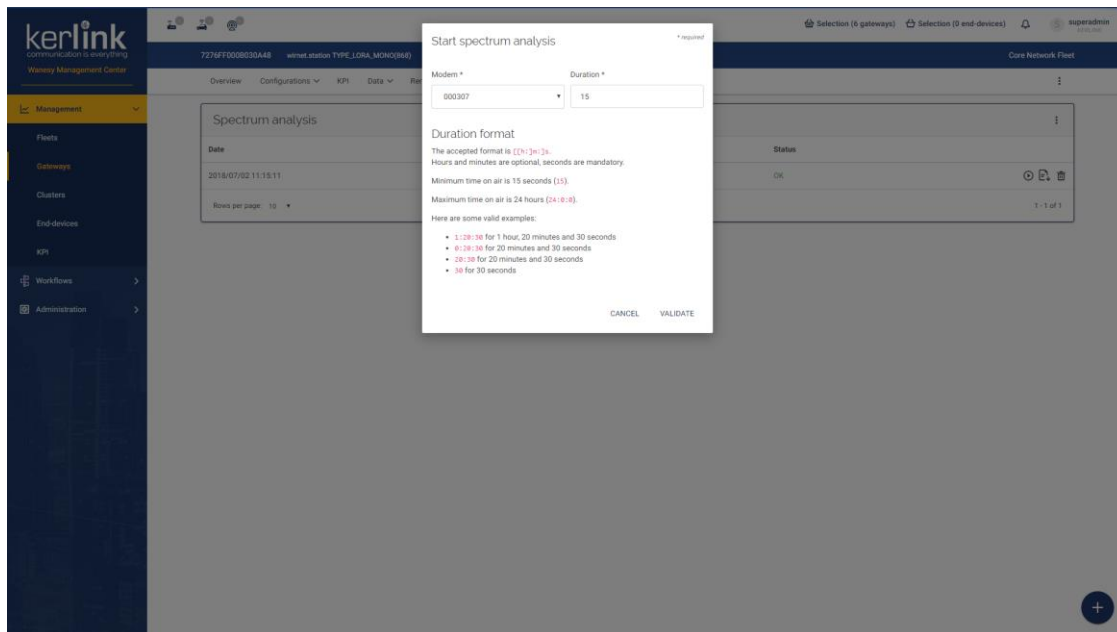
Name	Input type	Required	Validation
Modem	select	✓	-
Duration	text	✓	spectrumDuration

#### 4.37.4 Additional screenshots

### 4.37.4.1 Spectrum viewer



### 4.37.4.2 Create spectrum

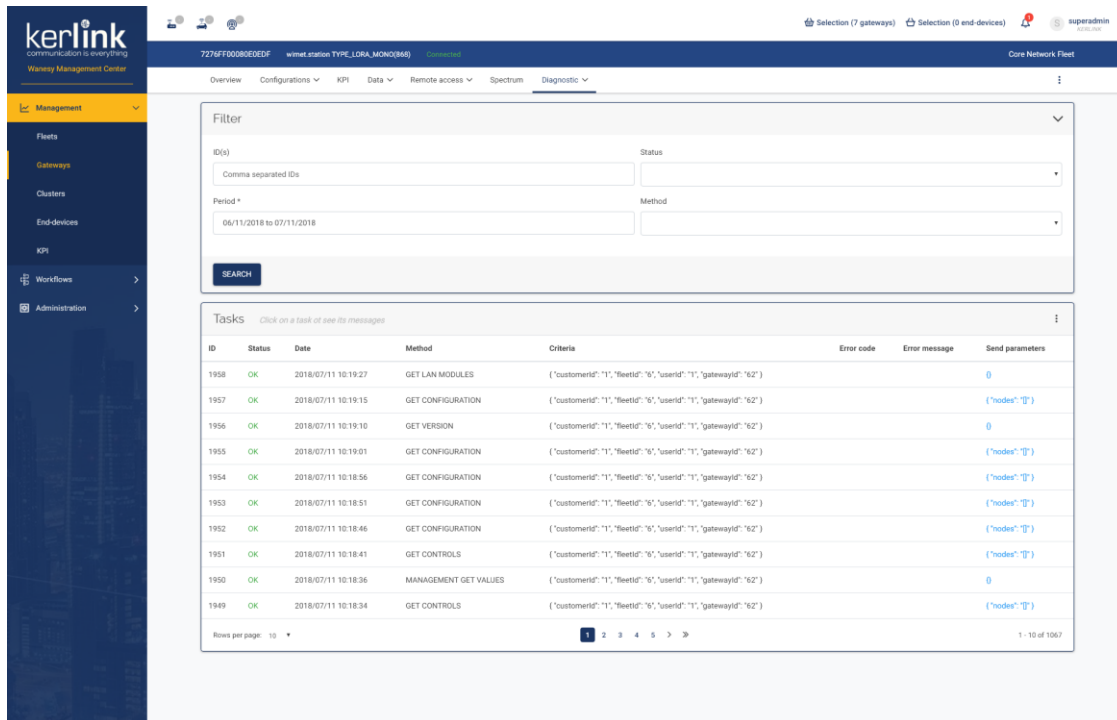


## 4.38 Diagnostic - Tasks

*Since: 3.0*

This page lists all the gateway tasks

### 4.38.1 Screenshot



#### 4.38.2 Rules

- A click on a task row should display the corresponding messages and SNMP logs below the task table
  - The *Display OID name* checkbox should allow the user to switch between OID names and code in SNMP logs
- A click on a *send parameters* link in a row should display a modal with the task parameters

#### 4.38.3 Filters

Name	Input type	Required	Validation
ID(s)	text	-	text
Status	select	-	-
Period	period-picker	✓	-
Method	select	-	-

#### 4.38.4 Columns

##### 4.38.4.1 Tasks

Name	Sortable
ID	-
Status	-
Date	-



Method	-
Criteria	-
Error code	-
Error message	-
Send parameters	-

#### 4.38.4.2 Task messages

Name	Sortable
ID	-
Date	-
Progress status	-
Location	-
Message	-
Continue?	-

#### 4.38.4.3 Task SNMP logs

Name	Sortable
ID	-
Origin	-
Date	-
Content	-

#### 4.38.5 Additional screenshots

### 4.38.5.1 Task parameters

The screenshot shows the Kerlink WMC 3.2 interface. A modal window is open, displaying the task details for ID 1958: "1958 - GET LAN MODULES - OK - 2018/07/11 10:19:27". Below the modal, a filter section is visible with fields for IDs, Status, Period, and Method. The main content is a table of tasks.

ID	Status	Date	Method	Criteria	Error code	Error message	Send parameters
1958	OK	2018/07/11 10:19:27	GET LAN MODULES	({"customerid": "1", "fleetid": "6", "userid": "1", "gatewayid": "62"}			0
1957	OK	2018/07/11 10:19:15	GET CONFIGURATION	({"customerid": "1", "fleetid": "6", "userid": "1", "gatewayid": "62"}			({"nodes": "[]"
1956	OK	2018/07/11 10:19:10	GET VERSION	({"customerid": "1", "fleetid": "6", "userid": "1", "gatewayid": "62"}			0
1955	OK	2018/07/11 10:19:01	GET CONFIGURATION	({"customerid": "1", "fleetid": "6", "userid": "1", "gatewayid": "62"}			({"nodes": "[]"
1954	OK	2018/07/11 10:18:56	GET CONFIGURATION	({"customerid": "1", "fleetid": "6", "userid": "1", "gatewayid": "62"}			({"nodes": "[]"
1953	OK	2018/07/11 10:18:51	GET CONFIGURATION	({"customerid": "1", "fleetid": "6", "userid": "1", "gatewayid": "62"}			({"nodes": "[]"
1952	OK	2018/07/11 10:18:46	GET CONFIGURATION	({"customerid": "1", "fleetid": "6", "userid": "1", "gatewayid": "62"}			({"nodes": "[]"
1951	OK	2018/07/11 10:18:41	GET CONTROLS	({"customerid": "1", "fleetid": "6", "userid": "1", "gatewayid": "62"}			({"nodes": "[]"
1950	OK	2018/07/11 10:18:36	MANAGEMENT GET VALUES	({"customerid": "1", "fleetid": "6", "userid": "1", "gatewayid": "62"}			0
1949	OK	2018/07/11 10:18:34	GET CONTROLS	({"customerid": "1", "fleetid": "6", "userid": "1", "gatewayid": "62"}			({"nodes": "[]"

### 4.38.5.2 Task details



The screenshot displays the Kerlink WMC 3.2 interface. On the left is a navigation menu with options like 'Management', 'Flows', 'Gateways', 'Clusters', 'End-devices', 'KPI', 'Workflows', and 'Administration'. The top bar shows the user 'wanwan.van\_1004\_Mono0004' and various system icons. The main area is titled 'SNMP logs' and contains a filter section with a 'SEARCH' button. Below the filter is a table of log entries. Each entry includes an ID, a date (e.g., 2018/07/11 10:19:27), a request ID (e.g., 133878889), an origin (e.g., FROM GATEWAY), and a content field containing detailed SNMP log data. The content field shows a series of IP addresses and community strings, such as '1.3.6.1.4.1.46911.50.13.2.1.1-1000000000'. The interface also includes a 'Display OID names' checkbox and a 'Show per page' dropdown at the bottom.

### 4.39.2 Rules

- The **Display OID name** checkbox should allow the user to switch between OID names and code in SNMP logs

### 4.39.3 Form

Name	Input type	Required	Validation
Period	period-picker	✓	-

#### 4.39.4 Columns

Name	Sortable
ID	-
Origin	-
Date	-
Content	-

### 4.40 Diagnostic - Events

Since: 3.0

This page lists all the gateway events

#### 4.40.1 Screenshot

#### 4.40.2 Form

Name	Input type	Required	Validation
Name	select	-	-
Period	period-picker	✓	-

#### 4.40.3 Columns

Name	Sortable
------	----------

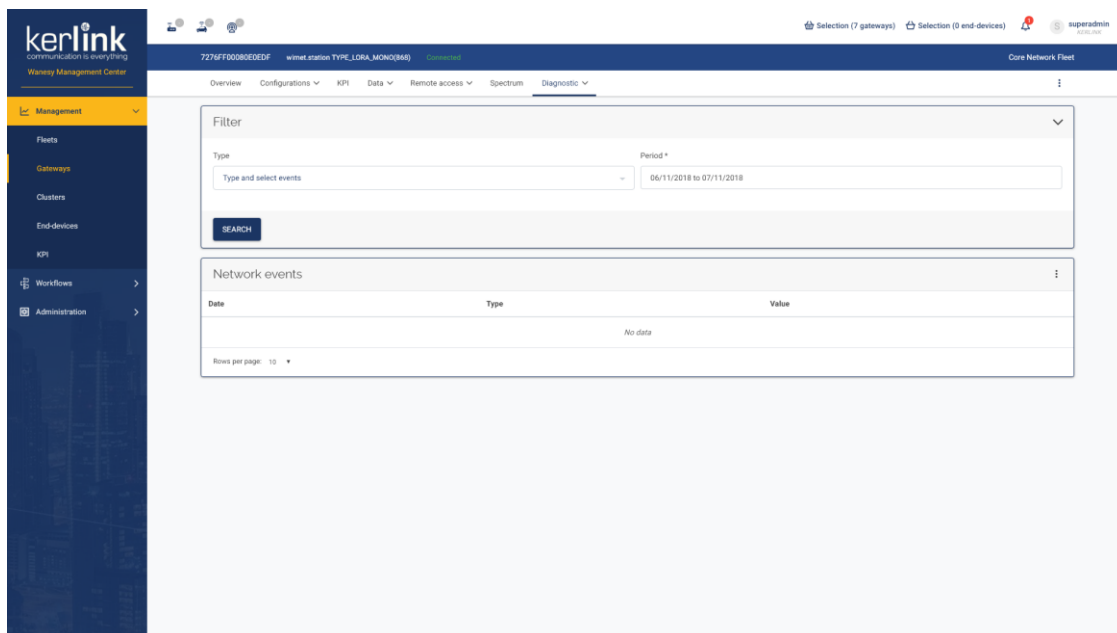
ID	-
Date	-
Type	-
Name	-
Value	-

## 4.41 Diagnostic - Network events

Since: 3.0

This page lists all the gateway network events

### 4.41.1 Screenshot



### 4.41.2 Form

Name	Input type	Required	Validation
Name	select	-	-
Period	period-picker	✓	-

### 4.41.3 Columns

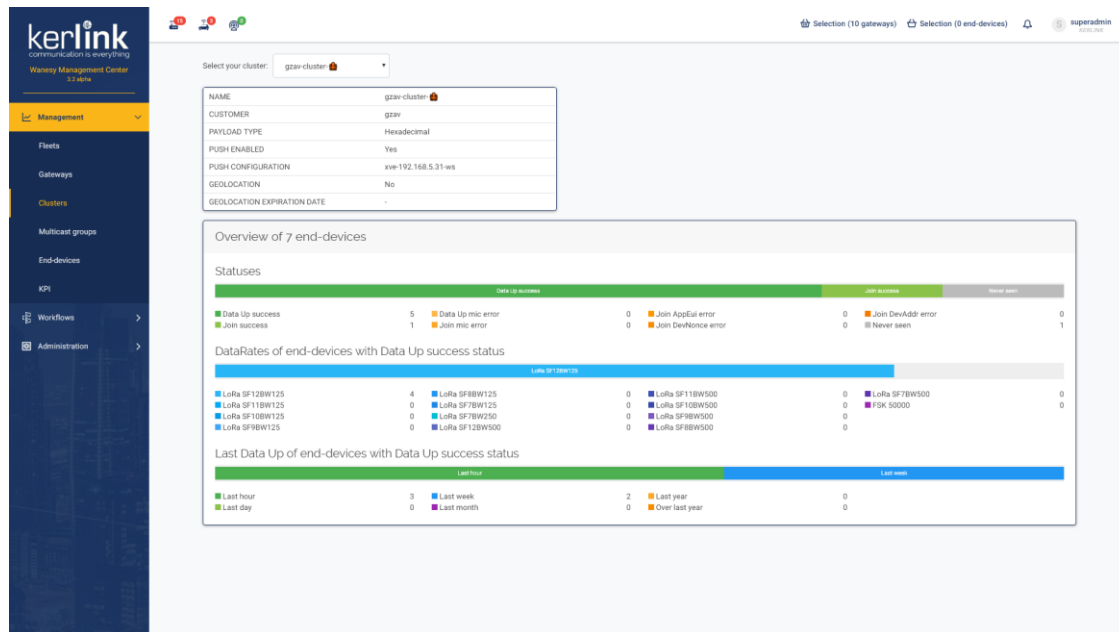
Name	Sortable
Date	-
Type	-
Value	-

## 4.42 Cluster overview

Since: 3.2

This page displays an overview of the selected cluster.

### 4.42.1 Screenshot



### ClusterOverview

#### 4.42.2 Rules

- A user can select a cluster from his customer
- A **SUPER\_ADMIN** can select a cluster from all customers
- The top left panel displays a list of properties of the cluster:
  - Name
  - Customer
  - Payload type
  - Push enabled
  - Push configuration
  - Geolocation enabled
  - Geolocation expiration date
- The bottom panel displays an overview of the end-devices of the selected cluster
  - The first histogram displays the repartition of end-devices by statuses
    - A click on the histogram parts, or on the legend items, redirect to the [end-devices](#) list with the corresponding filter applied
  - The second histogram displays the repartition of end-devices with *Data Up success* status by dataRates

- The third histogram displays the repartition of the last Data Up of end-devices with *Data Up success* status by dates

## 4.43 End-devices

Since: 3.0

This page lists all end-devices of the selected cluster

### 4.43.1 Screenshot

### 4.43.2 Rules

- A user can select a cluster from his customer
- A user can select the *all clusters* choice to list all end-devices of all clusters of his customer
- A **SUPER\_ADMIN** can select a cluster from all customers
- A **SUPER\_ADMIN** can select the *all clusters* choice to list all end-devices of all clusters of all customers
- The table displays the end-devices of the selected cluster
- The user can add all the end-devices of the page in the current selection
- The user can add a specific end-device of the page in the current selection
- Each device EUI has a link to the end-device overview

### 4.43.3 Form



Name	Input type	Required	Validation
Device EUI	multiple	-	-
Name	text	-	text
Device addr	text	-	hexa8
Class	checkbox	-	-
Region	multiple	-	-
Mac version	multiple	-	-
Regional parameters revision	multiple	-	-
Status	multiple	-	-
Profile	select	-	-
ADR	select	-	-

#### 4.43.3.1 Saved filters

To keep the list filtered when using the back button from a end-device page, the filters of this list are saved in local memory while the user navigates through end-devices pages. When the user navigates to another page, the filters are reset.

**Example:** - The user filters the end-devices list - He clicks on a end-device check its overview page - He clicks on the back button of his browser and goes back to the end-devices list: the list is still filtered - He clicks on another end-device an navigates through its pages - He clicks on the “end-devices” menu and goes back to the end-devices list: the list is still filtered - Now, he clicks on the “gateways” menu and clicks on the “end-devices” menu: the end-devices list is no more filtered

#### 4.43.4 Columns

Name	Sortable
[Add to select]	-
Device EUI	✓
Cluster (when <i>all clusters</i> selected)	-
Name	✓
Device addr	✓
Class	✓
Region, and country if selected	-
Mac version	-
Reg. params revision	-
Status	-
Profile	✓

ADR	-
Last DataUp message	
Last DataDown message	

## 4.44 Multicast groups

Since: 3.0

This page lists all multicast groups of the selected cluster

### 4.44.1 Screenshot

Multicast address	Name	Cluster	FCcountDown	Frequency	DataRate	Number of end-devices
CAFE001	MC LoRa 1	SFA		1	868.1 MHz SF8BW120	6
CAFE012	MC LoRa 2	SFA		2	868.3 MHz SF8BW121	4
CAFE123	MC LoRa 3	SFA		4	868.5 MHz SF7BW122	5
CAFE1234	MC LoRa 4	SFA		7	868.7 MHz SF8BW123	2

### 4.44.2 Rules

- A user can select a cluster from his customer
- A user can select the *all clusters* choice to list all end-devices of all clusters of his customer
- A **SUPER\_ADMIN** can select a cluster from all customers
- A **SUPER\_ADMIN** can select the *all clusters* choice to list all end-devices of all clusters of all customers
- The table displays the multicast groups of the selected cluster
- Each multicast address has a link to the multicast group overview

### 4.44.3 Form

Name	Input type	Required	Validation
Multicast address	multiple	-	-
Name	text	-	text

Frequency	text	-	number
DataRate	text	-	text

#### 4.44.3.1 Saved filters

To keep the list filtered when using the back button from a group page, the filters of this list are saved in local memory while the user navigates through groups pages. When the user navigates to another page, the filters are reset.

**Example:** - The user filters the multicast groups list - He clicks on a group check its overview page - He clicks on the back button of his browser and goes back to the groups list: the list is still filtered - He clicks on another group and navigates through its pages - He clicks on the "multicast groups" menu and goes back to the groups list: the list is still filtered - Now, he clicks on the "end-devices" menu and clicks on the "multicast groups" menu: the groups list is no more filtered

#### 4.44.4 Columns

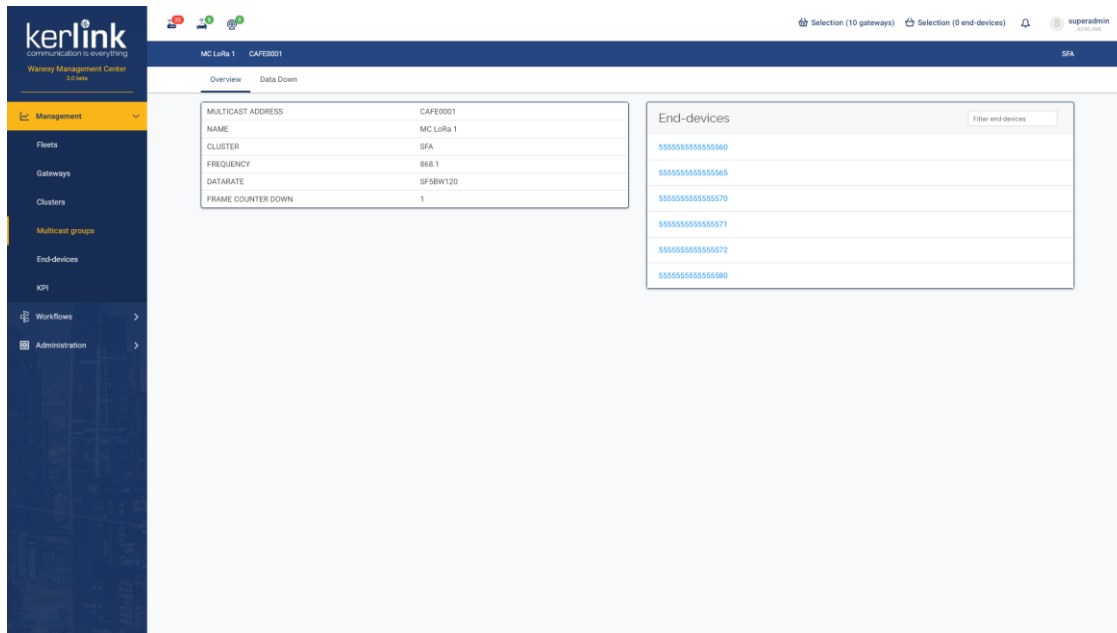
Name	Sortable
Multicast address	✓
Name	✓
FCountDown	-
Frequency	-
DataRate	-
Number of end-devices	-

### 4.45 Overview

*Since: 3.0*

This page displays an overview of the selected multicast-group

#### 4.45.1 Screenshot



#### 4.45.2 Rules

- The title bar, above the tabs, should display the group name, multicast address and the cluster name

##### 4.45.2.1 Properties card

- List of displayed properties:
  - Multicast address
  - Group name
  - Cluster name
  - Region, and country if selected
  - Mac version and regional parameters revision
  - Frequency
  - DataRate
  - Frame counter down

##### 4.45.2.2 End-devices list

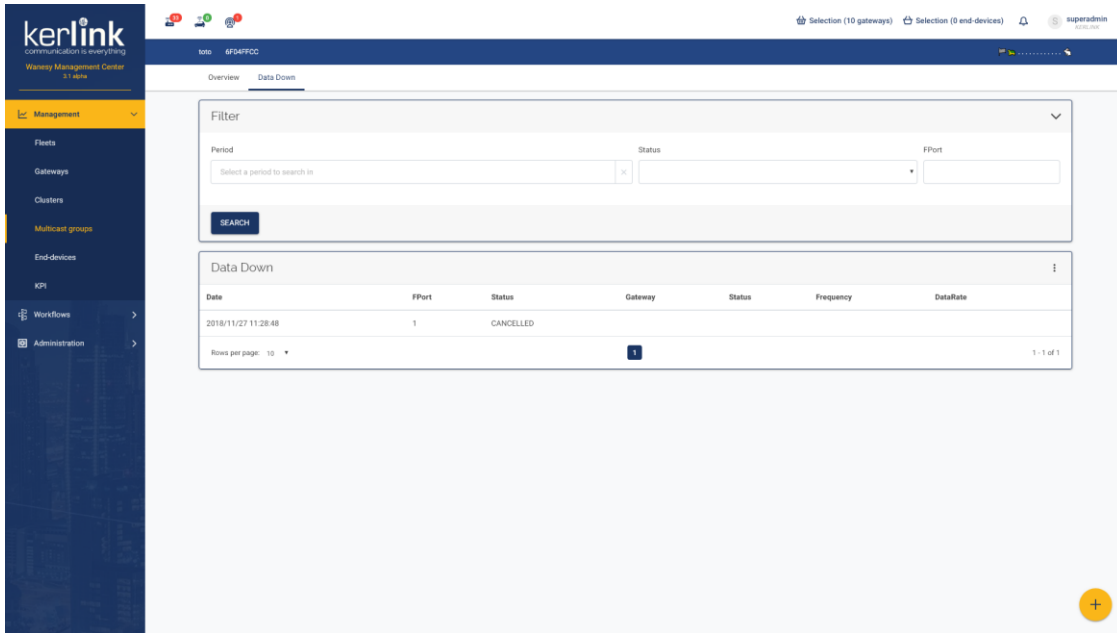
- This panel should display the list of end-devices included in that multicast group
- The filter input should allow the user to filter the end-devices list

### 4.46 Data Down

*Since: 3.0*

This screen lists all data down of the multicast group

#### 4.46.1 Screenshot



#### 4.46.2 Rules

- A click on a row should open the detail modal, displaying the status, payload, encoding type and history of the message
- A click on the gateway EUI should redirect to the page of this gateway
- The floating button (bottom right) allow to display the send Data Down pop-up

#### 4.46.3 Form

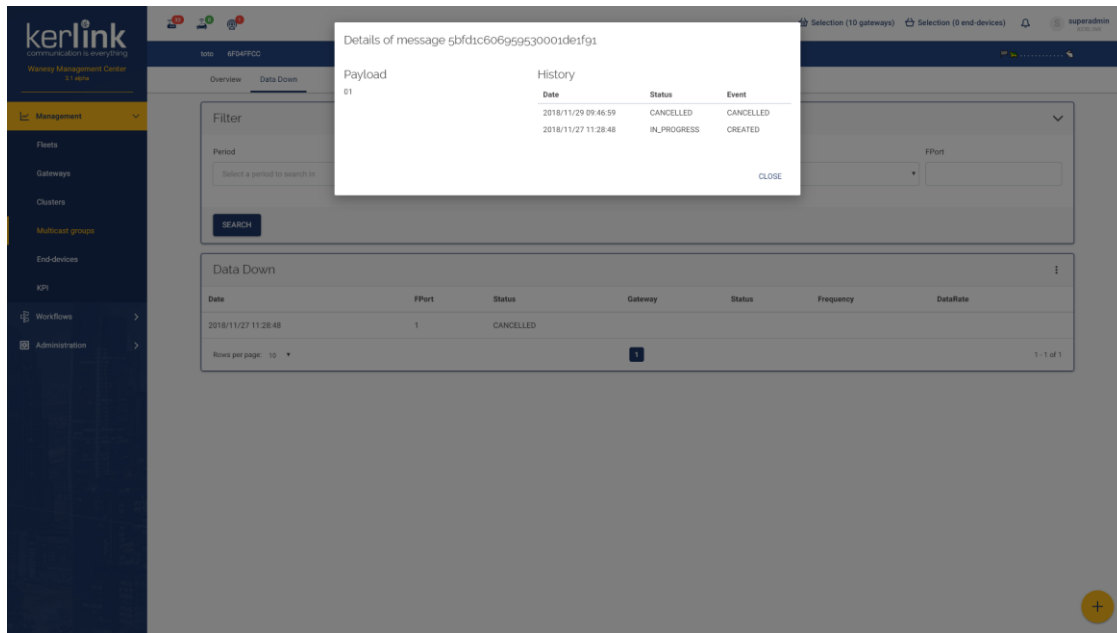
Name	Input type	Required	Validation
Period	period-picker	-	-
Status	select	-	-
FPort	text	-	number, between:0/223

#### 4.46.4 Columns

Name	Sortable
Date	-
FPort	-
Status	-
Gateway	-
RX window	-
Frequency	-
DataRate	-

#### 4.46.5 Additional screenshots

#### 4.46.5.1 Data Down details

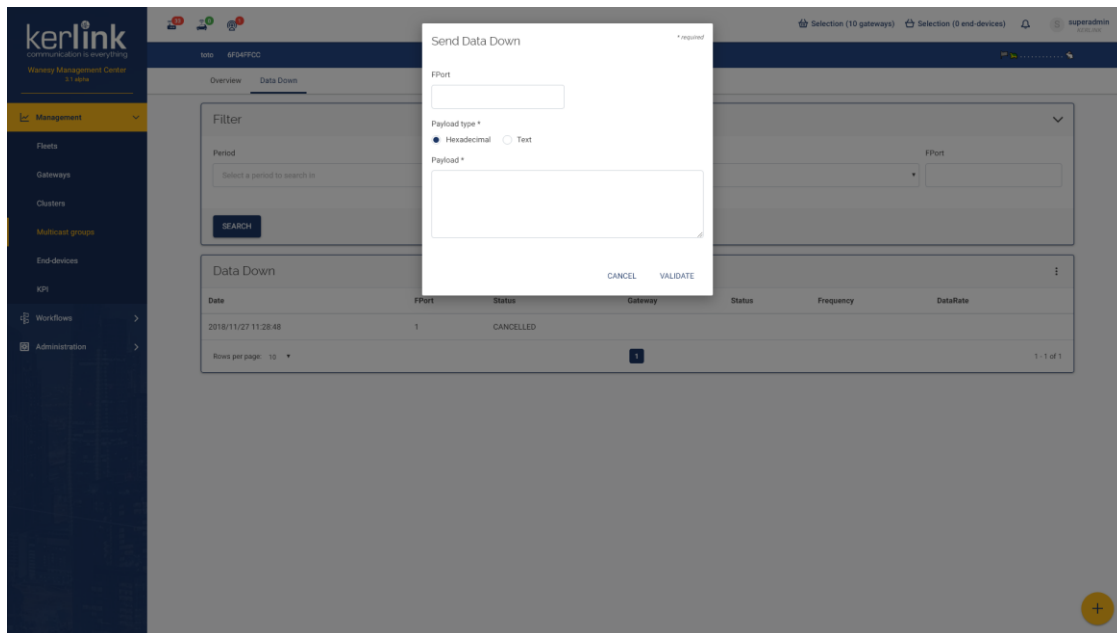


### 4.47 Send a Data Down

Since: 3.0

This form allows the user to send a Data Down

#### 4.47.1 Screenshot



#### 4.47.2 Form

Name	Input type	Required	Validation
FPort	text	-	number, between:0/223
Payload type	radio	✓	-
Payload	textarea	✓	payloadHex (if type=hexa),max:102 (if type=hexa),max:51 (if type=text)

## 4.48 Overview

Since: 3.0

This page displays and overview of the selected end-device

### 4.48.1 Screenshot

The screenshot shows the Kerlink WMC 3.2 user interface. The top navigation bar displays the device EUI (AD3C32F914191731), its status (Never seen), and the cluster name (Avec WG). The main content area is divided into several sections:

- Properties card:** Lists device details such as NAME, CLUSTER, CLASS, REGION, VERSION, ADR, STATUS, PROFILE, and FRAME COUNTERS.
- Activation: OTAA card:** Shows device address and application key.
- Override RX parameters card:** Lists parameters like RX1 DELAY, RX2 DATA RATE, RX2 FREQUENCY, RX WINDOWS, RX1DROFFSET, and CLIST.
- Map:** A map showing the device location with a blue pin and a 30m scale bar.
- Last messages card:** Displays the last Data Up and Data Down messages.
- Last gateways card:** A table showing the last gateways connected to the device.
- Last events card:** A table showing the last events for the device.

### 4.48.2 Rules

- The title bar, above the tabs, should display the device EUI, status, last Data Up and the cluster name
- The menu, at the right of the tab bar, allows to add/remove the end-device to the selection, copy end-device information and delete the end-device
- The floating button (bottom right) allows to display the end-device edition pop-up

#### 4.48.2.1 Properties card

- List of displayed properties:
  - Device EUI
  - Name

- Cluster name
- Class
- Region, and country if selected
- Mac version and regional parameters revision
- ADR state
- Status
- Profile
- Frame counters UP and DOWN
- For ABP devices, a **SET** button allows the user to set the end-device frame counters to specific values
- For ABP devices, a **RESET** button allows the user to reset the end-device frame counters

#### 4.48.2.2 Activation card

- List of displayed properties:
  - Activation type (in card title)
  - Device addr
  - Application session key
  - Network session key
  - DevNonceCounter (if activation = OTAA and Mac version = 1.0.x)

#### 4.48.2.3 Override RX parameters card

- List of displayed properties:
  - RX1 delay
  - RX2 data rate
  - RX2 frequency
  - RX windows
  - RX1DROffset
  - Dwell time
  - CFList

#### 4.48.2.4 Position card

- Display the end-device position from LNS
- Display the gateways positions from LNS
- List of displayed properties:
  - Geolocation type
  - If geolocation type is **Manual**:
    - Longitude
    - Latitude
    - Altitude



#### 4.48.2.5 Last messages

- Display the date of the last message received and sent by the end-device

#### 4.48.2.6 Last gateways

- Displays the last 5 gateways that saw the end-device

Name	Sortable
EUI	-
Date	-

#### 4.48.2.7 Last events

- Displays the last 5 events of the end-device

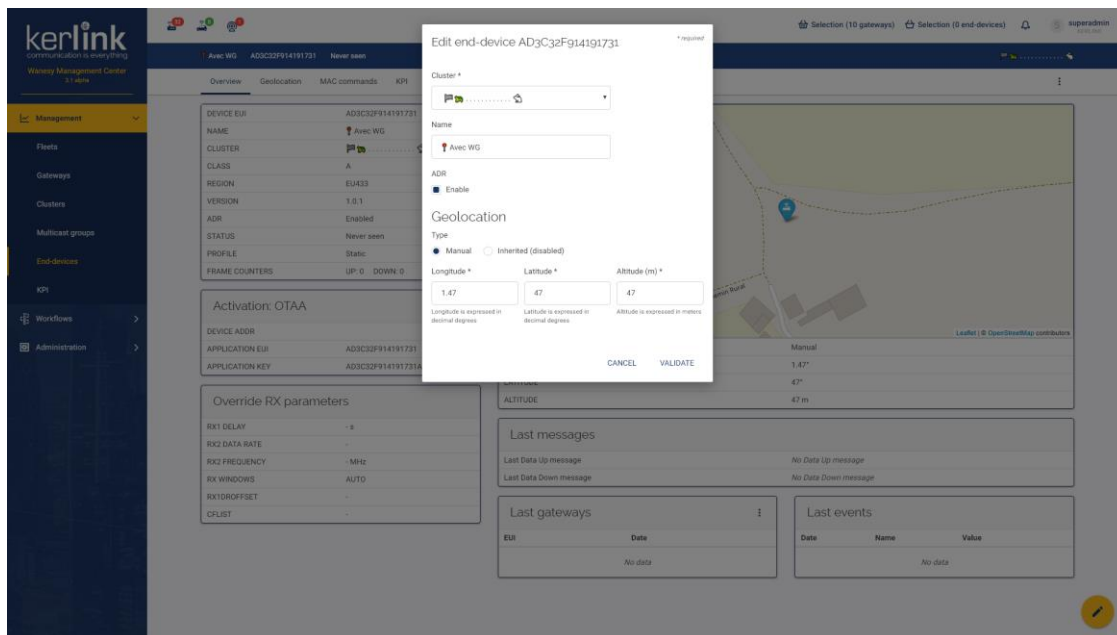
Name	Sortable
Date	-
Name	-
Value	-

### 4.49 Overview - Edit end-device

*Since: 3.0*

From the overview, this modal allows to edit an end-device

#### 4.49.1 Screenshot



#### 4.49.2 Rules

- An **ADMIN** can only move end-devices to a cluster of his customer

- A **SUPER\_ADMIN** can move end-devices to a cluster of any customers

#### 4.49.3 Form

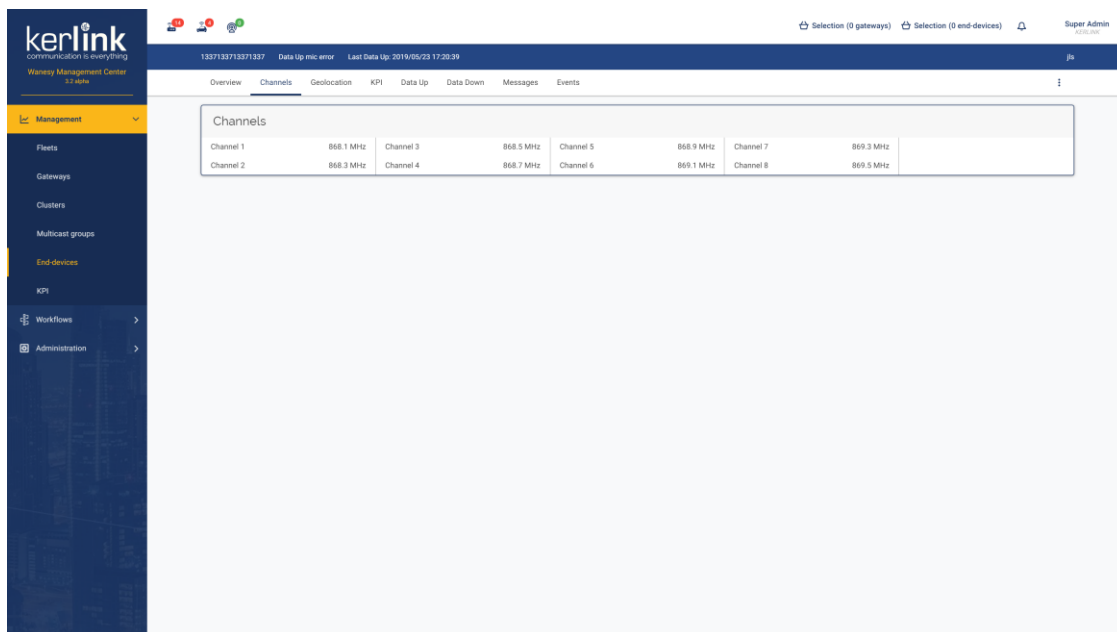
Name	Input type	Required	Validation
Cluster	select	✓	
Name	text	-	text
ADR	checkbox	-	
DevNonceCounter	checkbox	- (if activation = OTAA and Mac version = 1.0.x)	
Geolocation type	radio	✓	
Longitude	text	✓ (if geolocation = manual)	number, between:-180/180
Latitude	text	✓ (if geolocation = manual)	number, between:-90/90
Altitude	text	✓ (if geolocation = manual)	number

### 4.50 Channels

Since: 3.2

This screen lists all configured channels of the end-device.

#### 4.50.1 Screenshot



#### 4.50.2 Rules

- Each channel displays a *number* and a *frequency* in MHz

## 4.51 Geolocation

Since: 3.1

This page displays Wanesy™ Geolocation functionalities if Wanesy™ Geolocation server is configured

### 4.51.1 Screenshot

Date	Latitude	Longitude	Algorithm	Method	Accuracy	Gateways
2016/11/17 12:30:00	48.93623°	2.24033°	WANESY_GEOLOC	TDQA	413 m	👁
2016/11/17 12:30:00	48.93649°	2.2406°	WANESY_GEOLOC	TDQA	436 m	👁
2016/11/17 12:30:00	48.93626°	2.24118°	WANESY_GEOLOC	TDQA	243 m	👁
2016/11/17 12:30:00	48.93588°	2.24116°	WANESY_GEOLOC	TDQA	261 m	👁
2016/11/17 12:30:00	48.93676°	2.24077°	WANESY_GEOLOC	TDQA	229 m	👁
2016/11/17 12:30:00	48.9365°	2.24061°	WANESY_GEOLOC	TDQA	436 m	👁
2016/11/17 12:30:00	48.93626°	2.24118°	WANESY_GEOLOC	TDQA	243 m	👁
2016/11/17 12:30:00	48.93667°	2.24066°	WANESY_GEOLOC	TDQA	390 m	👁
2016/11/17 12:30:00	48.93623°	2.24038°	WANESY_GEOLOC	TDQA	413 m	👁
2016/11/17 12:30:00	48.93667°	2.24067°	WANESY_GEOLOC	TDQA	390 m	👁

### 4.51.2 Rules

- This menu should not be displayed if the Wanesy™ Geolocation server is not configured
- Checking the *Display dates in UTC* checkbox should display all dates of this page in UTC. Otherwise they should be displayed in local time
- When hovering a line in the grid, the corresponding position should be highlighted in the map
- When hovering a position in the map, the corresponding line should be highlighted in the grid
- Clicking on an *eye* icon should display the gateways that routed the end-device for this position in the map
- Clicking on a *stroked eye* icon should hide the gateways that routed the end-device for this position in the map
- Checking the *Display position: calculated* checkbox should display the calculated position of the end-device in the map

#### 4.51.3 Form

Name	Input type	Required	Validation
Method	select	-	-
Algorithm	select	-	-
Date from	datetime-picker	-	-
Date to	datetime-picker	-	-

#### 4.51.4 Columns

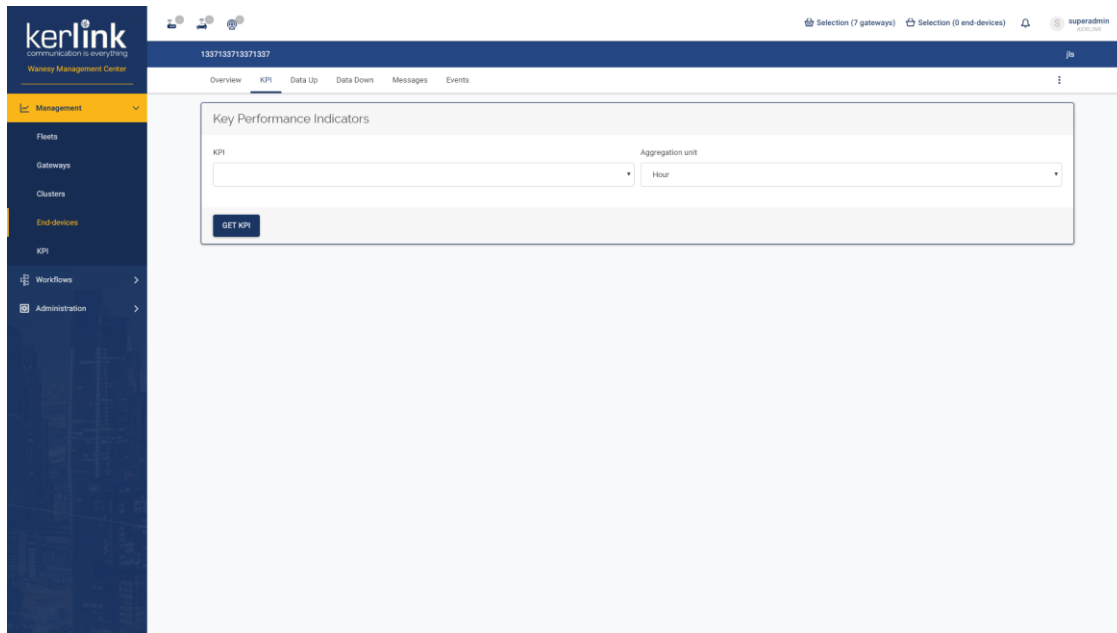
Name	Sortable
Date	-
Longitude	-
Latitude	-
Algorithm	-
Method	-
Accuracy	-
Gateways	-

### 4.52 End-devices KPI

*Since: 3.0*

This screen allows the user to analyse all kinds of data through different charts

#### 4.52.1 Screenshot



#### 4.52.2 Rules

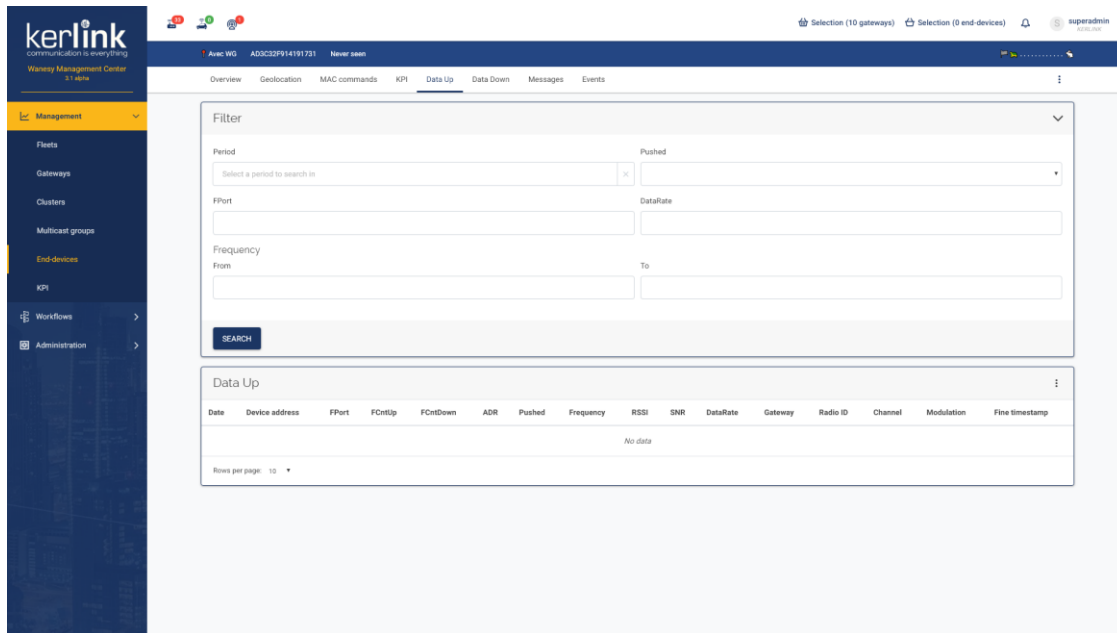
- This is the same screen as the main KPI screen, except:
  - The customer is pre-selected to be the customer of the current end-device
  - The fleet is pre-selected to be the fleet of the current end-device
  - The end-device is pre-selected to be the current end-device
  - Customer, fleet and end-device cannot be changed

### 4.53 Data Up

*Since: 3.0*

This screen lists all data up sent by the end-device

#### 4.53.1 Screenshot



#### 4.53.2 Rules

- A click on a row should open the detail modal, displaying the status, encoding type and payload of the message
- A click on the gateway EUI should redirect to the page of this gateway

#### 4.53.3 Form

Name	Input type	Required	Validation
Period	period-picker	-	-
Pushed	select	-	-
FPort	text	-	number, between:0/255
DataRate	text	-	text
Frequency from	text	-	number, between:0/1000
Frequency to	text	-	number, between:0/1000

#### 4.53.4 Columns

Name	Sortable
Date	-
Device address	-
FPort	-
FCntUp	-
FCntDown	-
ADR	-
Pushed	-

Frequency	-
Modulation	-
DataRate	-
Gateway	-
Radio ID	-
Channel	-
RSSI	-
SNR	-
Fine timestamp	-
Class B	-
Delayed	-

### 4.53.5 Additional screenshots

#### 4.53.5.1 Data Up details

Details of message 6b57435d88142b0001487b67

Status: Plain  
Payload: 000102030405060708090a0b0c0d0e0f

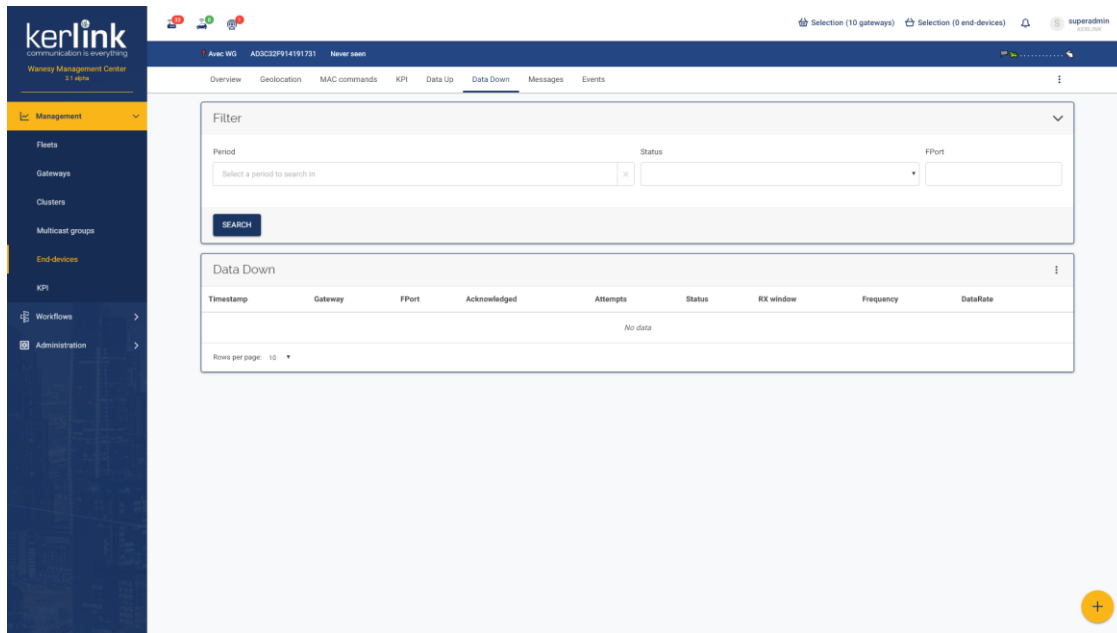
Date	Device address	FPort	FCntUp	FCntDown	ADR	Pushed	Frequency	Modulation	DataRate	Gateway	Radio ID	Channel	RSSI	SNR	Fine timestamp
2018/07/24 17:18:52	dead0de	2	5757	1436	Enabled	No	868.1 MHz	LORA	SF78W125	1122334455667788	0	1	-61 dBm	-4.7 dB	-
2018/07/24 17:13:52	dead0de	2	5756	1435	Enabled	No	868.1 MHz	LORA	SF78W125	1122334455667788	1	5	-74 dBm	4.5 dB	-
2018/07/24 17:08:52	dead0de	2	5755	1434	Enabled	No	868.1 MHz	LORA	SF78W125	1122334455667788	1	3	-8 dBm	0.7 dB	-
2018/07/24 17:03:52	dead0de	2	5754	1433	Enabled	No	868.1 MHz	LORA	SF78W125	1122334455667788	1	0	-35 dBm	0.6 dB	-
2018/07/24 16:58:52	dead0de	2	5753	1432	Enabled	No	868.1 MHz	LORA	SF78W125	1122334455667788	1	6	-123 dBm	6.7 dB	-
2018/07/24 16:53:52	dead0de	2	5752	1431	Enabled	No	868.1 MHz	LORA	SF78W125	1122334455667788	1	0	-96 dBm	2.9 dB	-
2018/07/24 16:48:52	dead0de	2	5751	1430	Enabled	No	868.1 MHz	LORA	SF78W125	1122334455667788	1	1	-85 dBm	1.4 dB	-
2018/07/24 16:43:52	dead0de	2	5750	1429	Enabled	No	868.1 MHz	LORA	SF78W125	1122334455667788	0	0	-108 dBm	-2.7 dB	-
2018/07/24 16:38:52	dead0de	2	5749	1428	Enabled	No	868.1 MHz	LORA	SF78W125	1122334455667788	1	5	-15 dBm	-7.9 dB	-
2018/07/24 16:33:52	dead0de	2	5748	1427	Enabled	No	868.1 MHz	LORA	SF78W125	1122334455667788	0	4	-54 dBm	5.8 dB	-

### 4.54 Data Down

Since: 3.0

This screen lists all data down received by the end-device

#### 4.54.1 Screenshot



#### 4.54.2 Rules

- A click on a row should open the detail modal, displaying the status, payload, encoding type and history of the message
- A click on the gateway EUI should redirect to the page of this gateway
- A click on the **X** icon allow the user to try to cancel a Data Down if its status is **IN\_PROGRESS**
- The floating button (bottom right) allow to display the send Data Down pop-up

#### 4.54.3 Form

Name	Input type	Required	Validation
Period	period-picker	-	-
Status	select	-	-
FPort	text	-	number, between:0/223

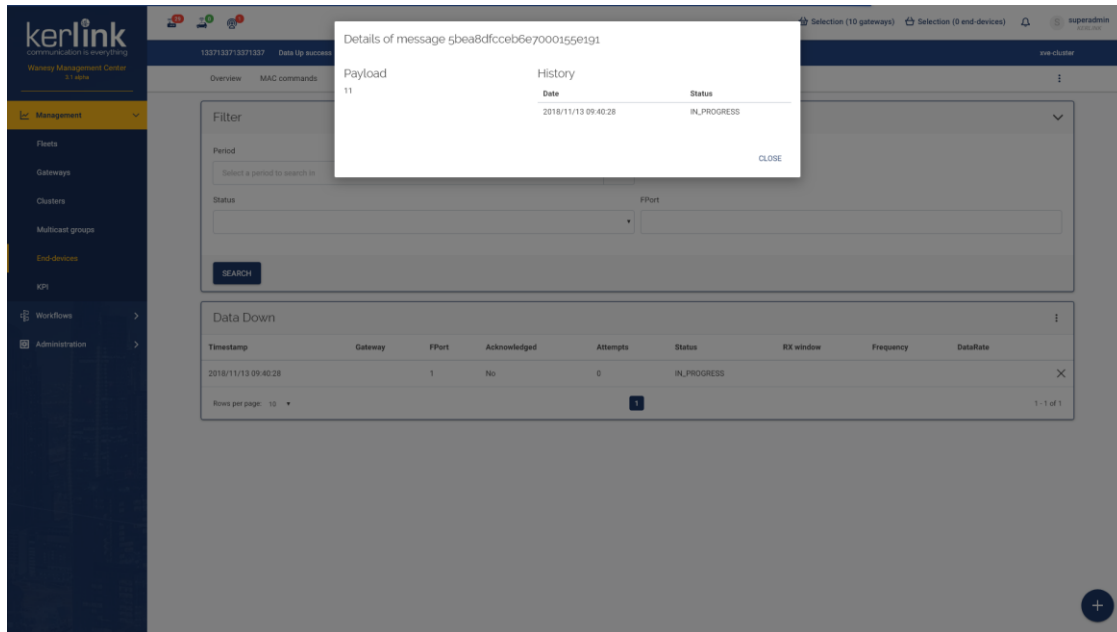
#### 4.54.4 Columns

Name	Sortable
Date	-
Gateway	-
FPort	-
Acknowledged	-
Attempts	-
Status	-
[Actions]	-



## 4.54.5 Additional screenshots

### 4.54.5.1 Data Down details

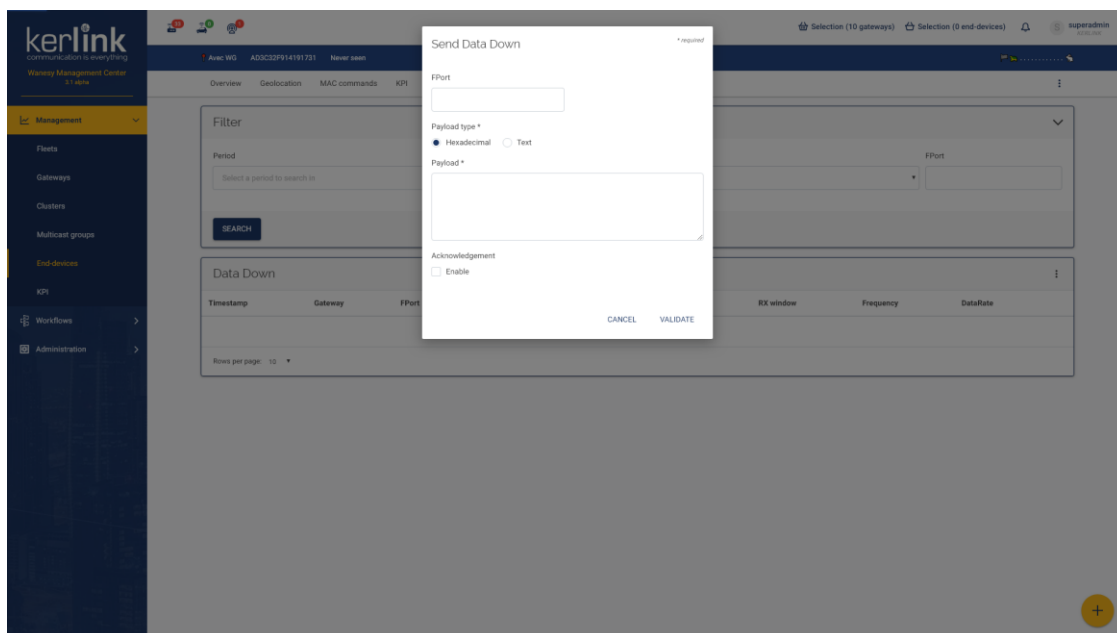


## 4.55 Send a Data Down

Since: 3.0

This form allows the user to send a Data Down

### 4.55.1 Screenshot



### 4.55.2 Form

Name	Input type	Required	Validation
FPort	text	if acknowledgement enabled	number, between:0/223
Payload type	radio	✓	-
Payload	textarea	✓	payloadHex (if type=hexa),max:102 (if type=hexa),max:51 (if type=text)
Acknowledgement	checkbox	-	-
Nb max attempts	text	if acknowledgement enabled	number, min_value:0
Timeout	text	if acknowledgement enabled	number, min_value:0

## 4.56 Messages

Since: 3.0

This screen lists all messages of the end-device

### 4.56.1 Screenshot

### 4.56.2 Rules

- A click on a row should open the detail modal, displaying the payload and encoding type of the message
- A click on a MAC command should open the detail modal, displaying the details of the MAC command

- A click on the gateway EUI should redirect to the page of this gateway

#### 4.56.3 Form

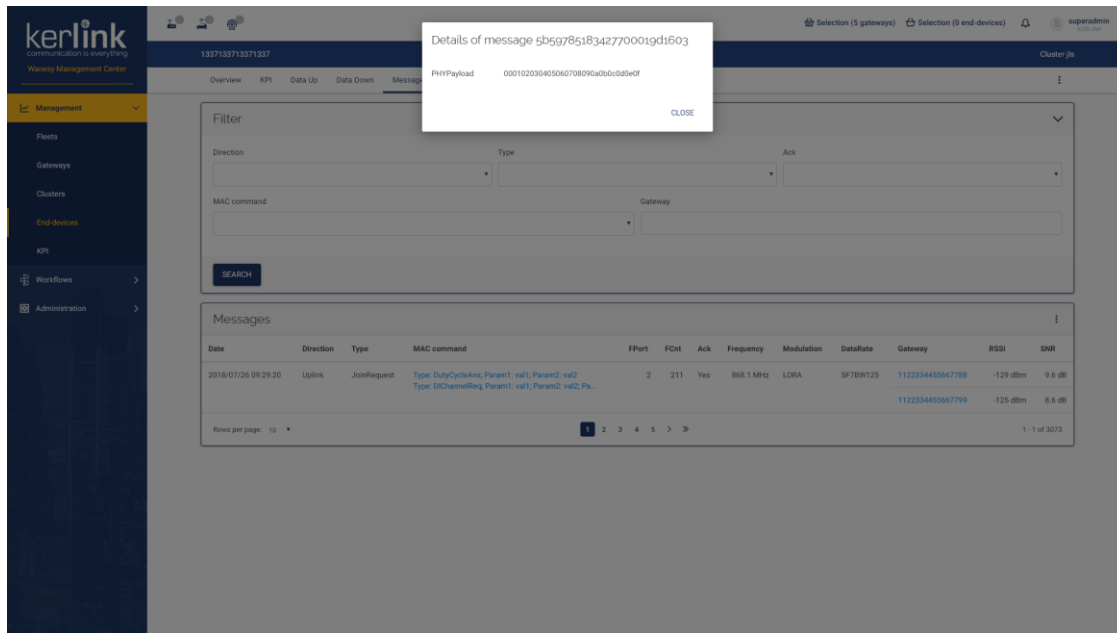
Name	Input type	Required	Validation
Direction	select	-	-
Type	select	-	-
Ack	select	-	-
Mac command	select	-	-
Gateway	text	-	text

#### 4.56.4 Columns

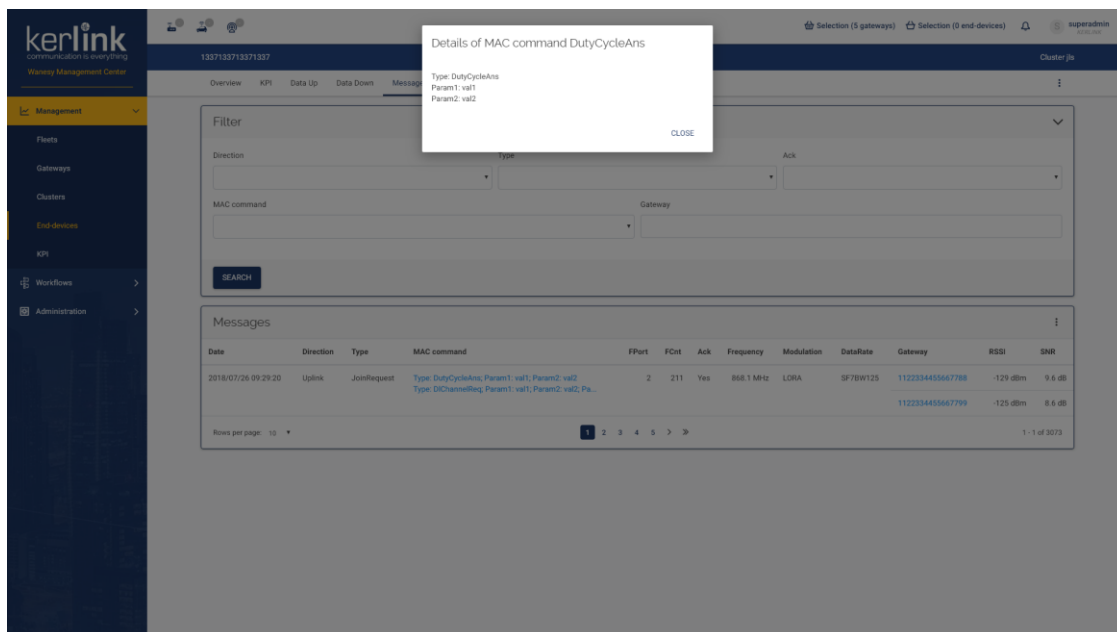
Name	Sortable
Date	-
Direction	-
Type	-
MAC command	-
FPort	-
FCnt	-
Ack	-
Frequency	-
Modulation	-
DataRate	-
Gateway	-
RSSI	-
SNR	-
Class B	-
Delayed	-

#### 4.56.5 Additional screenshots

### 4.56.5.1 Message details



### 4.56.5.2 MAC command details

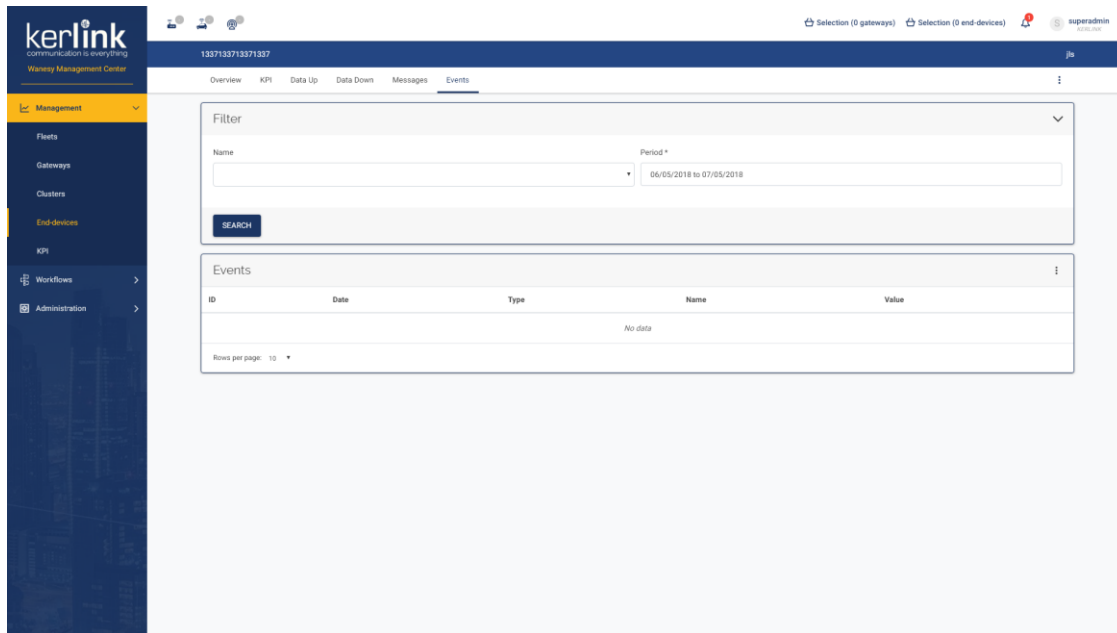


## 4.57 Events

*Since: 3.0*

This page list all events of the end-device

### 4.57.1 Screenshot



#### 4.57.2 Filters

Name	Input type	Required	Validation
Name	select	-	-
Period	period-picker	✓	-

#### 4.57.3 Columns

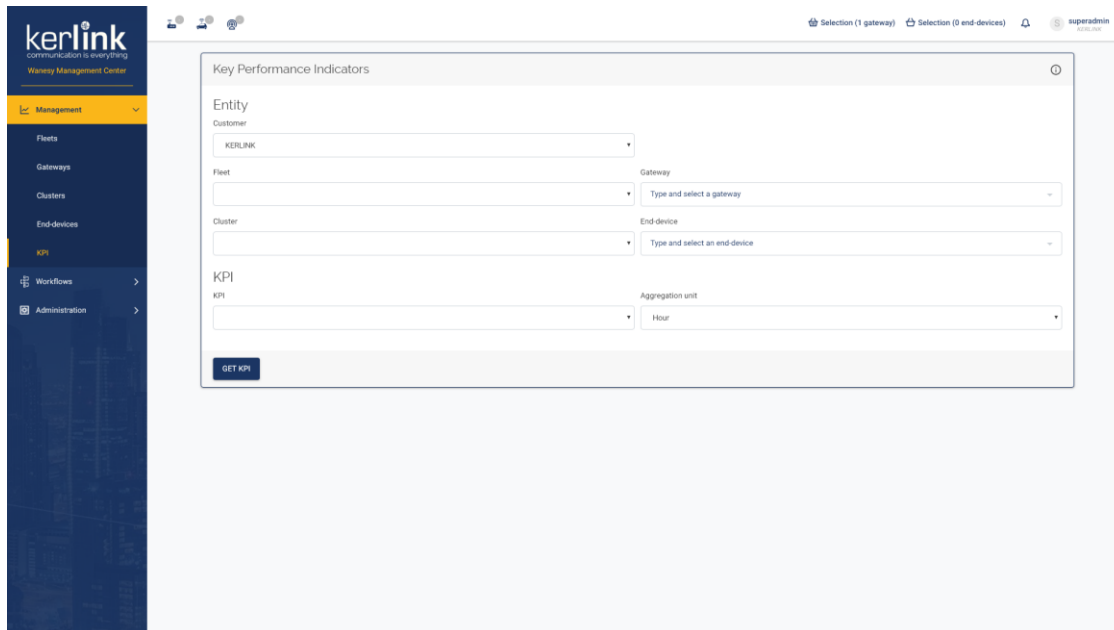
Name	Sortable
ID	-
Date	-
Type	-
Name	-
Value	-

### 4.58 KPI

*Since: 3.0*

This screen allows the user to analyse all kinds of data through different charts

#### 4.58.1 Screenshot



#### 4.58.2 Rules

- KPI are only available for customers, gateways and end-devices
- When selecting a customer, the user can select a fleet and a gateway, or a cluster and an end-device
- When selecting another customer, the fleets, gateways, clusters and end-devices selection are reset
- When selecting a fleet, the clusters and end-devices selection are reset
- When selecting a cluster, the fleets and gateways selection are reset
- When clicking on the 'i' button in the title, a modal should display all available KPI for each entity
- The menu icon is displayed at the right of the chart header and should allow to export the current KPI data to a CSV file
- If the selected KPI has data grouped by channel or spreading factor, the channels or spreading factors will be displayed on top of the chart, allowing the user to select a channel / spreading factor to view the corresponding data.
  - If there are less than 15 channels / spreading factors, they will be displayed as buttons
  - If there are more than 15 channels / spreading factors, they will be displayed as a list

#### 4.58.3 Form

Name	Input type	Required	Validation
Customer	select	✓	-
Fleet	select	-	-
Gateway	select	-	-

Cluster	select	-	-
KPI	select	✓	-
Aggregation unit	select	-	-

## 4.59 Gateways

Since: 3.0

This screen lists all alarms related to gateways

### 4.59.1 Screenshot

The screenshot displays the 'Gateways alarms' section of the WMC interface. It features a table with the following data:

Date	Type	Value	Gateway
2018/07/18 17:33:14	RSSI	-91	7276FF000B030A3A
2018/07/18 17:31:10	CONNECTION	FALSE	7276FF000B030A3A
2018/07/18 17:14:59	RSSI	-91	7276FF000B030A48
2018/07/18 14:52:53	CONNECTION	FALSE	7276FF000B030A48
2018/07/18 14:51:10	CONNECTION	FALSE	7276FF000B030A48
2018/07/18 14:11:10	CONNECTION	FALSE	7276FF000B030A48
2018/07/11 14:25:56	GPS	UNLOCKED	7276FF000B030A48
2018/07/06 15:52:36	DOOR	OPEN	7276FF000B030A48
2018/07/04 14:15:50	GPS	UNLOCKED	7276FF000B030A48
2018/07/04 14:15:49	GPS	UNLOCKED	7276FF000B030A3A

### 4.59.2 Rules

- A user can see all fleets of his customer
- A **SUPER\_ADMIN** can see all fleets of all customers
- Each fleet is grouped by customers
- Each customer displays the number of alarms of their gateways
  - If there are no alarms, the number is in green
  - If there are alarms, the number is in red
- Each fleet display the number of alarms of their gateways
  - If there are no alarms, the number is in green
  - If there are alarms, the number is in red

- When clicking on a fleet, the list of alarms is displayed below
- When clicking on the bell icon, the alarm is marked as read or unread

#### 4.59.3 Filters

Name	Input type	Required	Validation
Type	select	-	-
Status	select	-	-
Status	period-picker	-	-

#### 4.59.4 Columns

Name	Sortable
Date	✓
Type	-
Value	-
Gateway	-

### 4.60 End-devices

Since: 3.0

This screen lists all alarms related to end-devices

#### 4.60.1 Screenshot

The screenshot shows the Kerlink WMC interface. On the left is a dark sidebar with navigation items: Management, Fleets, Gateways, Clusters, End-devices, KPI, Workflows, and Administration. The main content area has a top navigation bar with 'Selection (5 gateways)', 'Selection (0 end-devices)', and a user profile 'superadmin'. Below this is a 'Clusters overview' section with a table showing clusters and their alarm counts. A 'Filter' section follows, with dropdowns for 'Type' and 'Status' (set to 'Unread'), and a text input for 'Period'. The 'End-devices alarms' table at the bottom has columns for Date, Type, Value, and End-device, and shows one row of data.

#### 4.60.2 Rules

- A user can see all clusters of his customer



- A **SUPER\_ADMIN** can see all clusters of all customers
- Each cluster is grouped by customers
- Each customer displays the number of alarms of their end-devices
  - If there are no alarms, the number is in green
  - If there are alarms, the number is in red
- Each cluster display the number of alarms of their end-devices
  - If there are no alarms, the number is in green
  - If there are alarms, the number is in red
- When clicking on a cluster, the list of alarms is displayed below
- When clicking on the bell icon, the alarm is marked as read or unread

#### 4.60.3 Filters

Name	Input type	Required	Validation
Type	select	-	-
Status	select	-	-
Status	period-picker	-	-

#### 4.60.4 Columns

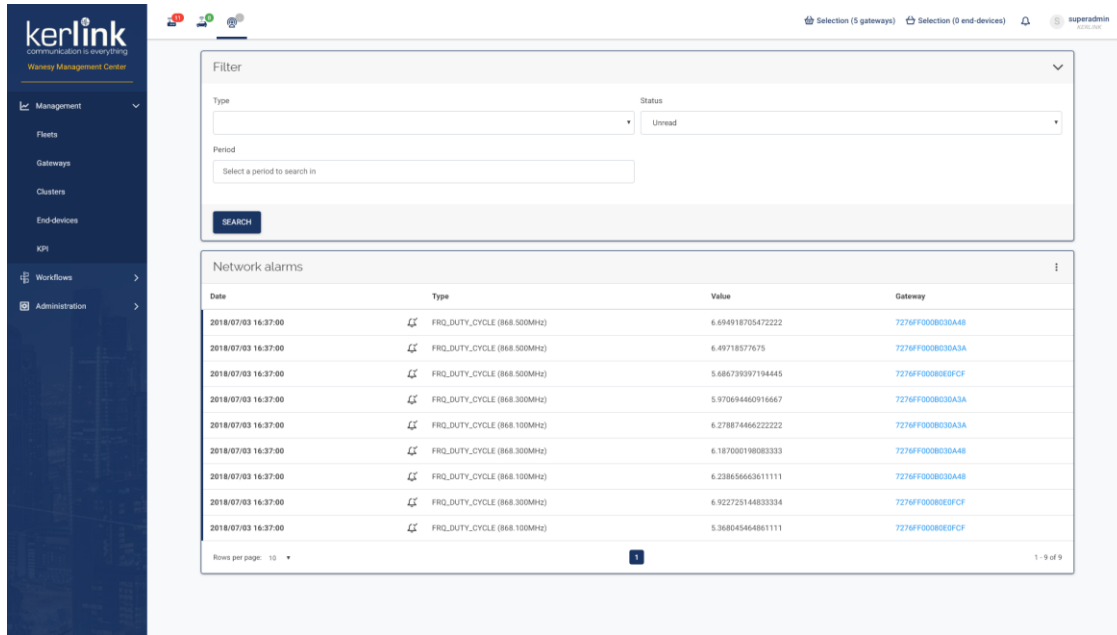
Name	Sortable
Date	✓
Type	-
Value	-
End-device	-

### 4.61 Network

*Since: 3.0*

This screen lists all alarms related to network (RNC)

#### 4.61.1 Screenshot



#### 4.61.2 Rules

- A user can see all alarms of his customer
- A **SUPER\_ADMIN** can see all alarms of all customers
- When clicking on the bell icon, the alarm is marked as read or unread

#### 4.61.3 Form

Name	Input type	Required	Validation
Type	select	-	-
Status	select	-	-
Status	period-picker	-	-

#### 4.61.4 Columns

Name	Sortable
Date	✓
Type	-
Value	-
Gateway	-

### 4.62 Introduction

*Since: 3.0*

Selections, known as “cart” in Wanesy™ Management Center 2, are a way to do actions on a group of equipments.

#### 4.62.1 Rules

- There are two types of equipment's that can be used in selections: gateways and end-devices
- Selection cannot have mixed types. There are gateway selections and end-devices selections
- Elements are added to selections from the gateways / end-devices lists or the gateway / end-device page

#### 4.62.2 Gateways actions

There are four possible actions for gateways.

Edit some gateways parameters:

- Max. Tx power
- Move gateways to another fleet
- Delete gateways
- Execute workflow on gateways

#### 4.62.3 End-devices actions

There are four possible actions for end-devices.

Edit some end-devices parameters:

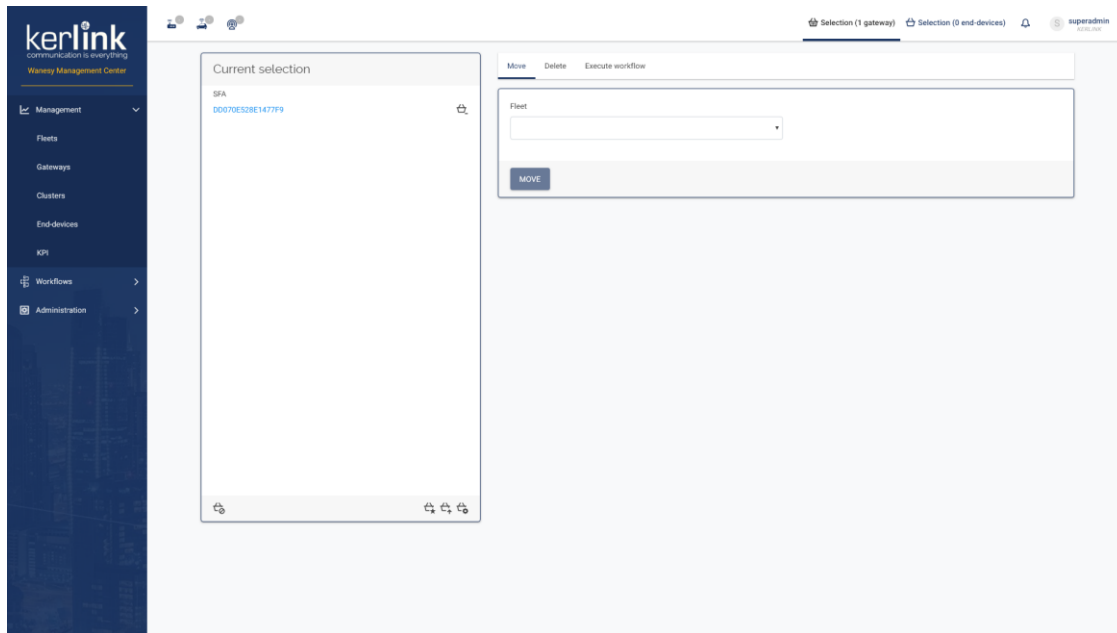
- ADR
- Move end-devices to another cluster
- Delete end-devices
- Execute workflow on end-devices

### 4.63 Current selection

*Since: 3.0*

The current selections are the list of gateways and end-devices on which the user can do specific actions

#### 4.63.1 Screenshot



#### 4.63.2 Rules

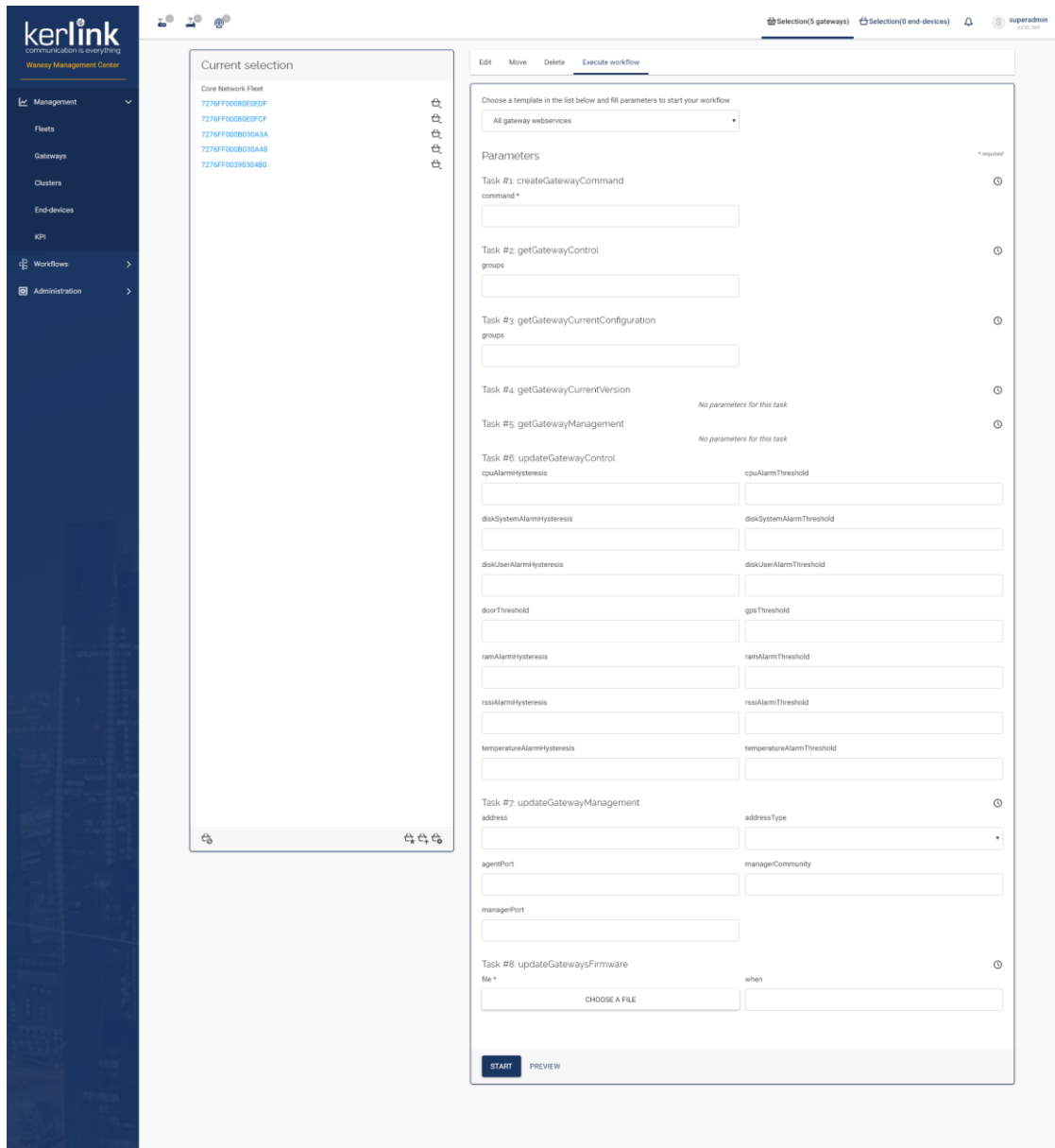
- The current selections are only saved in browser memory (local storage):
  - refreshing the application should restore the current selections
  - using another browser, even with the same user, should not restore the current selections
- When signing out, the current selections are reset, and will not be restored when signing in again
- Each item of the current selection should link to its page
- Each item of the current selection should have a *remove from selection* button
- An *empty selection* button, at the bottom left of the selection card, should clear the current selection
- A *save current selection* button, at the bottom right of the selection card, should open the save selection modal
- A *save current selection* button is not displayed if the current selection is empty
- An *import a saved selection* button, at the bottom right of the selection card, should open the import selection modal
- A *manage selections* button, at the bottom right of the election card, should redirect the list of selections

#### 4.64 Execute a workflow

Since: 3.0

This screen allows the user to execute a workflow on a group of equipment's.

##### 4.64.1 Screenshot



#### 4.64.2 Rules

- The first select lists all templates available for the current selection
- A workflow using gateway webservices cannot be listed and executed in the current end-devices selection
- A workflow using end-device webservices cannot be listed and executed in the current gateway's selection
- After selecting a template:
  - A **PREVIEW** button, near the **START** button, allows the user to show all webservices of the template
  - If the selected template has a webservice with parameters, the webservices are listed with all their parameters

- The parameters fields are displayed according to their type (see Parameters table below)
- If the parameter is mandatory, a \* is displayed and the workflow cannot be started without it

#### 4.64.2.1 Parameters table

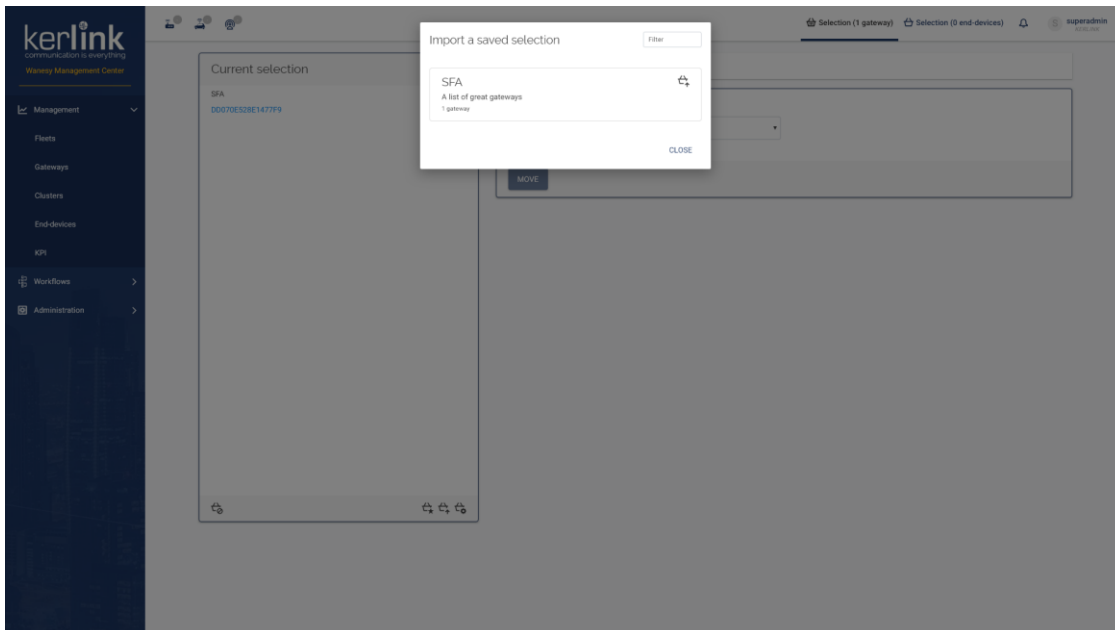
Parameter type	Field
String	input
Integer	input
Enum	select
Boolean	select
MultipartFile	file-picker
Date	date-picker
Datetime	datetime-picker

### 4.65 Import selection

*Since: 3.0*

From the current selection, importing a saved selection allow the user to add a list of gateways or end-devices previously saved

#### 4.65.1 Screenshot



#### 4.65.2 Rules

- The user can only import a list of the same type of the current selection

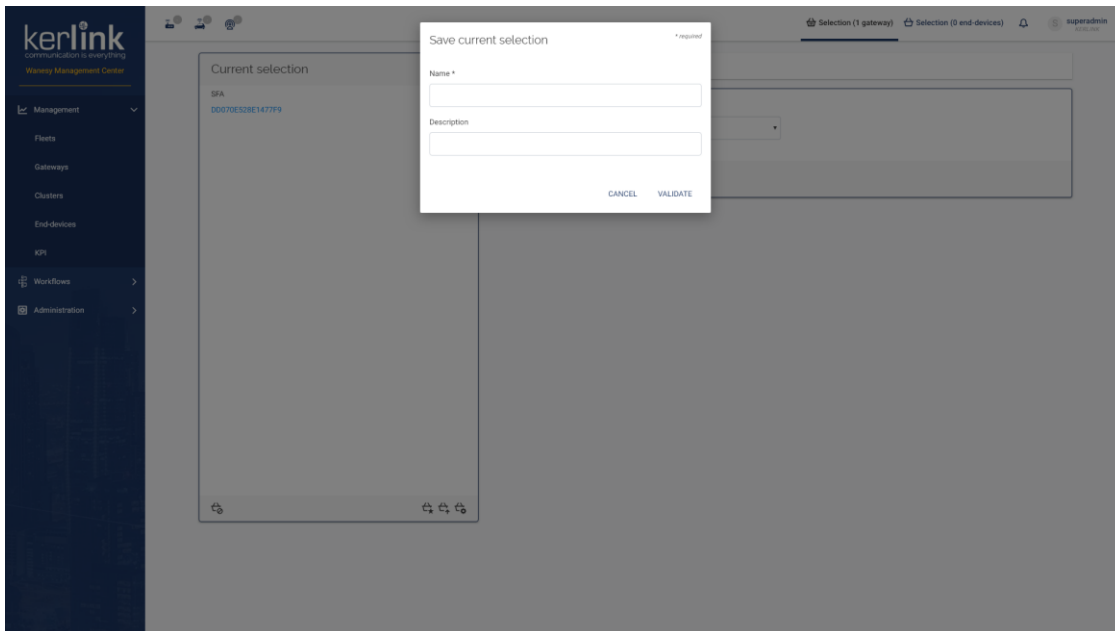
- The list can be filtered using the *filter* input
- Each element of the list should display its name, description, number of items and a button to import the selection
- The import button should add all elements of the list to the current list

## 4.66 Save selection

*Since: 3.0*

From the current selection, saving a selection allow the user to save a list of gateways or end-devices for future uses

### 4.66.1 Screenshot



### 4.66.2 Rules

- Two selections cannot have the same name

### 4.66.3 Form

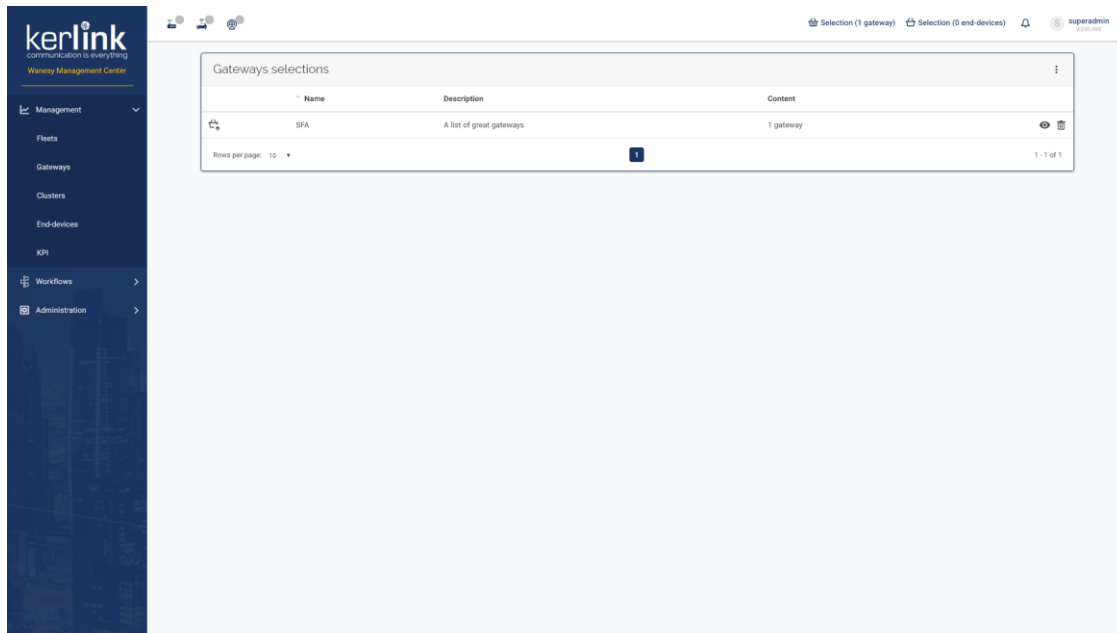
Name	Input type	Required	Validation
Name	text	✓	-
Description	text	-	-

## 4.67 List selections

*Since: 3.0*

The list of selections allows the user to see, import and delete its selections

### 4.67.1 Screenshot



#### 4.67.2 Rules

- The user can only see his selections
- A **SUPER\_ADMIN** can see all selections
- The *import* button should add all items of the selection to the current selection
- The *preview* button should open a modal listing all elements of the selection
- The *delete* button should delete the selection

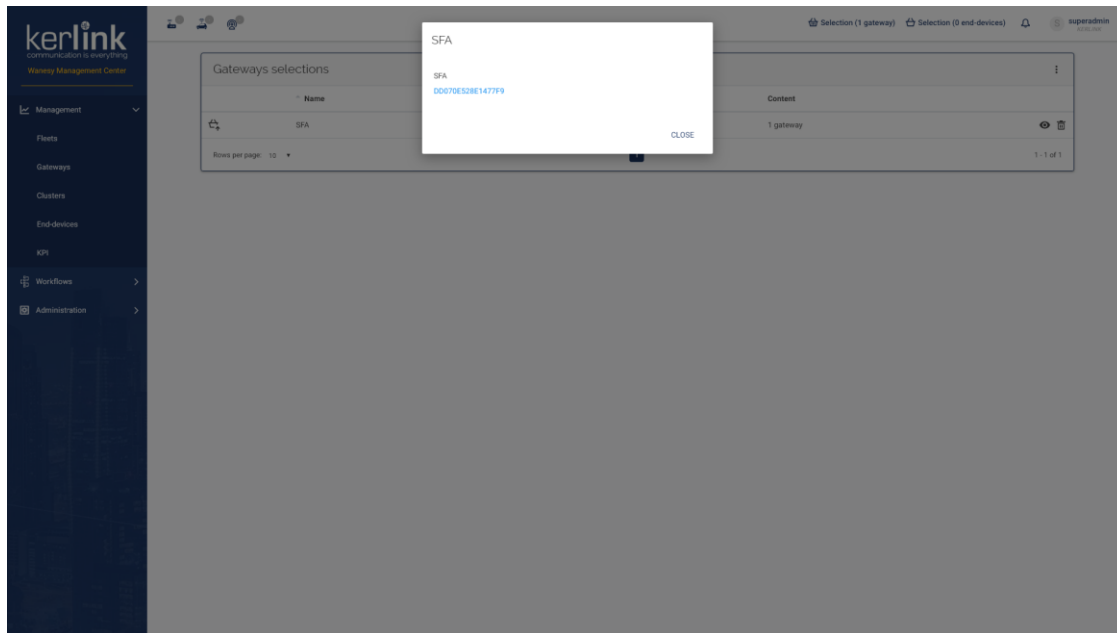
#### 4.67.3 Columns

Name	Sortable
[Import]	-
Name	✓
Description	-
Content	-
[Actions]	-

#### 4.67.4 Additional screenshots



#### 4.67.4.1 Preview of a selection

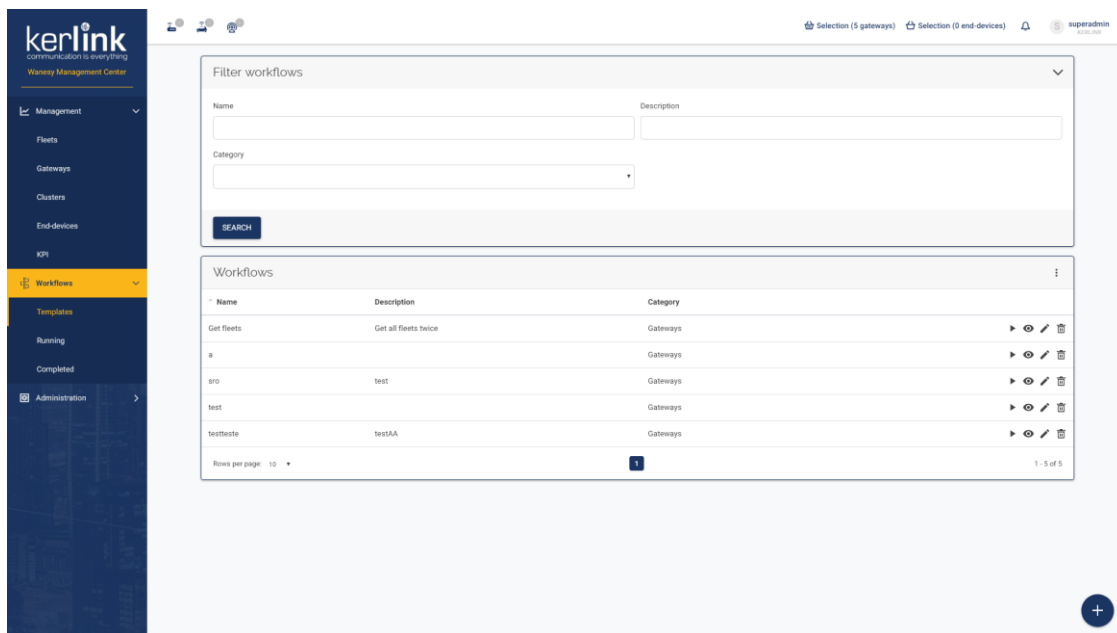


### 4.68 Templates

Since: 3.0

This screen lists all workflow templates available in the Wanesy™ Management Center

#### 4.68.1 Screenshot



#### 4.68.2 Rules

- All templates of all customers are listed
- Each template should have four buttons to:

- Execute the template on the current selection
- Preview the template
- Edit the template
- Delete the template
- A click on the bottom right + button should open the template editor

#### 4.68.3 Filters

Name	Input type	Required	Validation
Name	text	-	text
Description	text	-	text
Category	select	-	

#### 4.68.4 Columns

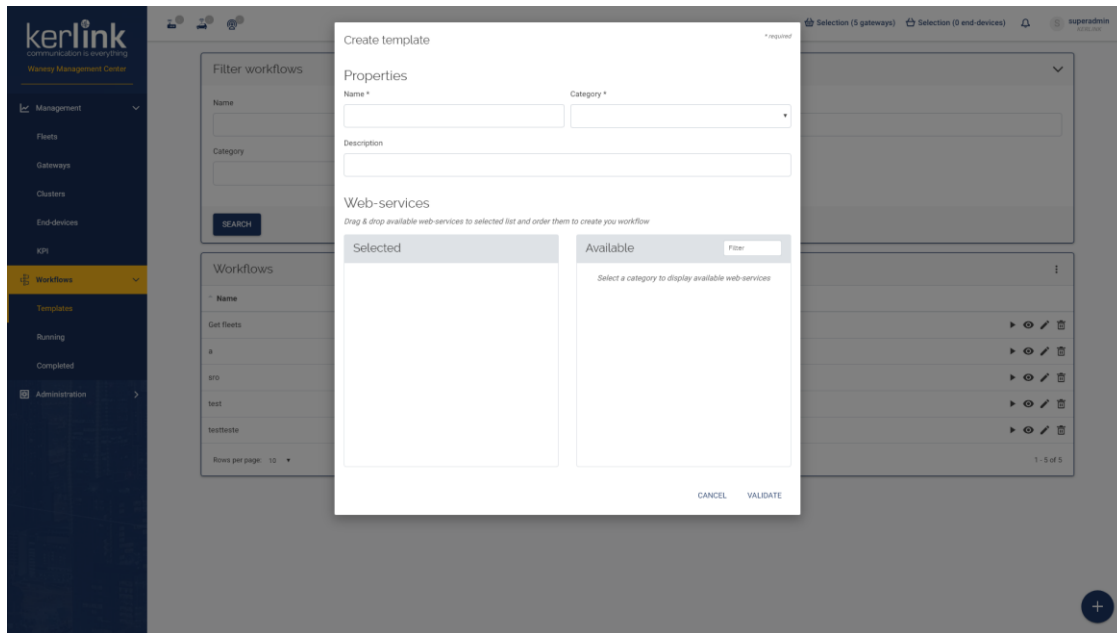
Name	Sortable
Name	✓
Description	-
Category	-
[Actions]	-

### 4.69 Create template

*Since: 3.0*

This screen allows the user to create a new workflow template

#### 4.69.1 Screenshot



#### 4.69.2 Rules

- The *save* button is deactivated if required fields are not filled or no webservices are selected
- The *available webservices* list is filled when choosing a category
- The *filter* input should filter *available webservices*
- The *selected webservices* list is reset when selecting another category
- The user should be able to drag & drop an item from *available webservices* list to the *selected webservices* list
- The user should be able to reorganize the *selected webservices* list by drag & dropping them

#### 4.69.3 Form

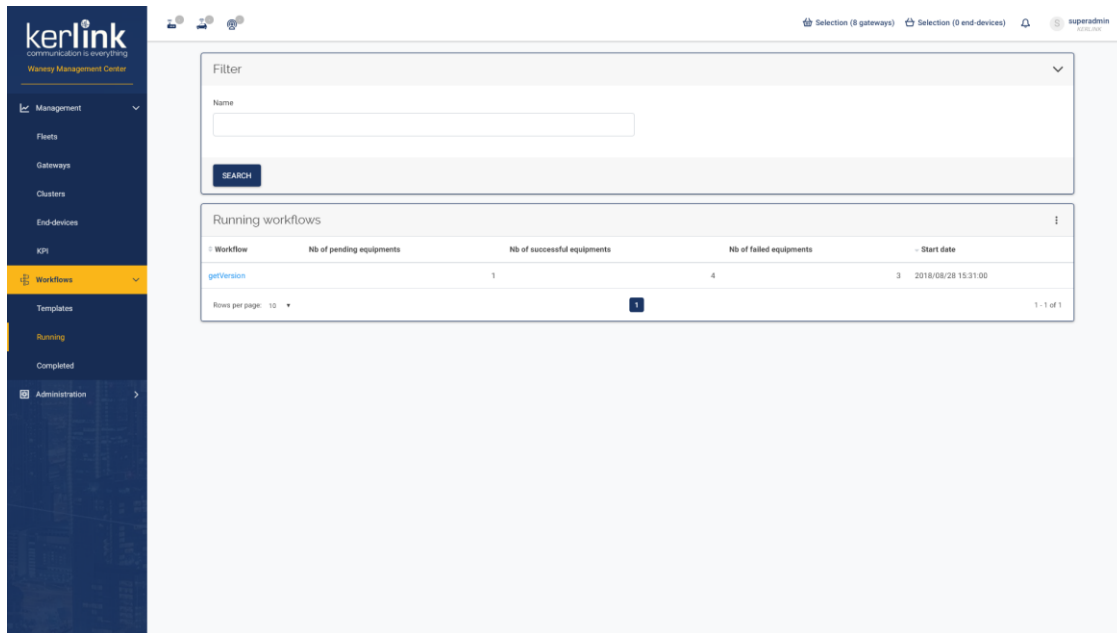
Name	Input type	Required	Validation
Name	text	✓	text
Category	select	✓	
Description	text	-	text

### 4.70 Running

*Since: 3.0*

This screen lists all running workflows

#### 4.70.1 Screenshot



#### 4.70.2 Rules

- A **SUPER\_ADMIN** can see all running workflows of all users
- A **USER** or **ADMIN** can only see his running workflows

#### 4.70.3 Filter

Name	Input type	Required	Validation
Name	text	-	text

#### 4.70.4 Columns

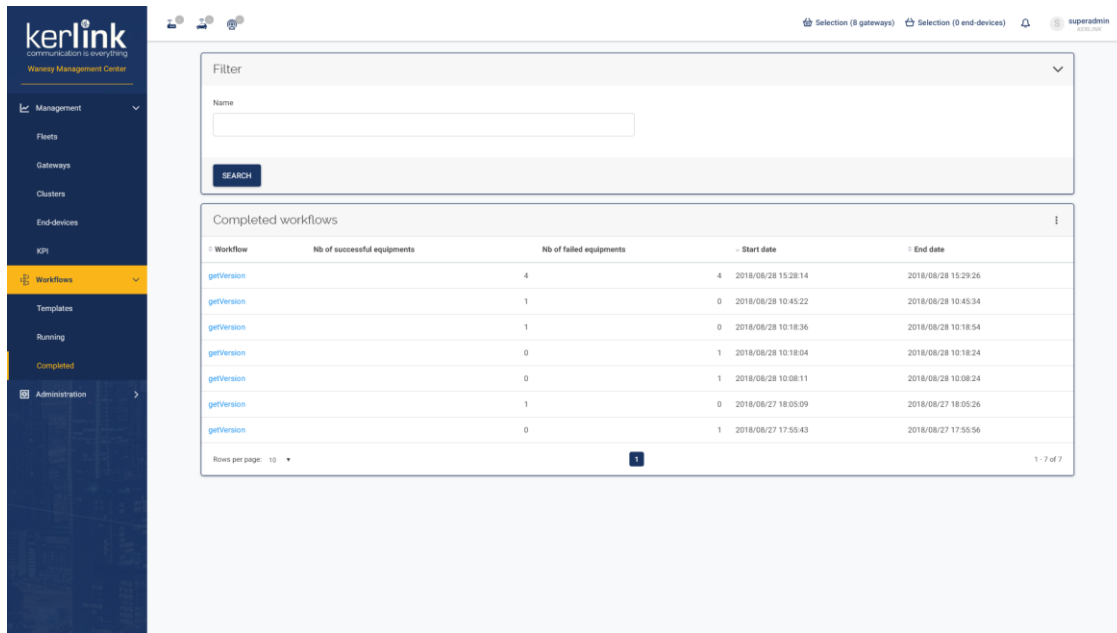
Name	Sortable
Workflow	✓
Nb of pending equipments	-
Nb of successful equipments	-
Nb of failed equipments	-
Start date	✓

### 4.71 Completed

*Since: 3.0*

This screen lists all completed workflows

#### 4.71.1 Screenshot



#### 4.71.2 Rules

- A **SUPER\_ADMIN** can see all completed workflows of all users
- A **USER** or **ADMIN** can only see his completed workflows

#### 4.71.3 Filter

Name	Input type	Required	Validation
Name	text	-	text

#### 4.71.4 Columns

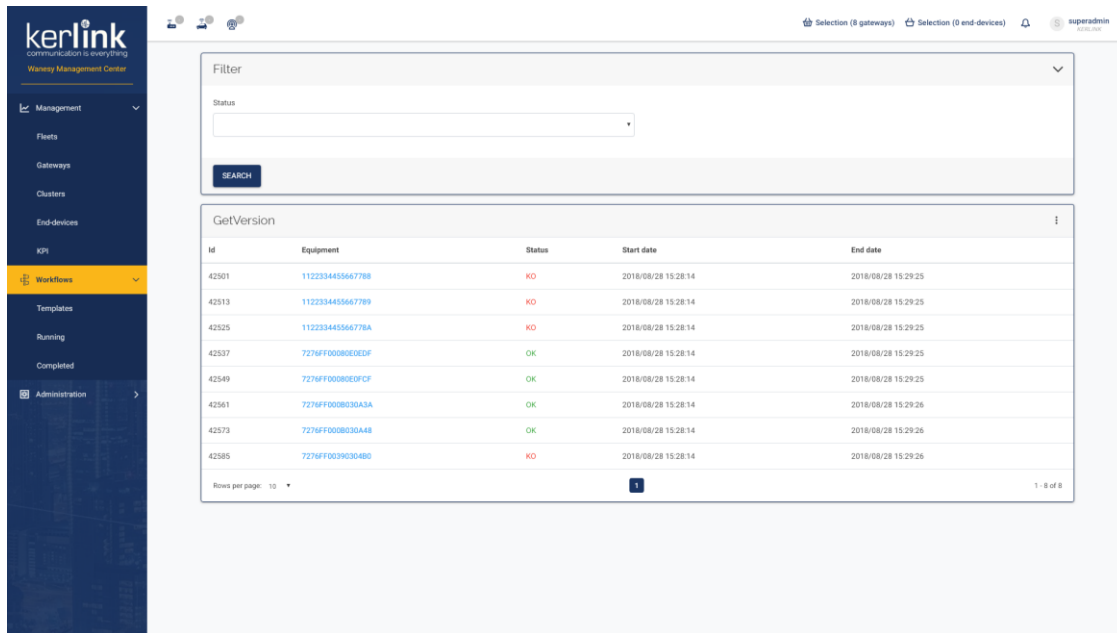
Name	Sortable
Workflow	✓
Nb of successful equipments	-
Nb of failed equipments	-
Start date	✓
End date	✓

### 4.72 Results

Since: 3.0

This screen displays the list of equipment's and their status for a running / completed workflow

#### 4.72.1 Screenshot



#### 4.72.2 Form

Name	Input type	Required	Validation
Status	Select	✓	-

#### 4.72.3 Columns

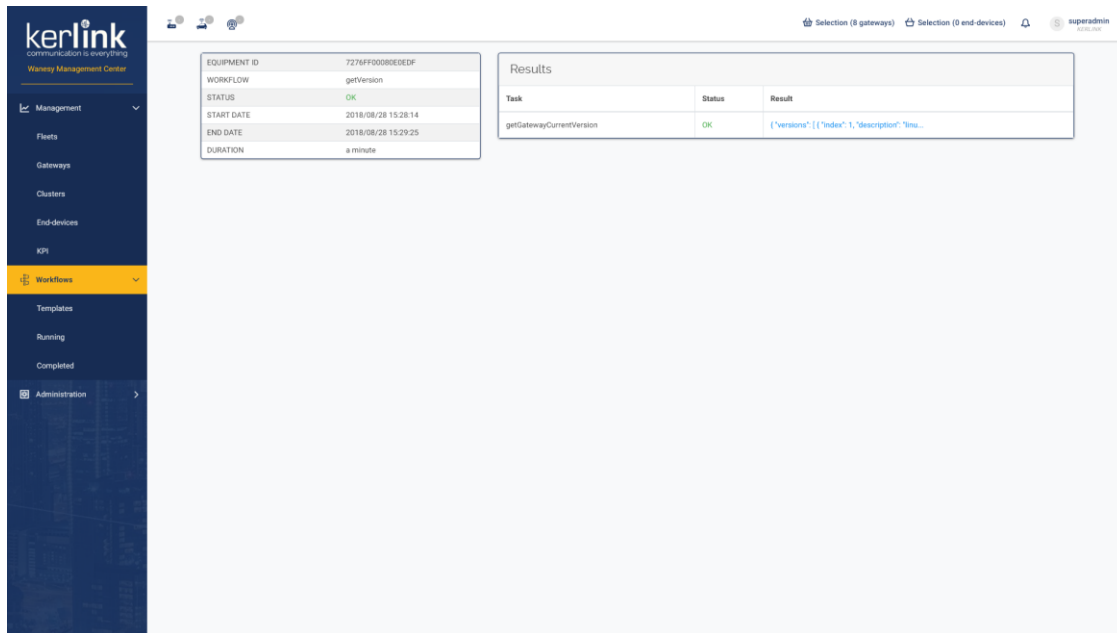
Name	Sortable
Id	-
Equipment ID	-
Status	-
Start date	-
End date	-

### 4.73 Equipment

*Since: 3.0*

This screen displays the workflow result for a specific equipment

#### 4.73.1 Screenshot



#### 4.73.2 Rules

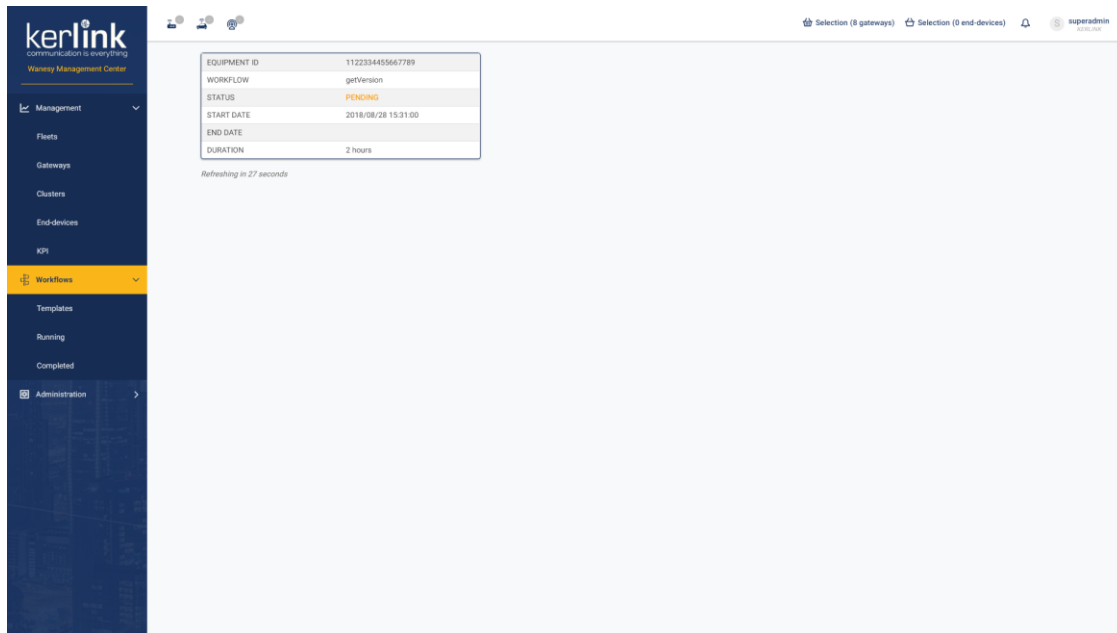
- If the status is **PENDING**, the result table is not shown and the page is refreshed every 30 seconds
- If the status is **OK** or **KO**, the result table should list each steps of the workflow with its status and result
- Clicking on the equipment ID link should redirect to the equipment overview
- Clicking on the result link of a workflow step should open a modal with the details of the result
- The task name can be a link redirecting to the tasks list with a predefined filter on the task id:
  - If the user is **ADMIN** or **SUPER\_ADMIN**
  - If the workflow is executed on gateways
  - If the task is an asynchronous webservice

#### 4.73.3 Columns

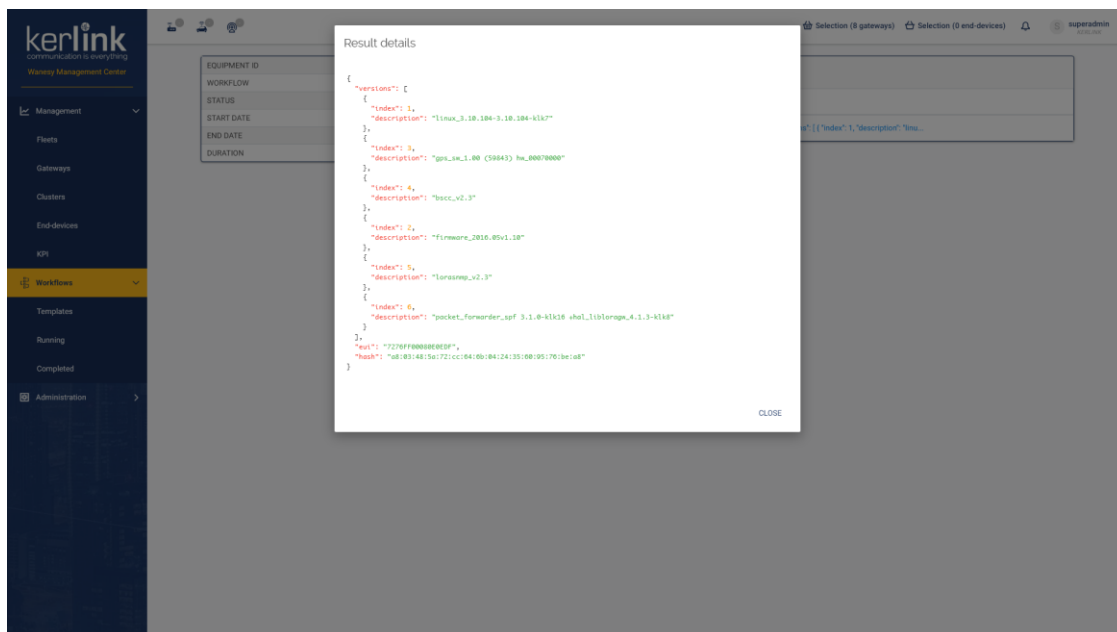
Name	Sortable
Task	-
Status	-
Result	-

#### 4.73.4 Additional screenshots

#### 4.73.4.1 Equipment page for a running workflow



#### 4.73.4.2 Details of the result of a workflow step



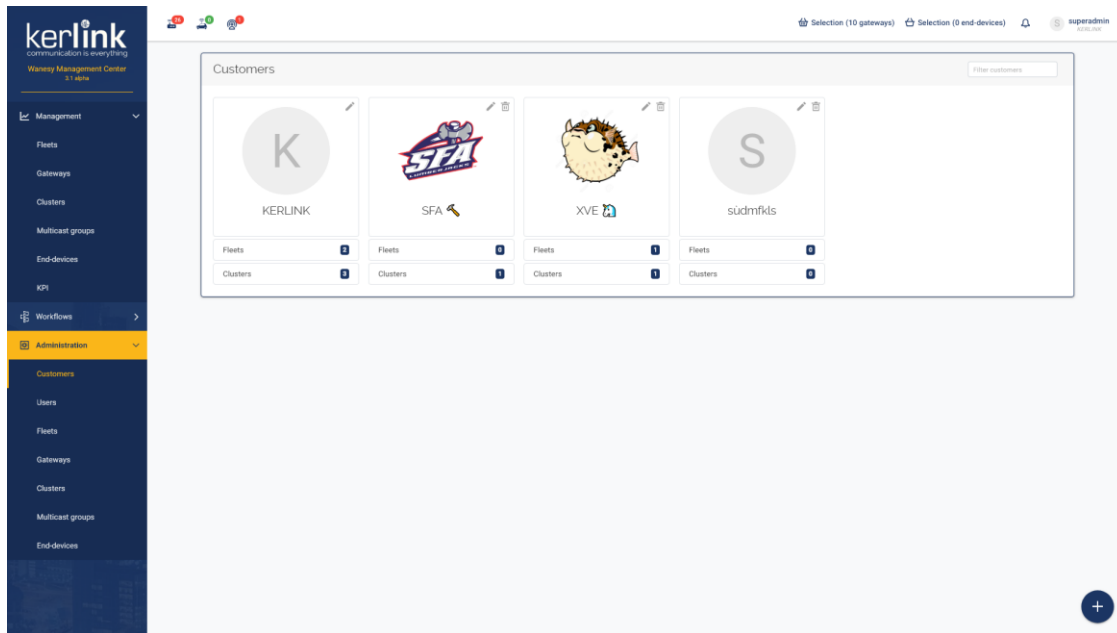
### 4.74 Customers

Since: 3.0

This screen lists all customers of the Wanesy™ Management Center and allow the user to add new customers.

#### 4.74.1 Screenshot





## 4.74.2 Rules

### 4.74.2.1 Customers

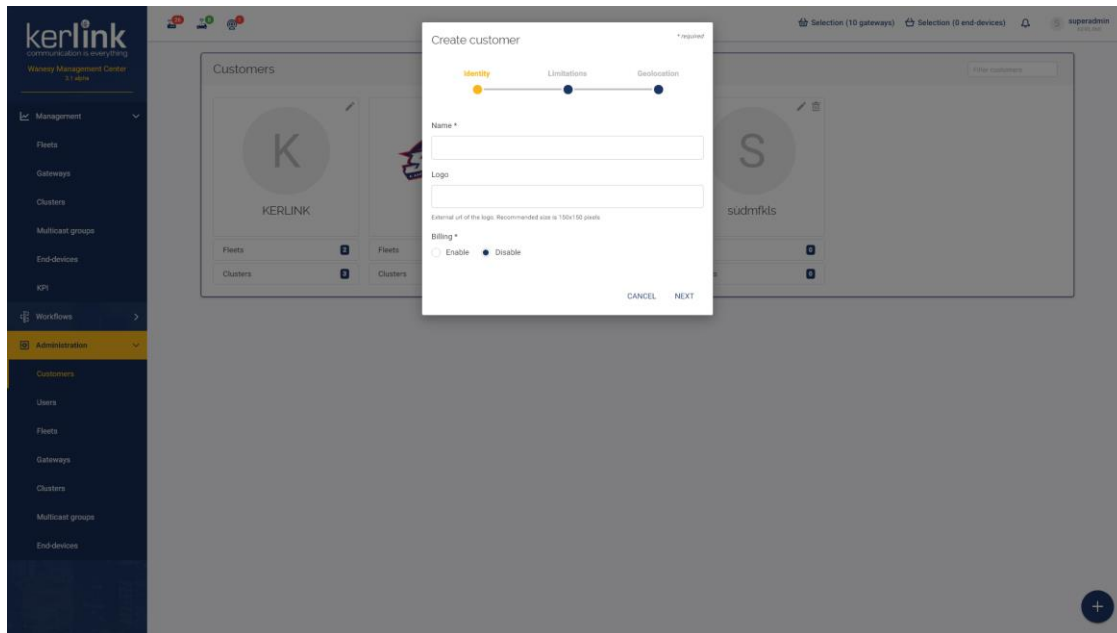
- Only **SUPER\_ADMIN** can access to this screen
- The *filter customers* input should filter the customer list
- The customer *KerLink* can only be edited, all other customers can be edited and deleted
- The customer ID should be displayed in the top left corner of its card
- When billing is activated on a customer, a *coin* icon should be displayed at the bottom right of the customer card
- Each customer should have his list of fleets and cluster under his card
- The fleets and clusters list of a customer can be open or collapsed
- A click on the bottom right **+** button should open the add customer modal

## 4.75 Add customer

Since: 3.0

From the customer list, this modal allows to add a customer.

### 4.75.1 Screenshot



#### 4.75.2 Rules

- Only **SUPER\_ADMIN** can add a customer
- The expiration date cannot be set in the past

#### 4.75.3 Form

- The form is divided in 3 steps:
  - Identity
  - Limitations
  - Geolocation

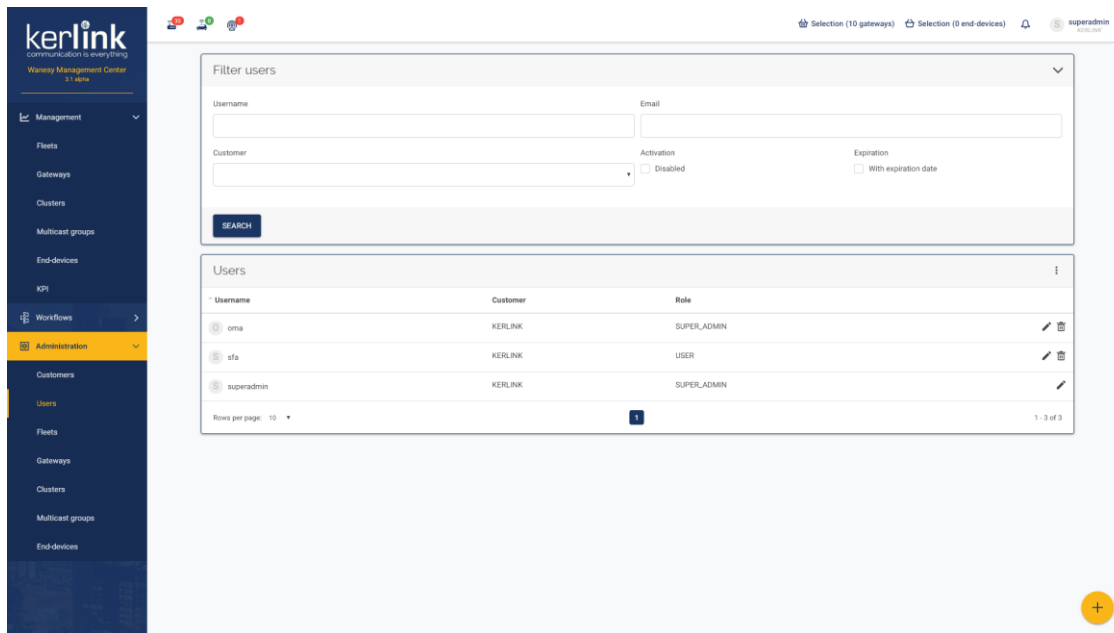
Name	Input type	Required	Validation
Name	text	✓	text
Logo	text	-	url
Billing	radio	✓	-
Limitations: gateways	text	-	number, min_value:1
Limitations: end-devices	text	-	number, min_value:1
Limitations: user	text	-	number, min_value:1
Geolocation	checkbox	-	-
Expiration date	date picker	-	-

### 4.76 Users

*Since: 3.0*

This screen lists all users of the Wanesity™ Management Center and allow the user to add new users.

### 4.76.1 Screenshot



### 4.76.2 Rules

- An **ADMIN** can only see the user of his customer
- A **SUPER\_ADMIN** can see all users of all customers
- An **ADMIN** cannot edit or delete **SUPER\_ADMIN** users
- A **SUPER\_ADMIN** can edit or delete all users
- A user cannot delete his own account
- If a user is disabled, he will have a red “disabled” icon at the right of his username
- If a user has not yet validated his email, he will have:
  - a grey “lock” icon at the right of his username
  - a “mail” icon at the left of the edit button, allowing a **SUPER\_ADMIN** or **ADMIN** to send a new validation link
- A click on the bottom right + button should open the add user modal
- The grid menu allows the **SUPER\_ADMIN** or **ADMIN** to send an email to all users:
  - The current filters are applied to get the emails list
  - Users with a non-validated email are excluded from emails list

### 4.76.3 Filters

Name	Input type	Required	Validation
Username	text	-	text
Email	text	-	text
Customer	select	-	-
Disabled	checkbox	-	-
With expiration date	checkbox	-	-

#### 4.76.4 Columns

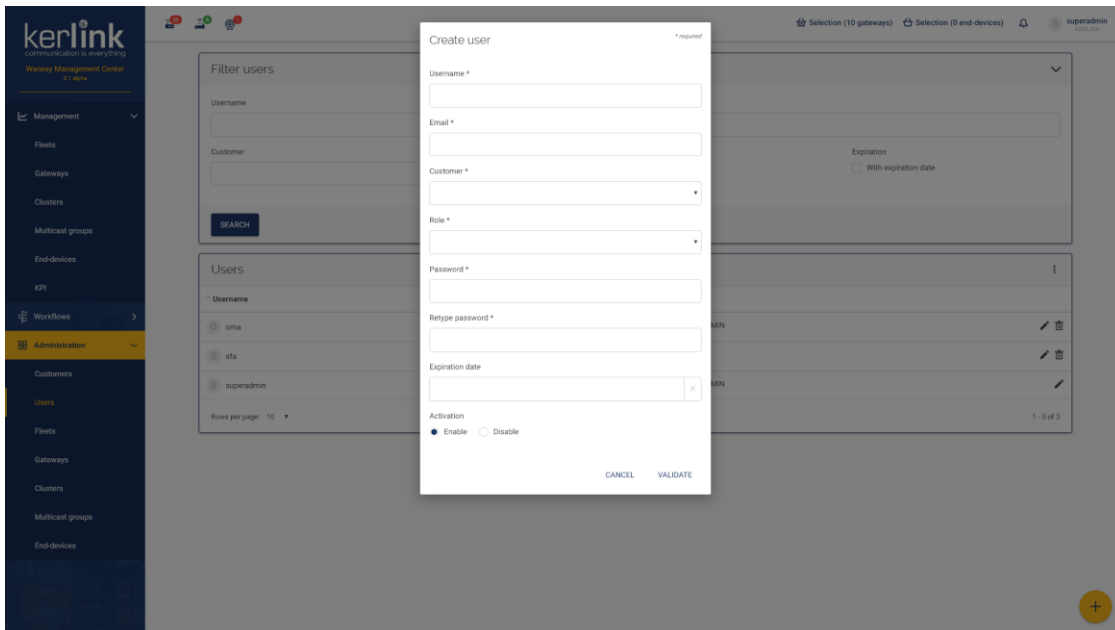
Name	Sortable
Username	✓
Email	-
Customer	-
Role	-
[Actions]	-

### 4.77 Add user

Since: 3.0

From the users list, this modal allows to add a user.

#### 4.77.1 Screenshot



#### 4.77.2 Rules

- An **ADMIN** can only add user to his customer (the customer choice is not displayed)
- A **SUPER\_ADMIN** can add users to any customers
- An **ADMIN** can only add **READER**, **USER** and **ADMIN** users
- A **SUPER\_ADMIN** can add **READER**, **USER**, **ADMIN** and **SUPER\_ADMIN** users
- The expiration date cannot be set in the past

#### 4.77.3 Form

Name	Input type	Required	Validation
Username	text	✓	text

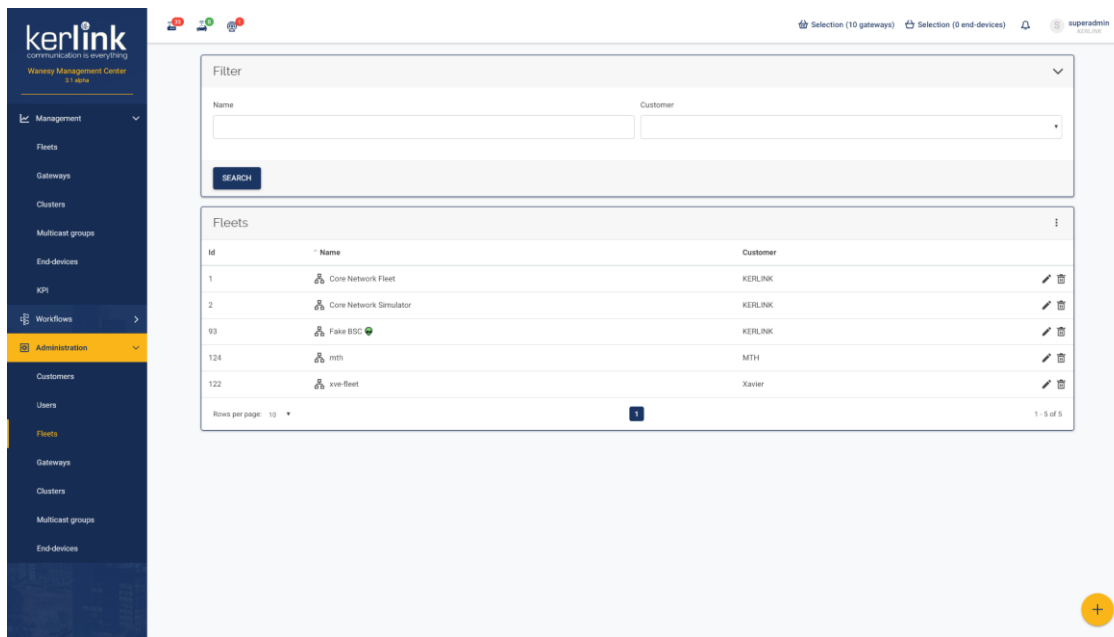
Email	email	✓	email
Customer	select	✓	-
Role	select	✓	-
Password	password	✓	confirmed
Retype password	password	✓	confirmed
Expiration date	date-picker	-	-
Activation	radio	✓	-

## 4.78 Fleets

Since: 3.0

This screen lists all fleets of the Wanesy™ Management Center and allow the user to add new fleets.

### 4.78.1 Screenshot



### 4.78.2 Rules

- An **ADMIN** can only edit and delete fleets from his customer
- A **SUPER\_ADMIN** can edit and delete fleets from any customers
- A click on the bottom right **+** button should open the add fleet modal

### 4.78.3 Form

Name	Input type	Required	Validation
Name	text	-	text

Customer	select	-	-
----------	--------	---	---

#### 4.78.4 Columns

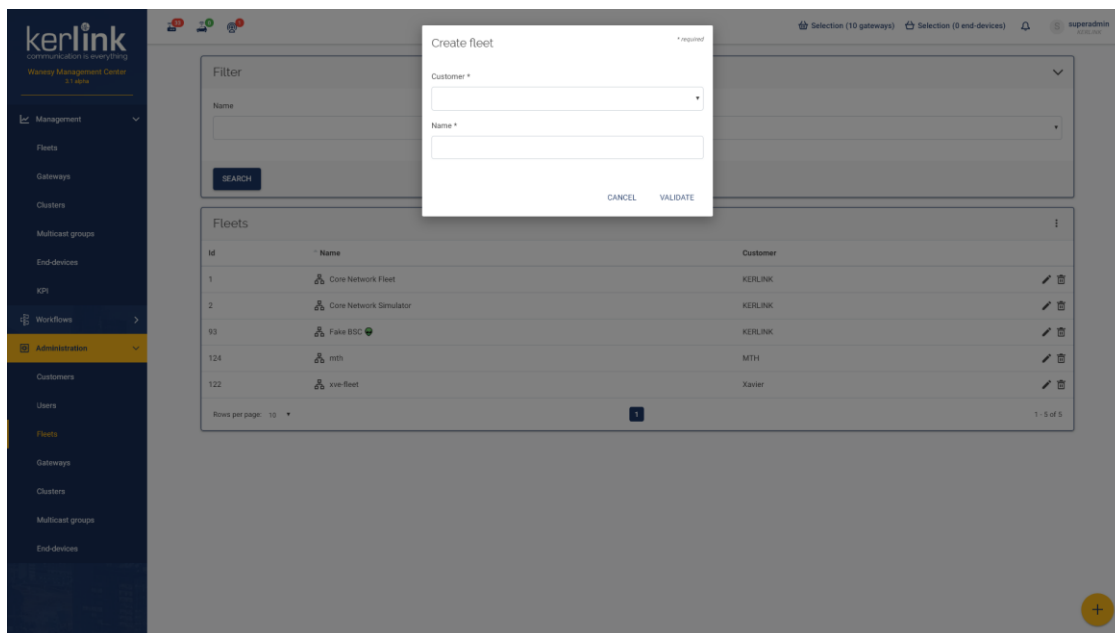
Name	Sortable
id	-
Name	✓
Customer	-
[Actions]	-

### 4.79 Add fleet

Since: 3.0

From the fleets list, this modal allows to add a fleet.

#### 4.79.1 Screenshot



#### 4.79.2 Rules

- An **ADMIN** can only add fleets to his customer (the customer choice is not displayed)
- A **SUPER\_ADMIN** can add fleets to any customers

#### 4.79.3 Form

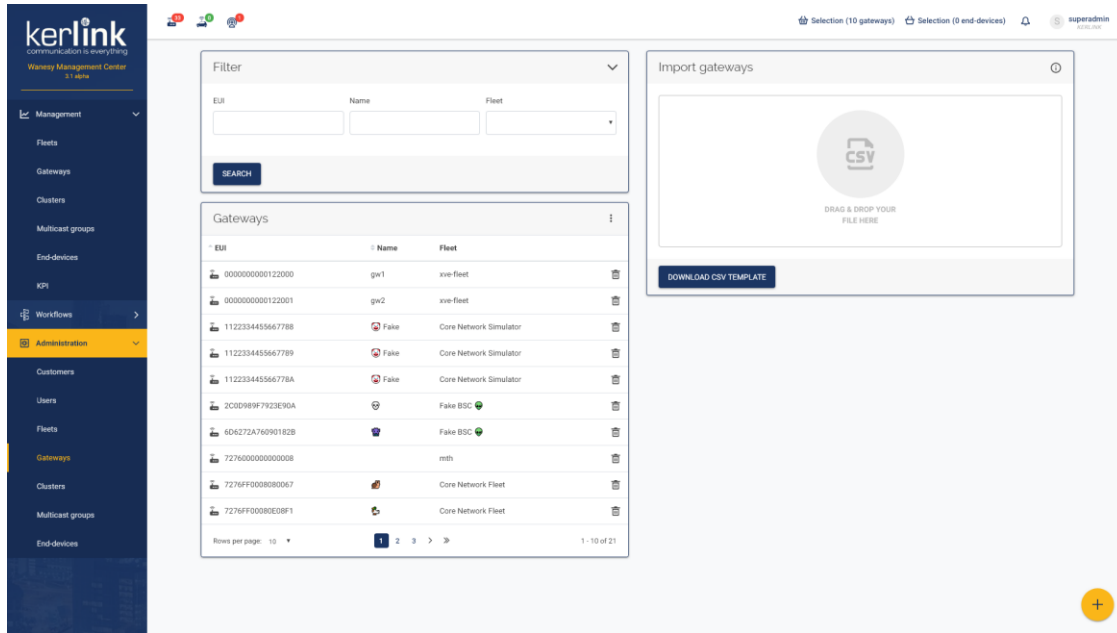
Name	Input type	Required	Validation
Customer	select	✓	-
Name	text	✓	text

## 4.80 Gateways

Since: 3.0

This screen lists all gateways of the Wanesy™ Management Center and allow the user to add new gateways.

### 4.80.1 Screenshot



### 4.80.2 Rules

#### 4.80.2.1 Gateways

- An **ADMIN** can only view and delete gateways from his customer
- A **SUPER\_ADMIN** can view and delete gateways from any customers
- A click on the bottom right **+** button should open the add gateway modal

#### Form

Name	Input type	Required	Validation
EUI	text	-	text
Name	text	-	text
Type	select	-	-
Fleet	select	-	-

#### Columns

Name	Sortable
EUI	✓
Name	✓

Type	✓
Fleet	-
[Actions]	-

#### 4.80.2.2 Import gateways

- An **ADMIN** can only import gateways to his customer
- A **SUPER\_ADMIN** can import gateways to any customers
- A click on the top right *i* button should open a modal displaying all available attributes to import gateways from a CSV
- A click on the bottom left *Download CSV template* button should download an empty CSV file with all available attributes
- A click on the *drop zone* should open the native file picker modal
- The user can also drag & drop a file from his OS explorer to the *drop zone*
- When a file is picked, it is imported to the server
  - If there are validation errors, they are displayed in red and no gateways are imported
  - If there are errors during import, they are displayed in red
  - If there are warnings during import, they are displayed in orange
  - Gateways generating errors or warnings are not imported

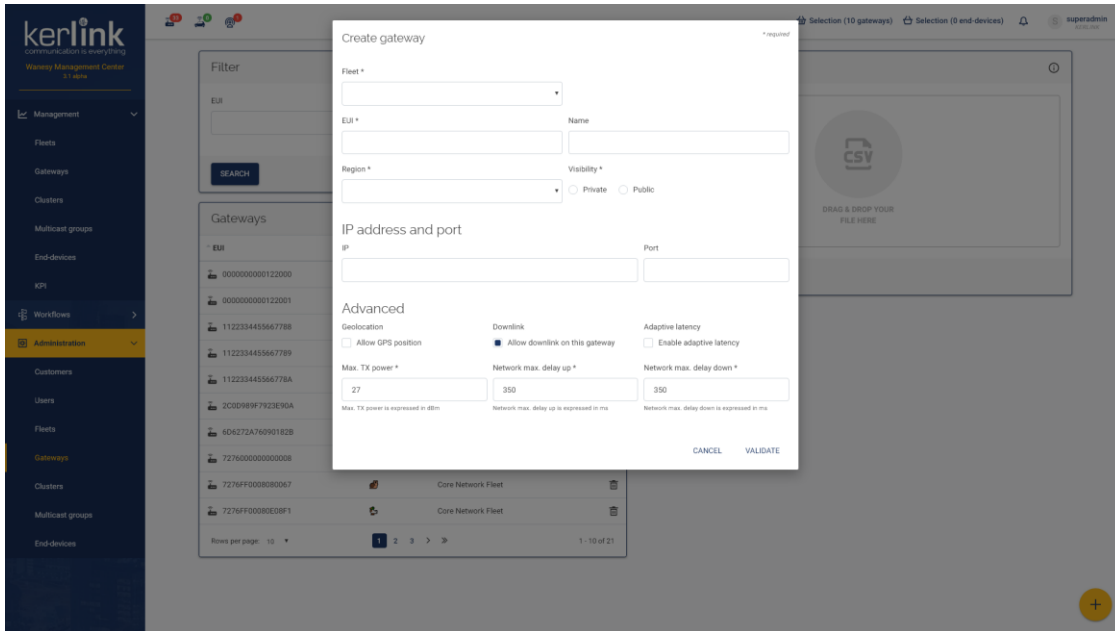
### 4.81 Add gateway

Since: 3.0

From the gateways list, this modal allows to add a gateway.

#### 4.81.1 Screenshot





#### 4.81.2 Rules

- An **ADMIN** can only add gateways to a fleet of his customer
- A **SUPER\_ADMIN** can add gateways to a fleet of any customers
- **Country** is only configurable for **AS923** region

#### 4.81.3 Form

Name	Input type	Required	Validation
Fleet	select	✓	
EUI	text	✓	hexa16
Name	text	-	text
Type	select	✓	
Region	select	✓	
Country	select	✓	
Visibility	radio	✓	
IP	text	-	ip (if port not empty)
Port	text	-	number, between:1/65535 (if IP not empty)
Geolocation	checkbox	-	
Downlink	checkbox	-	
Max. TX power	text	✓	number, between:0/36
Network max. delay up	text	✓	number, between:0/1000

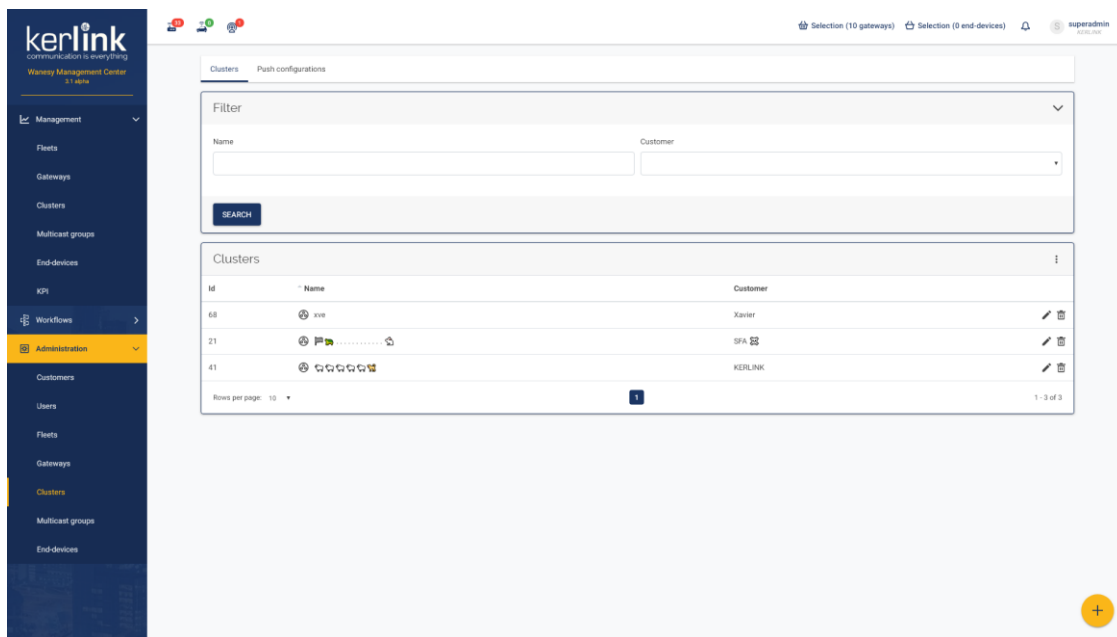
Network max. delay down	text	✓	number, between:0/1000
-------------------------	------	---	------------------------

## 4.82 Clusters

Since: 3.0

This screen lists all clusters of the Wanesy™ Management Center and allow the user to add new clusters.

### 4.82.1 Screenshot



### 4.82.2 Rules

- An **ADMIN** can only edit and delete clusters from his customer
- A **SUPER\_ADMIN** can edit and delete clusters from any customers
- A click on the bottom right **+** button should open the add cluster modal

### 4.82.3 Form

Name	Input type	Required	Validation
Name	text	-	text
Customer	select	-	-

### 4.82.4 Columns

Name	Sortable
id	-
Name	✓

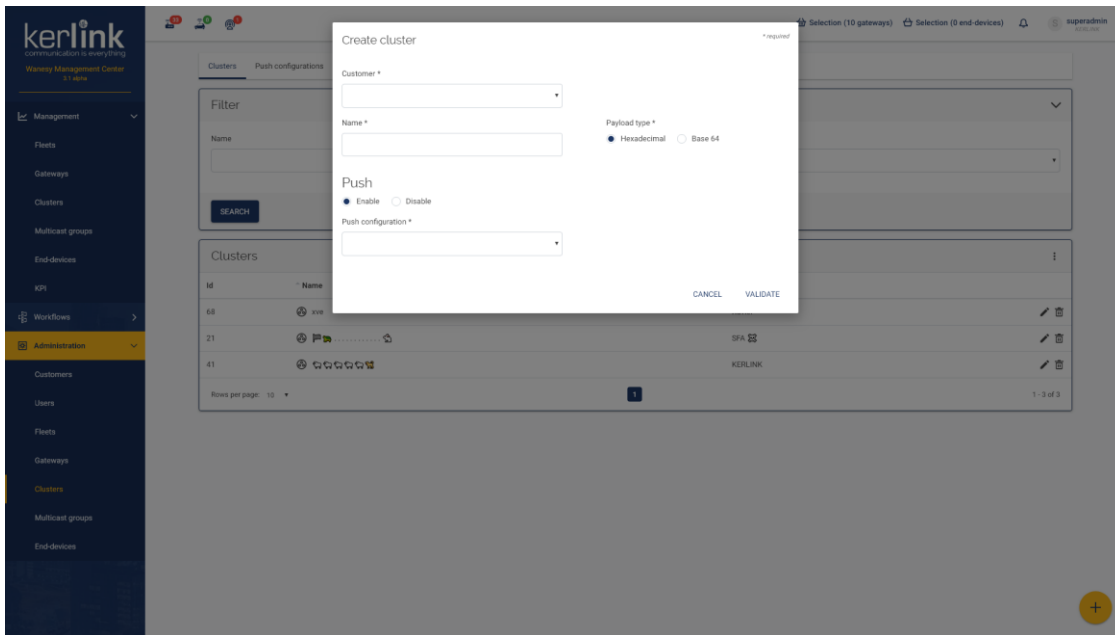
Customer	-
[Actions]	-

### 4.83 Add cluster

Since: 3.0

From the clusters list, this modal allows to add a cluster.

#### 4.83.1 Screenshot



#### 4.83.2 Rules

- An **ADMIN** can only add clusters to his customer (the customer choice is not displayed)
- A **SUPER\_ADMIN** can add clusters to any customers
- If the push is disabled, the push configuration list should be deactivated

#### 4.83.3 Form

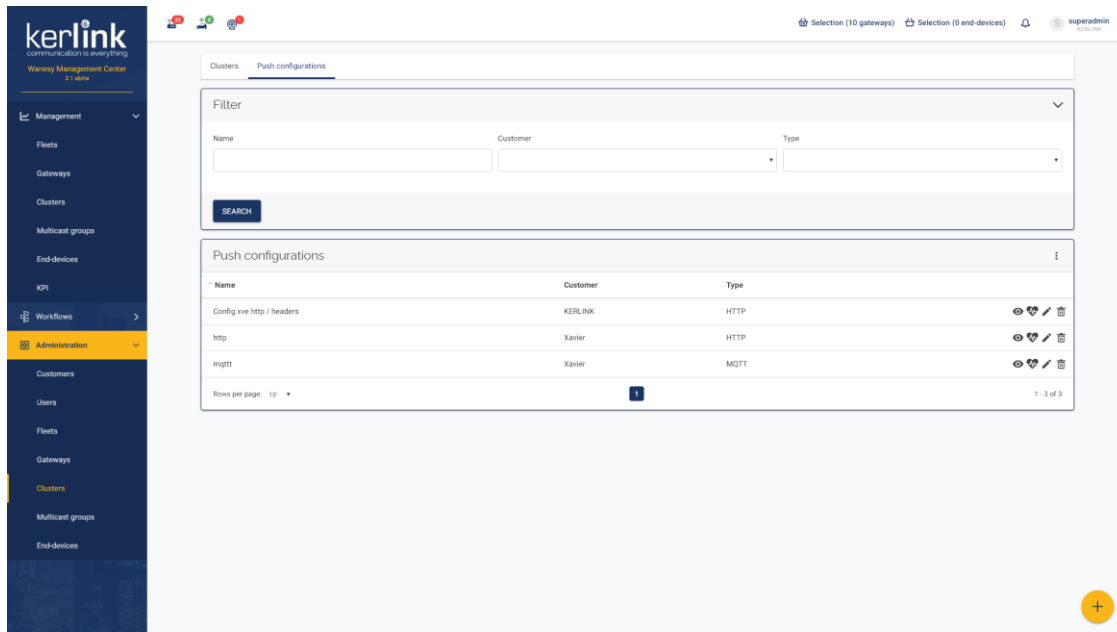
Name	Input type	Required	Validation
Customer	select	✓	-
Name	text	✓	text
Payload type	radio	✓	-
Enable push	radio	✓	-
Push configuration	select	if pushEnabled not false	-

## 4.84 Push configurations

Since: 3.1

This screen lists all push configurations of the Wanesy™ Management Center and allow the user to add new configurations.

### 4.84.1 Screenshot



### 4.84.2 Rules

- An **ADMIN** can only edit and delete configurations from his customer
- A **SUPER\_ADMIN** can edit and delete configurations from any customers
- A click on the bottom right **+** button should open the add push configuration modal
- Using the  icon in the **actions** column, the user should be able to test the configuration by sending a test payload
  - If the test succeed, the  should be colored in green during few seconds and a success message should be displayed
  - If the test failed, the  should be colored in red during few seconds and an error message, containing error details, should be displayed

### 4.84.3 Form

Name	Input type	Required	Validation
Name	text	-	text
Customer	select	-	-
Type	select	-	-

### 4.84.4 Columns

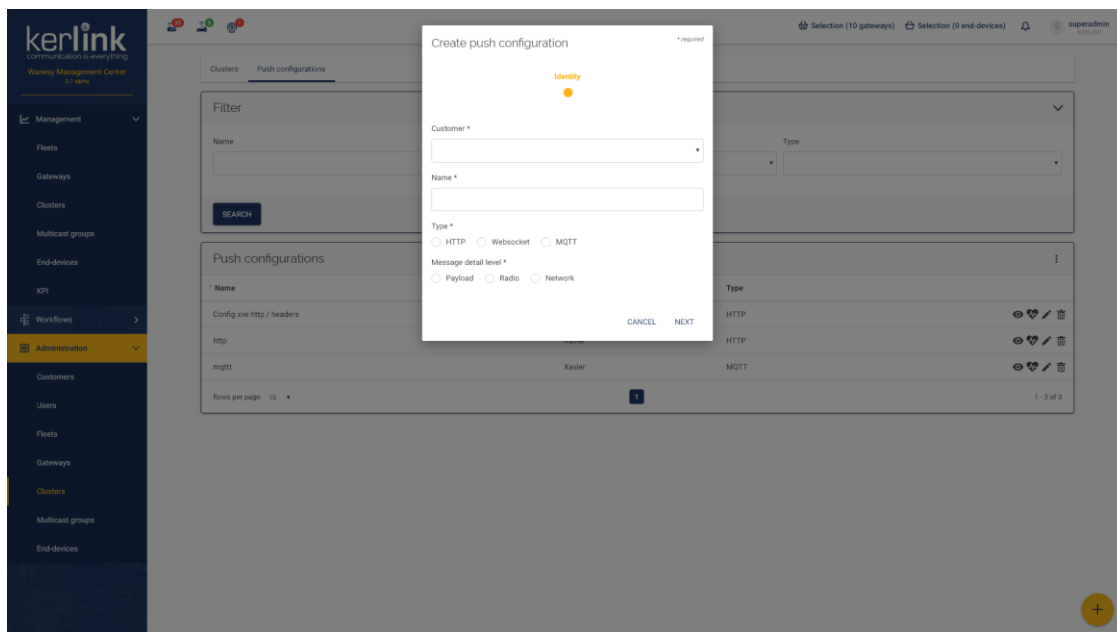
Name	Sortable
Name	✓
Customer	-
Type	-
[Actions]	-

## 4.85 Add push configuration

Since: 3.1

From the configurations list, this modal allows to add a new push configuration.

### 4.85.1 Screenshot



### 4.85.2 Rules

- An **ADMIN** can only add configuration to his customer (the customer choice is not displayed)
- A **SUPER\_ADMIN** can add configuration to any customers

### 4.85.3 Form

- According to the configuration type, the form can be divided in 3, 4, 5 or 6 steps:
  - HTTP and websocket types:
    - Identity
    - Connection
    - Custom headers
  - HTTPS and secured websocket types:
    - Identity

- Connection
- SSL
- Custom headers
- MQTT without TLS
  - Identity
  - Connection
  - Security
  - Topics
  - Messages
- MQTT with TLS
  - Identity
  - Connection
  - Security
  - SSL
  - Topics
  - Messages

#### 4.85.3.1 Identity

Name	Input type	Required	Validation
Customer	select	✓	-
Name	text	✓	text
Type	radio	✓	-
Message detail level	radio	✓	-

#### 4.85.3.2 Connection (HTTP/HTTPS/WS/WSS)

Name	Input type	Required	Validation
URL	text	✓	http (accessType is HTTP) or websocket (accessType is WEBSOCKET)
User	text	if pushPassword not null	-
Password	password	if pushUser not null or when editing cluster	text
Data Up route	text	-	text
Data Down route	text	-	text

#### 4.85.3.3 SSL

Name	Input type	Required	Validation
Certificate	file	[1]	-
Private key	file	[1]	-
Certificate authorities store	file	[1]	-

[1] The user must select a certificate and a private key, a certificate authorities store, or the three files. Validation of these rules is done server side.

#### 4.85.3.4 Custom headers

Name	Input type	Required	Validation
Key	text	if value not null	text
Value	text	if key not null	text

#### 4.85.3.5 Connection (MQTT)

Name	Input type	Required	Validation
Host	text	✓	ipHostname
Port	text	✓	number, between:1/65535
Client ID	text	-	text
Connection timeout	text	-	number
Keep alive	text	-	number
TLS	checkbox	-	-
Clean session	checkbox	-	-

#### 4.85.3.6 Security

Name	Input type	Required	Validation
User	text	-	text
Passwo	password	-	text

#### 4.85.3.7 Topics

Name	Input type	Required	Validation
Data Up topic	text	-	text
Data Down topic	text	-	text
QoS	select	✓	-

#### 4.85.3.8 Messages

Name	Input type	Required	Validation
Will topic	text	-	text

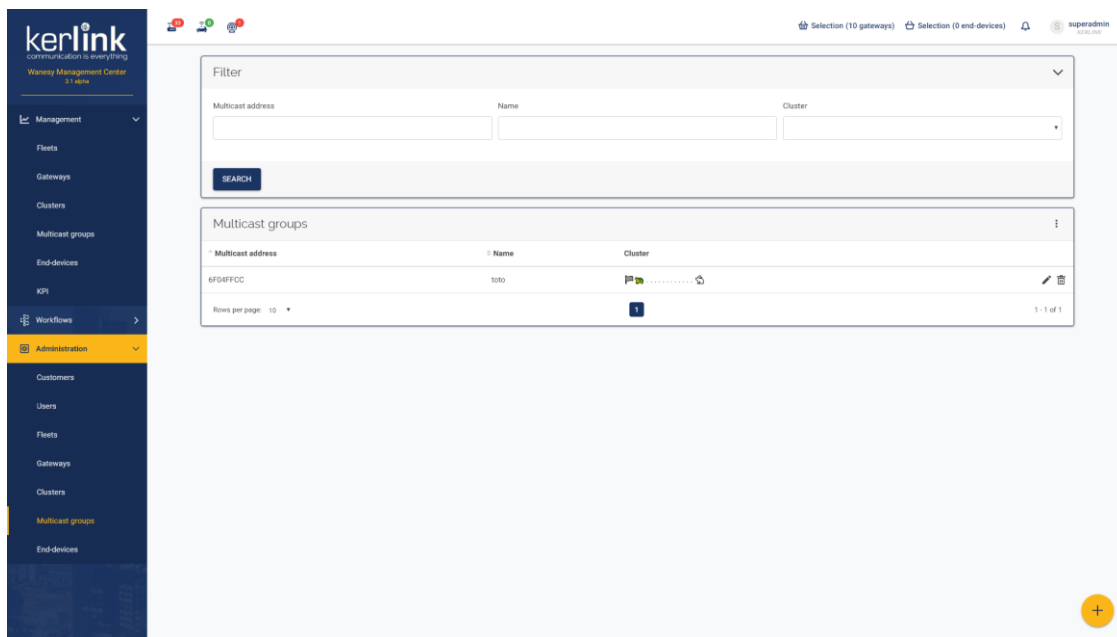
Will payload	text	-	text
Will QoS	select	-	-

## 4.86 Multicast groups

Since: 3.0

This screen lists all multicast groups of the Wanesy™ Management Center and allow the user to add new group.

### 4.86.1 Screenshot



### 4.86.2 Rules

- An **ADMIN** can only edit and delete groups from his customer
- A **SUPER\_ADMIN** can edit and delete groups from any customers
- A click on the bottom right **+** button should open the add group modal

### 4.86.3 Form

Name	Input type	Required	Validation
Multicast address	text	-	text
Name	text	-	text
Cluster	select	-	-

### 4.86.4 Columns

Name	Sortable
Multicast address	✓



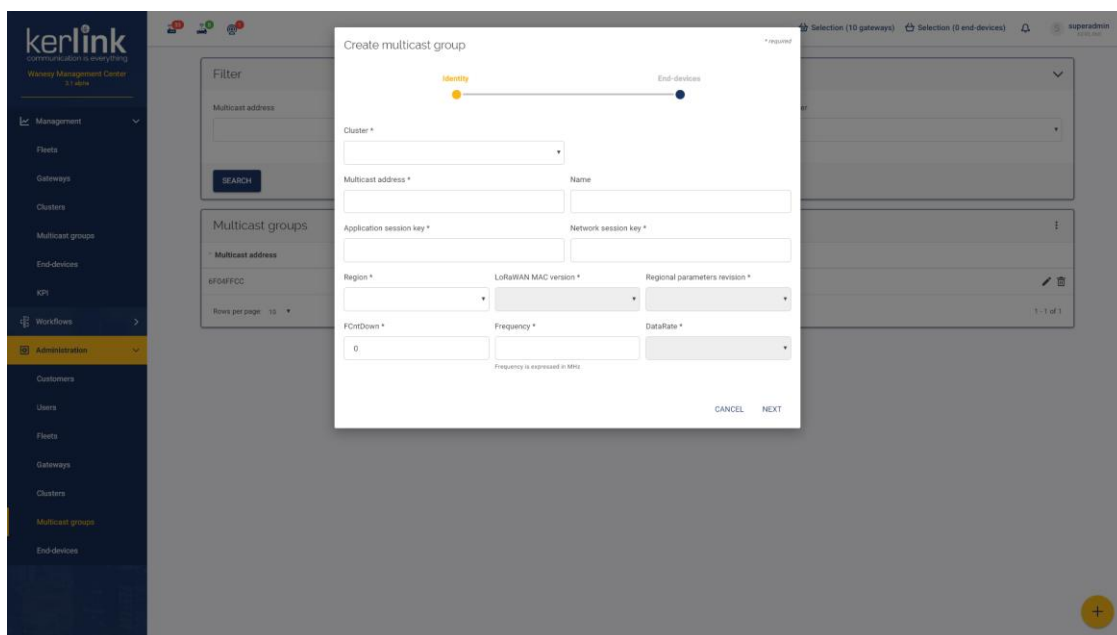
Name	✓
Cluster	-
[Actions]	-

## 4.87 Add multicast group

Since: 3.0

From the multicast groups list, this modal allows to add a group.

### 4.87.1 Screenshot



### 4.87.2 Rules

- An **ADMIN** can only add groups to a cluster of his customer
- A **SUPER\_ADMIN** can add groups to any clusters
- **Country** is only configurable for **AS923** region
- The **available end-devices** list is filled when choosing a cluster, a region, a country if needed, a mac version and a regional parameters revision (except if selected version is **1.0.1**)
- The **filter** inputs should filter **available end-devices** and **selected end-devices**
- The **selected end-devices** list is reset when selecting another cluster, region, mac version or regional parameters revision
- The user should be able to click an item from **available end-devices** to add it to the **selected end-devices** list
- The user should be able to click an item from **selected end-devices** to remove it from the **selected end-devices** list

- The user should not be able to add the same end-device several times to the *selected end-devices* list
- Clicking on an item of the lists should remove it from this list and add it to the other list

#### 4.87.3 Form

- The form is divided in 2 steps:
  - Identity
  - End-devices

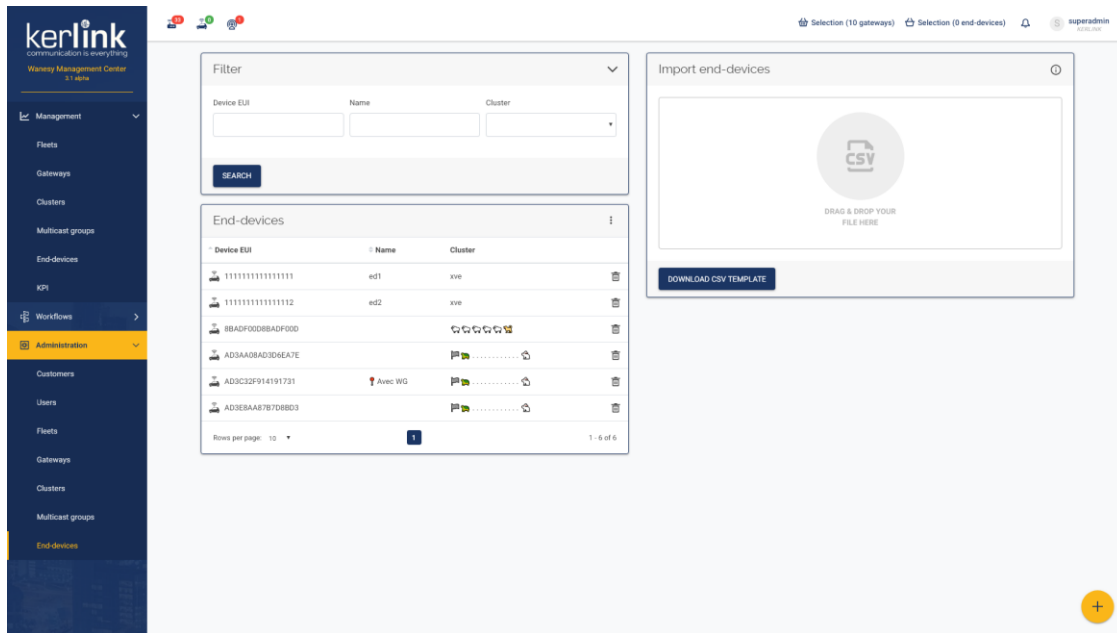
Name	Input type	Required	Validation
Cluster	select	✓	-
Multicast address	text	✓	hexa8
Name	text	-	text
Application session key	text	Only on create	hexa32
Network session key	text	Only on create	hexa32
Region	select	✓	-
Country	select	-	-
Mac version	select	✓	-
Regional parameters revision	select	✓	-
FCntDown	text	✓	number
Frequency	text	✓	number
DataRate	select	✓	-

### 4.88 End-devices

*Since: 3.0*

This screen lists all end-devices of the Wanesy™ Management Center and allow the user to add new end-devices.

#### 4.88.1 Screenshot



## 4.88.2 Rules

### 4.88.2.1 End-devices

- An **ADMIN** can only view and delete end-devices from his customer
- A **SUPER\_ADMIN** can view and delete end-devices from any customers
- A click on the bottom right **+** button should open the add end-device modal

### Form

Name	Input type	Required	Validation
Device EUI	text	-	text
Name	text	-	text
Cluster	select	-	-

### Columns

Name	Sortable
Device EUI	✓
Name	✓
Cluster	-
[Actions]	-

### 4.88.2.2 Import end-devices

- An **ADMIN** can only import end-devices to his customer
- A **SUPER\_ADMIN** can import end-devices to any customers

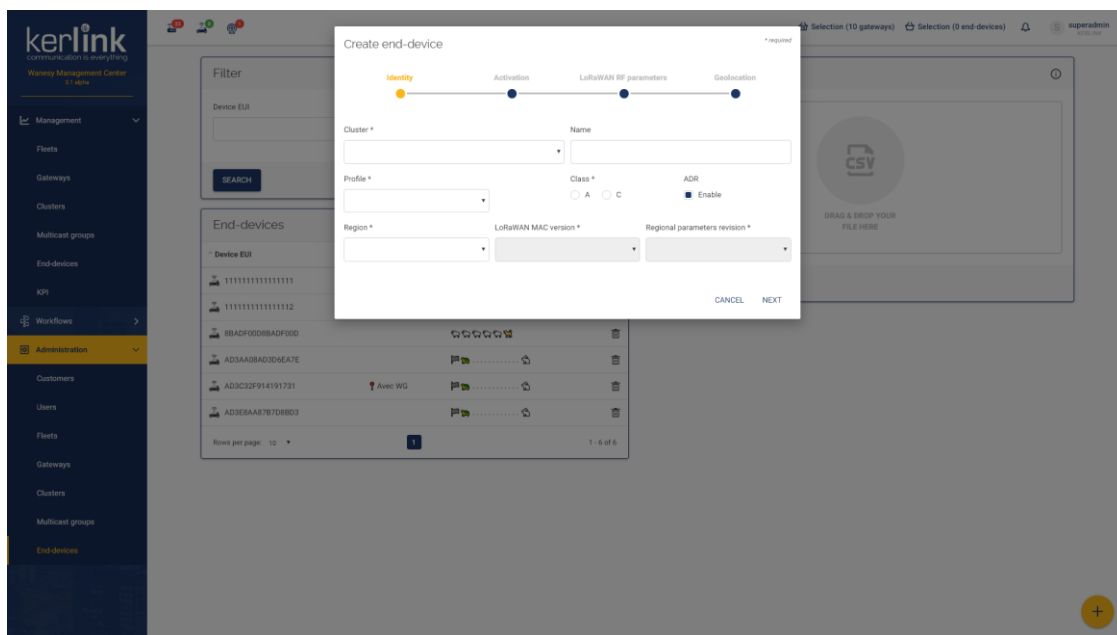
- A click on the top right **i** button should open a modal displaying all available attributes to import end-devices from a CSV
- A click on the bottom left **Download CSV template** button should download an empty CSV file with all available attributes
- A click on the **drop zone** should open the native file picker modal
- The user can also drag & drop a file from his OS explorer to the **drop zone**
- When a file is picked, it is imported to the server
  - If there are validation errors, they are displayed in red and no end-devices are imported
  - If there are errors during import, they are displayed in red
  - If there are warnings during import, they are displayed in orange
  - End-devices generating errors or warnings are not imported

## 4.89 Add end-device

Since: 3.0

From the end-devices list, this modal allows to add an end-device.

### 4.89.1 Screenshot



### 4.89.2 Rules

- An **ADMIN** can only add end-devices to a cluster of his customer
- A **SUPER\_ADMIN** can add end-devices to a cluster of any customers
- **Country** is only configurable for **AS923** region
- **Dwell time** is only configurable for **AS923** region and since **1.0.2 C** revision of **AU915** region

- *CFList* can be configured in the *LoRa Wan RF parameters* paragraph for OTAA end-devices
- For *AU915*, *CN470* and *US915* regions, *CFList* can be configured only from Mac version *1.0.3* and Regional parameters revision *C*
- For *AU915*, *CN470* and *US915* regions, *CFList* can be configured by setting 5 or 6 channel masks in hexadecimal
- For all other regions, *CFList* can be configured by setting 5 frequencies in Hz

#### 4.89.3 Form

- The form is divided in 4 steps:
  - Identity
  - Activation
  - LoRa Wan RF parameters
  - Geolocation

Name	Input type	Required	Validation
Cluster	select	✓	-
Name	text	-	text
Profile	select	✓	-
Class	radio	✓	-
Support class B	checkbox	✓ (if class A)	-
ADR	checkbox	-	-
Region	select	✓	-
Mac version	select	✓	-
Regional parameters revision	select	✓	-
Activation type	select	✓	-
Device EUI	text	✓	hexa16
Application EUI	text	✓ (if activation = OTAA)	hexa16
Application key	text	-	hexa32
Application session key	text	✓ (if activation = ABP)	hexa32
Device addr	text	✓ (if activation = ABP)	hexa8
Network session key	text	✓ (if activation = ABP)	hexa32

FCntUp	text	✓ (if activation = ABP)	integer
FCntDown	text	✓ (if activation = ABP)	integer
Override RX parameters	checkbox	-	-
RX1 delay	text	-	number, between:0/15
RX2 data rate	text	-	number, between:0/30
RX2 frequency	text	-	number min_value:0
RX Windows	radio	-	-
RX1DROffset	text	-	number, decimal:0, between:0/7
Dwell time	checkbox	-	-
CFList: Freq Ch[4-8]	text	-	number
CFList: ChMask[0-5]	text	-	hexa4
Ping slot data rate	select	-	
Ping slot frequency	text	-	number min_value:0
Geolocation type	radio	✓	-
Longitude	text	✓ (if geolocation = manual)	number, between:-180/180
Latitude	text	✓ (if geolocation = manual)	number, between:-90/90
Altitude	text	✓ (if geolocation = manual)	number

#### 4.89.4 CFList table

RF region	From version	CFListType	Count	Label
AS923	All	Frequency	5	Freq Ch[4-8]
AU915	1.0.2 C	Channel mask	5	ChMask[0-4]
CN470	1.0.2 C	Channel mask	6	ChMask[0-5]
CN779	All	Frequency	5	Freq Ch[4-8]
EU433	All	Frequency	5	Freq Ch[4-8]
EU868	All	Frequency	5	Freq Ch[4-8]
IN865	All	Frequency	5	Freq Ch[4-8]
KR920	All	Frequency	5	Freq Ch[4-8]
RU864	All	Frequency	5	Freq Ch[4-8]

US915	1.0.2 C	Channel mask	5	ChMask[0-4]
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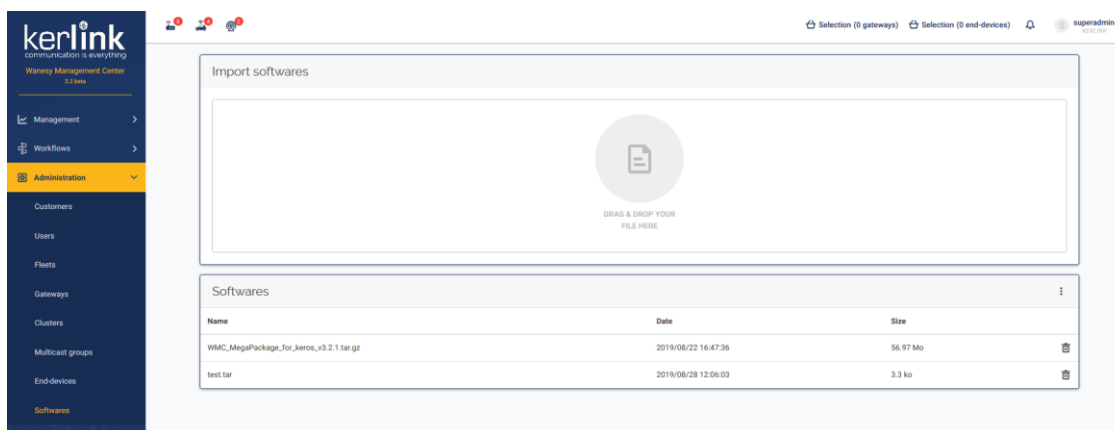
## 4.90 Import gateway software

Since: 3.2

This screen lists all gateway softwares of the Wanasy Management Center and allows the user to add new gateway softwares.

These gateway softwares can be used to update gateways through workflow execution on gateways.

### 4.90.1 Screenshot



### 4.90.2 Rules

- Only **SUPER\_ADMIN** can import a gateway software
- A gateway software can be imported if no one already exists with the same name

## 5 Annex: Input validators

### 5.1 Input validators

Input validation is done with vee-validate, a 'vue' plugin that validate input content. Some additional validator have been added to validate custom elements, or override vee-validate default validators.

#### 5.1.1 Vee-validate validators

- between
- confirmed
- email
- max
- min\_value
- ip

- regex
- url

### 5.1.2 Password validation

The passwords validation is done with the zxcvbn library from Dropbox. It rates passwords with score from 0 to 4. In the WMC dashboard, all password submissions should have a minimum score of 3/4 to be accepted. The password fields display a 4 steps bar to show the strength of the current entered password. When it's green, the password is strong enough to be accepted.

### 5.1.3 Additional validators

- hexa4
- hexa8
- hexa16
- hexa32
- http
- ipHostname
- number
- operatorCode
- payloadHex
- period
- spectrumDuration
- text
- tilesProviderUrl
- websocket

#### 5.1.3.1.1 Expected format

`[[hh:]mm:]ss`

- *hh* to define hours
- *mm* to define minutes
- *ss* to define seconds

#### 5.1.3.1.2 Examples

- `1:15:30` for 1 hour, 15 minutes and 30 seconds
- `15:30` for 15 minutes and 30 seconds
- `30` for 30 seconds

#### 5.1.3.1.3 Error messages

- The {fieldName} field is not a valid duration.
- The {fieldName} field must be between 15 seconds and 24 hours.



### 5.1.3.2 hexa4

#### 5.1.3.2.1 Expected format

A string with 4 hexadecimal characters

#### 5.1.3.2.2 Error messages

- The {field} field is not a valid 4 digits hexadecimal value in upper case.

### 5.1.3.3 hexa8

#### 5.1.3.3.1 Expected format

A string with 8 hexadecimal characters

#### 5.1.3.3.2 Error messages

- The {field} field is not a valid 8 digits hexadecimal value in upper case.

### 5.1.3.4 hexa16

#### 5.1.3.4.1 Expected format

A string with 16 hexadecimal characters

#### 5.1.3.4.2 Error messages

- The {field} field is not a valid 16 digits hexadecimal value in upper case.

### 5.1.3.5 hexa32

#### 5.1.3.5.1 Expected format

A string with 32 hexadecimal characters

#### 5.1.3.5.2 Error messages

- The {field} field is not a valid 32 digits hexadecimal value in upper case.

### 5.1.3.6 http

#### 5.1.3.6.1 Expected format

A valid HTTP/HTTPS url.

#### 5.1.3.6.2 Error messages

- The {field} field is not a valid HTTP url.

### 5.1.3.7 ipHostname

#### 5.1.3.7.1 Expected format

A valid ipv4 or hostname.

#### 5.1.3.7.2 Error messages

- The {field} field is not a valid ipv4 or hostname.

#### 5.1.3.8 number

##### 5.1.3.8.1 Expected format

A valid JAVA number: between -2147483648 and 2147483647.

##### 5.1.3.8.2 Error messages

- The {field} field is not a valid number.

#### 5.1.3.9 operatorCode

##### 5.1.3.9.1 Expected format

- the MCC must be a string containing 3 numbers
- the MNC must be a string string containing 2 or 3 numbers

##### 5.1.3.9.2 Error messages

- The {field} field must be a string containing 3 numbers
- The {field} field must be a string containing 2 or 3 numbers

#### 5.1.3.10 payloadHex

##### 5.1.3.10.1 Expected format

A valid hexadecimal string, with a length multiple of 2.

##### 5.1.3.10.2 Error messages

- The {field} field is not a valid hexadecimal payload in upper case.

#### 5.1.3.11 period

##### 5.1.3.11.1 Expected format

A valid period: the start date can be in the past, but the end date must be in the future.

##### 5.1.3.11.2 Error messages

- The {field} field cannot have an end date in the past.

#### 5.1.3.12 spectrumDuration

This validator is used to define duration when creating a new spectrum analysis. The field under validation may only contain a valid duration between 15s and 24h.

##### 5.1.3.12.1 Expected format

`[[hh:]mm:]ss`

- *hh* to define hours
- *mm* to define minutes
- *ss* to define seconds

#### 5.1.3.12.2 Examples

- *1:15:30* for 1 hour, 15 minutes and 30 seconds
- *15:30* for 15 minutes and 30 seconds
- *30* for 30 seconds

#### 5.1.3.12.3 Error messages

- The {fieldName} field is not a valid duration
- The {fieldName} field must be between 15 seconds and 24 hours

### 5.1.3.13 text

#### 5.1.3.13.1 Expected format

A string with a maximum length of 255 characters.

#### 5.1.3.13.2 Error messages

- The {field} field is too long.

### 5.1.3.14 tilesProviderUrl

#### 5.1.3.14.1 Expected format

A string with a valid Leaflet tile layer pattern.

#### 5.1.3.14.2 Error messages

- The {field} field is not a valid tiles provider pattern.

### 5.1.3.15 websocket

#### 5.1.3.15.1 Expected format

A valid websocket (WS/WSS) url.

#### 5.1.3.15.2 Error messages

- The {field} field is not a valid websocket url.

## 6 Annex: FAQ

### 6.1 How do I move a gateway from a fleet to another fleet?

You can move a gateway from a fleet to another fleet from:

- (1) **The cart:** add one or more gateway to the cart, click on the cart icon and then use the move action to move your gateways
- (2) **The gateway overview page:** go on the main page of the gateway you want to move and click on the floating button to edit the gateway. Select another fleet to move the gateway

## 6.2 How can I put a gateway in two fleets?

You cannot. Gateways can only be in one fleet.

## 6.3 How can I put an end-device in two clusters?

You cannot. End-device can only be in one cluster.

## 6.4 How can I deactivate a user or set an expiration date to a user's account?

You must have at least the role Admin to access to the user profile page you want to manage. But you can only deactivate or set an expiration date to a user who has a lowest role than yours. Of course, you cannot update the limitations of your own account.

## 7 Annex: Thresholds and hysteresis

Some alarms are defined to inform of an issue on the gateway. To define an alarm, it is necessary to have at least a current value and a limit (threshold). For some alarms, it is also necessary to have a hysteresis.

Here are the gateways information that can trigger an alarm:

- CPU, expressed in percent of CPU used
- DiskSystem, expressed in percent of system volume used
- DiskUser, expressed in percent of user volume used
- Door (locked or unlocked)
- GPS (locked or unlocked)
- RAM, expressed in percent of memory used
- RSSI, the current GSM RSSI level in dBm read with AT+CSQ command. Possible values are: -113 to -51 dBm or 0
- Temperature, expressed in degrees Celsius

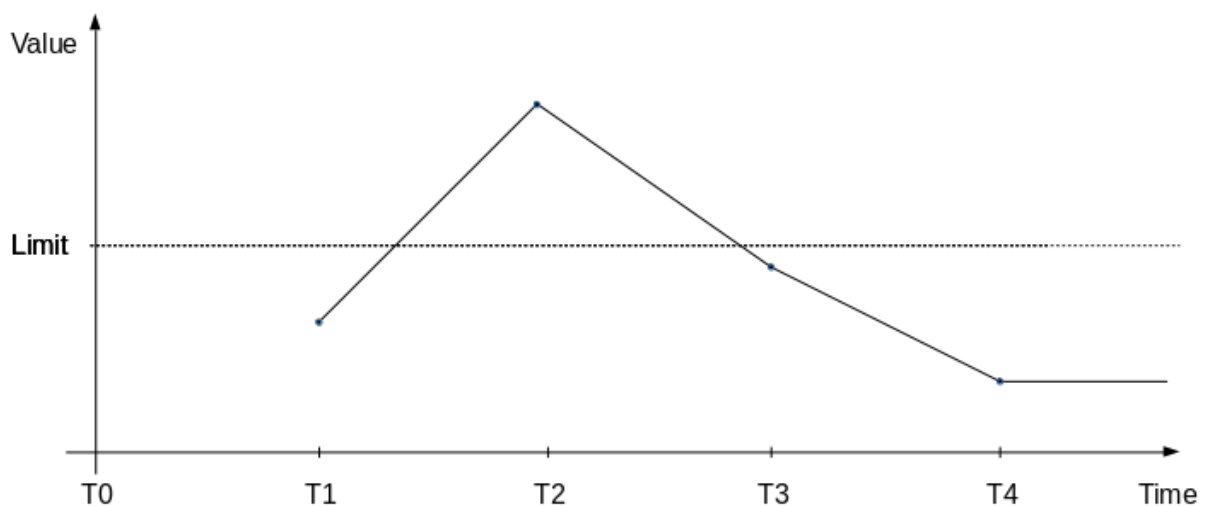
Two kinds of alarms are available:

- alarm triggered using a threshold (basic)
- alarm triggered using a threshold and a hysteresis

Note that notifications are only sent on an alarm's state change.

### 7.1 Alarm (basic)

This kind of alarm corresponds to alarms with 2 distinct states, like on / off. Door and GPS are using this kind of alarm.



Considering the graph above, alarm is triggered when the value overpasses the limit and stays on until its value is below the limit.

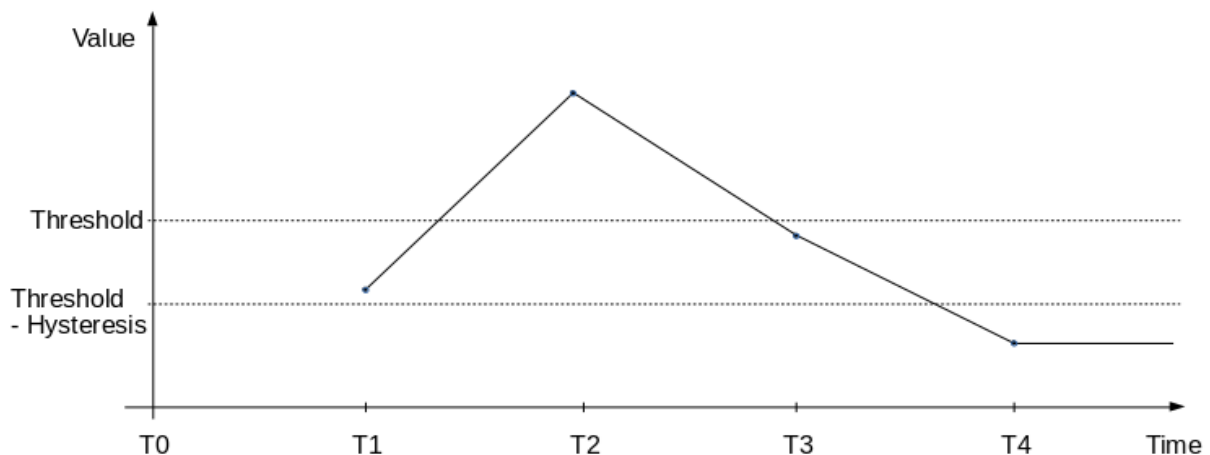
The array below summarizes the different states of the alarm:

Time	T0	T1	T2	T3	T4
State	off	off	on	off	off

- At T0, value is unknown so alarm's state is off,
- At T1, value is under the limit so alarm's state is off,
- At T2, value is over the limit so alarm's state becomes on,
- At T3, value is under the limit so alarm's state returns to off,
- At T4, value is under the limit so alarm's state stays off

## 7.2 Alarm with hysteresis

This kind of alarm is used to avoid alarm "chattering", it brings tolerance when an active alarm turns off and is particularly useful in case of fluctuant values. CPU, DiskSystem, DiskUser, RAM RSSI and temperature are using this kind of alarm.



Considering the graph above, alarm is triggered when the value overpasses the threshold and stays on until its value is below the threshold minus hysteresis.

The array below summarizes the different states of the alarm:

Time	T0	T1	T2	T3	T4
State	off	off	on	on	off

- At T0, value is unknown so alarm's state is off,
- At T1, value is under the threshold so alarm's state is off,
- At T2, value is over the threshold so alarm's state becomes on,

- At T3, value is over threshold - hysteresis so alarm's state stays on,
- At T4, value is under threshold - hysteresis so alarm's state returns to off

### 7.3 Specific case: the case of WAN RSSI alarm

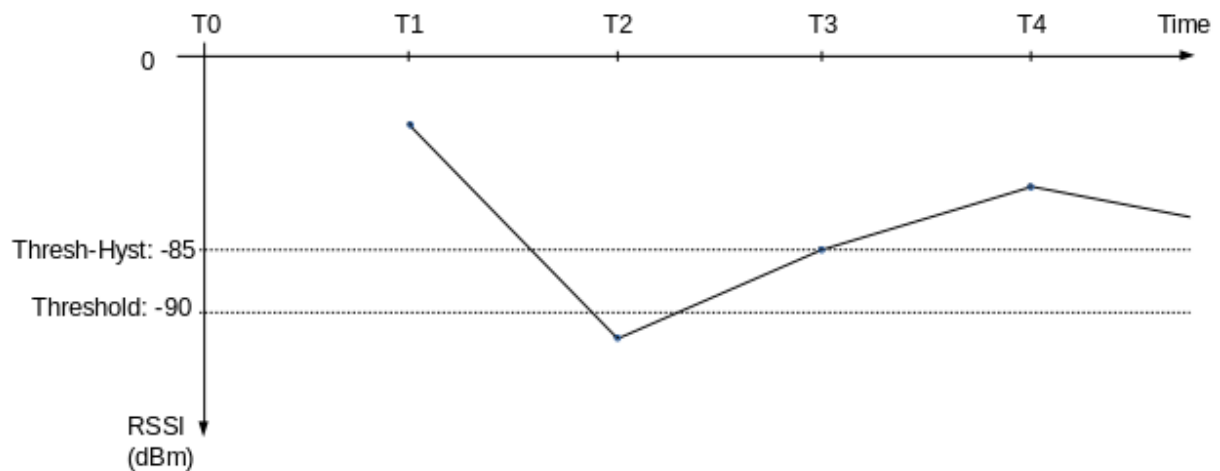
The WAN RSSI values are negative so the previous behavior is reversed. Here is an example.

First, let's assume the RSSI values are as follow:

Time	T0	T1	T2	T3	T4
Value(dBm)	NA	-70	-92	-85	-75

Next, assume that the threshold is set at -90 and the hysteresis is set at 5.

The graph of the values looks like:



The array below summarizes the different states of this alarm:

Time	T0	T1	T2	T3	T4
State	off	off	on	on	Off

- At T0, value is unknown so alarm's state is off,
- At T1, value (-70) is over the threshold (-90) so alarm's state is off,
- At T2, value (-92) is under the threshold (-90) so alarm's state becomes on,
- At T3, value (-85) is equal to threshold + hysteresis (-90 + 5) so alarm's state stays on,
- At T4, value (-75) is over threshold + hysteresis (-90 + 5) so alarm's state returns to off

**End of Document**