



USER MANUAL – RAN DASHBOARD

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INDEX

1.	Authentication.....	13
1.1	Log in to access the platform	13
1.2	Session expired.....	14
1.3	Forgot password.....	14
1.4	Reset password	15
2.	Main menu	16
2.1	BSC.....	16
2.2	RNC.....	16
2.3	LNS.....	16
2.4	Workflows	16
2.5	Administration.....	17
3.	BSC.....	18
3.1	Consult and analyze the statistics on your fleets.....	18
3.2	Search and list the stations of your fleets.....	20
3.3	Manage your stations cart	22
3.4	Consult and manage the properties of a station	23
3.4.1	Station attributes	23
3.4.2	Station statistics	24
3.4.2.1	Link status	24
3.4.2.2	RAM.....	25
3.4.2.3	CPU	26
3.4.2.4	System and user disks	27
3.4.2.5	RSSI Wan	28
3.4.2.6	Temperature	29
3.4.2.7	Power supply voltage and source	30
3.4.2.8	Uplink	31
3.4.2.9	Downlink	32
3.4.2.10	Packet forwarder	33
3.4.3	Station remote	34

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Strict confidential			

3.4.3.1	File explorer	34
3.4.3.2	Shell.....	35
3.4.3.3	Command.....	37
3.4.4	Station configurations	38
3.4.4.1	Supervision.....	38
3.4.4.2	Alarms	39
3.4.4.3	System.....	40
3.4.4.4	LAN	41
3.4.4.5	Clock.....	42
3.4.4.6	VPN.....	43
3.4.4.7	WAN	44
3.4.5	Station versions	45
3.4.5.1	Current version	45
3.4.5.2	Version history	46
3.4.5.3	Software update	47
3.4.6	Station tasks	47
3.4.7	Station SNMP logs	50
3.4.8	Station events.....	51
3.5	Consult the last alarms of your fleets	52
4.	RNC.....	54
4.1	Analyze the radio frequency activity of your modems	54
4.1.1	Request a radio frequency activity analysis of your modem.....	54
4.1.2	Consult the results of a radio frequency activity analysis of your modem.....	55
4.2	Configure the radiopath and channel frequencies of your modems.....	56
4.3	Consult and analyze the statistics on your modems.....	58
4.3.1	Request a statistics chart	58
4.3.2	Read the statistics chart	59
5.	LNS.....	61
5.1	List your clusters.....	61
5.2	List the stations	62
5.3	Consult the properties of a station	63

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Strict confidential			

5.4	Search and list the endpoints of your clusters.....	64
5.5	Manage your endpoints cart.....	65
5.6	Consult the properties of an endpoint.....	66
5.6.1	Endpoint attributes	66
5.6.2	RX messages	68
5.6.3	TX messages	69
5.6.4	Messages	70
5.7	Consult the last alarms of your stations	71
5.8	Consult the last alarms of your endpoints	72
6.	Cart management.....	73
6.1	Save your cart.....	73
6.2	Load the content of your carts.....	74
6.3	Manage your saved carts	75
7.	Workflow.....	76
7.1	List workflow templates	76
7.2	Create a workflow template	77
7.3	Execute a workflow	78
7.4	Running workflows.....	79
7.4.1	List of running workflows	79
7.4.2	Details of a running workflow execution	80
7.4.3	Details of a running workflow execution for a specific equipment	81
7.5	Completed workflows	82
7.5.1	List of completed workflows	82
7.5.2	Details of a completed workflow execution	83
7.5.3	Details of a completed workflow execution for a specific equipment	84
8.	Administration.....	85
8.1	Manage customers.....	85
8.2	Manage fleets.....	87
8.3	Manage stations.....	88
8.4	Manage clusters	89
8.5	Manage endpoints	91

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Strict confidential			

8.5.1	Create or import endpoints.....	91
8.5.2	Overriding RX parameters	92
8.6	Manage users	93
9.	User profile.....	94
9.1	Update your profile	94
10.	Settings.....	95
10.1	Dashboard	95
11.	Logs.....	97
11.1	Application logs	97
11.2	Activity logs	98
12.	About.....	100
12.1	Check services statuses	100
13.	Documentations.....	101
13.1	Access the documentation in the dashboard	101
14.	Annex 1: Supported browsers.....	102
15.	Annex 2: Roles tables	103
15.1	BSC.....	103
15.2	RNC.....	103
15.3	LNS.....	104
15.1	Workflows	105
15.1	Administration.....	105
15.2	Settings.....	105
15.3	Logs.....	105
15.4	Profile	105
15.5	About and documentation	106
16.	Annex 3: FAQ.....	107
16.1	How do I move a station from a fleet to another fleet?	107
16.2	How can I put a station in two fleets?.....	107
16.3	How can I put an endpoint in two clusters?	107
16.4	How can I deactivate a user or set an expiration date to a user's account?	107

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Strict confidential			

FIGURES

Figure 1 - Login screen	13
Figure 2 - Session expired message.....	14
Figure 3 - Forgot password screen	14
Figure 4 - Reset password screen.....	15
Figure 5 - Fleets overview	18
Figure 6 – BSC Stations list	20
Figure 7 - Stations cart	22
Figure 8 – BSC station attributes.....	23
Figure 9 - Station link status.....	24
Figure 10 - Station RAM statistics	25
Figure 11 - Station CPU statistics	26
Figure 12 - Station disks statistics	27
Figure 13 – Station RSSI statistics.....	28
Figure 14 - Station temperature statistics	29
Figure 15 – Station power supply statistics.....	30
Figure 16 - Station uplink statistics	31
Figure 17 - Station downlink statistics	32
Figure 18 - Station downlink statistics	33
Figure 19 : Station file explorer.....	34
Figure 20 : Station remote shell login	35
Figure 21 - Station remote shell console.....	36
Figure 22 - Station remote command	37
Figure 23 : Station supervision configuration	38
Figure 24 - Station control configuration	39
Figure 25 : Station system configuration	40
Figure 26 : Station LAN configuration	41
Figure 27 : Station clock configuration.....	42
Figure 28 : Station VPN configuration	43
Figure 29 : Station WAN configuration	44
Figure 30 - Station current version	45
Figure 31 - Station versions history.....	46
Figure 32 - Station software update	47
Figure 33 - Station tasks	48
Figure 34 - Tasks messages and SNMP logs	49
Figure 35 - Station SNMP logs	50
Figure 36 - Station events.....	51
Figure 37 - BSC alarms.....	52
Figure 38 - Spectrum analysis acquisition	54
Figure 39 - Spectrum analysis viewer.....	55

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Strict confidential			

Figure 40 - Station selection for radiofrequency configuration.....	56
Figure 41 - Radiofrequency configuration	57
Figure 42 - Modem selection for statistics display	58
Figure 43 : Modem statistics	59
Figure 44 - Clusters list	61
Figure 45 - LNS stations list	62
Figure 46 - LNS station properties.....	63
Figure 47 - Endpoints list.....	64
Figure 48 - Endpoints cart	65
Figure 49 - Endpoint attributes	66
Figure 50 - Endpoint RX messages	68
Figure 51 – Endpoint TX messages.....	69
Figure 52 – Endpoint messages.....	70
Figure 53 – Last alarms of LNS stations.....	71
Figure 54 - Last alarms of endpoints	72
Figure 55 - Save cart	73
Figure 56 - Load content of carts	74
Figure 57 - Saved carts management.....	75
Figure 58 - List workflow templates.....	76
Figure 59 - Import workflow template.....	77
Figure 60 – Execute a workflow	78
Figure 61 - Running workflows list	79
Figure 62 – Details of a running workflows.....	80
Figure 63 – Details of a running workflows for an equipment	81
Figure 64 - Completed workflows list	82
Figure 65 – Details of a running workflows.....	83
Figure 66 – Details of a completed workflows for an equipment	84
Figure 67 - Customers management.....	85
Figure 68 - Customer form	86
Figure 69 – Fleets management	87
Figure 70 – Stations management	88
Figure 71 - Clusters management	89
Figure 72 - Endpoints management.....	91
Figure 73 - Overriding RX parameters.....	92
Figure 74 – Users management	93
Figure 75 - Profile update.....	94
Figure 76 - Settings dashboard.....	95
Figure 77 - Application logs	97
Figure 78 - Users actions logs.....	98
Figure 79 - About page	100
Figure 80 - Documentations page	101
Figure 81 - Supported browsers.....	102

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Strict confidential			

Figure 82 – BSC roles table.....	103
Figure 83 - RNC roles table.....	104
Figure 84 - LNS roles table.....	105
Figure 85 - Administration roles table	105
Figure 86 - Administration roles table	105
Figure 87 - Settings roles table.....	105
Figure 88 - Logs roles table	105
Figure 89 - Profile roles table	106
Figure 90 - About roles table.....	106

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REFERENCES

Reference	Document / link	Description
[1]		
[2]		
[3]		

GLOSSARY

Abbreviation	Description
RAN	Radio Access Network
IOT	Internet Of Things
OSS	Operation System Support
BSC	Base Station Controller
RNC	Radio Network Controller
LNS	LoRa Network Server
TKM	Trusted Key Management

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INTRODUCTION

This user manual is intended for final users and administrators of the RAN Dashboard.

It explains how to connect to the platform and use the interfaces to:

- Read statistics and alarms.
- Communicate with equipment and endpoints.
- Administrate the application data.

This version of the manual is written and usable for the version 2.2 of the RAN Dashboard.

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1. Authentication

1.1 Log in to access the platform

You can access the dashboard through web browsers. It can be accessed with both HTTP and HTTPS protocols. If you are not logged in, you will see the login screen:



Figure 1 - Login screen

- (1) Fill your username and password.
- (2) Click on the “Login” button. If your credentials are correct, you will be logged into the application. Otherwise, you will get an error message.
- (3) In case you forgot your password, click on the “Forgot password” link to retrieve it.

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1.2 Session expired

The time of your session is set and defined by the server. Two minutes before it expires, you will be informed by the following message:



Figure 2 - Session expired message

So, you have to finish and save your current work otherwise you will lose it.

You can logout and reconnect yourself before the end of the current session to reinitiate the expired date. If not, you will be automatically redirected to the login page at the end of the session.

1.3 Forgot password



Figure 3 - Forgot password screen

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- (1) To retrieve your password, enter the email set in your account and click “Continue”. You will get an email with a link, allowing you to reset your password.

1.4 Reset password

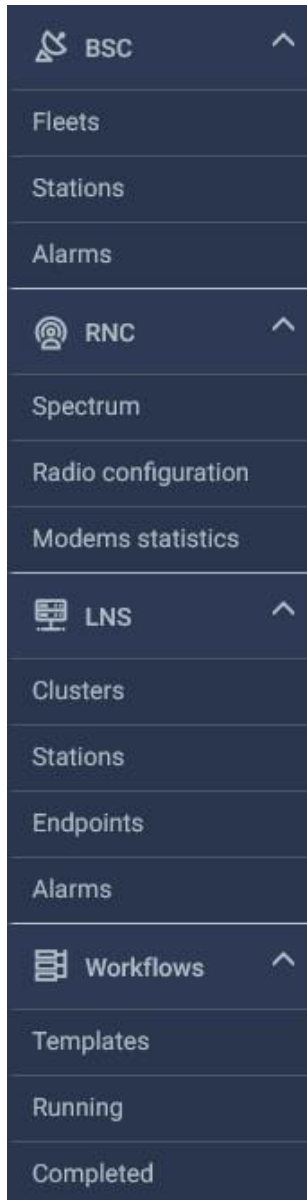


Figure 4 - Reset password screen

- (1) Type your password twice and click “Change password” to reset your password. Once done, you will be logged in the dashboard and your password will be changed.

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2. Main menu



2.1 BSC

- Fleet: Consult and analyze the statistics on your fleets.
- Stations: Search and manage your stations.
- Alarms: Consult the last alarms on your fleets.

2.2 RNC

- Spectrum: Analyze the radio frequency activity of your modems.
- Radio configuration: Consult the radiopath and channel frequencies of your modems.
- Modem statistics: Consult and analyze the statistics of your modems.

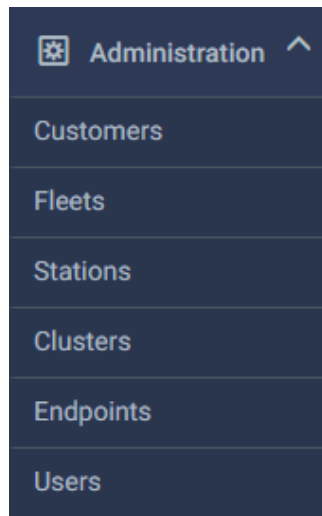
2.3 LNS

- Clusters: List your clusters.
- Stations: Consult the stations.
- Endpoints: Search and manage your endpoints.
- Alarms: Consult the last alarms on your clusters.

2.4 Workflows

- Templates: List workflow templates and create new one
- Running: List workflows currently in progress
- Completed: List completed workflows

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2.5 Administration

- Customers: Manage customers and attach/detach fleets and clusters
- Fleets: Create, update and delete fleets
- Stations: Create and import stations
- Clusters: Create, update and delete clusters
- Endpoints: Create and import endpoints
- Users: Manage users

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3. BSC

3.1 Consult and analyze the statistics on your fleets

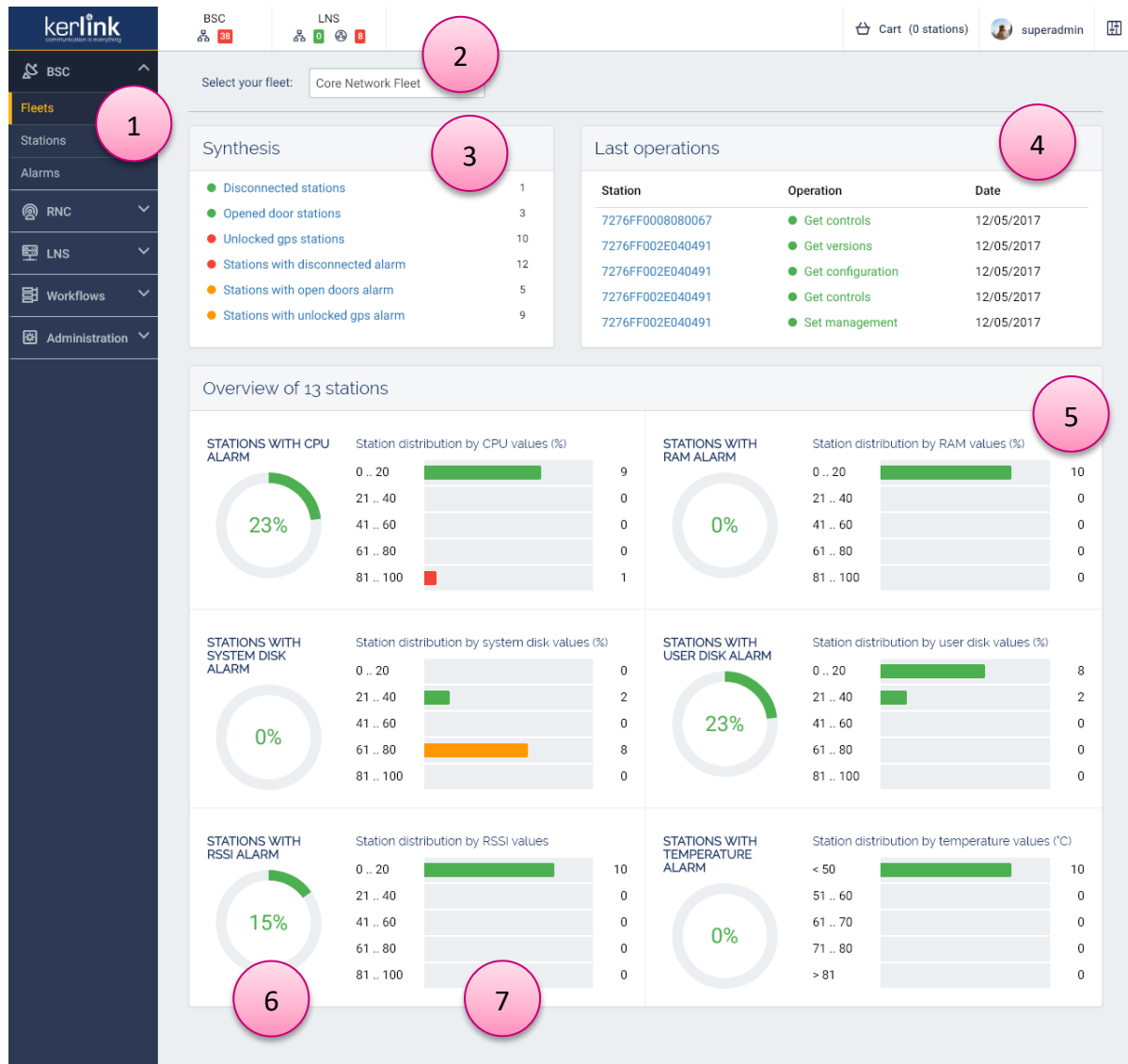


Figure 5 - Fleets overview

- (1) Click on the “Fleet” button in the main menu to access to an overview of your fleets.
- (2) Select one of your fleets.
- (3) The “Synthesis” panel shows an overview of the stations with alarms on their connection, door or GPS. If you click on it, you will be redirected to the stations page with a preconfigured search form to get the list of stations with this kind of alarm.

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- (4) The “Last operations” panel shows the last operations of the stations in the selected fleet.
- (5) The “Overview” panel shows an overview of alarms and values from stations in the selected fleet.
- (6) Each “donut chart” represents the percentage of stations with an alarm. If you click on it, you will be redirected to the stations page with a preconfigured search form to get the list of stations with this kind of alarm.
- (7) Each “bar chart” represents the distribution of the stations according to their values. If you click on one bar, you will be redirected to the stations page with a preconfigured search form to get the list of stations in this range of values.

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3.2 Search and list the stations of your fleets

The screenshot shows the BSC Stations list interface. The left sidebar contains navigation links: BSC, Fleets, Stations (highlighted), Alarms, RNC, LNS, Workflows, and Administration. The main area has a 'Select your fleet' dropdown set to 'Core network fleet'. Below this is a 'Filter the stations' section with checkboxes for EUI, Status, Door, GPS, and various alarms. There are also input fields for filtering by values (CPU, RAM, System disk, User disk, RSSI, Temperature). A 'SEARCH' button is at the bottom of the filter section. The 'List of stations' table below shows columns for EUI, Type, Status, Door, GPS, and CPU (with sub-columns for Alarm date, Alarm value, and Last min. val). The table lists 13 stations with their respective details. At the bottom, there is a pagination control showing '1 - 10 / 13 lines' and a 'Page 1 / 2' indicator.

Figure 6 – BSC Stations list

(1) Click on the BSC "Stations" button to access to the list of stations.

(2) Select a fleet.

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- (3) The filter panel allows you to filter the stations according to several criteria.
- (4) The list panel shows the result of the search. If no filter is set, it shows a list of all stations in the selected fleet.
- (5) You can choose which data of the stations you want to display, and which values of the selected data you want to display. To do that, open the table menu and select "Show / hide columns". A modal will list all available columns and allows you to select which one you want to show or hide.
- (6) For each station in the list, you can:
 - Add the station to the cart (or remove it).
 - Go to the details page of the station.

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3.3 Manage your stations cart

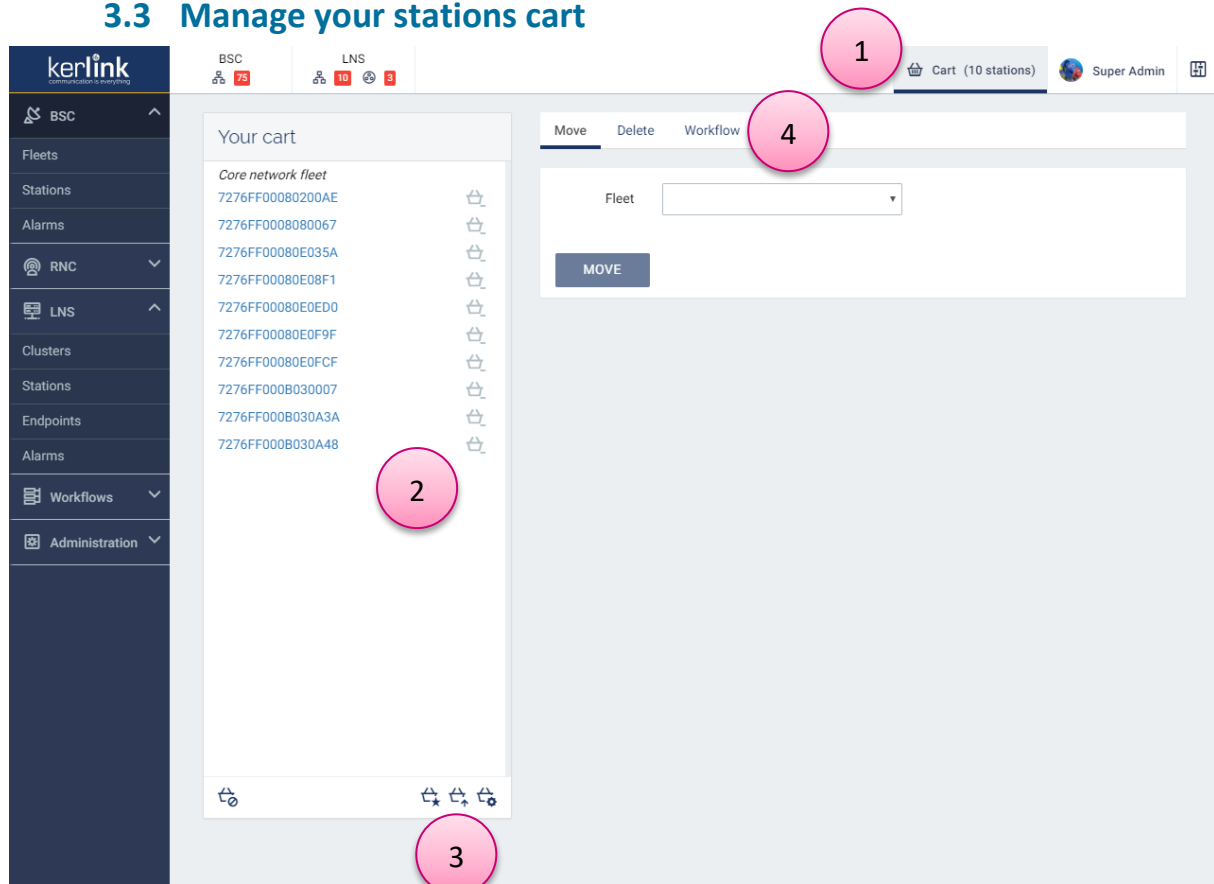


Figure 7 - Stations cart

- (1) Click on the cart button.
- (2) The panel “Your cart” shows the list of stations currently added in your cart. You can remove some stations or empty your cart by clicking on the respective buttons.
- (3) These buttons allow you to respectively save the current cart, load stations of many previous saved carts and manage previous saved carts. These functionalities are described in the paragraph 6 - Cart management.
- (4) The tabs correspond to all the actions you can perform on the stations in your cart.

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3.4 Consult and manage the properties of a station

3.4.1 Station attributes

The screenshot displays the 'Station attributes' page for BSC 7276FF0080E035A. The interface is divided into several sections:

- Station Details:** A table listing attributes such as EUI, NAME, FLEET, TYPE, IP ADDRESS, PORT, SATELLITES, STATUS, DOOR, GPS, and UPTIME.
- Map:** A map showing the station's location with a green pin.
- Last events:** A table listing recent events with columns for date, name, and value.
- Last operations:** A table listing recent operations with columns for date and type.
- Health:** A section showing system health metrics like CPU, System disk, User disk, RAM, RSSI, and Temperature.
- Modems list:** A table listing modem details including Serial number, Location, Type, Hardware vers., Software vers., Nb. antenna, Central freq., Nb. front radiopath, Nb. radiopath, and Radiopath.

Numbered callouts (1-8) indicate the following elements:

- Click on the BSC "Stations" button in the sidebar.
- Click on the EUI of the station you want to consult.
- The map shows the position of the station.
- The panel "Last events" lists the last events triggered by the station.
- The panel "Last operations" lists the last operations executed on the station.
- Health status section.
- Modems list section.
- Edit button (pencil icon).

Figure 8 – BSC station attributes

- (1) Click on the BSC "Stations" button to access to the list of stations then click on the EUI of the station you want to consult.
- (2) This panel shows the attributes of the station.
- (3) The map shows the position of the station. The first coordinates are retrieved from the station.
- (4) The panel "Last events" lists the last events triggered by the station. You can mark an event as read by clicking on the check button next to the event.
- (5) The panel "Last operations" lists the last operations executed on the station.

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- (6) The panel “Health” lists the current state values of the station.
- (7) The panel “Modems list” lists the modems of the station.
- (8) You can edit or move the station by clicking on the floating button.

3.4.2 Station statistics

3.4.2.1 Link status

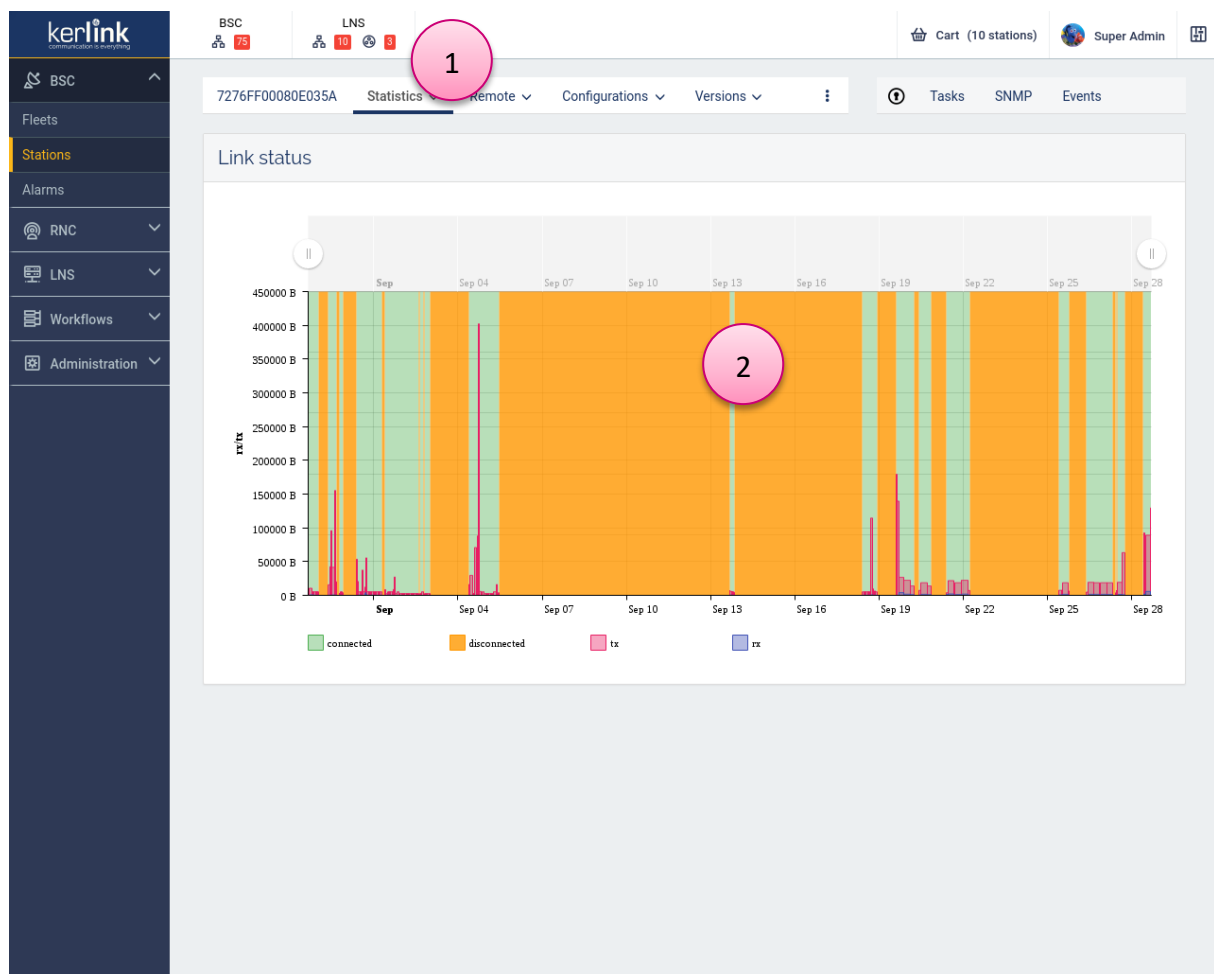


Figure 9 - Station link status

- (1) Access to a station page then click on the “Statistics” menu and select “Link status”.
- (2) The chart displays:
 - The periods when the station was connected and disconnected.
 - The number of bytes received (rx) and sent (tx) to the station.

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3.4.2.2 RAM

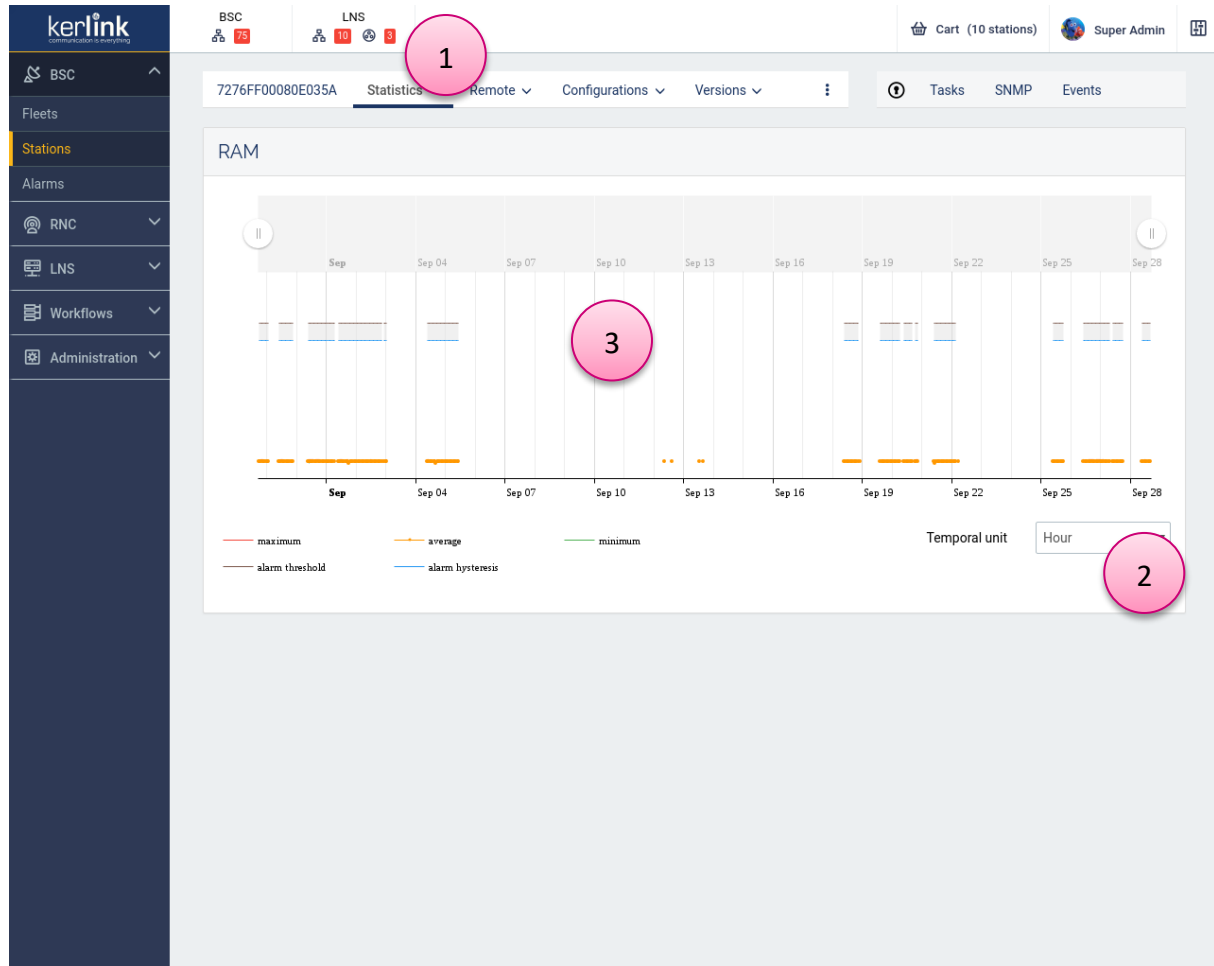


Figure 10 - Station RAM statistics

- (1) Access to a station page then click on the “Statistics” menu and select “RAM”.
- (2) Set the temporal unit (Hour, Day, Week, Month, Year) you want to use.
- (3) The chart displays:
 - The RAM percent utilization (minimum, average and maximum) by temporal unit.
 - The alarms threshold.
 - The alarms hysteresis.
 - The triggered alarms with their values.

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3.4.2.3 CPU

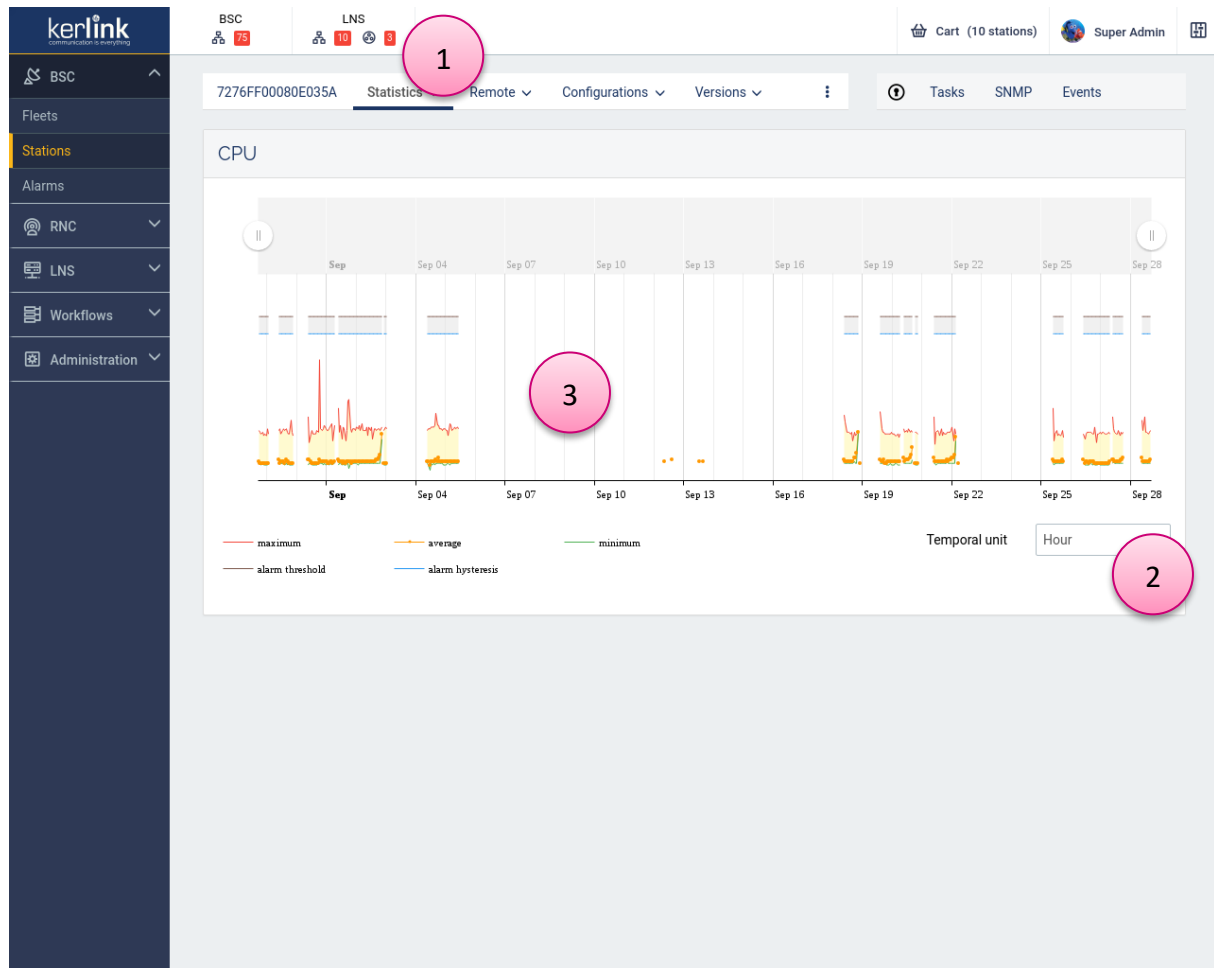


Figure 11 - Station CPU statistics

- (1) Access to a station page then click on the “Statistics” menu and select “CPU”.
- (2) Set the temporal unit (Hour, Day, Week, Month, Year) you want to use.
- (3) The chart displays:
 - The CPU percent utilization (minimum, average and maximum) by temporal unit.
 - The alarms threshold.
 - The alarms hysteresis.
 - The triggered alarms with their values.

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3.4.2.4 System and user disks

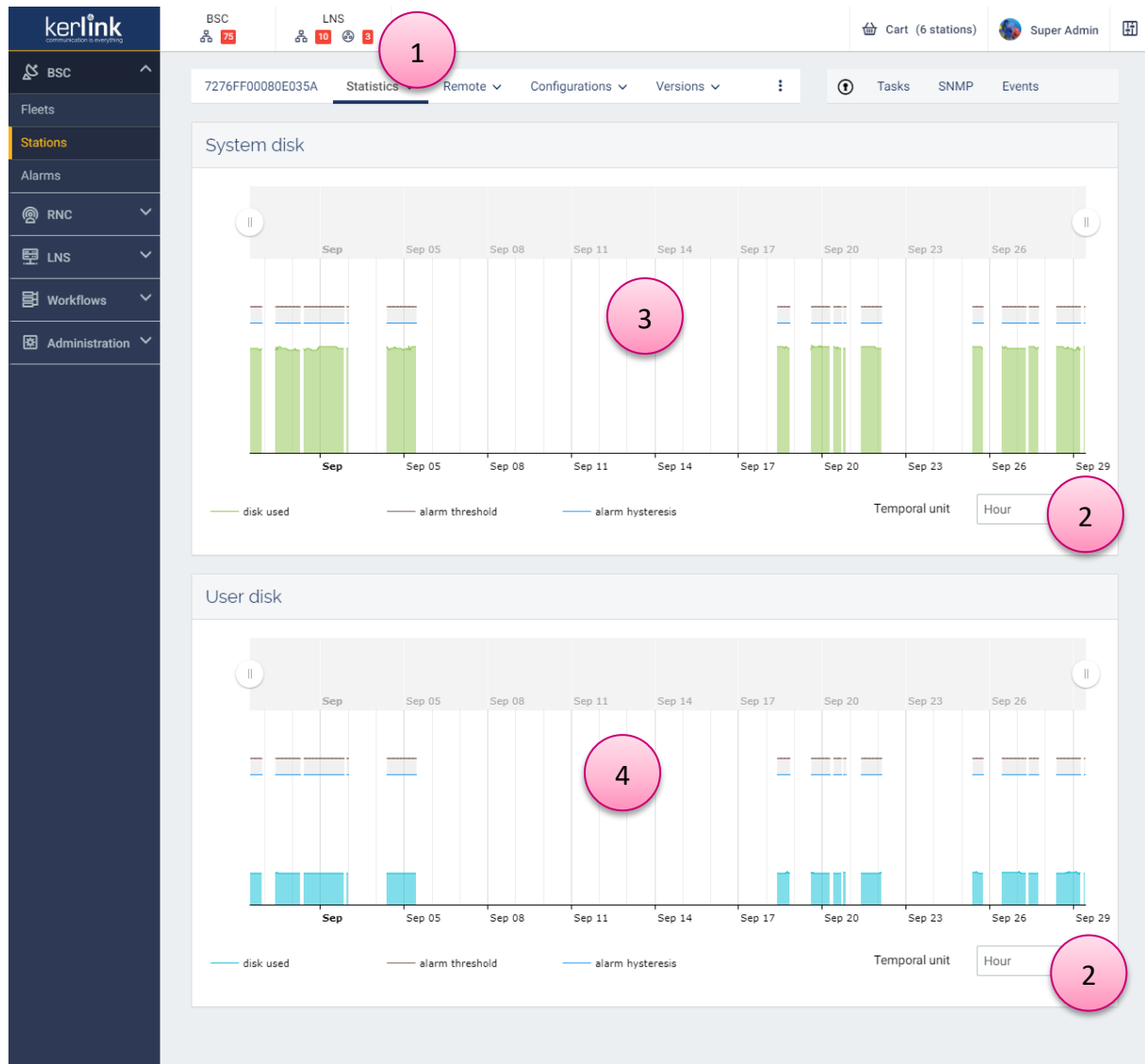


Figure 12 - Station disks statistics

- (1) Access to a station page then click on the “Statistics” menu and select “Disks”.
- (2) Set the temporal unit (Hour, Day, Week, Month, Year) you want to use.
- (3) The chart displays for system disk (3) and user disk (4):
 - A snapshot (for hour temporal unit) or an average (for other temporal units) of the system disk percent utilization.
 - The alarms threshold.

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- The alarms hysteresis.
- The triggered alarms with their values.

3.4.2.5 RSSI Wan

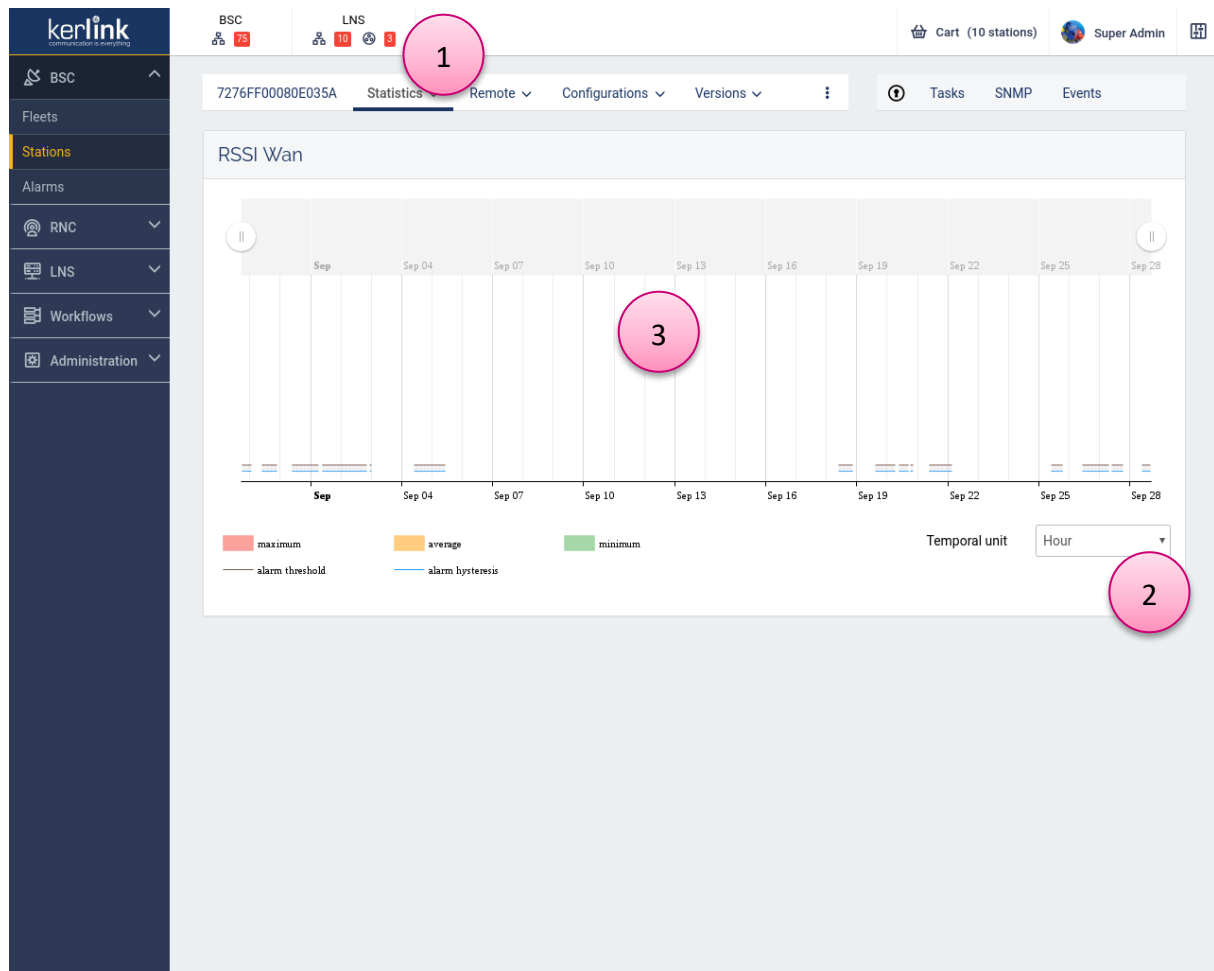


Figure 13 – Station RSSI statistics

- (1) Access to a station page then click on the “Statistics” menu and select “RSSI Wan”.
- (2) Set the temporal unit (Hour, Day, Week, Month, Year) you want to use.
- (3) The chart displays:
 - The RSSI (minimum, average, maximum) by temporal unit.
 - The alarms threshold.
 - The alarms hysteresis.

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- The triggered alarms with their values.

3.4.2.6 Temperature

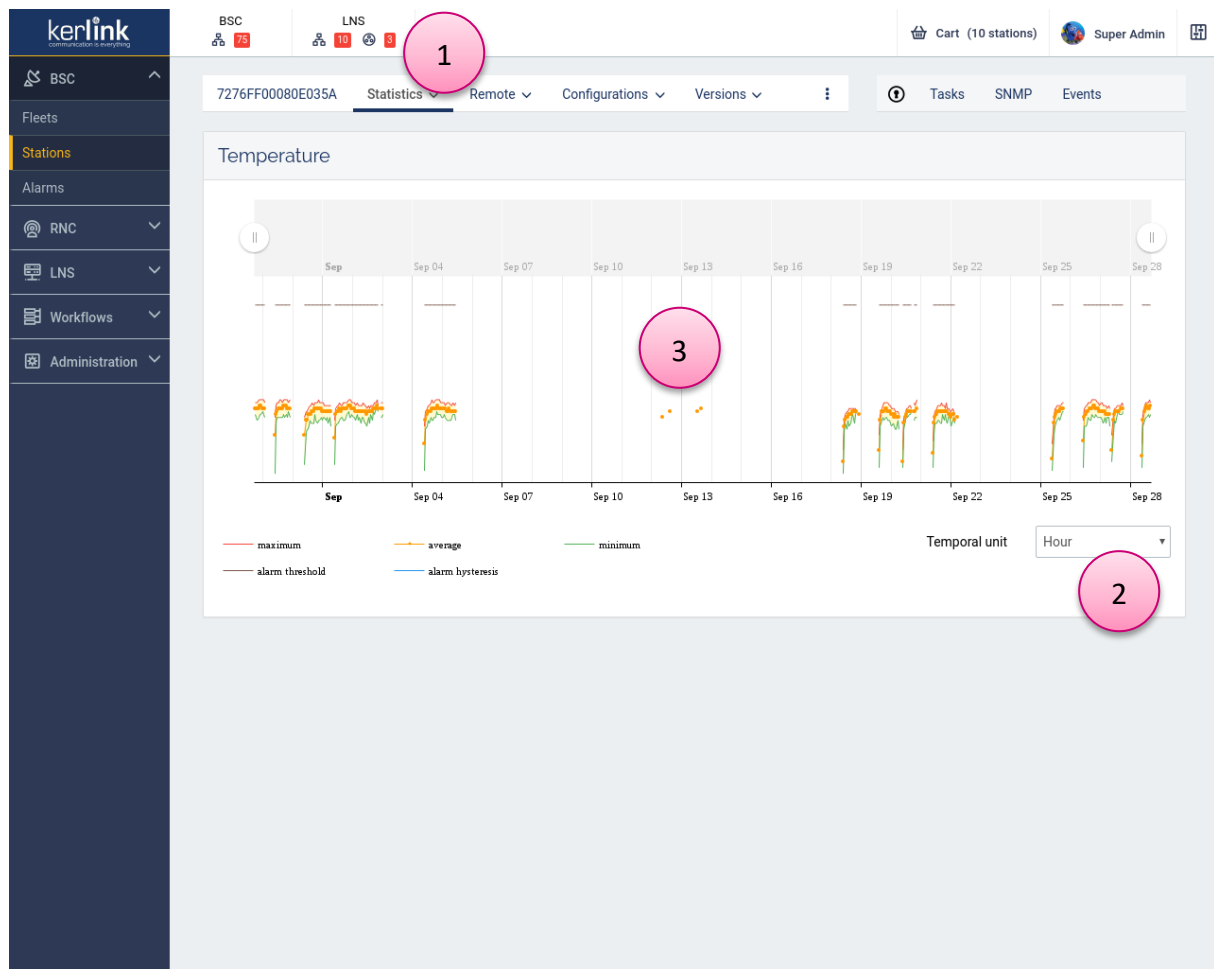


Figure 14 - Station temperature statistics

- (1) Access to a station page then click on the “Statistics” menu and select “Temperature”.
- (2) Set the temporal unit (Hour, Day, Week, Month, Year) you want to use.
- (3) The chart displays:
 - The temperature (minimum, average, maximum) by temporal unit.
 - The alarms threshold.
 - The alarms hysteresis.
 - The triggered alarms with their values.

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3.4.2.7 Power supply voltage and source

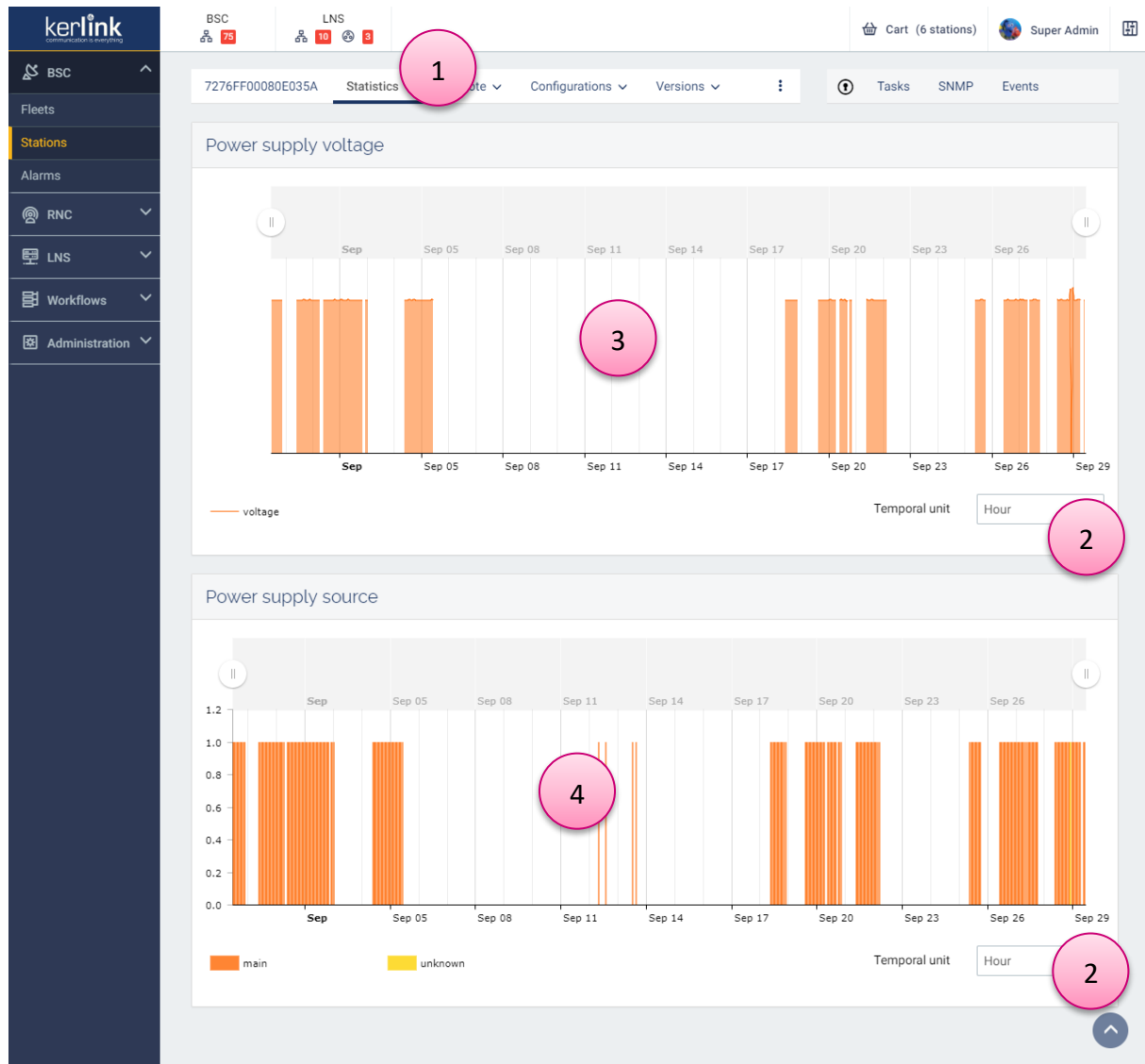


Figure 15 – Station power supply statistics

- (1) Access to a station page then click on the “Statistics” menu and select “Power supply”.
- (2) Set the temporal unit (Hour, Day, Week, Month, Year) you want to use.
- (3) The chart displays the station power supply in millivolts.
- (4) The chart displays the station power source.

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3.4.2.8 Uplink

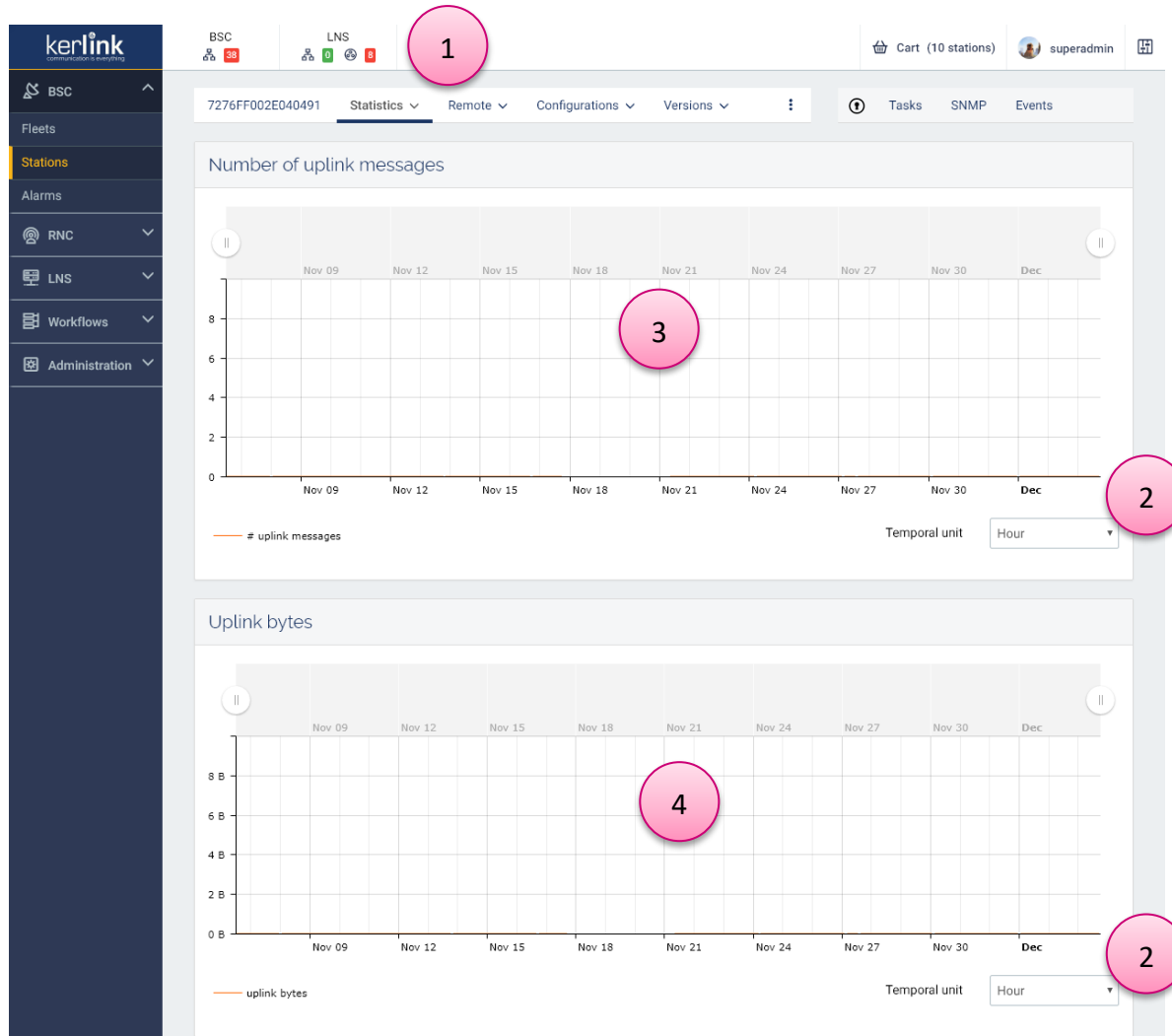


Figure 16 - Station uplink statistics

- (1) Access to a station page then click on the “Statistics” menu and select “Uplink”.
- (2) Set the temporal unit (Hour, Day, Week, Month, Year) you want to use.
- (3) The chart displays the number of uplink messages.
- (4) The chart displays the size of uplink messages in bytes.

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3.4.2.9 Downlink

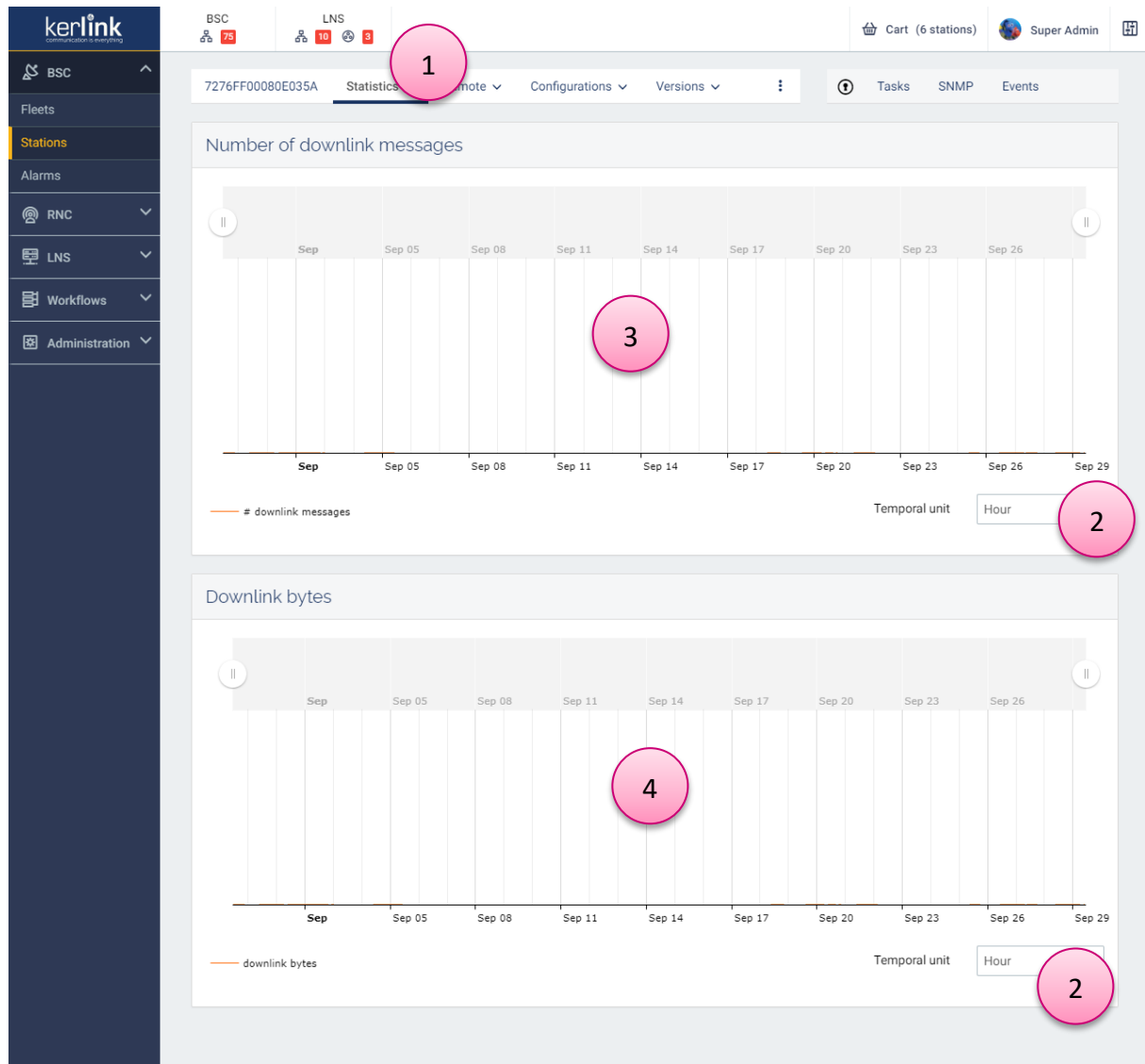


Figure 17 - Station downlink statistics

- (1) Access to a station page then click on the “Statistics” menu and select “Downlink”.
- (2) Set the temporal unit (Hour, Day, Week, Month, Year) you want to use.
- (3) The chart displays the number of downlink messages.
- (4) The chart displays the size of downlink messages in bytes.

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3.4.2.10 Packet forwarder

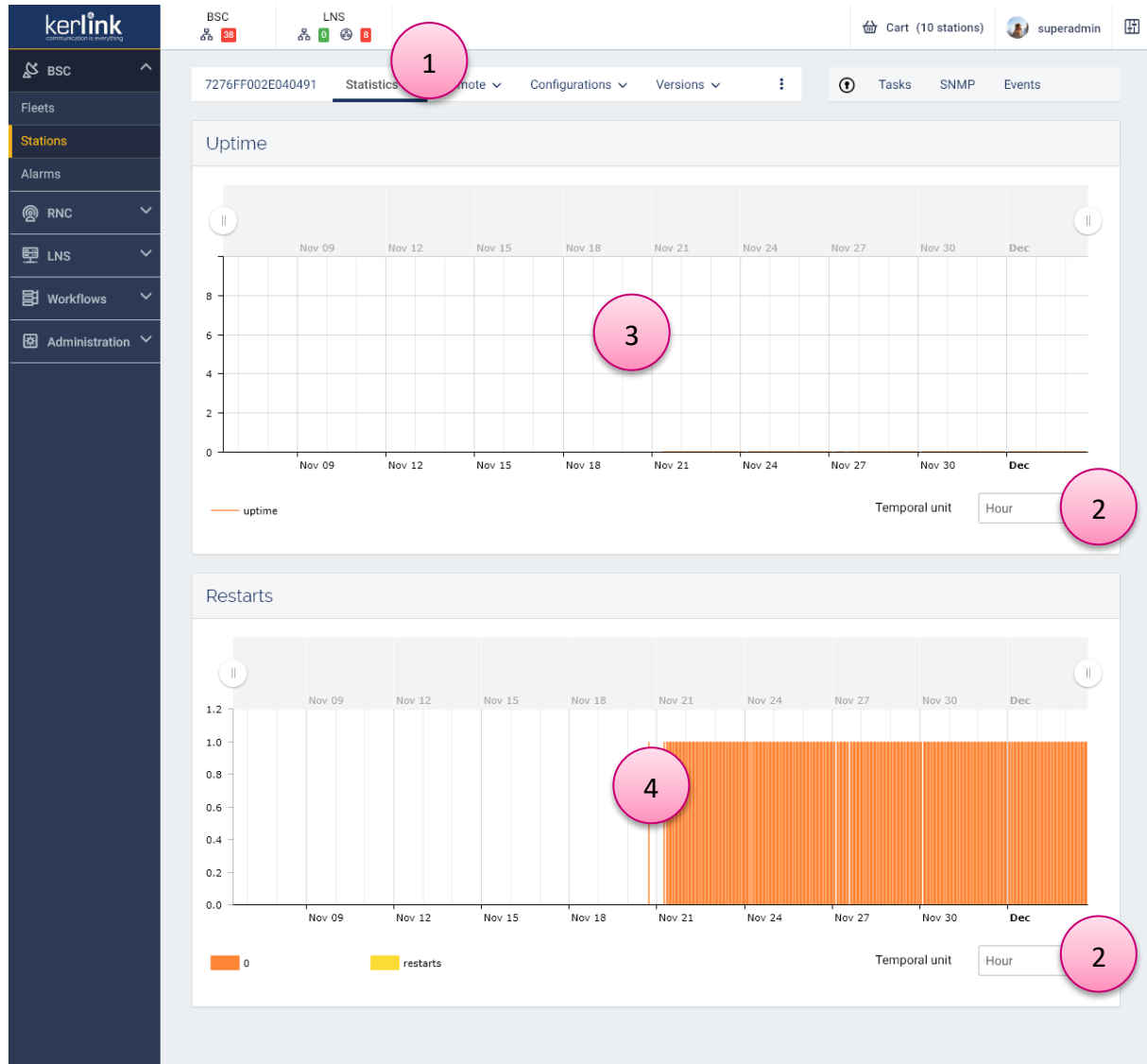


Figure 18 - Station downlink statistics

- (1) Access to a station page then click on the “Statistics” menu and select “Packet forwarder”.
- (2) Set the temporal unit (Hour, Day, Week, Month, Year) you want to use.
- (3) The chart displays the uptime of the packet forwarder.
- (4) The chart displays the number of restarts of the packet forwarder.

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3.4.3 Station remote

3.4.3.1 File explorer

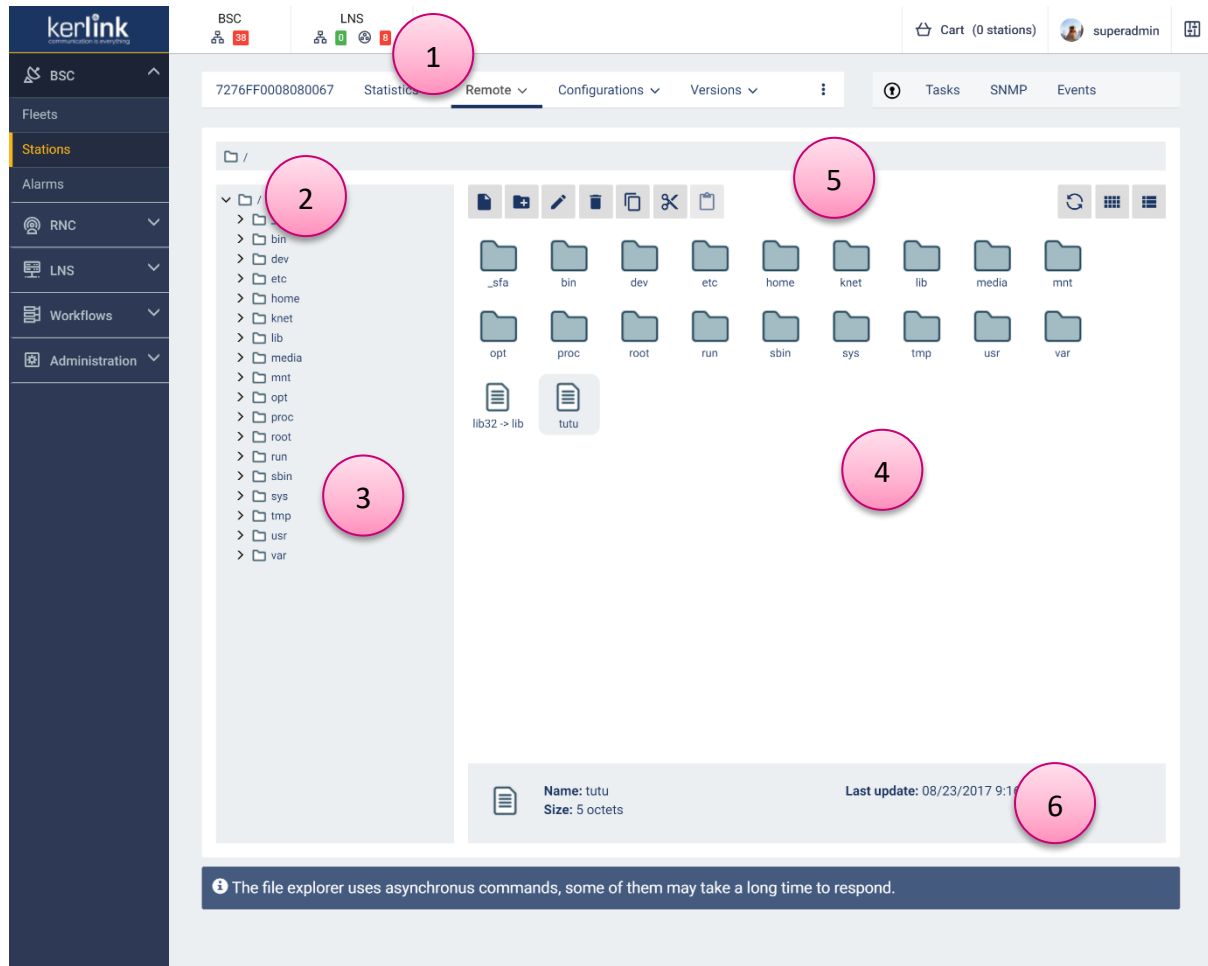


Figure 19 : Station file explorer

- (1) Access to a station page then click on the “Remote” menu and select “File explorer”.
- (2) This panel displays the path of the selected directory. You can click on any directory in order to explore it.
- (3) This panel displays the tree view of directories. You can right click on a directory to execute several actions.
- (4) This panel displays the content (directories and files) of the selected directory. You can right click on elements to execute several actions.
- (5) The toolbar allows you to do several actions like upload a new file, create a new folder, copy/cut/paste elements or change the display of the content panel (4).

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Note: the copy/cut/paste functions are only available for elements from the station itself. You cannot copy/cut an element from your computer to the station.

(6) This panel displays the details of the selected directory or file.

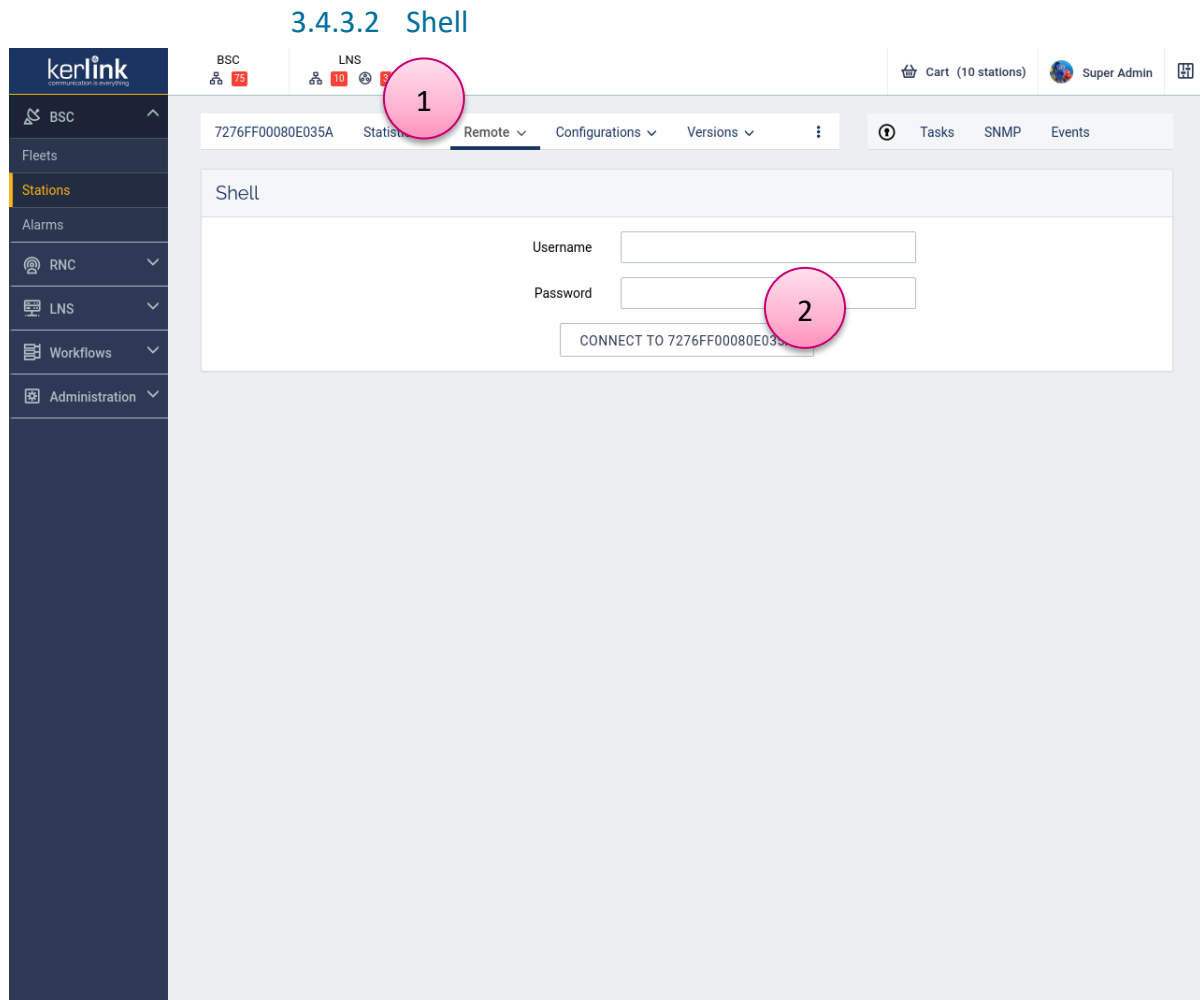


Figure 20 : Station remote shell login

- (1) Access to a station page then click on the “Remote” menu and select “Shell”.
- (2) Fill the SSH username and password then click on the “Connect” button. If your credentials are correct, you will be logged to the station and access to the following console. Otherwise, you will get an error message.

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```
Connecting to 080E08F1...
Connected to 080E08F1
[root@Wirnet_080e08f1 ~]# ls /etc
HOSTNAME      issue          profile.d
crontabs      kllk-version   protocols
dropbear      kllk_update    rc.d
firstinit     lighttpd       resolv.conf
fstab         logrotate.conf services
fw_env.config logrotate.d     shadow
group         mke2fs.conf    shadow-
hostname      mtab           ssl
hosts         network        sysconfig
ifplugd.action nsswitch.conf  syslog.conf
inetd.conf    ntp.conf       udev
init.d        os-release     udhcpd.sh
inittab       passwd         udhcpd.conf
inputrc       passwd-        udhcpd.usbnet.conf
iptables_bcc.rules ppp            vsftpd
iptables_snmpd.rules profile        vsftpd.conf
[root@Wirnet_080e08f1 ~]#
```

Figure 21 - Station remote shell console

The console works like a SSH client so you can execute instructions like “vi” or other context needed commands. Moreover, this functionality only works if the station is in the same network than the application server.

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3.4.3.3 Command

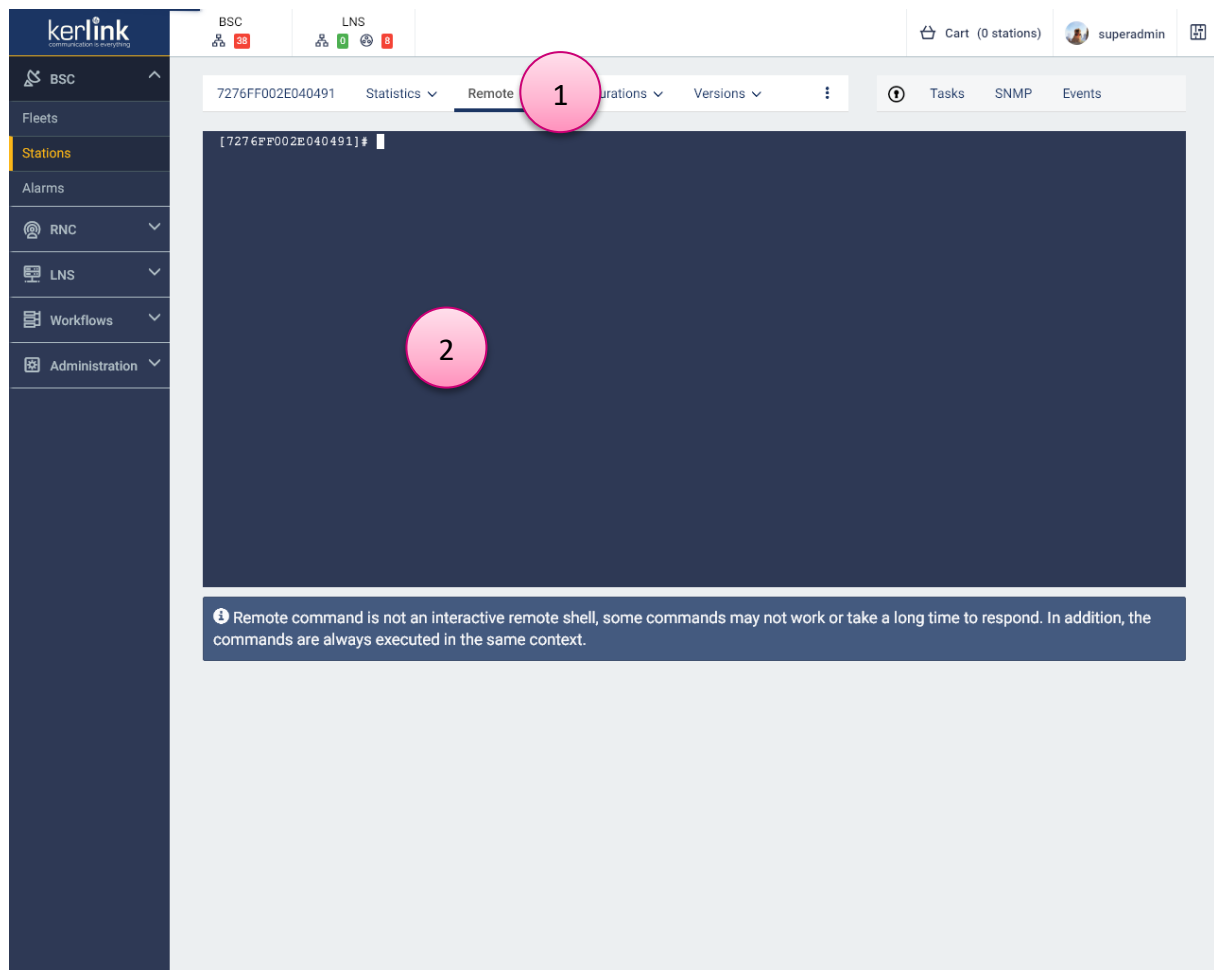


Figure 22 - Station remote command

- (1) Access to a station page then click on the “Remote” menu and select “Command”.
- (2) The console allows you to execute non-interactive and no context needed commands.

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3.4.4 Station configurations

3.4.4.1 Supervision

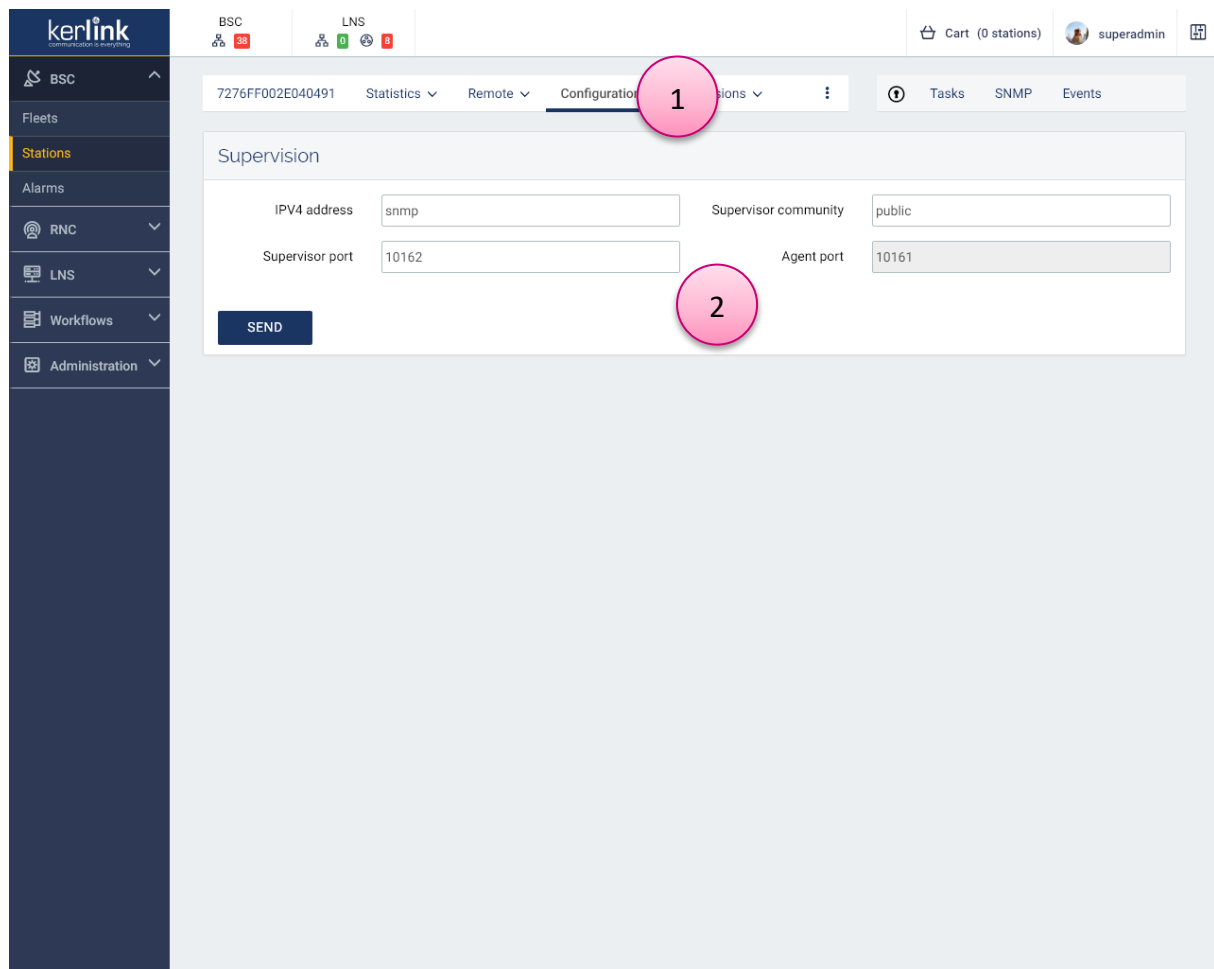


Figure 23 : Station supervision configuration

- (1) Access to a station page then click on the “Configurations” menu and select “Supervision”.
- (2) The “Supervision” panel allows you to configure the destination server of the station events.

Note: An update of the “Supervision” configuration will trigger a restart of the station. So, a message informs you that the station is rebooting and ask you to check that the modifications are well applied after the station is restarted.

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3.4.4.2 Alarms

The screenshot shows the Kerlink RAN Dashboard interface. The left sidebar contains navigation options: BSC, Fleets, Stations (highlighted), Alarms, RNC, LNS, Workflows, and Administration. The top navigation bar includes a 'Configurations' menu, which is circled with a pink '1'. The main content area is titled 'Alarms' and is circled with a pink '2'. It lists several system metrics with their current values, thresholds, and hysteresis settings:

- CPU:** CurrentValue 3 %, Threshold 95 %, Hysteresis 10 %
- RAM:** CurrentValue 19 %, Threshold 90 %, Hysteresis 10 %
- System disk:** CurrentValue 22 %, Threshold 30 %, Hysteresis 10 %
- User disk:** CurrentValue 1 %, Threshold 90 %, Hysteresis 10 %
- RSSI:** CurrentValue 0 %, Threshold 8 %, Hysteresis 3 %
- Temperature:** CurrentValue 37 °C, Threshold 90 °C, Hysteresis 7 °C
- Door:** CurrentValue CLOSED, Threshold 11000 lx
- Gps:** CurrentValue UNLOCKED, Threshold 1517 sec

A 'SEND' button is located at the bottom of the configuration area.

Figure 24 - Station control configuration

(1) Access to a station page then click on the “Configurations” menu and select “Alarms”.

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- (2) The “Control” panel allows you to configure the thresholds and hysteresis for several alarms (CPU, System disk, User disk, Door ...). The current values are displayed next to each property. The colour shows the state of the value according to the threshold and hysteresis.

3.4.4.3 System

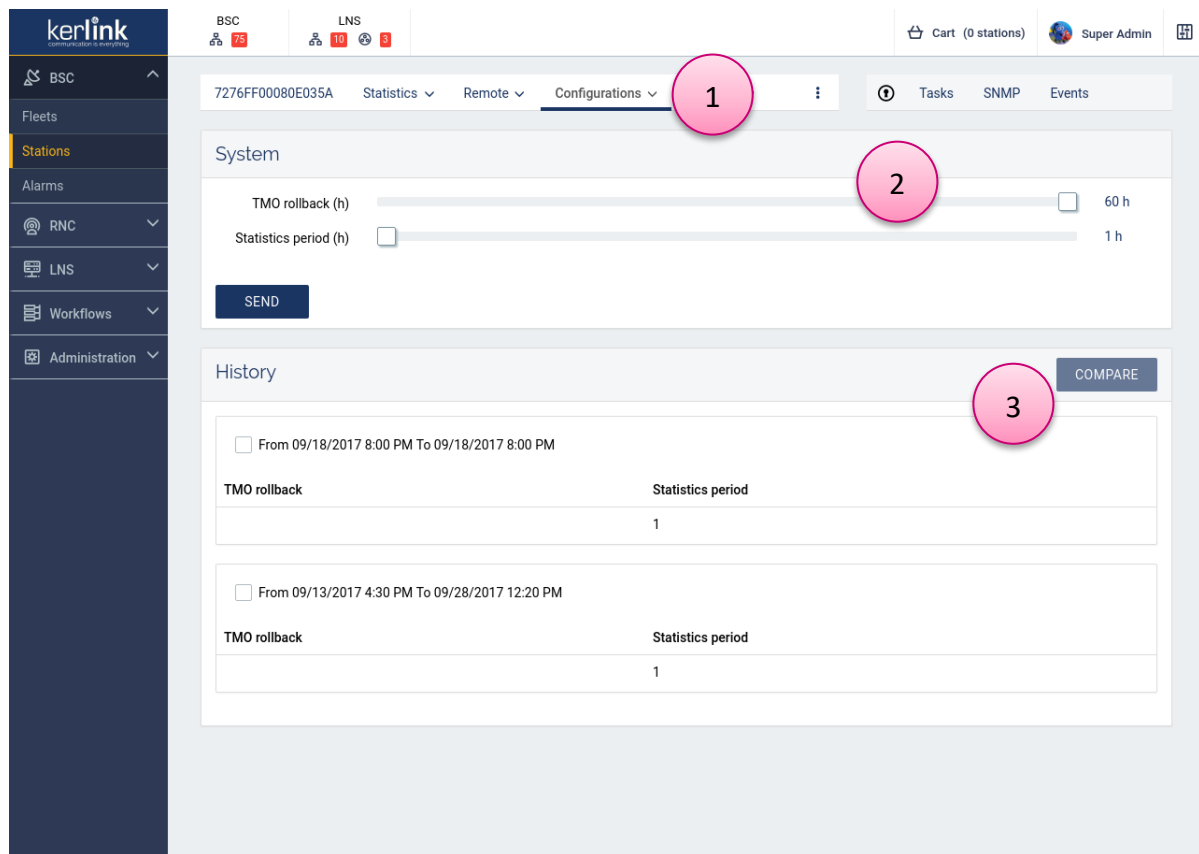


Figure 25 : Station system configuration

- (1) Access to a station page then click on the “Configurations” menu and select “System”.
- (2) The “System” panel allows you to configure the system properties of the station.
- The “TMO rollback” is the number of minutes to rollback after losing WAN connectivity following a configuration.
- (3) The “History” panel displays all the modifications of the properties. You can select many rows and click on the “Compare.” button to view the changes.

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3.4.4.4 LAN

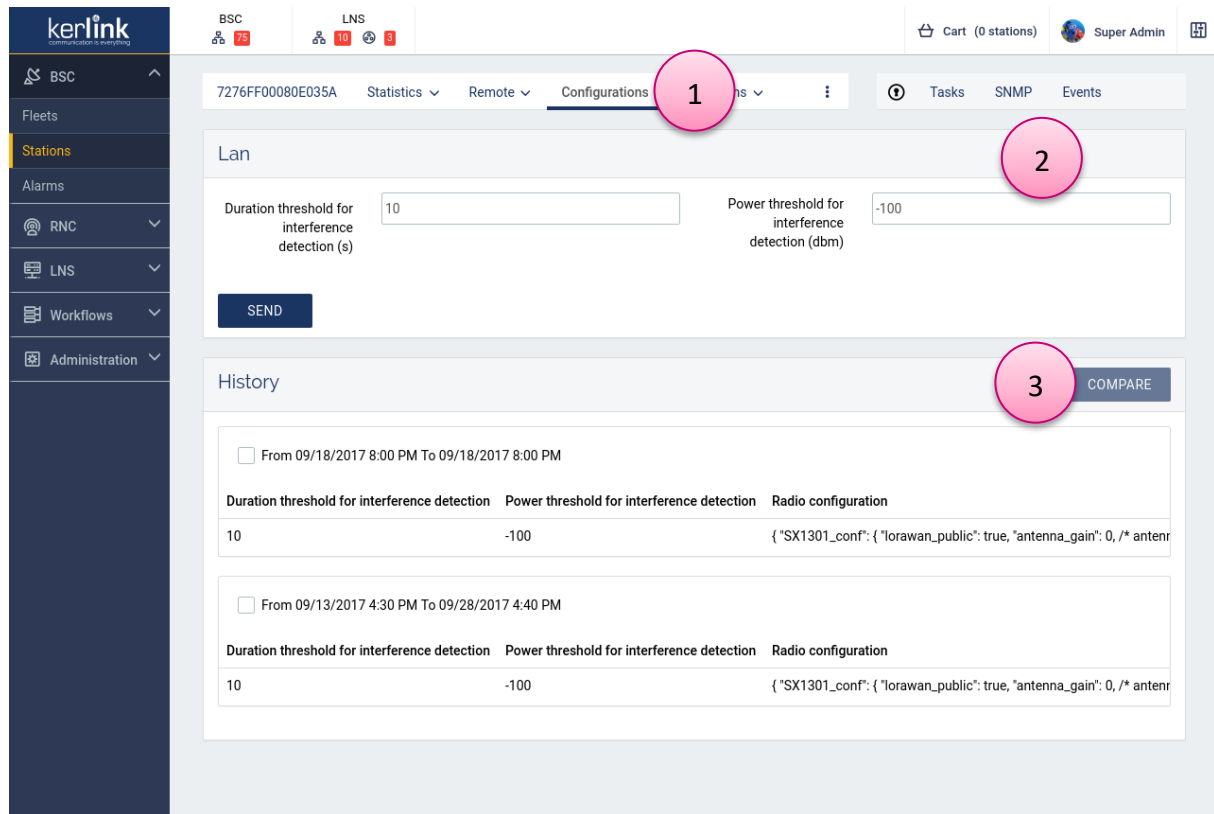


Figure 26 : Station LAN configuration

- (1) Access to a station page then click on the “Configurations” menu and select “Lan”.
- (2) The “Lan” panel allows you to configure the interferences detection properties of the station.
- (3) The “History” panel displays all the modifications of the properties. You can select many rows and click on the “Compare.” button to view the changes.

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3.4.4.5 Clock

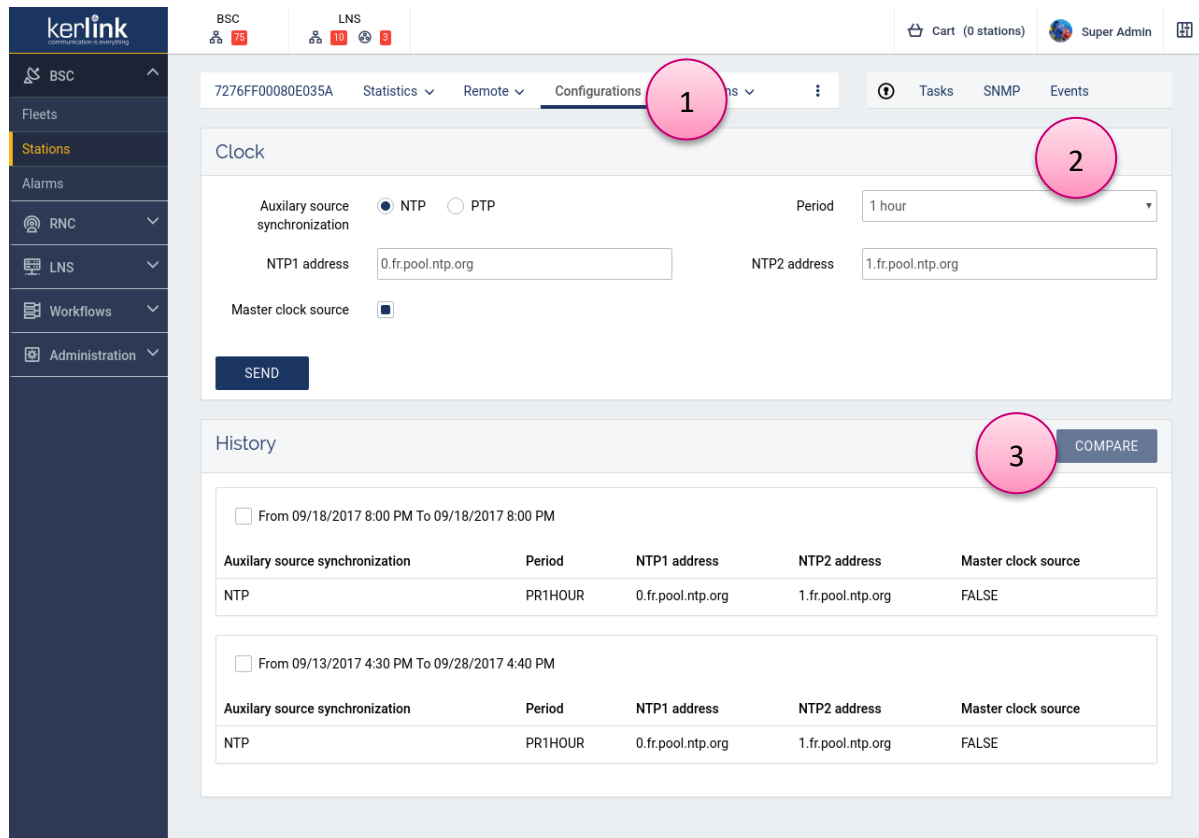


Figure 27 : Station clock configuration

- (1) Access to a station page then click on the “Configurations” menu and select “Clock”.
- (2) The “Clock” panel allows you to configure the clock properties of the station.
- (3) The “History” panel displays all the modifications of the properties. You can select many rows and click on the “Compare.” button to view the changes.

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3.4.4.6 VPN

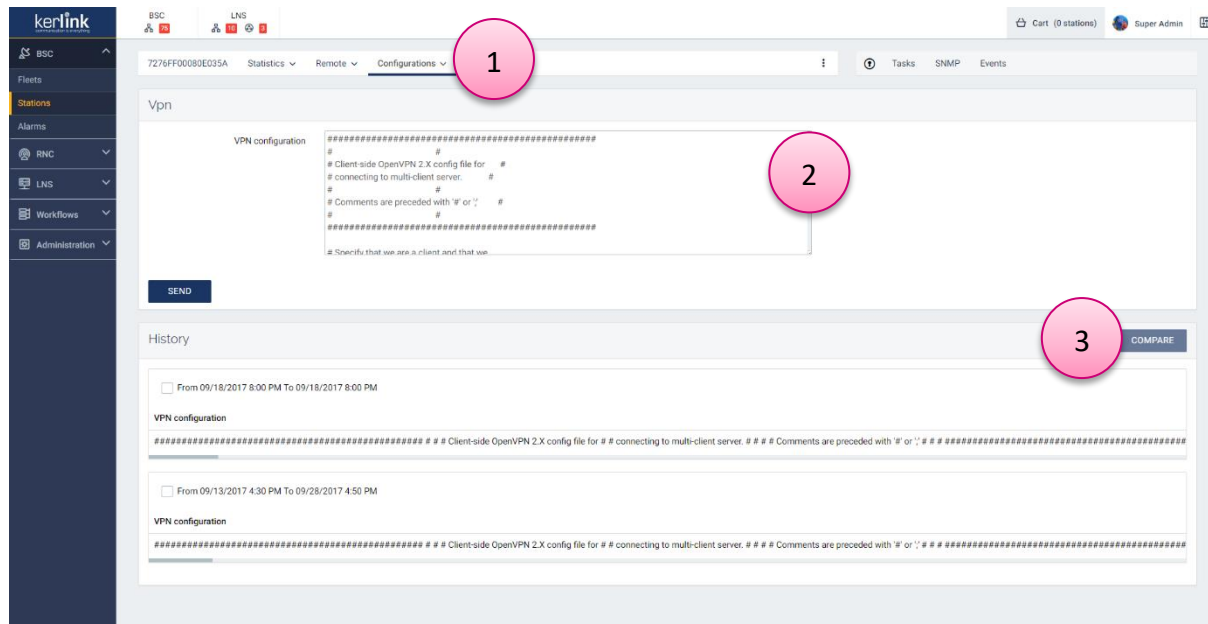


Figure 28 : Station VPN configuration

- (1) Access to a station page then click on the “Configurations” menu and select “VPN”.
- (2) The “Vpn” panel allows you to configure the VPN property of the station.
- (3) The “History” panel displays the previous modifications of the property. You can select many rows and click on the “Compare.” button to view the changes.

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3.4.4.7 WAN

Figure 29 : Station WAN configuration

- (1) Access to a station page then click on the “Configurations” menu and select “Wan”.
- (2) The “Wan” panel allows you to configure the network properties of the station. You can drag and drop each interface to order them by priority.
- (3) The “History” panel displays all the modifications of the properties. You can select many rows and click on the “Compare.” button to view the changes.

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3.4.5 Station versions

3.4.5.1 Current version

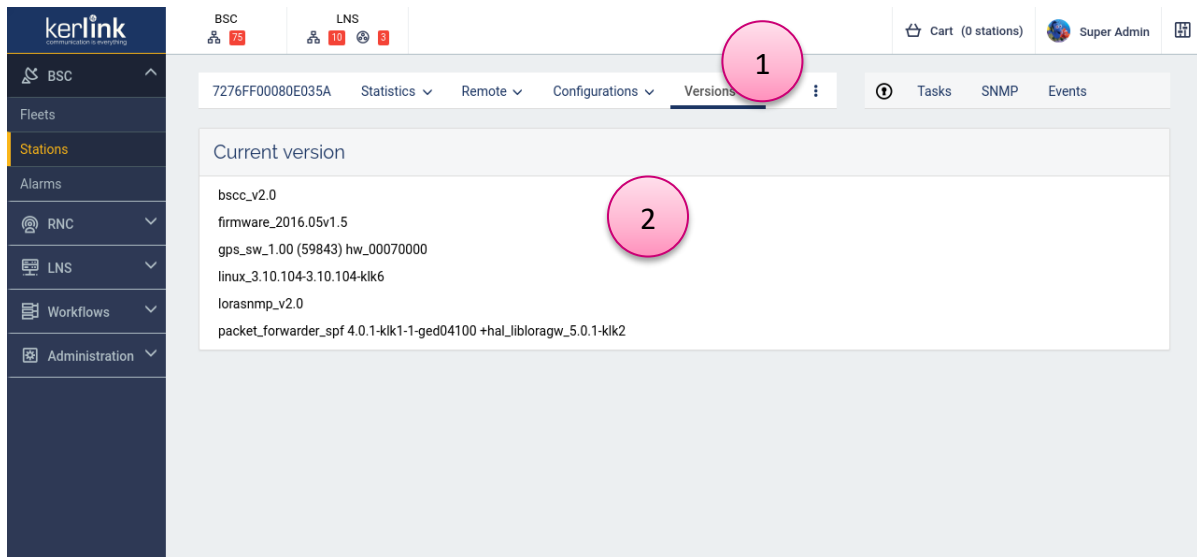


Figure 30 - Station current version

- (1) Access to a station page then click on the “Versions” menu and select “Current version”.
- (2) The “Current version” panel displays the installed version of the software in the station.

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3.4.5.2 Version history

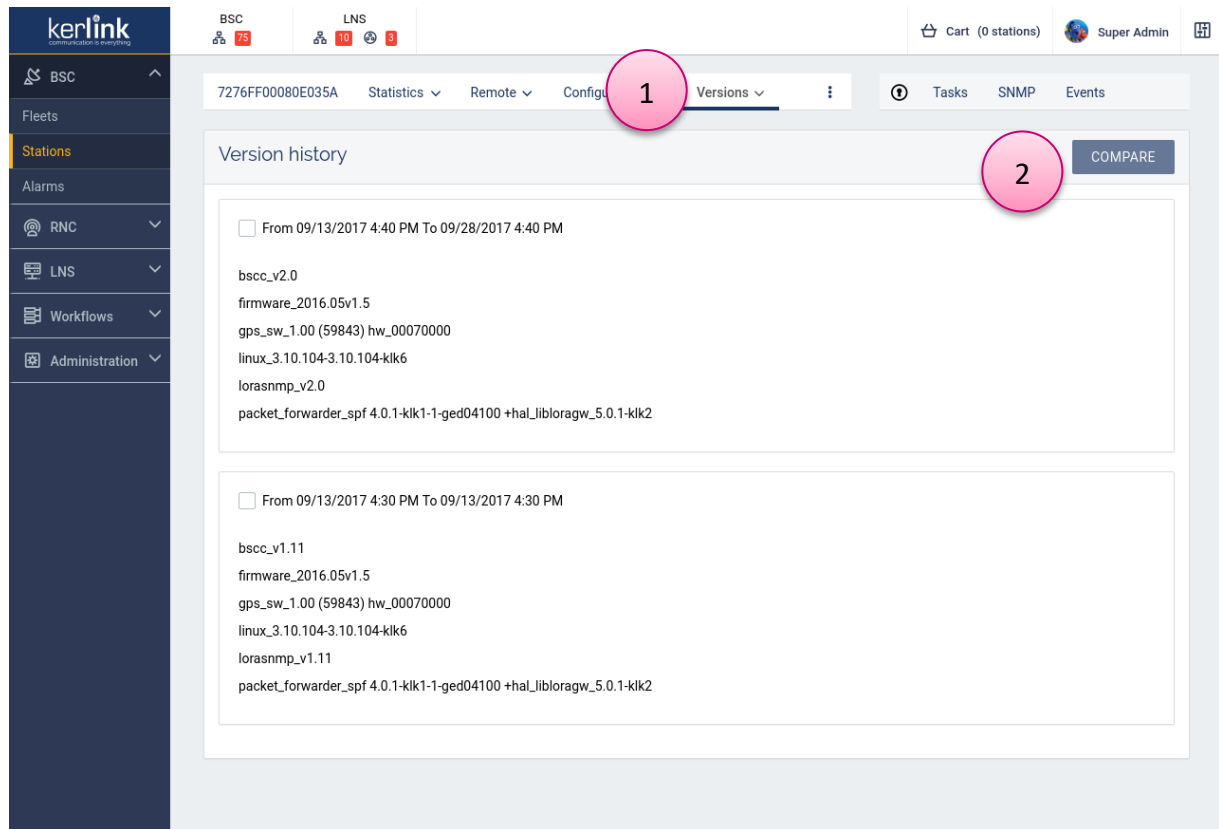


Figure 31 - Station versions history

- (1) Access to a station page then click on the “Versions” menu and select “Version history”.
- (2) The “Version history” panel displays all the versions installed in the station. You can select many rows and click on the “Compare.” button to view the changes.

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3.4.5.3 Software update

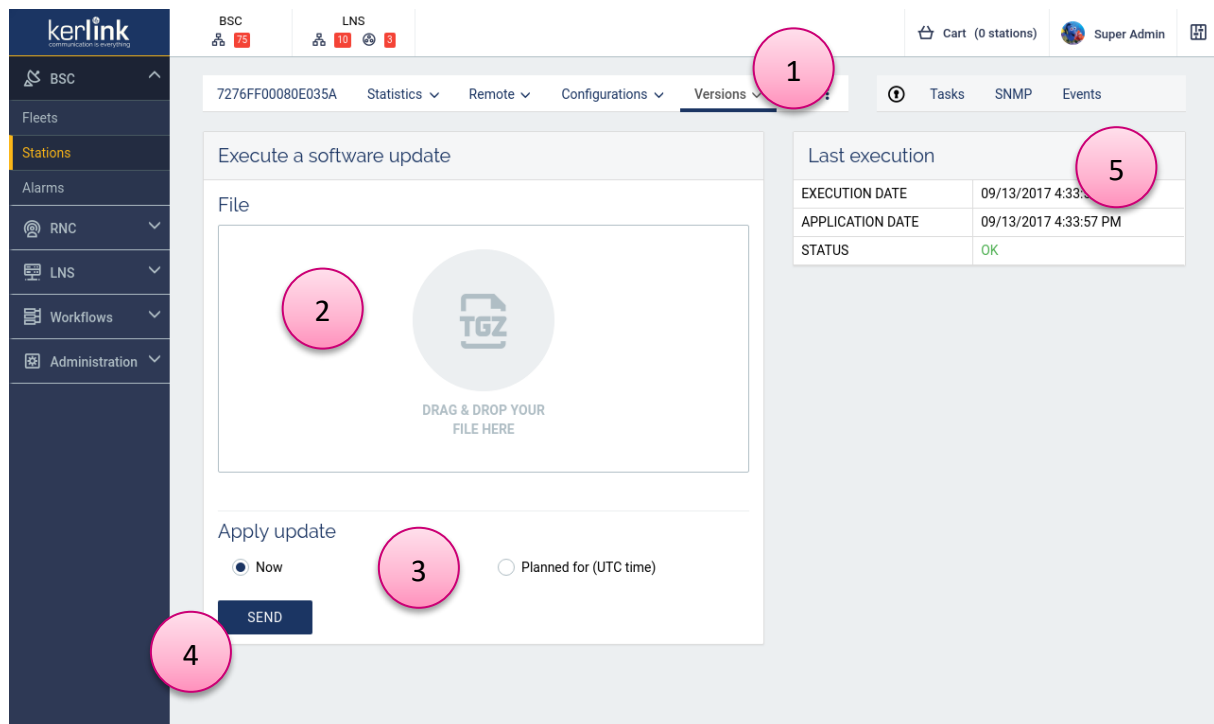


Figure 32 - Station software update

- (1) Access to a station page then click on the “Versions” menu and select “Software update”.
- (2) Click on the panel and choose a TAR.GZ file or drag and drop it from your computer.
- (3) Choose the time you want the station to apply the update.
- (4) Click on the “Send” button. The station will proceed the update asynchronously.
- (5) This panel displays the information of the last update execution task refreshed every 15 minutes. You can also see all the executions on the “Tasks” tab.

3.4.6 Station tasks

The tasks tab is an advanced feature. It lists all tasks that were run on the station and allows you to debug issues by checking the tasks status and details: when clicking on a task, you can see all its messages and SNMP logs.

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The screenshot shows the Kerlink RAN Dashboard interface. On the left is a sidebar with navigation links: BSC, Fleets, Stations, Alarms, RNC, LNS, Workflows, and Administration. The main content area is titled '7276FF00080E035A' and has tabs for Statistics, Remote, Configurations, Versions, and Tasks (highlighted with a red circle 1). Below the tabs is a 'Filter the tasks' section (highlighted with a red circle 2) containing input fields for ID(s), Status, Period, and Methods, and a 'SEARCH' button. Below the filter section is a 'List of tasks' table (highlighted with a red circle 3) with columns: ID, Status, Date, Method, Criteria, Error code, and Error message. The table lists several tasks, all with 'OK' status. At the bottom of the table, there is a pagination control showing '1 - 10 / 1481 lines' and a 'Page 1 / 149' indicator.

Figure 33 - Station tasks

- (1) Access to a station page then click on the “Tasks” tab.
- (2) Select criteria then click on the “Search” button to filter the tasks. Let empty criteria to get all of them.
- (3) The list displays the tasks according to your filters. You can click on a task row to display the task messages and the SNMP logs below the list:

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Task messages: OK - 63266 - 04/19/2017 11:59:53 AM - GET_VERSION

ID	DATE	PROGRESS STATUS	LOCATION	MESSAGE	CONTINUE?
AVuFp21VLKJBE6X77AV	04/19/2017 11:59:53 AM	Received from application	Service.getCurrentVersion()		Yes
AVuFp21_LKJBE6X77AW	04/19/2017 11:59:53 AM	Routing to equipment	Router.routingToEquipment()		Yes
AVuFp22xLKJBE6X77AX	04/19/2017 11:59:54 AM	Routing to equipment	Queue.pushedToQueueAfterCompletion()		Yes
AVuFp22yLKJBE6X77AY	04/19/2017 11:59:54 AM	Send to equipment	Queue.sendingToEquipment()		Yes
AVuFp25VLKJBE6X77AZ	04/19/2017 11:59:54 AM	Routing to application	RequestSender.returnStatusMessage()		Yes
AVuFp26NLKJBE6X77Aa	04/19/2017 11:59:54 AM	Send to equipment	RequestSender.returnEquipmentResponse()		Yes
AVuFp260LKJBE6X77Ab	04/19/2017 11:59:54 AM	Send to equipment	RequestSender.snmpRequestSent()		Yes

Snmp logs: OK - 63266 - 04/19/2017 11:59:53 AM - GET_VERSION

☐ Display old names

ID	ORIGIN	DATE	CONTENT
2318268000184	To equipment	04/19/2017 11:59:54 AM	GET[requestID=0, errorStatus=Success(0), errorIndex=0, VBS[1.3.6.1.4.1.46911.50.1.3.1.1.0 = Null; 1.3.6.1.4.1.46911.50.1.2.0 = Null; 1.3.6.1.4.1.46911.50.1.3.1.1.1 = Null; 1.3.6.1.4.1.46911.50.1.3.1.2.1 = Null; 1.3.6.1.4.1.46911.50.1.3.1.1.2 = Null; 1.3.6.1.4.1.46911.50.1.3.1.2.2 = Null; 1.3.6.1.4.1.46911.50.1.3.1.1.3 = Null; 1.3.6.1.4.1.46911.50.1.3.1.2.3 = Null; 1.3.6.1.4.1.46911.50.1.3.1.1.4 = Null; 1.3.6.1.4.1.46911.50.1.3.1.2.4 = Null; 1.3.6.1.4.1.46911.50.1.3.1.1.5 = Null; 1.3.6.1.4.1.46911.50.1.3.1.2.5 = Null; 1.3.6.1.4.1.46911.50.1.3.1.1.6 = Null; 1.3.6.1.4.1.46911.50.1.3.1.2.6 = Null; 1.3.6.1.4.1.46911.50.1.3.1.1.7 = Null; 1.3.6.1.4.1.46911.50.1.3.1.2.7 = Null; 1.3.6.1.4.1.46911.50.1.3.1.1.8 = Null; 1.3.6.1.4.1.46911.50.1.3.1.2.8 = Null; 1.3.6.1.4.1.46911.50.1.3.1.1.9 = Null; 1.3.6.1.4.1.46911.50.1.3.1.2.9 = Null; 1.3.6.1.4.1.46911.50.1.3.1.1.10 = Null; 1.3.6.1.4.1.46911.50.1.3.1.2.10 = Null; 1.3.6.1.4.1.46911.50.1.3.1.1.11 = Null; 1.3.6.1.4.1.46911.50.1.3.1.2.11 = Null; 1.3.6.1.4.1.46911.50.1.3.1.1.12 = Null; 1.3.6.1.4.1.46911.50.1.3.1.2.12 = Null; 1.3.6.1.4.1.46911.50.1.3.1.1.13 = Null; 1.3.6.1.4.1.46911.50.1.3.1.2.13 = Null; 1.3.6.1.4.1.46911.50.1.3.1.1.14 = Null; 1.3.6.1.4.1.46911.50.1.3.1.2.14 = Null; 1.3.6.1.4.1.46911.50.1.3.1.1.15 = Null; 1.3.6.1.4.1.46911.50.1.3.1.2.15 = Null]]
2318269000184	From equipment	04/19/2017 11:59:54 AM	RESPONSE[requestID=270005484, errorStatus=Success(0), errorIndex=0, VBS[1.3.6.1.4.1.46911.50.1.1.0 = 40:38:24:3a:60:0e:14:52:c3:71:8a:f8:32:c9:bf:2f; 1.3.6.1.4.1.46911.50.1.2.0 = 6; 1.3.6.1.4.1.46911.50.1.3.1.1.1 = noSuchObject; 1.3.6.1.4.1.46911.50.1.3.1.2.1 = 6c:69:6e:75:78:5f:33:2e:31:30:34:2d:33:2e:31:30:34:2d:6b:6c:6b:36:00; 1.3.6.1.4.1.46911.50.1.3.1.1.2 = noSuchObject; 1.3.6.1.4.1.46911.50.1.3.1.2.2 = 66:69:72:6d:77:61:72:65:5f:32:30:31:36:2e:30:35:76:31:2e:35:00; 1.3.6.1.4.1.46911.50.1.3.1.1.3 = noSuchObject; 1.3.6.1.4.1.46911.50.1.3.1.2.3 = 67:70:73:5f:73:77:5f:31:2e:30:30:20:28:35:39:38:34:33:29:20:68:77:5f:30:30:30:30:30:00; 1.3.6.1.4.1.46911.50.1.3.1.1.4 = noSuchObject; 1.3.6.1.4.1.46911.50.1.3.1.2.4 = 62:73:63:63:5f:76:31:2e:37:2d:33:2d:67:32:32:35:31:30:30:63:00; 1.3.6.1.4.1.46911.50.1.3.1.1.5 = noSuchObject; 1.3.6.1.4.1.46911.50.1.3.1.2.5 = 6c:6f:72:61:73:6e:6d:70:5f:76:31:2e:37:2d:32:2d:67:30:35:62:63:30:33:61:00; 1.3.6.1.4.1.46911.50.1.3.1.1.6 = noSuchObject; 1.3.6.1.4.1.46911.50.1.3.1.2.6 = 70:61:63:6b:65:74:5f:66:6f:72:77:61:72:64:65:72:5f:73:70:66:20:33:2e:31:2e:30:2d:6b:6c:6b:31:31:20:2b:68:61:6c:5f:6c:69:62:6c:6f:72:61:67:77:5f:34:2e:31:2e:33:2d:6b:6c:6b:32:00; 1.3.6.1.4.1.46911.50.1.3.1.1.7 = noSuchObject; 1.3.6.1.4.1.46911.50.1.3.1.2.7 = noSuchInstance; 1.3.6.1.4.1.46911.50.1.3.1.1.8 = noSuchObject; 1.3.6.1.4.1.46911.50.1.3.1.2.8 = noSuchInstance; 1.3.6.1.4.1.46911.50.1.3.1.1.9 = noSuchObject; 1.3.6.1.4.1.46911.50.1.3.1.2.9 = noSuchInstance; 1.3.6.1.4.1.46911.50.1.3.1.1.10 = noSuchObject; 1.3.6.1.4.1.46911.50.1.3.1.2.10 = noSuchInstance; 1.3.6.1.4.1.46911.50.1.3.1.1.11 = noSuchObject; 1.3.6.1.4.1.46911.50.1.3.1.2.11 = noSuchInstance; 1.3.6.1.4.1.46911.50.1.3.1.1.12 = noSuchObject; 1.3.6.1.4.1.46911.50.1.3.1.2.12 = noSuchInstance; 1.3.6.1.4.1.46911.50.1.3.1.1.13 = noSuchObject; 1.3.6.1.4.1.46911.50.1.3.1.2.13 = noSuchInstance; 1.3.6.1.4.1.46911.50.1.3.1.1.14 = noSuchObject; 1.3.6.1.4.1.46911.50.1.3.1.2.14 = noSuchInstance; 1.3.6.1.4.1.46911.50.1.3.1.1.15 = noSuchObject; 1.3.6.1.4.1.46911.50.1.3.1.2.15 = noSuchInstance]]

1 - 2 / 2 lines

1

Page 1 / 1

Figure 34 - Tasks messages and SNMP logs

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3.4.7 Station SNMP logs

The SNMP tab is an advanced feature. It lists all SNMP requests that were made on the station and allows you to debug issues by checking the requests details.

Figure 35 - Station SNMP logs

- (1) Access to a station page then click on the “SNMP” tab.
- (2) Select criteria then click on the “Search” button to filter the SNMP logs.
- (3) The list displays the SNMP logs according to your filters.
- (4) You can switch to the oid values or the oid names by checking / unchecking this checkbox.

3.4.8 Station events

The events tab is an advanced feature. It lists all events that were triggered on the station and allows you to debug issues by checking the events details. Events can be alarms (high CPU value for instance) or simple events (station start, door open/closed...).

The screenshot shows the Kerlink RAN Dashboard interface. On the left is a sidebar with navigation options: BSC, Fleets, Stations (highlighted), Alarms, RNC, LNS, Workflows, and Administration. The main content area is titled '7276FF002E040491' and includes tabs for Statistics, Remote, Configurations, Versions, Tasks, SNMP, and Events (highlighted). Below the tabs is a 'Filter the events' section with a 'Type' dropdown menu and a 'Period' date range selector. A 'SEARCH' button is located below the filter section. The 'List of events' table displays the following data:

Id	Date	Type	Value
68834	12/05/2017 4:56:21 PM	START	
68816	12/05/2017 3:55:30 PM	CONNECTED	
68817	12/05/2017 3:55:30 PM	START	
68815	12/05/2017 3:55:05 PM	DISCONNECTED	
68692	12/05/2017 2:54:38 PM	START	
68512	12/05/2017 1:53:46 PM	START	
68507	12/05/2017 1:52:34 PM	CONNECTED	
68310	12/05/2017 12:52:58 PM	DISCONNECTED	
68309	12/05/2017 12:52:53 PM	START	
68109	12/05/2017 11:52:01 AM	START	

At the bottom of the table, there is a 'Rows per page' dropdown set to 10 and a pagination bar showing '1 - 10 of 533'.

Figure 36 - Station events

- (1) Access to a station page then click on the “Events” tab.
- (2) Select criteria then click on the “Search” button to filter the events.
- (3) The list displays the events according to your filters.

3.5 Consult the last alarms of your fleets

The screenshot shows the Kerlink RAN Dashboard interface. The sidebar on the left contains navigation links: BSC, Fleets, Stations, Alarms (highlighted with a red circle 1), RNC, LNS, Workflows, and Administration. The top header shows the user 'superadmin' and a 'Cart (0 stations)' button. The main content area is titled 'BSC' and contains a 'Fleets overview' section (circled 3) listing fleets like 'KERLINK' with 38 alarms, 'Core Network S...' with 4 alarms, and 'Core Network F...' with 34 alarms. Below this is a 'Filter alarms' section (circled 4) with dropdowns for 'Type' and 'Status' (set to 'Unread alarms'), and a 'SEARCH' button. The bottom section, 'Lists of alarms' (circled 5), displays a table with columns 'Date', 'Alarm', and 'Station'. The table lists four alarms: 'SYSTEM_DISK 85', 'CPU 79', 'CONNECTION FALSE', and 'GPS UNLOCKED', all from station '1234567890ABCDEE'. A 'Rows per page: 10' dropdown and a '1' indicator are at the bottom of the table. A red circle 6 highlights the 'Alarm' column header.

Figure 37 - BSC alarms

- (1) Click on the “Alarms” button to navigate to the BSC alarms screen.
- (2) The “BSC” button is a shortcut to the same screen. It displays the number of BSC alarms of all fleets.
- (3) The “Fleets overview” panel lists all the fleets with their number of alarms. To see the details of a fleet, click on it.

A super admin will see all fleets of all customers. Other roles will only see the fleets of their customer.
- (4) Select criteria then click on the “Search” button to filter the alarms.
- (5) The “Details” panel lists all alarms of the selected fleet.

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(6) You can click on the “read” button to mark an alarm as read.

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4. RNC

4.1 Analyze the radio frequency activity of your modems

4.1.1 Request a radio frequency activity analysis of your modem

The screenshot displays the 'Radio frequency spectrum acquisition' interface. It features a sidebar with navigation options: BSC, RNC, Spectrum (highlighted), Radio configuration, Modems statistics, LNS, and Administration. The main content area includes a 'Select your fleet' dropdown (labeled 2), a 'Radio frequency spectrum acquisition' section with 'Station' (labeled 3) and 'Modem' (labeled 4) dropdowns, a 'Duration (sec)' slider (labeled 5), and a 'SEND' button (labeled 6). Below this is a 'Radio frequency spectrum list' table (labeled 7) with columns: DATE, STATION, MODEM, DURATION (SEC), and STATUS. The table shows three entries: one with a 'PENDING' status and two with 'OK' status. The bottom of the interface includes pagination controls showing '1 - 3 / 3 lines' and '10 lines / page'.

Figure 38 - Spectrum analysis acquisition

- (1) Click on the “Spectrum” button to access to the radio frequency analysis page.
- (2) Select a fleet.
- (3) Select a station.
- (4) Select a modem.
- (5) Select the duration of the analysis.
- (6) Click on the “Send” button.

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(7) The “list” panel displays all requests. When a spectrum succeed (status is “OK”), two buttons appear next to it:

- Play: Visualize the spectrum with the 3D viewer.
- Download: Download the spectrum as a text file.

4.1.2 Consult the results of a radio frequency activity analysis of your modem

In order to visualize a spectrum with the 3D viewer, click on the “Play” button next to the “OK” status of a request in the panel “Radio frequency spectrum list”.

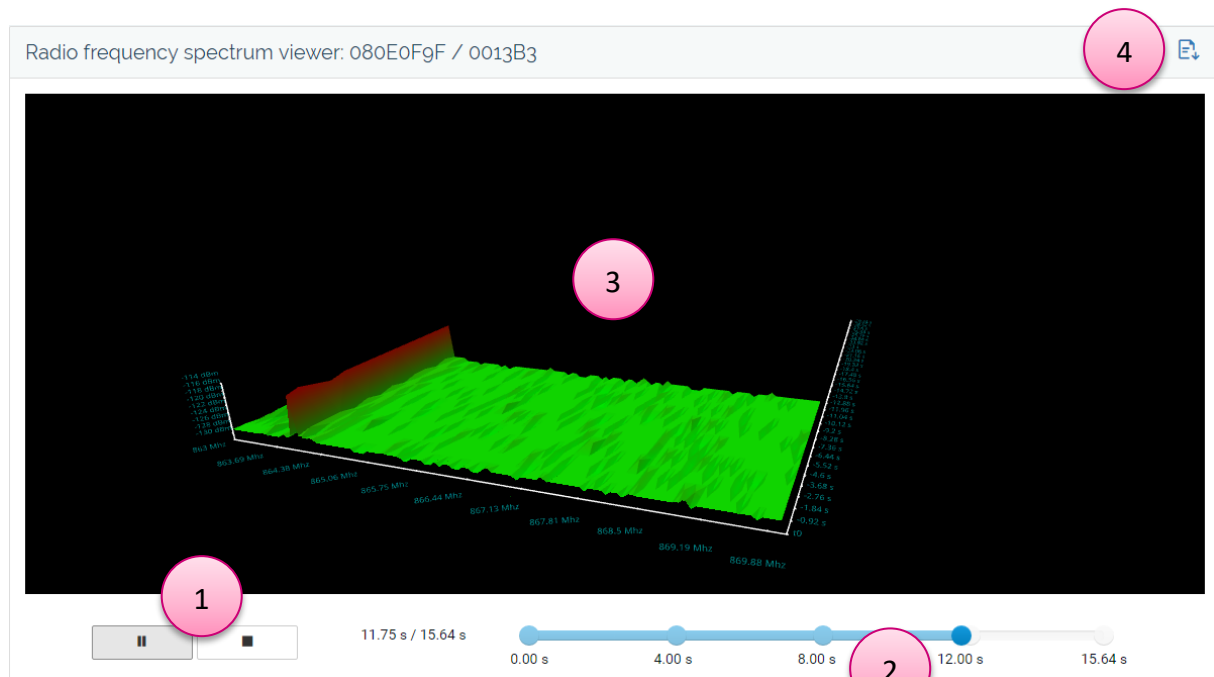


Figure 39 - Spectrum analysis viewer

- (1) Click on the “Play/Pause” button to start/pause the animation. Click on the “Stop” button to stop and reset the animation to the beginning.
- (2) The time bar shows the progress of the animation. You can reach a specific moment by clicking or moving the cursor.
- (3) You can zoom and change the position of the camera by scrolling or clicking and moving the mouse. On pause mode, you can highlight a point on the spectrum to display its values on a tooltip.
- (4) Click on the “Download” button to download the spectrum as a text file.

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4.2 Configure the radiopath and channel frequencies of your modems

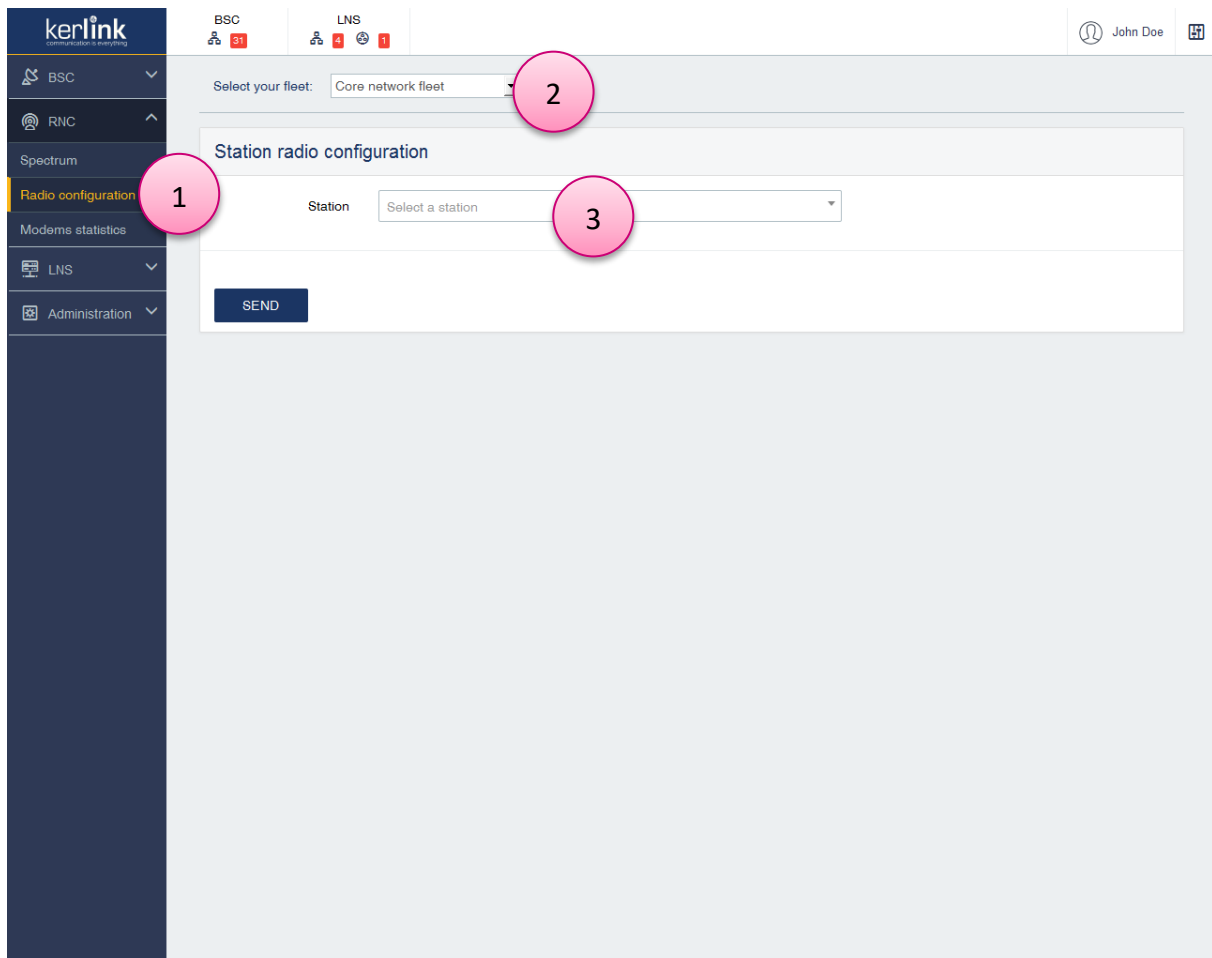


Figure 40 - Station selection for radiofrequency configuration

- (1) Click on the “Radio configuration” button.
- (2) Select a fleet.
- (3) Select a station. After that, the radiofrequency configuration appears below.

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Station radio configuration

STATION
7276FF00080E08F1 (wirnet.station TYPE_LORA_MONO(868))

Modem 1

863 Mhz 864 Mhz 865 Mhz 866 Mhz 867 Mhz 868 Mhz 869 Mhz 870 Mhz 871 Mhz 872 Mhz 873 Mhz

Modem 1

Modem

FREQUENCY INTERVAL	NB RADIOPATH	RADIOPATH WIDTH	RADIOPATH INTERVAL	NB MUSF	NB MOSF	NB FSK	NB FLORA
863 Mhz - 873 Mhz	2	1.2 Mhz	<div>866.9 Mhz - 868.1 Mhz</div> <div>867.9 Mhz - 869.1 Mhz</div>	8	1	1	0

Channels

NAME	EFFECTIVE	SPREAD FACTOR	FREQUENCY INTERVAL	BANDWIDTH	DATARATE
chan_multiSF_0	<input type="checkbox"/>	Multi SF	868.0375 Mhz - 868.1 Mhz - 868.1625 Mhz	125 Khz	
chan_multiSF_1	<input type="checkbox"/>	Multi SF	868.2375 Mhz - 868.3 Mhz - 868.3625 Mhz	125 Khz	
chan_multiSF_2	<input type="checkbox"/>	Multi SF	868.4375 Mhz - 868.5 Mhz - 868.5625 Mhz	125 Khz	
chan_multiSF_3	<input type="checkbox"/>	Multi SF	867.0375 Mhz - 867.1 Mhz - 867.1625 Mhz	125 Khz	
chan_multiSF_4	<input type="checkbox"/>	Multi SF	867.2375 Mhz - 867.3 Mhz - 867.3625 Mhz	125 Khz	
chan_multiSF_5	<input type="checkbox"/>	Multi SF	867.4375 Mhz - 867.5 Mhz - 867.5625 Mhz	125 Khz	
chan_multiSF_6	<input type="checkbox"/>	Multi SF	867.6375 Mhz - 867.7 Mhz - 867.7625 Mhz	125 Khz	
chan_multiSF_7	<input type="checkbox"/>	Multi SF	867.8375 Mhz - 867.9 Mhz - 867.9625 Mhz	125 Khz	
chan_Lora_std	<input type="checkbox"/>	7	868.175 Mhz - 868.3 Mhz - 868.425 Mhz	250 Khz	
chan_FSK	<input type="checkbox"/>		868.7375 Mhz - 868.8 Mhz - 868.8625 Mhz	125 Khz	50 Kbps

Raw

SEND

Figure 41 - Radiofrequency configuration

- The chart displays the radio paths and channels (only for configuration formats supported by the application). It is a read-only visualization.
- Form edition of the radio paths and channels frequencies (only for configuration formats supported by the application). The values are checked with the following rules:
 - The radio path interval frequencies are included into the range interval frequency.

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- The effective channels interval frequencies are included into at least one of the radio path interval frequency.

(3) Text “raw” area contains the radiofrequency configuration as raw string.

(4) Click on the “Send” button to apply the new radiofrequency configuration.

4.3 Consult and analyze the statistics on your modems

4.3.1 Request a statistics chart

The screenshot shows the 'Modem statistics' interface. On the left is a dark blue sidebar with navigation links: BSC, RNC, Spectrum, Radio configuration, **Modems statistics** (highlighted with a pink circle 1), LNS, and Administration. The main content area has a top bar with 'BSC' and 'LNS' status indicators. Below this is a 'Select your fleet:' dropdown menu (pink circle 2) currently set to 'Core network fleet'. The 'Modem statistics' section contains two dropdown menus: 'Station *' (pink circle 3) and 'Modem *' (pink circle 4), both with 'Select a station first' as placeholder text. To the right of these are input fields for 'Date *' (05/12/2017 10:00, pink circle 5), 'Back period *' (24, pink circle 5), 'Hours' (pink circle 5), 'From' (pink circle 6), 'To' (pink circle 6), and 'Samples' (pink circle 6). At the bottom left of the form is an 'APPLY' button (pink circle 7).

Figure 42 - Modem selection for statistics display

- (1) Click on the “Modems statistics” button.
- (2) Select a fleet.
- (3) Select a station.

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- (4) Select a modem.
- (5) Set the date and the back-hour period.
- (6) Set the filter of samples number by frequency.
- (7) Click on the “Apply” button to see statistics. The 3D chart statistics appears below.

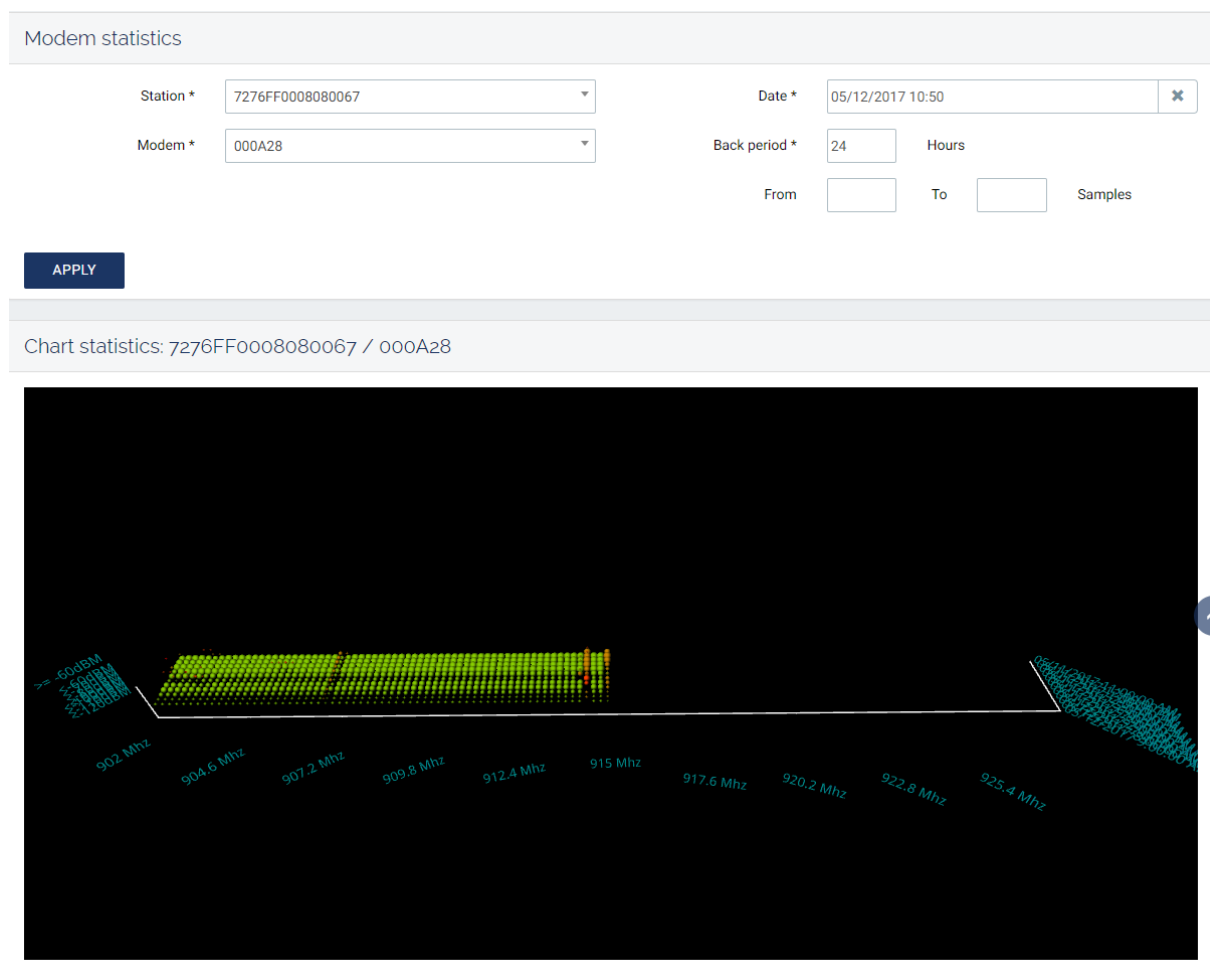


Figure 43 : Modem statistics

You can zoom and change the position of the camera by scrolling or clicking and moving the mouse. You can hover over a sphere to display the details in a tooltip.

4.3.2 Read the statistics chart

The chart shows a scan result of the modem RSSI. The radio frequencies are sampled and grouped on three axes:

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- Frequency (X axis)
- RSSI range (Y axis with color: green < -120 dBm to red >= -60 dBm)
- Hour (Z axis)

The size of the spheres is proportional to the sample count.

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5. LNS

5.1 List your clusters

List of clusters

Name	URL	Username	Access type	Trust Key Management	Geoloc enabled
AAAAAbb	test.fr	test	WEB_SOCKET	No	false
ABCD	test.fr.dd	sss	REST	No	false
CL mth 01	ffd.ff	ff	WEB_SOCKET	No	false
CLUSTER TEST MT0	test.fr	test	WEB_SOCKET	No	false
Cluster SFA	ws://sfa.com		WEB_SOCKET	Yes	true
Cluster_OMA1bis	pushUrl	pushUser	REST	Yes	true
Nightwatch 126FC	ws://test-e2e-url.com	test-e2e-user	WEB_SOCKET	No	false
Nightwatch 19922	http://test-e2e-url.com	test-e2e-user	WEB_SOCKET	No	false
Nightwatch 1AD10 updated	http://test-e2e-url-updated.com	test-e2e-user-updated	REST	No	false
Nightwatch 1B08A	http://test-e2e-url.com	test-e2e-user	WEB_SOCKET	No	false

1 - 10 / 48 lines
10 lines / page

Page 1 / 5

Figure 44 - Clusters list

(1) Click on the “Clusters” button.

(2) List of your clusters.

5.2 List the stations

The screenshot displays the Kerlink RAN Dashboard interface. On the left, a sidebar contains navigation links: BSC, Fleets, Stations, Alarms, RNC, Spectrum, Radio configuration, Modems statistics, LNS, Clusters, **Stations** (highlighted with a pink circle 1), Endpoints, Alarms, Workflows, and Administration. The top bar shows BSC status (75) and LNS status (10). The main content area features a 'Filter the stations' panel (highlighted with a pink circle 2) and a 'List of stations' table. The table lists stations with columns for EUI and Region. A map on the right shows the geographical distribution of stations, with a specific station marker highlighted by a pink circle 3. The bottom of the table shows pagination: '1 - 10 / 481 lines' and 'Page 1 / 49'.

EUI	Region
000000000124000	Europe (863 Mhz - 870 Mhz)
000000000140000	Europe (863 Mhz - 870 Mhz)
000000000140001	Europe (863 Mhz - 870 Mhz)
000000000140002	Europe (863 Mhz - 870 Mhz)
000000000140003	Europe (863 Mhz - 870 Mhz)
000000000140004	Europe (863 Mhz - 870 Mhz)
000000000140005	Europe (863 Mhz - 870 Mhz)
000000000140006	Europe (863 Mhz - 870 Mhz)
000000000140007	Europe (863 Mhz - 870 Mhz)
000000000140008	Europe (863 Mhz - 870 Mhz)

Figure 45 - LNS stations list

- (1) Click on the LNS “Stations” button.
- (2) List of the stations (your stations or public stations). You can click on the ID of a station to access to its details page. You can filter the station with the “Filter stations” panel.
- (3) Map of the stations positions. You can click on the marker of a station to see its ID and click on it to access its details page.

5.3 Consult the properties of a station

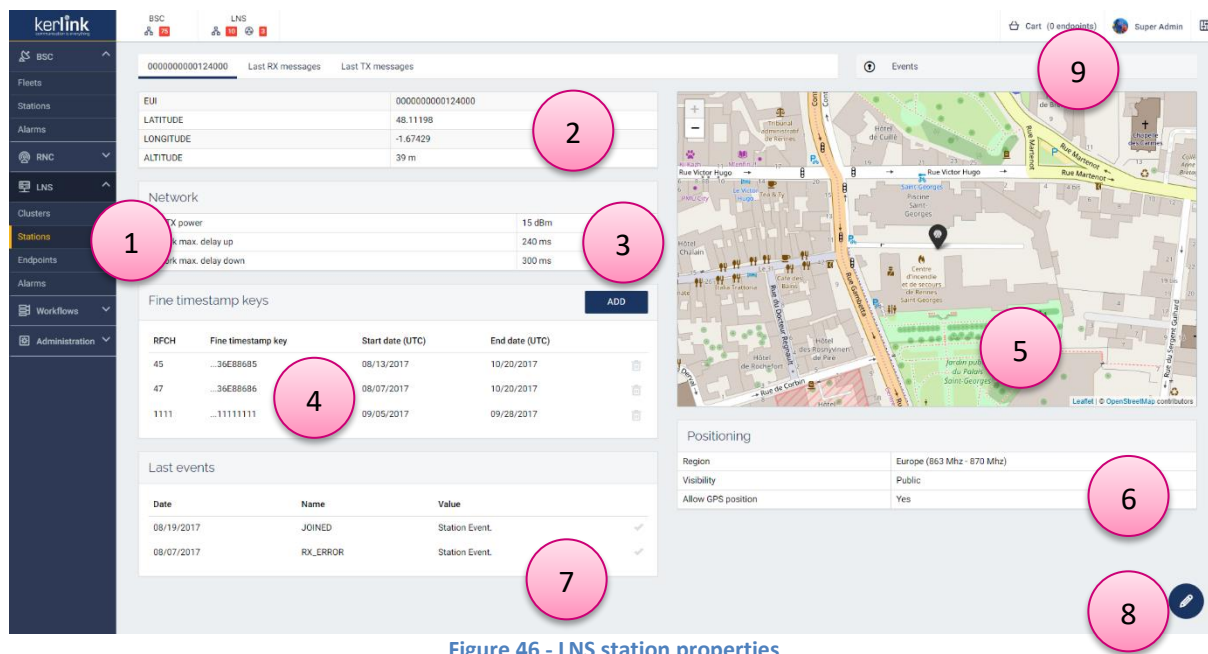


Figure 46 - LNS station properties

- (1) Click on the LNS “Stations” button then click on the ID of a station.
- (2) Attributes of the station.
- (3) Network properties of the station.
- (4) AES keys of the station.
- (5) Position of the station.
- (6) Positioning properties of the station.
- (7) Last events of the station.
- (8) The floating button allows you to edit some properties of the station
- (9) The top menu bar allows you to see last RX messages, last TX messages and events of the station.

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5.4 Search and list the endpoints of your clusters

Figure 47 - Endpoints list

- (1) Click on the “Endpoints” button.
- (2) Select a cluster.
- (3) The filter panel allows you to filter the endpoints according to several criteria.
- (4) The list panel shows the result of the search. If no filter is set, it shows a list of all endpoints in the selected cluster.
- (5) For each endpoint in the list, you can:
 - Add the endpoint to the cart (or remove it).
 - Go to the details page of the endpoint.

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5.5 Manage your endpoints cart

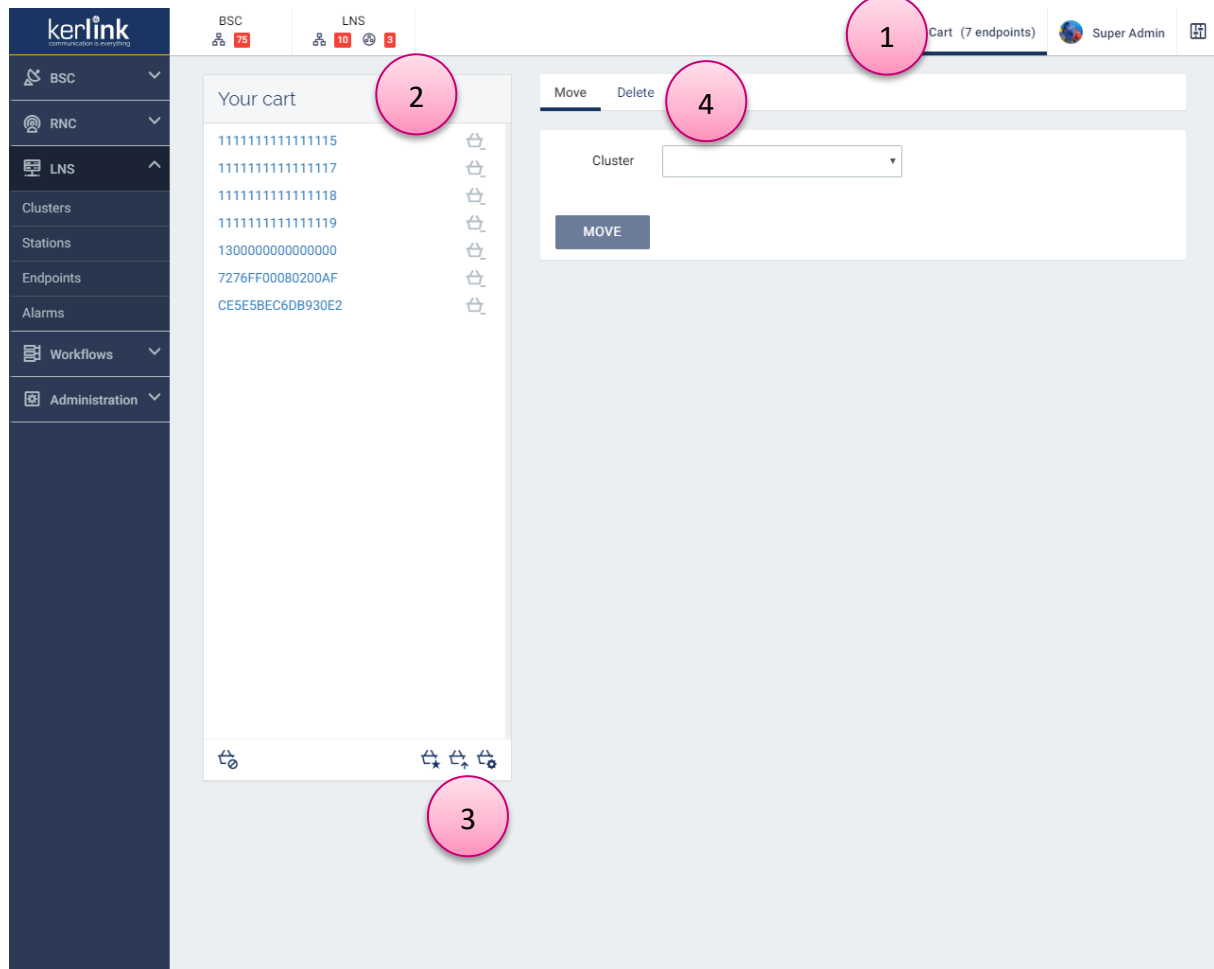


Figure 48 - Endpoints cart

- (1) Click on the cart button.
- (2) The panel “Your cart” shows the list of endpoints currently added in your cart. You can remove some endpoints or empty your cart by clicking on the respective buttons.
- (3) These buttons allow you to respectively save the current cart, load endpoints of many previous saved carts and manage previous saved carts. These functionalities are described in the paragraph 6 - Cart management.
- (4) The tabs correspond to all the actions you can perform on the endpoints of your cart.

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5.6 Consult the properties of an endpoint

5.6.1 Endpoint attributes

Figure 49 - Endpoint attributes

- (1) Click on the "Endpoints" button to access to the list of endpoints then click on the dev EUI of the endpoint you want to consult.
- (2) This panel shows the attributes of the endpoint. You can reset the frame counter down by clicking on the reset button.
- (3) The panel "Activation" lists the activation parameters of the endpoint (OTAA or ABP).

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Strict confidential			

- (4) The panel “Override RX parameters” lists the override RX parameters of the endpoint.
- (5) The panel “TKM” lists the trust key management parameters of the endpoint cluster. These values are set when creating the endpoint (see paragraph 8.5).
- (6) The panel “Uplink” lists the push parameters of the endpoint cluster.
- (7) The panel “Last stations” shows the last stations the endpoint has communicated with.
- (8) The map displays the positions of the endpoint and the positions of the stations who has communicated with it after the “Start date” value.
- (9) The panel “Geolocation” displays the geolocation properties of the endpoint.
- (10) The panel “Last messages” displays the last RX and TX messages of the endpoint.
- (11) The panel “Last events” displays the last events of the endpoint.
- (12) Click on the floating button to edit the endpoint.
- (13) The top menu bar allows you to see last RX messages, last TX messages and events of the endpoint.

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5.6.2 RX messages

The screenshot displays the 'RX messages' section of the Kerlink dashboard. The interface includes a sidebar with navigation options like BSC, Fleets, Stations, Alarms, RNC, Spectrum, Radio configuration, Modems statistics, LNS, Clusters, Stations, Endpoints, Alarms, Workflows, and Administration. The main panel shows a filter bar for RX messages and a table of message details. Three callouts are present: (1) points to the 'RX messages' tab, (2) points to the filter bar, and (3) points to the 'Dev addr' column in the table.

Msg uid	Dev addr	Frame port number	Date	Frame counter upstream	Frame counter downstream	Frequency	Modulation	Bandwidth	Sf	Adr	Coding rate	Stat
5a2010ed48f8a6000edad966	30000004	16	11/30/2017 3:08:45 PM	4145	11729	868.3	LORA	125	7	true	4/5	7276
												7276
												7276
												7276
												7276
5a2010b248f8a6000edad963	30000004	16	11/30/2017 3:07:46 PM	4144	11728	868.5	LORA	125	7	true	4/5	7276
												7276
												7276
												7276
												7276

Figure 50 - Endpoint RX messages

- (1) Access to an endpoint page then click on the “RX messages” tab.
- (2) The filter panel allows you to filter the list of RX messages.
- (3) The panel “RX messages” list the messages sent by the endpoint and received by the stations. You can click on a message row to display its details.

5.6.3 TX messages

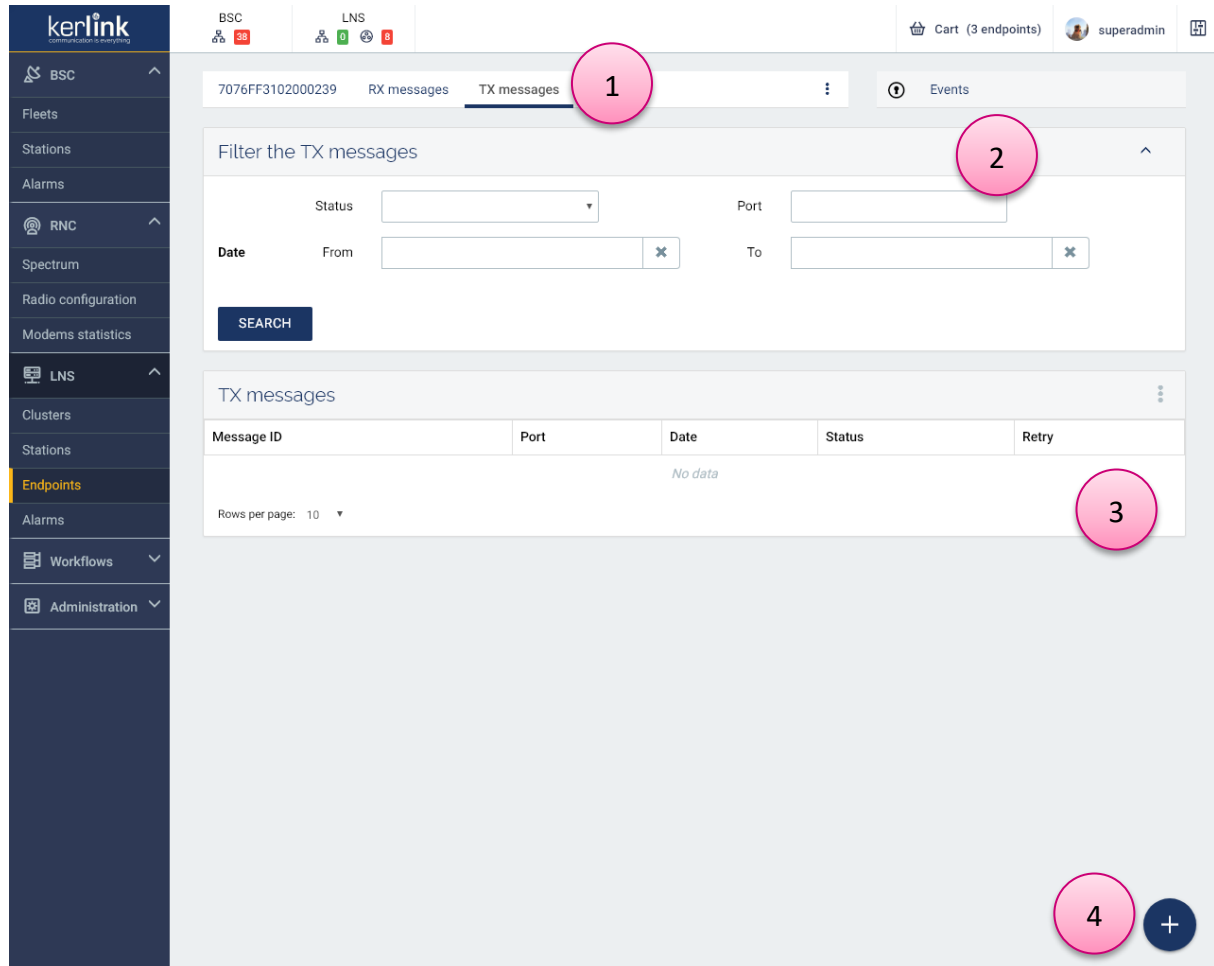


Figure 51 – Endpoint TX messages

- (1) Access to an endpoint page then click on the “TX messages” tab.
- (2) The filter panel allows you to filter the list of TX messages.
- (3) The panel “TX messages” lists the messages received by the endpoint. You can click on a message row to display its details in a popup.
- (4) The floating button allows you to send a message to the endpoint.

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5.6.4 Messages

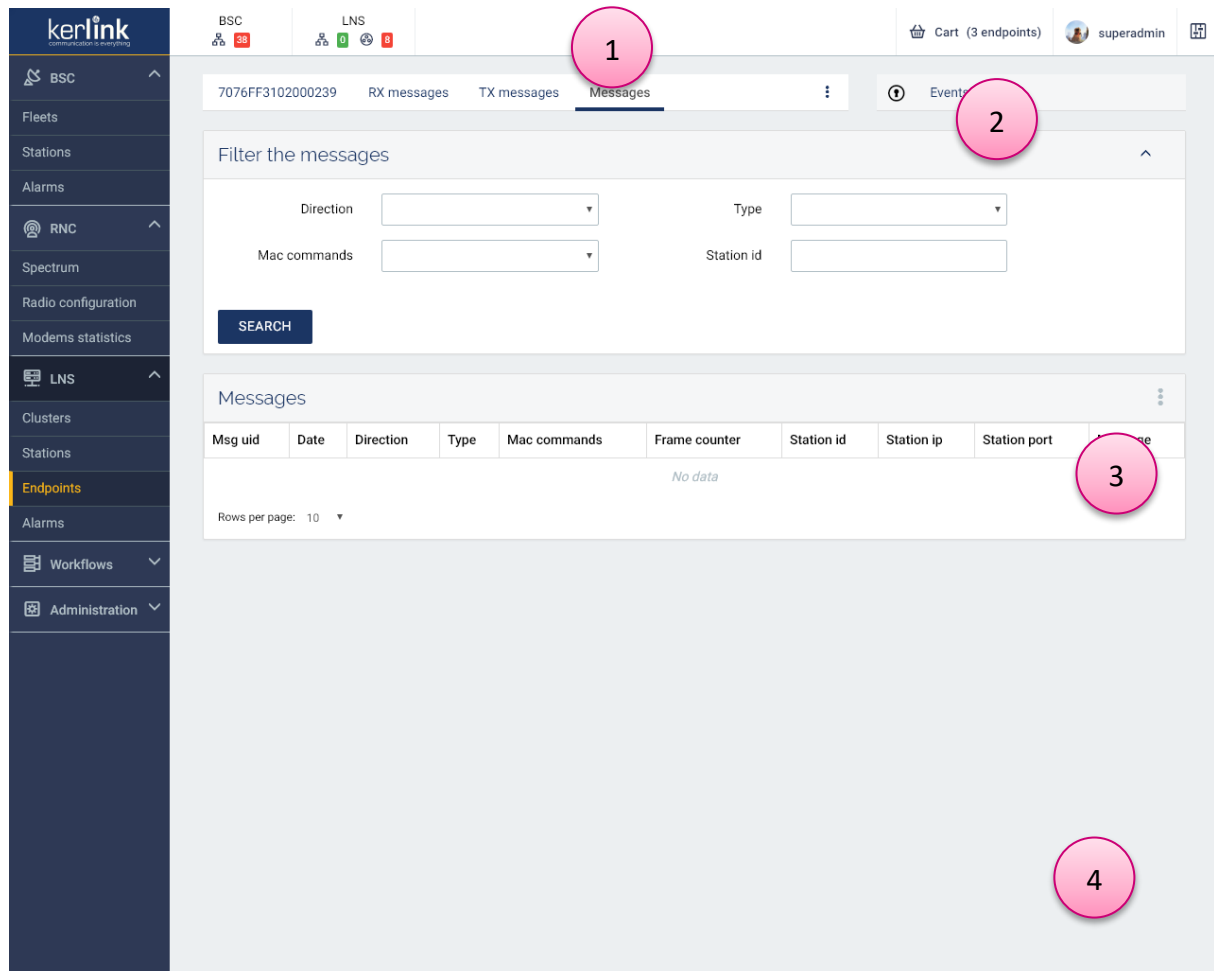


Figure 52 – Endpoint messages

- (1) Access to an endpoint page then click on the “Messages” tab.
- (2) The filter panel allows you to filter the list of messages.
- (3) The panel “Messages” lists the messages received by the endpoint. You can click on a message row to display its details in a popup.

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5.7 Consult the last alarms of your stations

The screenshot shows the Kerlink RAN Dashboard interface. The sidebar on the left contains navigation links: BSC, Fleets, Stations, Alarms, RNC, Spectrum, Radio configuration, Modems statistics, LNS, Clusters, Stations, Endpoints, Alarms, Workflows, and Administration. The main content area is titled 'Alarms' and displays a table of LNS station alarms. The table has three columns: Date, Alarm, and Station. The table lists four alarms: 'EXPLOSION Station Destroyed.', 'FAILURE Station Failure.', 'TX_ERROR Station Error.', and 'RX_ERROR Station Event.' Each alarm has a 'read' button (eye icon) next to it. The interface also includes a 'Filter alarms' panel and a 'Lists of alarms' section. The page number 'Page 1 / 1' is visible at the bottom right.

Figure 53 – Last alarms of LNS stations

- (1) Click on the “Alarms” button to navigate to the LNS station alarms screen.
- (2) The list displays the LNS station alarms. You can filter on a specific alarm type with the “Filter alarms” panel.
- (3) You can click on the “read” button to mark an alarm as read.

5.8 Consult the last alarms of your endpoints

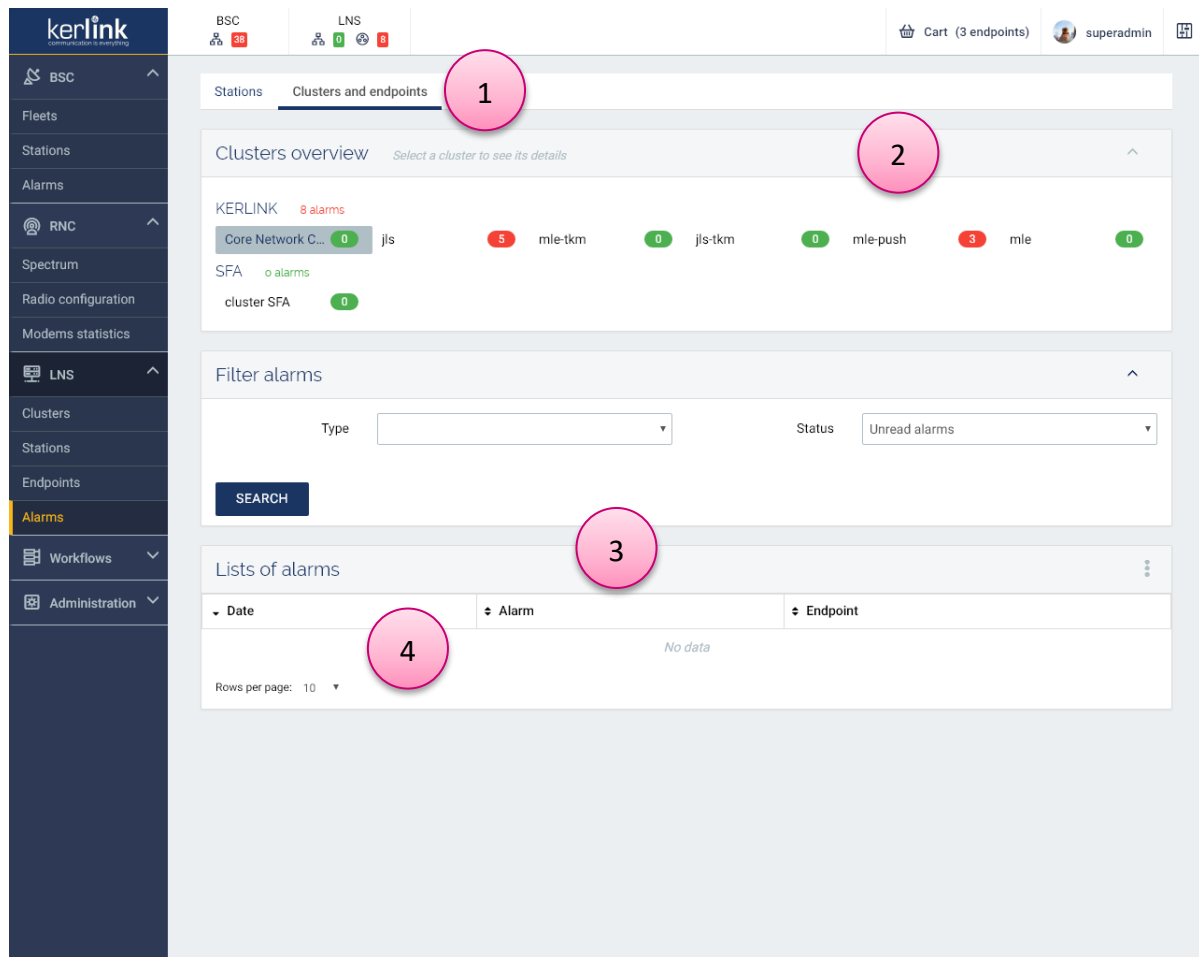


Figure 54 - Last alarms of endpoints

- (1) Click on the “Alarms” button to navigate to the LNS endpoint alarms screen.
- (2) The “Clusters overview” panel lists all the clusters with their number of alarms. To see the details of a cluster, click on it.

A super admin will see all clusters of all customers. Other roles will only see the clusters of their customer.
- (3) Select criteria then click on the “Search” button to filter the alarms.
- (4) The “Details” panel lists all the endpoints of the selected cluster with their current alarms.
- (5) You can click on the “read” button to mark an alarm as read.

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6. Cart management

6.1 Save your cart

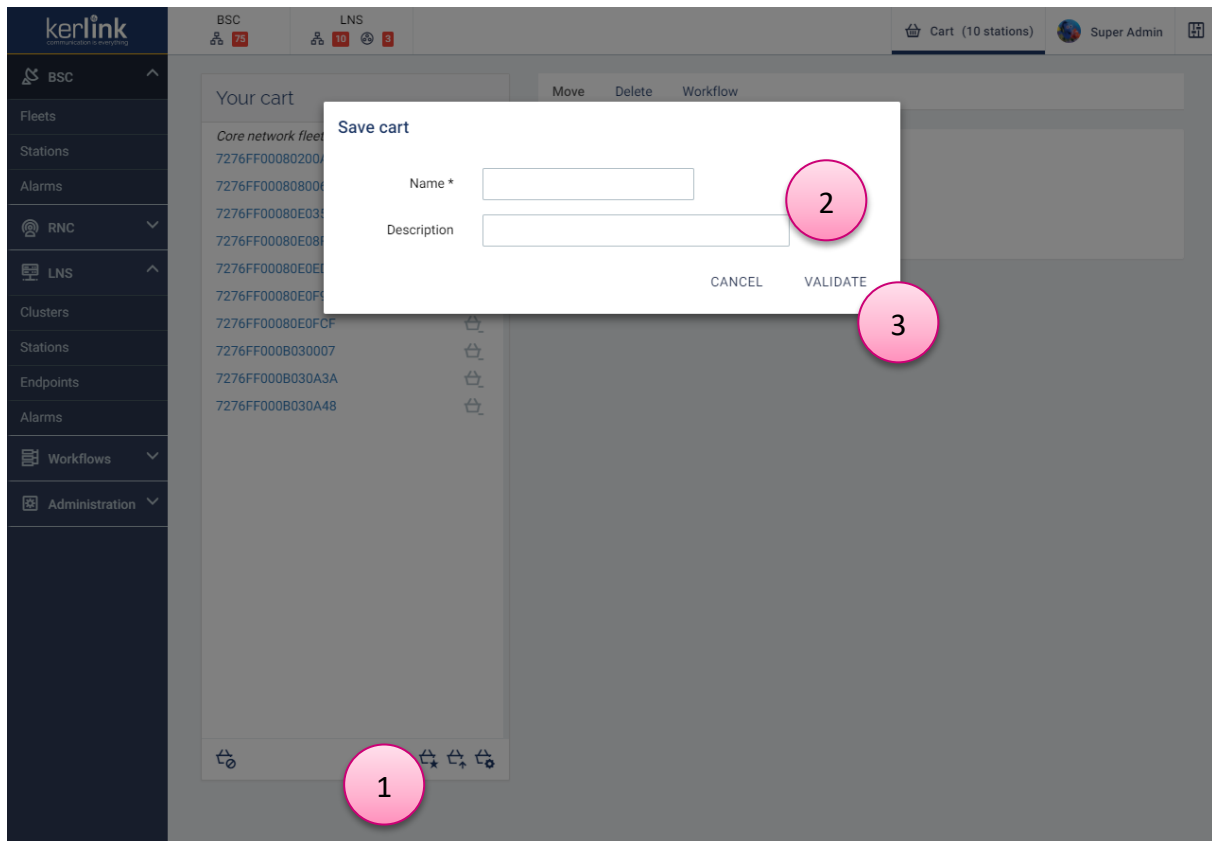


Figure 55 - Save cart

- (1) Click on the “Save” button. A modal appears.
- (2) Enter a name and optionally a description.
- (3) Click on the “Validate” button to save your cart. The modal disappears and your cart is saved.

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6.2 Load the content of your carts

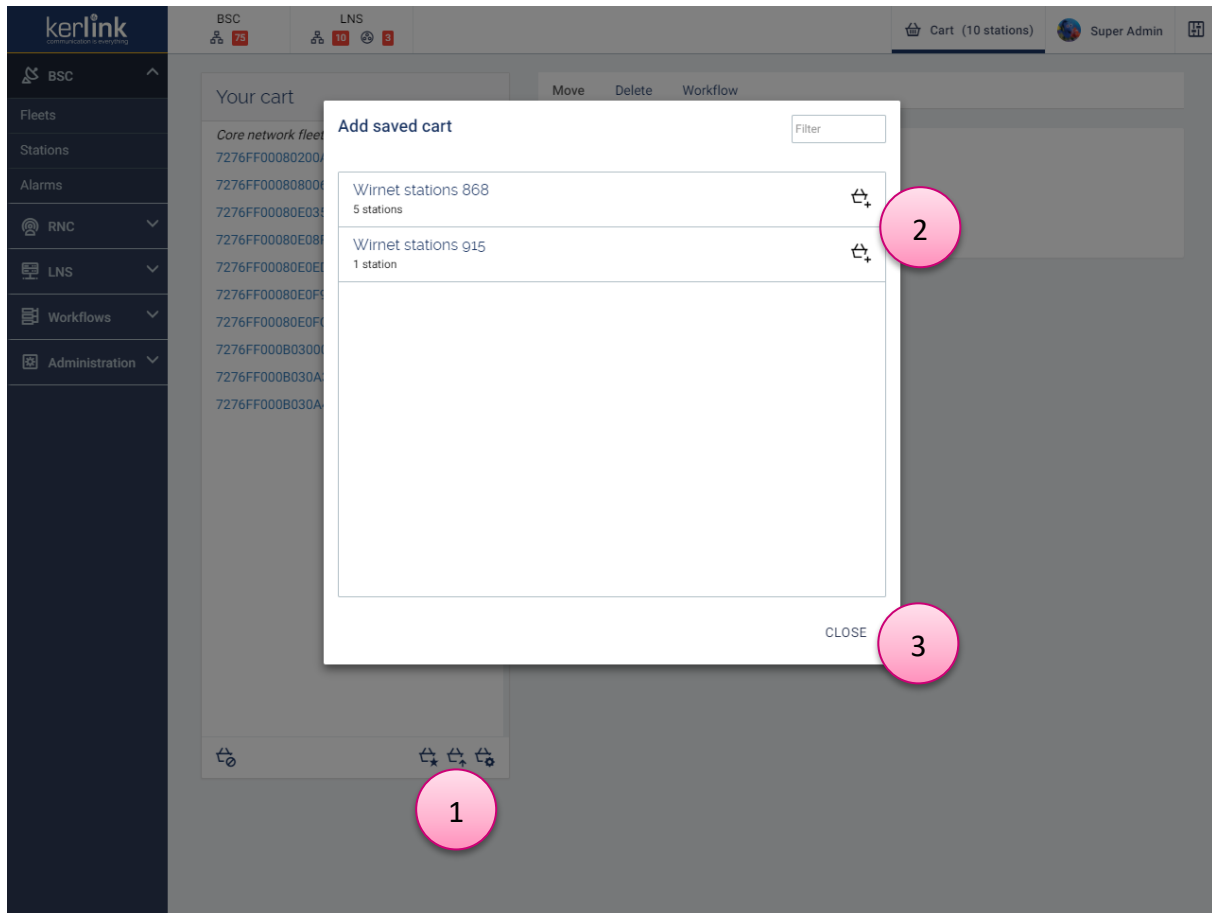


Figure 56 - Load content of carts

- (1) Click on the “Load” button. A modal appears with your previous saved carts.
- (2) Click on the “Add” button of the saved carts you want to load the content. The content is added to your cart.
- (3) Click on the “Close” button. The modal disappears.

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6.3 Manage your saved carts

The screenshot shows the Kerlink RAN Dashboard interface. The sidebar on the left contains a menu with items: BSC, Fleets, Stations, Alarms, RNC, LNS, Clusters, Stations, Endpoints, Alarms, Workflows, and Administration. The main content area is titled 'Lists of endpoints carts'. It features a table with the following data:

Name	Description	Content	
SFA3		0 endpoints	
SFA4		0 endpoints	

Below the table, it indicates 'Rows per page: 10' and '1 - 2 of 2'. Callouts are present: (1) points to the 'Cart (0 endpoints)' button in the top right; (2) points to the 'Add' button in the table; (3) points to the 'view' and 'delete' buttons in the table.

Figure 57 - Saved carts management

- (1) Click on the “Cart” button and then click on the “Manage” button at the bottom of your cart list. The saved carts management page is loading.
- (2) Click on the “Add” button of the saved carts you want to add. The content is added to your cart.
- (3) Click on the “view” button to see the details of the saved cart. Click on the “delete” button to delete a saved cart.

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7. Workflow

7.1 List workflow templates

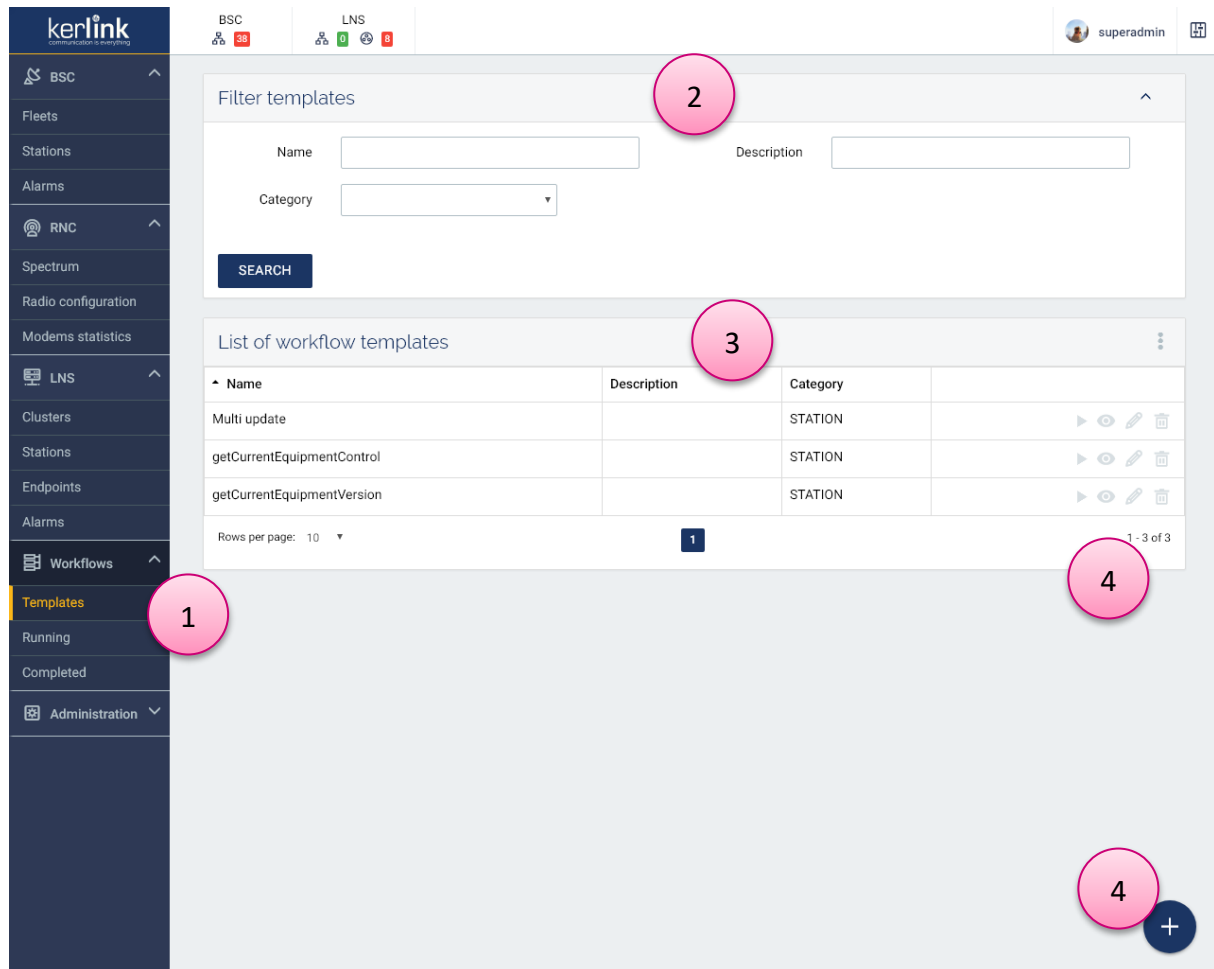


Figure 58 - List workflow templates

- (1) Click the “Template” item in the “Workflows” menu
- (2) Set filters and click on search to filter the templates
- (3) List workflows templates
- (4) The buttons allow you to execute, see, edit or delete a template
- (5) The floating button allows you to create a new template

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7.2 Create a workflow template

Figure 59 - Import workflow template

- (1) The properties of the template, including the category (Station or Endpoint) which defines the list of available webservices.
- (2) The list of available webservices that can be added to the template.
- (3) Drag & drop a webservice from (2) to (3) to add a webservice to the template. Then, in the selected list (3), you can drag & drop webservices to order them.

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7.3 Execute a workflow

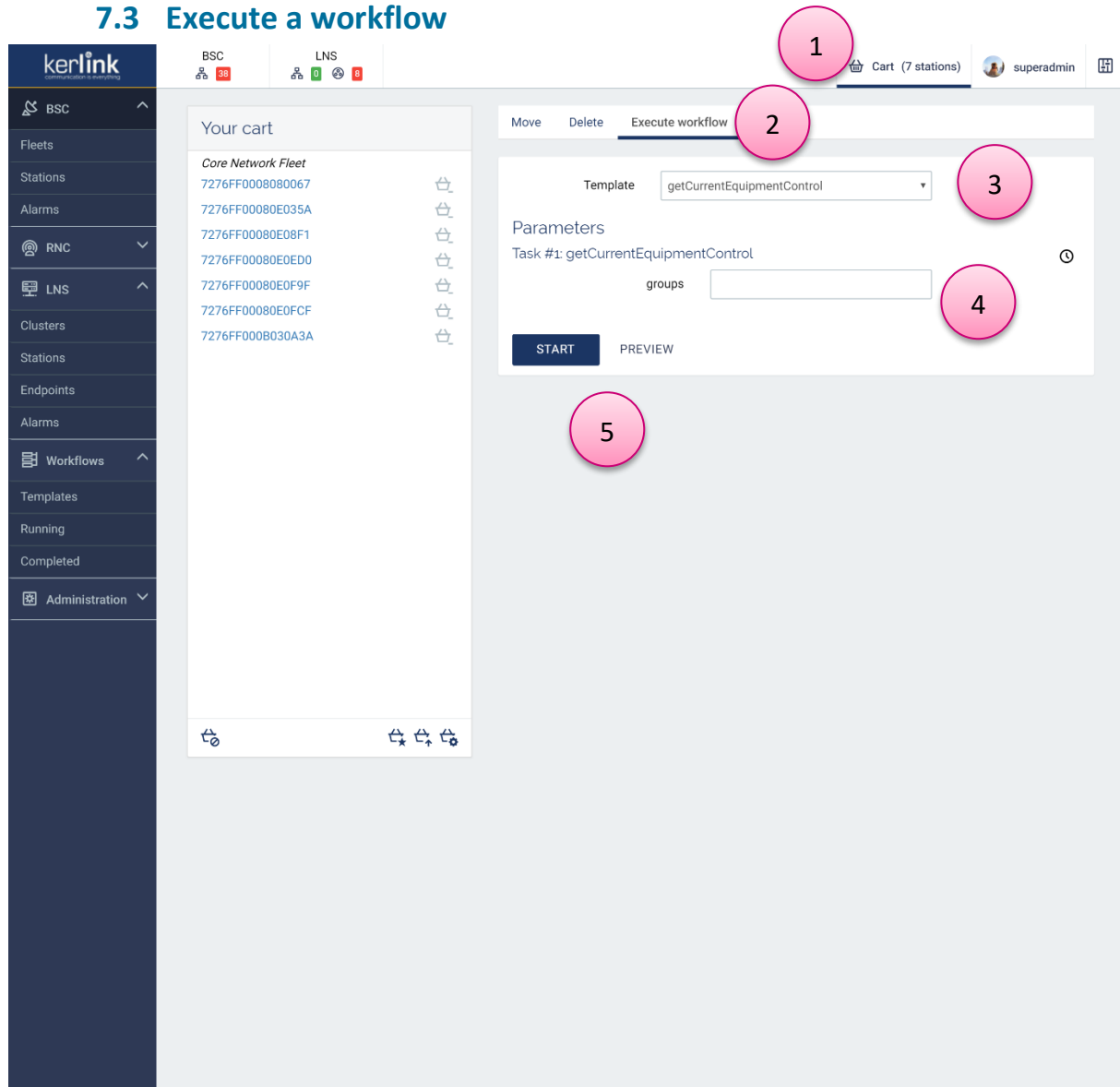


Figure 60 – Execute a workflow

- (1) Click on the “Cart” button.
- (2) Click on the “Workflow” tab.
- (3) Select a template workflow.
- (4) Enter the parameters of the workflow.
- (5) The buttons allow you to:
 - start a workflow

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- preview the selected workflow
- go to the workflow progress page (this button is only visible when the workflow is started)

7.4 Running workflows

7.4.1 List of running workflows

The screenshot shows the Kerlink RAN Dashboard interface. On the left is a sidebar menu with categories like BSC, RNG, LNS, and Workflows. The 'Workflows' category is expanded, and the 'Running' sub-item is highlighted. At the top right, there's a user profile 'superadmin'. The main area contains a 'Filter' section with a 'Name' input field and a 'SEARCH' button. Below this is a table titled 'Running workflows' with columns: Workflow, Nb equipments Pending, Nb equipments Success, Nb equipments Fail, and Start date. The table lists four workflows, all of which are 'getCurrentEquipmentControl'. The first three have 1 pending and 0 success/fail, while the last one has 15 pending and 0 success/fail. At the bottom of the table, it says 'Rows per page: 10' and '1 - 4 of 4'. Three pink circles with numbers 1, 2, and 3 are overlaid on the image. Circle 1 points to the 'Running' item in the sidebar. Circle 2 points to the search filter area. Circle 3 points to the workflow table.

Workflow	Nb equipments Pending	Nb equipments Success	Nb equipments Fail	Start date
getCurrentEquipmentControl	1	0	0	11/30/2017 10:44:30 AM
getCurrentEquipmentControl	1	0	0	11/30/2017 10:32:12 AM
getCurrentEquipmentVersion	1	0	0	11/30/2017 10:30:56 AM
getCurrentEquipmentControl	15	0	0	10/30/2017 9:56:19 AM

Figure 61 - Running workflows list

- (1) Click on the “Running” item in the “Workflows” menu.
- (2) Set the filters and click on search to filter workflows list.
- (3) The panel lists the currently processing workflows.

Clicking on a workflow name will display the details of the execution.

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7.4.2 Details of a running workflow execution

The screenshot displays the Kerlink RAN Dashboard interface. On the left is a dark sidebar with navigation links. The main area shows a 'Filter results' section with a 'Status' dropdown menu and a 'SEARCH' button. Below this is a table titled 'GetCurrentEquipmentControl' with the following data:

Id	Equipment ID	Status	Start date	End date
75062	7276FF008080067	PENDING	11/30/2017 10:44:30 AM	

At the bottom of the table, it indicates 'Rows per page: 10' and '1 - 1 of 1'. A pink circle labeled '1' points to the table, and another pink circle labeled '2' points to the 'Filter results' section.

Figure 62 – Details of a running workflows

- (1) The list shows all equipment on which the workflow has been executed and displays its status, start date and end date.

A workflow is considered as running if there is at least on equipment in PENDING status.

Clicking on an equipment ID will display the details of the execution for this equipment.

- (2) Set the filters and click on search to filter the equipment list.

7.4.3 Details of a running workflow execution for a specific equipment

The screenshot shows the Kerlink RAN Dashboard interface. On the left is a dark sidebar with navigation links: BSC, Fleets, Stations, Alarms, RNC, Spectrum, Radio configuration, Modems statistics, LNS, Clusters, Stations, Endpoints, Alarms, Workflows, Templates, Running, Completed, and Administration. The top header shows 'kerlink' logo and 'communication is everything'. The main content area has a top bar with 'BSC' and 'LNS' tabs, and a user profile 'superadmin'. Below this is a table with workflow details:

EQUIPMENT ID	
WORKFLOW	getCurrentEquipment...
STATUS	PENDING
START DATE	11/30/2017 10:44:30 AM
END DATE	
DURATION	5 days

A pink circle with the number 1 highlights the 'STATUS' field. Below the table, it says 'Refreshing in 28 seconds'.

Figure 63 – Details of a running workflows for an equipment

- (1) When in PENDING status, the details page shows only some attributes of the execution. The page is automatically refreshed every 30 seconds.

7.5 Completed workflows

7.5.1 List of completed workflows

The screenshot displays the Kerlink RAN Dashboard interface. On the left, a sidebar menu shows various navigation options, with 'Completed' highlighted under the 'Workflows' section. The main area features a 'Filter' section with a search bar and a 'SEARCH' button. Below this is a table titled 'Completed workflows' with columns for Workflow, Nb equipments Success, Nb equipments Fail, Start date, and End date. The table lists several workflow executions, including 'getCurrentEquipmentControl' and 'getCurrentEquipmentVersion'. Three callouts are used to guide the user: (1) points to the 'Completed' menu item, (2) points to the search bar, and (3) points to a workflow row in the table.

Workflow	Nb equipments Success	Nb equipments Fail	Start date	End date
getCurrentEquipmentControl	4	2	12/04/2017 9:54:24 AM	12/04/2017 9:54:36 AM
getCurrentEquipmentVersion	5	1	12/04/2017 9:44:56 AM	12/04/2017 9:45:13 AM
getCurrentEquipmentVersion	0	0	12/01/2017 4:27:18 PM	12/01/2017 4:27:32 PM
getCurrentEquipmentVersion	0	0	12/01/2017 4:25:09 PM	12/01/2017 4:25:22 PM
getCurrentEquipmentVersion	0	0	12/01/2017 10:18:10 AM	12/01/2017 10:18:26 AM
getCurrentEquipmentControl	0	0	12/01/2017 9:41:36 AM	12/01/2017 12:00:06 PM
getCurrentEquipmentVersion	0	0	12/01/2017 9:41:27 AM	12/01/2017 12:00:05 PM
getCurrentEquipmentVersion	0	0	11/30/2017 5:22:52 PM	11/30/2017 8:00:08 PM
getCurrentEquipmentVersion	0	0	11/30/2017 11:47:44 AM	11/30/2017 11:48:13 AM
getCurrentEquipmentVersion	0	0	11/30/2017 10:54:21 AM	11/30/2017 10:54:42 AM

Figure 64 - Completed workflows list

- (1) Click on the "Completed" item in the "Workflows" menu.
- (2) Set the filters and click on search to filter workflows list.
- (3) The panel lists the completed workflows.

Clicking on a workflow name will display the details of the execution.

7.5.2 Details of a completed workflow execution

The screenshot shows the Kerlink RAN Dashboard interface. On the left is a sidebar with navigation options: BSC, Fleets, Stations, Alarms, RNC, Spectrum, Radio configuration, Modems statistics, LNS, Clusters, Stations, Endpoints, Alarms, Workflows, Templates, Running, Completed, and Administration. The main content area is titled 'Filter results' and contains a search filter for 'Status' with a dropdown menu and a 'SEARCH' button. Below the filter is a table titled 'GetCurrentEquipmentControl' with the following data:

Id	Equipment ID	Status	Start date	End date
92501	7276FF008080067	OK	12/04/2017 9:54:24 AM	12/04/2017 9:54:36 AM
92513	7276FF00808035A	OK	12/04/2017 9:54:24 AM	12/04/2017 9:54:36 AM
92525	7276FF0080808F1	OK	12/04/2017 9:54:24 AM	12/04/2017 9:54:36 AM
92537	7276FF008080A3A	KO	12/04/2017 9:54:24 AM	12/04/2017 9:54:36 AM
92549	7276FF002E040491	OK	12/04/2017 9:54:24 AM	12/04/2017 9:54:36 AM
92561	7276FF0039030336	KO	12/04/2017 9:54:24 AM	12/04/2017 9:54:36 AM

At the bottom of the table, it says 'Rows per page: 10' and '1 - 6 of 6'.

Figure 65 – Details of a running workflows

- (1) The list shows all equipment on which the workflow has been executed and displays its status, start date and end date.

Clicking on an equipment ID will display the details of the execution for this equipment.

- (2) Set the filters and click on search to filter the equipment list.

7.5.3 Details of a completed workflow execution for a specific equipment

The screenshot shows the Kerlink RAN Dashboard interface. On the left is a sidebar with navigation options: BSC, Fleets, Stations, Alarms, RNC, Spectrum, Radio configuration, Modems statistics, LNS, Clusters, Stations, Endpoints, Alarms, Workflows, Templates, Running, Completed, and Administration. The main content area is divided into two sections. The top section, labeled '1', contains a table of workflow attributes. The bottom section, labeled '2', contains a 'Results' table.

Attribute	Value
EQUIPMENT ID	7276FF00B030A3A
WORKFLOW	getCurrentEquipment...
STATUS	KO
START DATE	12/04/2017 9:54:24 AM
END DATE	12/04/2017 9:54:36 AM
DURATION	a few seconds

Task	Status	Result
getCurrentEquipmentControl	KO	[{"criteria": {"customerId": "1", "fleetId": "2..."

Figure 66 – Details of a completed workflows for an equipment

- (1) When in completed, the details page shows all attributes of the execution.
- (2) The “Results” table lists all webservices of the workflow:
 - Its status of execution
 - Its result. Clicking on a result will open a modal with the detailed result.

8. Administration

8.1 Manage customers

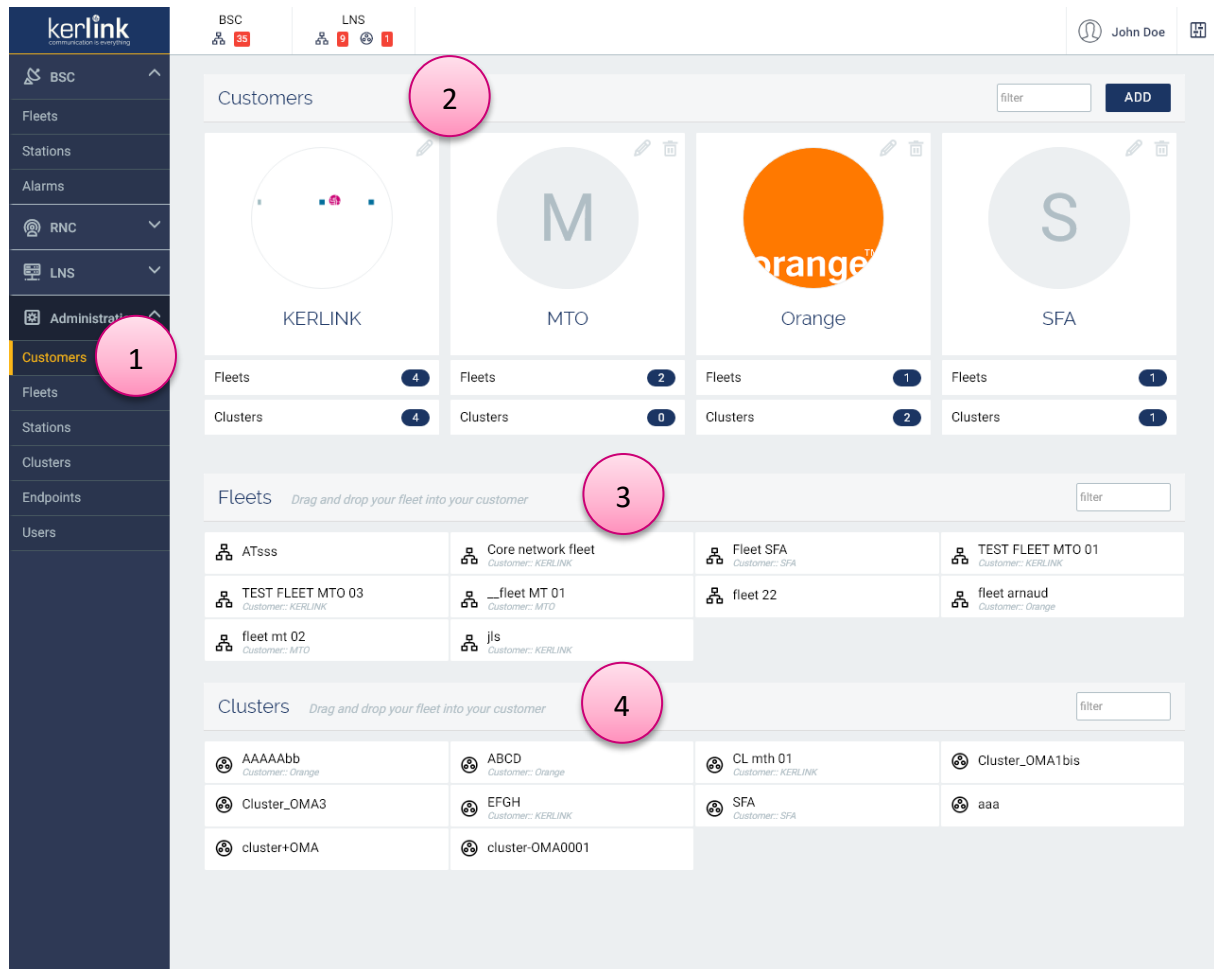


Figure 67 - Customers management

- (1) Click on the “Customers” button to access to the customers management page.
- (2) The “Customers” panel allows you to add, edit and remove a customer. It also lists the fleets and clusters attached to each customer. You can detach a fleet / cluster by clicking on the “trash” button next to it.
- (3) The panel “Fleets” lists all the fleets of the application. You can drag and drop a fleet from this panel to the customer you want to attach it.
- (4) The panel “Clusters” lists all the clusters of the application. You can drag and drop a cluster from this panel to the customer you want to attach it.

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The screenshot shows the 'Add customer' form in the Kerlink RAN Dashboard. The form is a modal popup with the following sections:

- Name ***: A text input field.
- Logo**: A text input field for the external URL of the logo. Below it, a note states: "External url of the logo. Recommended size: 150x150 pixels".
- Customer limitations**: A section with a subtitle "Leave blank to deactivate limitations". It contains three input fields: "Stations", "Endpoints", and "Users".
- Geolocation**: A section with an "Enable" checkbox and an "Expiration date" input field with a clear button (X).

At the bottom right of the form are "CANCEL" and "VALIDATE" buttons. The background shows the dashboard interface with a sidebar menu and a list of customers.

Figure 68 - Customer form

- (1) Click on the "add" button or the "edit" button of a customer. The form appears as a popup.
- (2) Customer limitations.
 - Stations: Number of stations the customer can manage.
 - Endpoints: Number of endpoints the customer can manage.
 - Users: Number of users the customer can have.
- (3) Activate or deactivate geolocation for a customer. An expiration date can also be set to deactivate geolocation at a specific date.

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8.2 Manage fleets

Fleets are a logical way to group stations. You can choose to group them by position, type or whatever you want.

It will allow you to have an overview of a group of station in the fleet screen (see paragraph 3.1)

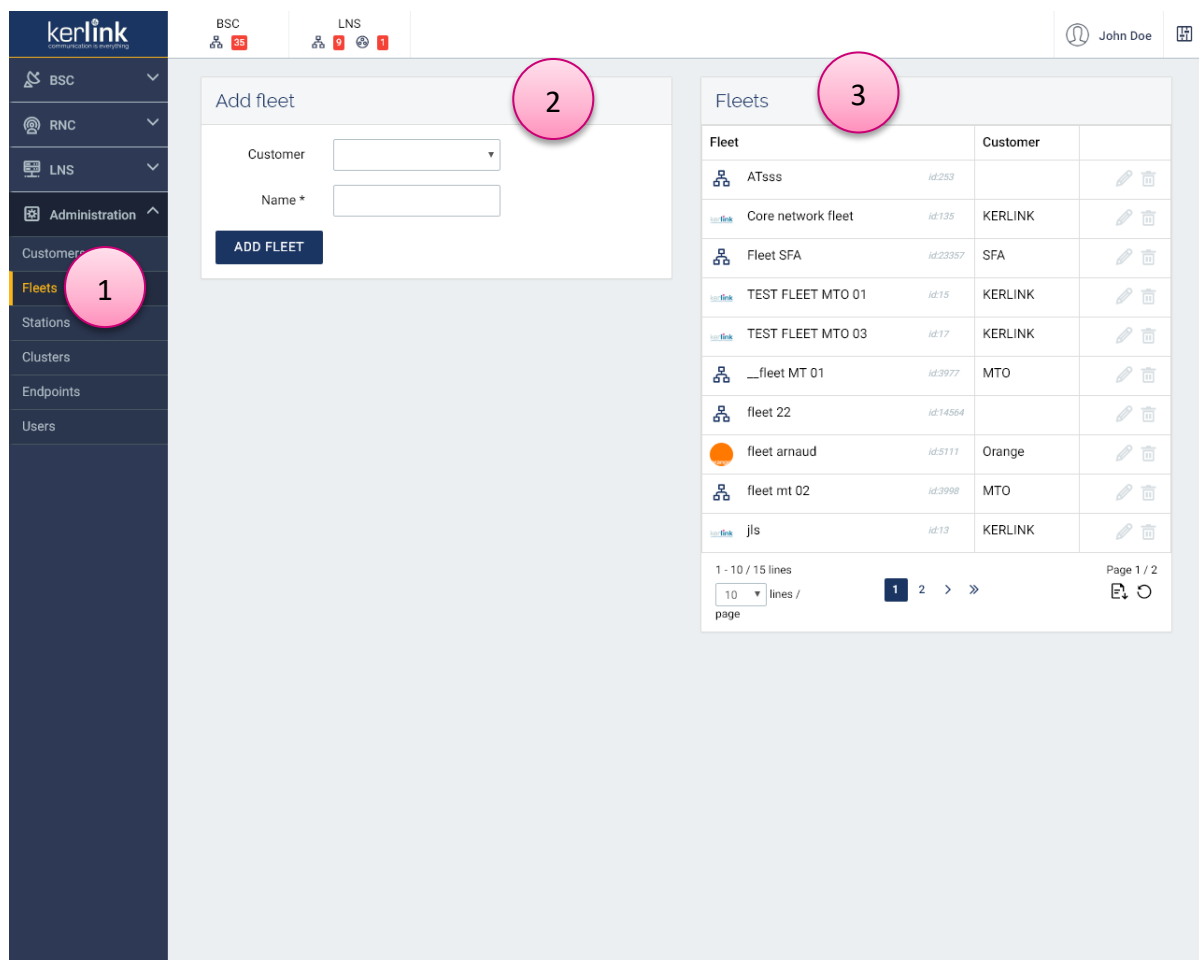


Figure 69 – Fleets management

- (1) Click on the “Fleets” button to access to the fleets management page.
- (2) The “Add fleet” panel allows you to add a new fleet.
- (3) The “Fleets” panel lists all your fleets and allows you to rename or delete a fleet by using the respective buttons.

8.3 Manage stations

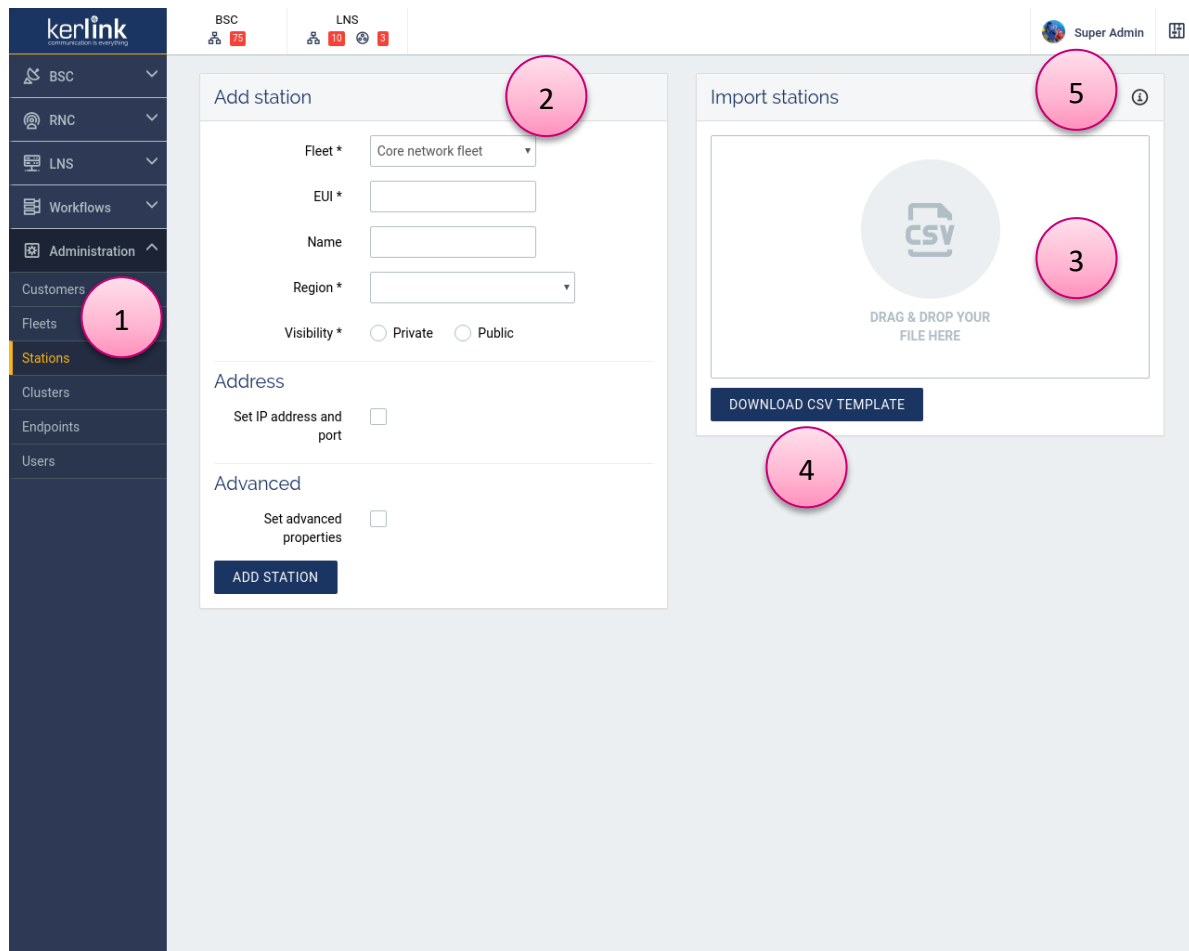


Figure 70 – Stations management

- (1) Click on the “Stations” button to access to the stations management page.
- (2) The “Add station” panel allows you to create a new station.
- (3) The “Import stations” panel allows you to import a CSV file containing multiple station definitions.
- (4) The “Download” button will download a CSV template with the correct columns to fill to import multiple stations.
- (5) The “Info” button will display a modal with the details of all properties needed in the CSV file.

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8.4 Manage clusters

Clusters are a logical way to group endpoints. You can choose to group them by position, type or whatever you want.

Figure 71 - Clusters management

- (1) Click on the “Clusters” button to access to the clusters management page.
- (2) The “Add cluster” panel allows you to add a new cluster.
- (3) The “Message detail level” attribute defines which properties are returned by the endpoints of the cluster.
 - Payload: “userData” property only.

Example of "userData"

```
{
  "fPort": 10,
  "payload": "d3d3LnNlbXRlY2guY29tAAAAABA",
  "maxRetry": 0,
  "ttl": 1.4071897396579e+14
}
```

- Radio: "userData" and "moteTx" properties.

Example of "moteTx"

```
{
  "freq": 864.6,
  "modu": "LORA",
  "datr": "SF9BW125",
  "codr": "4\5",
  "adr": true
}
```

- Network: "userData", "moteTx" and "gwRx".

Example of "gwRx"

```
[
  {
    "eui": "124000",
    "ant": 0,
    "tmms": 1479455937000,
    "chan": 0,
    "rfch": 0,
    "rssic": -10,
    "lsnr": 10,
    "foff": 0,
    "rfbsb": 78,
    "rs2s1": 67
  }
]
```

- (4) While editing an existing and attached cluster to a customer, the URL to get unsent RX messages is displayed here.
- (5) The "Clusters" panel lists all your clusters and allows you to edit or delete a cluster by using the respective buttons.

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8.5 Manage endpoints

8.5.1 Create or import endpoints

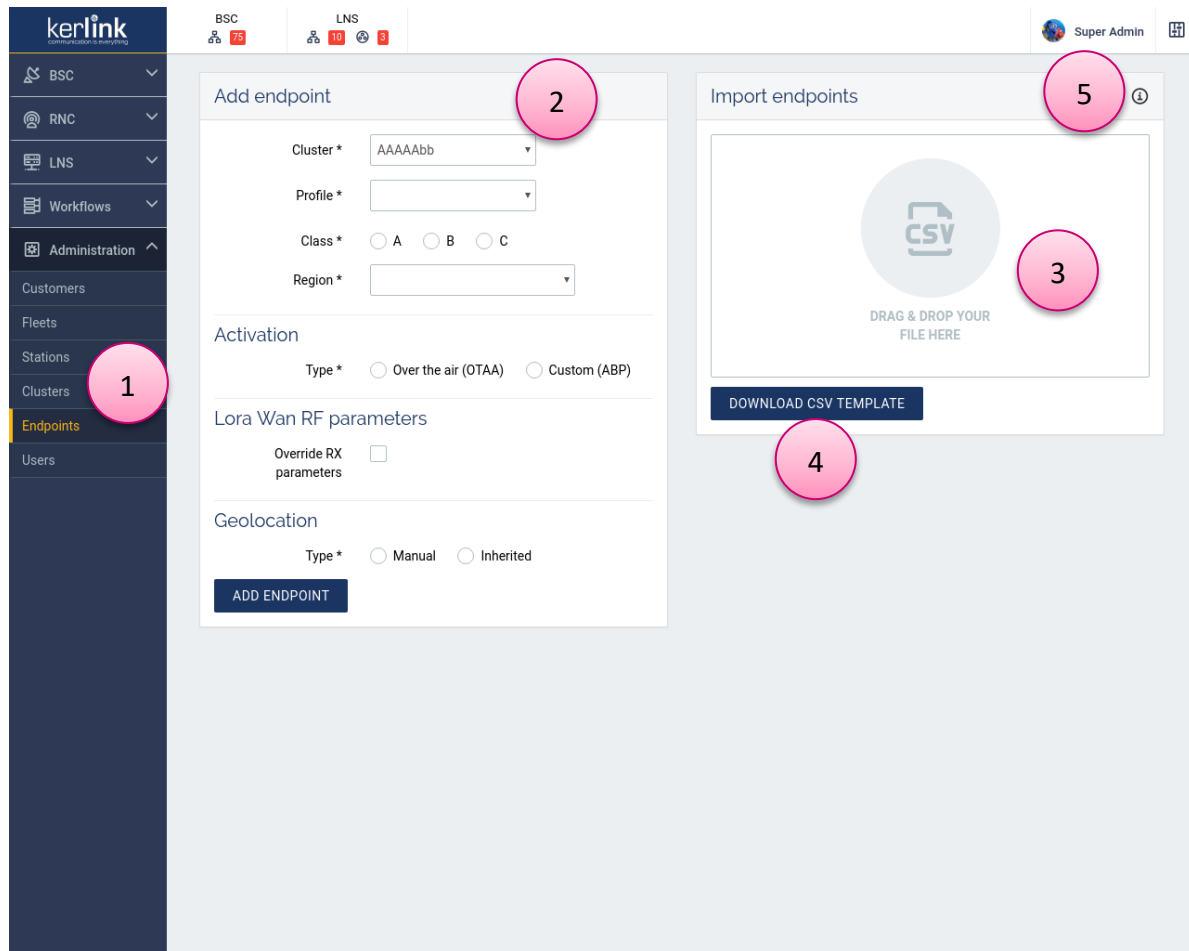


Figure 72 - Endpoints management

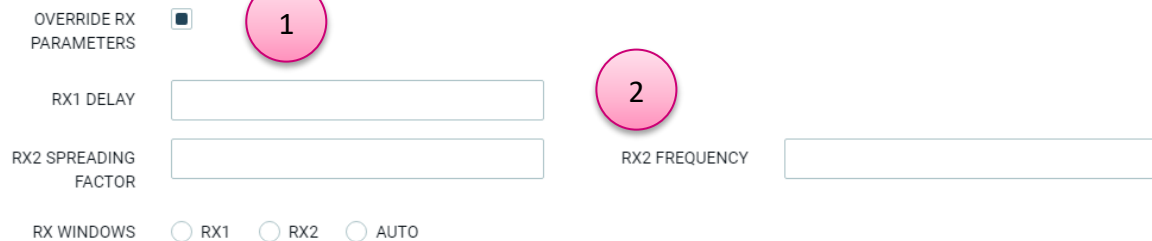
- (1) Click on the “Endpoints” button to access to the endpoints management page.
- (2) The “Add endpoint” panel allows you to create a new endpoint.
- (3) The “Import endpoints” panel allows you to import a CSV file containing multiple endpoint definitions.
- (4) The “Download” button will download a CSV template with the correct columns to fill to import multiple endpoints.
- (5) The “Info” button will display a modal with the details of all properties needed in the CSV file.

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8.5.2 Overriding RX parameters

When creating a new endpoint, you can choose to override RX parameters:

Lora RF parameters



OVERRIDE RX PARAMETERS ☒ 1

RX1 DELAY

RX2 SPREADING FACTOR

RX2 FREQUENCY 2

RX WINDOWS ☐ RX1 ☐ RX2 ☐ AUTO

Figure 73 - Overriding RX parameters

(1) Check the “Override RX parameters” checkbox. It will allow you to set specific parameters for an endpoint instead of using the default ones described in the LoRaWAN Specification.

(2) Parameters are:

- RX1 delay: the delay in seconds before the opening of the RX1 receive window.
- RX2 spreading factor: the spreading factor of the RX2 receive window.
- RX2 frequency: the frequency in Hertz of the RX2 receive window.
- RX WINDOWS: the receive window to use (default = auto). Auto allows to use RX1 or RX2 receive windows.

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8.6 Manage users

Figure 74 – Users management

- (1) Click on the “Users” button to access to the users management page.
- (2) The “Add user” allows you to create a new user.
- (3) Use the “Filter” panel to search for users with specific filters.
- (4) The “Users” panel lists all the existing users.
- (5) For each user, you can access to his profile page (see paragraph 9.1), to edit his information clicking on the “edit” button and to delete the user by clicking on the “trash” button.

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9. User profile

9.1 Update your profile

User profile

Username: superadmin *Username can't be modified*

First name:

Last name:

Customer: KERLINK

Contact information

Email *: support@kerlink.fr

Phone:

Profile picture

Picture url: http://lorempicsum.com/up/150/150/5

*External url of the picture
Recommended size: 150x150 pixels*

Account

Role: SUPER_ADMIN

Password:

Retype password:

UPDATE PROFILE

Figure 75 - Profile update

- (1) The profile button allows you to access to your profile.
- (2) You can change your information and click the “Update profile” button to save the modifications.

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10. Settings

10.1 Dashboard

Figure 76 - Settings dashboard

- (1) Click on the “Application settings” menu to access to the settings page.
- (2) Alarms thresholds: Green, orange and red colors applied on fleet percentage ranges.
- (3) Distribution ranges: Ranges and colors applied on the fleet statistics overview.
- (4) Refresh frequency: Interval in seconds the count of alarms is updated.

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- (5) Health refresh frequency: Interval in seconds the station “health” is updated.
- (6) Activate remote shell: Activate or deactivate the remote shell functionality.
- (7) Tile server for Leaflet: Map Tile Server to display map layer with the Leaflet library.
Logs

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11. Logs

11.1 Application logs

Figure 77 - Application logs

- (1) Click on the “Application logs” menu to access to the page.
- (2) The tabs list the applications which logs are available.
- (3) Filters on logs properties.
- (4) The selected application logs. A click on some message cell will show a modal with log details.

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11.2 Activity logs

Filter the actions

Username: Period:

OSS web service: HTTP status code:

Duration from: To: ms

SEARCH

Actions *Click on a action to see its logs*

Date	Username	OSS web service	Parameters	HTTP status code	Duration
12/05/2017 5:22:12 PM	superadmin	getWebServices	[{"direction": "REQUEST", "location": "QUERY", "key": "req..."}	200	189 ms
12/05/2017 5:22:11 PM	oma	getCustomersLastEventsCounters	[{"direction": "REQUEST", "location": "QUERY", "key": "req..."}	200	9 ms
12/05/2017 5:22:10 PM	oma	getLnsCustomersLastEventsCounters	[{"direction": "REQUEST", "location": "HEADER", "key": "us..."}	200	36 ms
12/05/2017 5:22:08 PM	superadmin	getLogs	[{"direction": "REQUEST", "location": "BODY", "key": "requ..."}	200	31 ms
12/05/2017 5:22:08 PM	superadmin	getRoles	[{"direction": "REQUEST", "location": "HEADER", "key": "us..."}	200	9 ms
12/05/2017 5:22:08 PM	superadmin	getLogsOrigins	[{"direction": "REQUEST", "location": "BODY", "key": "requ..."}	201	27 ms
12/05/2017 5:22:08 PM	superadmin	getCustomersLastEventsCounters	[{"direction": "REQUEST", "location": "HEADER", "key": "us..."}	200	13 ms
12/05/2017 5:22:08 PM	superadmin	getLnsCustomersLastEventsCounters	[{"direction": "REQUEST", "location": "QUERY", "key": "rem..."}	200	37 ms
12/05/2017 5:22:08 PM	superadmin	getClusters	[{"direction": "REQUEST", "location": "QUERY", "key": "pag..."}	200	20 ms
12/05/2017 5:22:07 PM	superadmin	getFleets	[{"direction": "REQUEST", "location": "QUERY", "key": "req..."}	200	9 ms

Rows per page: 10 1 2 3 4 5 > >> 1 - 10 of 26334

Figure 78 - Users actions logs

- (1) Click on the “Activity logs” menu to access to the actions page.
- (2) Filters on actions properties.
- (3) The list of the web service called by the dashboard. A click on parameters cell will show a modal with parameters details.
- (4) The column “HTTP status code” is the status code of the HTTP request. Most common codes are:

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- 200: OK
- 301 and 302: Redirection
- 401: User not authenticated
- 403: Not allowed
- 404: Not found
- 500 and 503: Server error

A full list of HTTP status code can be found in [Wikipedia](#).

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12. About

12.1 Check services statuses

The screenshot shows the 'About' page of the Kerlink RAN Dashboard. The page has a dark blue sidebar on the left with a menu. The main content area is light gray and features the Kerlink logo at the top. Below the logo, there is a list of services with their status (indicated by a green or red circle), version number, and build date. The services listed are Dashboard, Remote Shell Server, OSS, BSC, LNS, TKM, and LBS. At the bottom of the main content area, there is a line indicating the expiration date of the current session and a link to contact Kerlink. Three pink circles with numbers 1, 2, and 3 are overlaid on the image to highlight specific elements: circle 1 points to the user profile in the top right corner, circle 2 points to the service list, and circle 3 points to the session expiration date.

Service	Status	Version	Build Date
Dashboard	Green	2.2.0	12/05/2017 9:32:31 AM
Remote Shell Server	Green	1.0.4	04/04/2017 4:02:08 PM
OSS	Green	2.2.0	12/05/2017 12:27:18 PM
BSC	Green	2.2.0	12/04/2017 9:10:03 AM
LNS	Green	2.2.0	12/05/2017 12:40:00 PM
TKM	Green	1.0	12/05/2017 12:40:00 PM
LBS	Red		

Maximum version supported by SNMP agent: 3

Expiration date of the current session: 12/06/2017 11:21:33 AM

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[Contact Kerlink](#)

Figure 79 - About page

- (1) Click on the “About” menu to access to the about page.
- (2) The page list the status of all services with their version number and, if available, their build date.

A super admin can access to some services metrics by clicking on the service name.
- (3) The expiration date of the current session.

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13. Documentations

13.1 Access the documentation in the dashboard

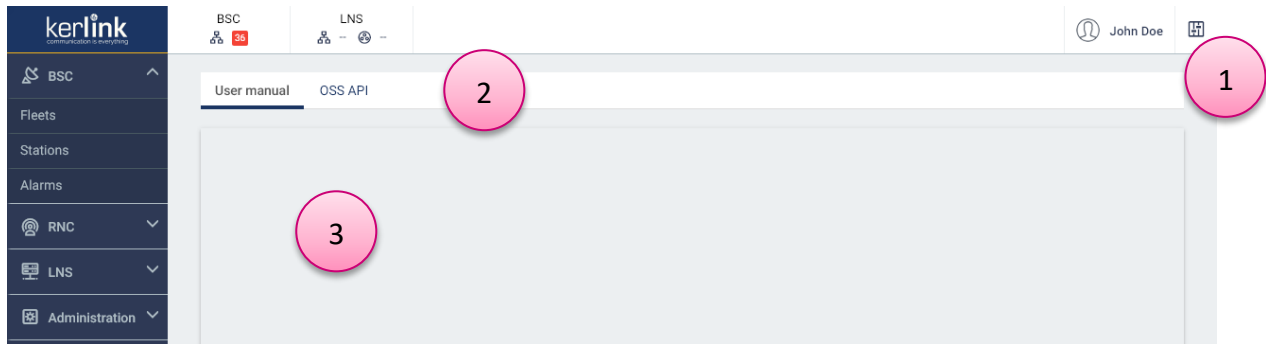


Figure 80 - Documentations page

- (1) Click on the “Documentations” menu to access to the documentations page.
- (2) The tabs list the available documentations. Click on a tab to display the PDF file.
- (3) The PDF will be displayed in an iframe.

Pre-requisite for IE11: Microsoft Internet Explorer 11 does not have an internal PDF reader unlike Chrome, Firefox and Microsoft Edge. To be able to display a PDF file, the user must have an external PDF reader with an Internet Explorer plugin.

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14. Annex 1: Supported browsers

Due to technical limitations, only recent browsers are officially supported. Older browsers may run the application but experiences random issues.

Browser	Minimum version
Microsoft Internet Explorer	11
Microsoft Edge	12
Mozilla Firefox	49
Google Chrome	49

Figure 81 - Supported browsers

15. Annex 2: Roles tables

15.1 BSC

	Reader	User	Admin	Super admin
Fleet				
Consult fleets overview	✓	✓	✓	✓
Stations				
Search and list stations	✓	✓	✓	✓
Station				
Consult station overview	✓	✓	✓	✓
Delete station	•	•	✓	✓
Rename station	•	✓	✓	✓
Move station	•	✓	✓	✓
Set station geolocation	•	✓	✓	✓
Mark station events as read	✓	✓	✓	✓
Consult station statistics	✓	✓	✓	✓
Access station file explorer	•	•	✓	✓
Access station through SSH	•	•	✓	✓
Access station through remote commands	•	•	✓	✓
Configure station	•	•	✓	✓
Consult station versions	•	•	✓	✓
List station tasks	•	•	✓	✓
List station SNMP logs	•	•	✓	✓
List station events	•	•	✓	✓
Cart				
Manage station cart	✓	✓	✓	✓
Alarms				
Consult fleet alarms	✓	✓	✓	✓

Figure 82 – BSC roles table

15.2 RNC

	Reader	User	Admin	Super admin
Spectrum				
Analyze radio frequency	•	✓	✓	✓
Radio configuration				
Configure radiopath	•	✓	✓	✓

Modem configuration				
Analyze modem statistics	✓	✓	✓	✓

Figure 83 - RNC roles table

15.3 LNS

	Reader	User	Admin	Super admin
Clusters				
List your clusters	✓	✓	✓	✓
Stations				
List stations	✓	✓	✓	✓
Station				
Consult station overview	✓	✓	✓	✓
Consult network properties	✓	✓	✓	✓
Set network properties	•	•	✓	✓
Consult station AES keys	•	•	✓	✓
Add station AES key	•	•	✓	✓
Remove station AES key	•	•	✓	✓
Consult positioning properties	✓	✓	✓	✓
Set positioning properties	•	•	✓	✓
List RX and TX messages	✓	✓	✓	✓
List events	✓	✓	✓	✓
Endpoints				
List endpoints	✓	✓	✓	✓
Endpoint				
Consult endpoint overview	✓	✓	✓	✓
Reset frame counter down	•	✓	✓	✓
Move endpoint	•	✓	✓	✓
Set endpoint geolocation	•	✓	✓	✓
List messages	✓	✓	✓	✓
List events	✓	✓	✓	✓
Send TX messages	✓	✓	✓	✓
Delete endpoint	•	•	✓	✓
Cart				
Manage endpoint cart	✓	✓	✓	✓
Alarms				
Consult station alarms	✓	✓	✓	✓

Consult cluster alarms	✓	✓	✓	✓
------------------------	---	---	---	---

Figure 84 - LNS roles table

15.1 Workflows

	Reader	User	Admin	Super admin
Create a new workflow	•	•	✓	✓
Execute a workflow on a cart	•	✓	✓	✓
Consult running workflows	•	✓	✓	✓
Consult completed workflows	•	✓	✓	✓
Consult workflows results	•	✓	✓	✓

Figure 85 - Administration roles table

15.1 Administration

	Reader	User	Admin	Super admin
Manage customers	•	•	•	✓
Manage fleets	•	•	✓	✓
Manage stations	•	•	✓	✓
Manage clusters	•	•	✓	✓
Manage endpoints	•	•	✓	✓
Manage users	•	•	✓	✓

Figure 86 - Administration roles table

15.2 Settings

	Reader	User	Admin	Super admin
Update alarm settings	•	•	•	✓
Update fleet settings	•	•	•	✓
Update station settings	•	•	•	✓

Figure 87 - Settings roles table

15.3 Logs

	Reader	User	Admin	Super admin
Consult application logs	•	•	•	✓
Consult activity logs	•	•	•	✓

Figure 88 - Logs roles table

15.4 Profile

	Reader	User	Admin	Super admin
--	--------	------	-------	-------------

Update your profile	✓	✓	✓	✓
Update another profile	•	•	✓	✓

Figure 89 - Profile roles table

15.5 About and documentation

	Reader	User	Admin	Super admin
Check services statuses	✓	✓	✓	✓
Consult documentations	✓	✓	✓	✓

Figure 90 - About roles table

16. Annex 3: FAQ

16.1 How do I move a station from a fleet to another fleet?

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

- (1) **The BSC cart:** add one or more stations to the cart, click on the cart icon and then use the move action to move your stations (see paragraph 3.3)
- (2) **The station overview page:** go on the main page of the station you want to move and click on the floating button to edit the station. Select another fleet to move the station (see paragraph 3.4.1)

16.2 How can I put a station in two fleets?

You cannot. Stations can only be in one fleet.

16.3 How can I put an endpoint in two clusters?

You cannot. Endpoint can only be in one cluster.

16.4 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.

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