WANESY SPN SPNAPP WEB SERVICES

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Date	2020/03/03		

HISTORY

Date	Modification	Author	Version
2019/10/09	- Creation of document from **E-CON-Wirnet_iFemtocell_SPN_web_services-V3.0** - Apply new Kerlink template - Change product from **Wirnet iFemtocell SPN** to **Wanesy SPN** - Add web service deleteAllRxData - Add DTO NodeRedDto - Add web services getNodeREDConfiguration and setNodeREDConfiguration - Add web service /application/spn/interface_help/node_red - Add web service /application/spn/reftp/send_rx_data	Benoît Le Texier	0.1
2019/10/22	- In VersionDTO, add new field "operating_mode"	Mickaël Garin	0.2
2019/12/13	- Update setNodeREDConfiguration and getNodeREDConfiguration web service path - Rename NodeRedDto to NorenDto - Rename node_red to noren in getInterfaceHelp web service - Update TxRadioDto: add insertion_loss field and change all parameters types from integer to float	Mickaël Garin	0.3
2020/01/07	Cosmetic changes	Mickaël Garin	0.4
2020/02/11	Delete Class B from EndDeviceParametersDto	Mickaël Garin	0.5
2020/03/03	Document approved	Mickaël Garin	0.6

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Author: Mickaël Garin
Date: 2020/03/03

	Fixes after approbation review: - Rename nodeRedDto to NorenDto		
2020/03/03	Document validated Fixes after validation review: - Update document classification	Mickaël Garin	1.0

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REFERENCE

Reference	Document / link	Description
[1]	Wanesy SPN System web services	Wanesy SPN System web services 1.0

GLOSSARY

Abbreviation	Description
ABP	Activation By Personalization (see LoRaWan specifications)
AES	Advanced Encryption Standard
API	Application Programming Interface
DTO	Data Transfer Object
ECC	Error-Correcting Code
FSK	Frequency Shift Keying
IEEE	Institute of Electrical and Electronics Engineers
IoT	Internet of Things
JSON	JavaScript Object Notation
LoRa	Long Range
MIC	Message Integrity Code
OTAA	Over The Air Activation (see LoRaWan specifications)
REST	Representational State Transfer
RSSI	Received Signal Strength Indication
SNR	Signal Noise Ratio
SPN	Small Private Network
URI	Uniform Resource Identifier

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Introduction

This document describes the SPN specific web services provided by Wanesy SPN firmware. It must be read in addition with generic document [1].

1. Wanesy SPN SPNAPP REST API

1.1 Configuration and administration

1.1.1 Get CSV logger configuration

Request					
Signature	Method	getCsvloConfiguration			
	URI	GET /application/spn/csvlo			
Parameters	Name	Type	Mandatory	Description	
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Authorization	Bearer <token>			
Body					
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Location				
Parameters	Name	Type	Description		
Body	Status	Value			
	200	CsvloDto			
	4xx, 5xx	ErrorDto			

1.1.2 Set CSV logger configuration

Request				
Signature	Method	setCsvloConfiguration		
	URI	PUT /application/spn/csvlo		
Parameters	Name	Type	Mandatory	Description
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Authorization	Bearer <token>		
Body	reftpDto	CsvloDto		
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Location			
Parameters	Name	Type	Description	
Body	Status	Value		
	204	No Content		
	4xx, 5xx	ErrorDto		

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1.1.3 Get local FTP configuration

Request				
Signature	Method	getLocalFtpConfiguration		
	URI	GET /application/spn/loftp		
Parameters	Name	Type	Mandatory	Description
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Authorization	Bearer <token>		
Body				
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Location			
Parameters	Name	Type	Description	
Body	Status	Value		
	200	LoftpDto		
	4xx, 5xx	ErrorDto		

1.1.4 Set local FTP configuration

Request				
Signature	Method	setLocalFtpConfiguration		
	URI	PUT /application/spn/loftp		
Parameters	Name	Type	Mandatory	Description
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Authorization	Bearer <token>		
Body	loftpDto	LoftpDto		
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Location			
Parameters	Name	Type	Description	
Body	Status	Value		
	204	No Content		
	4xx, 5xx	ErrorDto		

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1.1.5 Get remote FTP configuration

Request				
Signature	Method	getRemoteFtpConfiguration		
	URI	GET /application/spn/reftp		
Parameters	Name	Type	Mandatory	Description
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Authorization	Bearer <token>		
Body				
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Location			
Parameters	Name	Type	Description	
Body	Status	Value		
	200	ReftpDto		
	4xx, 5xx	ErrorDto		

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1.1.6 Set remote FTP configuration

Request					
Signature	Method	setRemoteFtpConfiguration			
	URI	PUT /application/spn/reftp			
Parameters	Name	Type	Mandatory	Description	
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Authorization	Bearer <token>			
Body	reftpDto	ReftpDto			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Location				
Parameters	Name	Type	Description		
Body	Status	Value			
	204	No Content			
	4xx, 5xx	ErrorDto			

1.1.7 Send Rx data by remote FTP

Request					
Signature	Method	sendRxData			
	URI	POST /application/spn/reftp/send_rx_data			
Parameters	Name	Type	Mandatory	Description	
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Authorization	Bearer <token>			
Body					
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Location				
Parameters	Name	Type	Description		
Body	Status	Value			
	200	No Content			
	4xx, 5xx	ErrorDto			

1.1.8 Get remote HTTP configuration

Request				
Signature	Method	getRemoteHttpConfiguration		
	URI	GET /application/spn/rhttp		
Parameters	Name	Type	Mandatory	Description
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Authorization	Bearer <token>		
Body				
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Location			
Parameters	Name	Type	Description	
Body	Status	Value		
	200	RhttpDto		
	4xx, 5xx	ErrorDto		

1.1.9 Set remote HTTP configuration

Request				
Signature	Method	setRemoteHttpConfiguration		
	URI	PUT /application/spn/rhttp		
Parameters	Name	Type	Mandatory	Description
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Authorization	Bearer <token>		
Body	rhttpDto	RhttpDto		
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Location			
Parameters	Name	Type	Description	
Body	Status	Value		
	204	No Content		
	4xx, 5xx	ErrorDto		

1.1.10 Get SMS manager configuration

Request		
Signature	Method	getSmsManagerConfiguration
	URI	GET /application/spn/smsma

Parameters	Name	Type	Mandatory	Description

Header	Name	Value
	Content-Type	application/vnd.kerlink.iot-v1+json
	Authorization	Bearer <token>

Body		

Response		

Header	Name	Value
	Content-Type	application/vnd.kerlink.iot-v1+json
	Location	

Parameters	Name	Type	Description

Body	Status	Value
	200	SmsmaDto
	4xx, 5xx	ErrorDto

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1.1.11 Set SMS manager configuration

Request				
Signature	Method	setSmsManagerConfiguration		
	URI	PUT /application/spn/smsma		
Parameters	Name	Type	Mandatory	Description
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Authorization	Bearer <token>		
Body	smsmaDto	SmsmaDto		
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Location			
Parameters	Name	Type	Description	
Body	Status	Value		
	204	No Content		
	4xx, 5xx	ErrorDto		

1.1.12 Get Node-RED configuration

Request				
Signature	Method	getNodeREDConfiguration		
	URI	GET /application/spn/noren		
Parameters	Name	Type	Mandatory	Description
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Authorization	Bearer <token>		
Body				
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Location			
Parameters	Name	Type	Description	
Body	Status	Value		
	200	NorenDto		
	4xx, 5xx	ErrorDto		

1.1.13 Set Node-RED configuration

Request					
Signature	Method	setNodeREDConfiguration			
	URI	PUT /application/spn/noren			
Parameters	Name	Type	Mandatory	Description	
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Authorization	Bearer <token>			
Body	norenDto	NorenDto			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Location				
Parameters	Name	Type	Description		
Body	Status	Value			
	204	No Content			
	4xx, 5xx	ErrorDto			

1.1.14 Get region configuration

Request					
Signature	Method	getRegionConfiguration			
	URI	GET /application/spn/region			
Parameters	Name	Type	Mandatory	Description	
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Authorization	Bearer <token>			
Body					
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Location				
Parameters	Name	Type	Description		
Body	Status	Value			
	200	RegionDto			
	4xx, 5xx	ErrorDto			

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1.1.15 Set region configuration

Request					
Signature	Method	setRegionConfiguration			
	URI	PUT /application/spn/region			
Parameters	Name	Type	Mandatory	Description	
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Authorization	Bearer <token>			
Body	regionDto	RegionDto			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Location				
Parameters	Name	Type	Description		
Body	Status	Value			
	204	No Content			
	4xx, 5xx	ErrorDto			

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1.1.16 Get Rx radio configuration

Request				
Signature	Method	getRxRadioConfiguration		
	URI	GET /application/spn/radio/rx		
Parameters	Name	Type	Mandatory	Description
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Authorization	Bearer <token>		
Body				
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Location			
Parameters	Name	Type	Description	
Body	Status	Value		
	200	RxRadioDto		
	4xx, 5xx	ErrorDto		

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1.1.17 Set Rx radio configuration

Request					
Signature	Method	setRxRadioConfiguration			
	URI	PUT /application/spn/radio/rx			
Parameters	Name	Type	Mandatory	Description	
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Authorization	Bearer <token>			
Body	rxRadioDto	RxRadioDto			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Location				
Parameters	Name	Type	Description		
Body	Status	Value			
	204	No Content			
	4xx, 5xx	ErrorDto			

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1.1.18 Get Tx radio configuration

Request				
Signature	Method	getTxRadioConfiguration		
	URI	GET /application/spn/radio/tx		
Parameters	Name	Type	Mandatory	Description
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Authorization	Bearer <token>		
Body				
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Location			
Parameters	Name	Type	Description	
Body	Status	Value		
	200	TxRadioDto		
	4xx, 5xx	ErrorDto		

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1.1.19 Set Tx radio configuration

Request				
Signature	Method	setTxRadioConfiguration		
	URI	PUT /application/spn/radio/tx		
Parameters	Name	Type	Mandatory	Description
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Authorization	Bearer <token>		
Body	txRadioDto	TxRadioDto		
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Location			
Parameters	Name	Type	Description	
Body	Status	Value		
	204	No Content		
	4xx, 5xx	ErrorDto		

1.1.20 Get LoRa configuration

Request				
Signature	Method	getLoraConfiguration		
	URI	GET /application/spn/lora		
Parameters	Name	Type	Mandatory	Description
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Authorization	Bearer <token>		
Body				
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Location			
Parameters	Name	Type	Description	
Body	Status	Value		
	200	LoraDto		
	4xx, 5xx	ErrorDto		

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1.1.21 Set LoRa configuration

Request				
Signature	Method	setLoraConfiguration		
	URI	PUT /application/spn/lora		
Parameters	Name	Type	Mandatory	Description
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Authorization	Bearer <token>		
Body	loraDto	LoraDto		
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Location			
Parameters	Name	Type	Description	
Body	Status	Value		
	204	No Content		
	4xx, 5xx	ErrorDto		

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1.1.22 Get packets forwarding configuration

Request					
Signature	Method	getPacketsForwardingConfiguration			
	URI	GET /application/spn/packets_forwarding			
Parameters	Name	Type	Mandatory	Description	
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Authorization	Bearer <token>			
Body					
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Location				
Parameters	Name	Type	Description		
Body	Status	Value			
	200	PacketsForwardingDto			
	4xx, 5xx	ErrorDto			

1.1.23 Set packets forwarding configuration

Request				
Signature	Method	setPacketsForwardingConfiguration		
	URI	PUT /application/spn/packets_forwarding		
Parameters	Name	Type	Mandatory	Description
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Authorization	Bearer <token>		
Body	packetsForwardingDto	PacketsForwardingDto		
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Location			
Parameters	Name	Type	Description	
Body	Status	Value		
	204	No Content		
	4xx, 5xx	ErrorDto		

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1.1.24 Add license

Request				
Signature	Method	addLicense		
	URI	POST /application/spn/license		
Parameters	Name	Type	Mandatory	Description
Header	Name	Value		
	Content-Type	Content-Type: multipart/form-data; boundary=		
	Authorization	Bearer <token>		
Body	license	License file with the following properties: Content-Disposition: form-data; name="file"; filename="license.txt" Content-Type: text/plain		
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Location			
Parameters	Name	Type	Description	
Body	Status	Value		
	204	No Content		
	4xx, 5xx	ErrorDto		

Note: this web service only upload the file but don't lead to any license check.

1.1.25 Download status

Request					
Signature	Method	downloadStatus			
	URI	GET /application/spn/status/file			
Parameters	Name	Type	Mandatory	Description	
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Authorization	Bearer <token>			
Body					
Response					
Header	Name	Value			
	Content-Type	text/plain; charset=utf-8			
	Location				
Parameters	Name	Type	Description		
Body	Status	Value			
	200	File content (CSV file)			
	4xx, 5xx	ErrorDto			

1.1.26 Get interface help

Request				
Signature	Method	getInterfaceHelp		
	URI	GET /application/spn/interface_help/{interface}		
Parameters	Name	Type	Mandatory	Description
	interface	String	Yes	'loftp': Local FTP 'reftp': Remote FTP 'rhttp': Remote HTTP 'smsma': SMS manager 'usbut': USB utils 'noren': Node-RED
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Authorization	Bearer <token>		
Body				
Response				
Header	Name	Value		
	Content-Type	text/plain; charset=utf-8		
	Location			
Parameters	Name	Type	Description	
Body	Status	Value		
	200	Interface help content		
	4xx, 5xx	ErrorDto		

1.1.27 Get allowed values

Request					
Signature	Method	getAllowedValues			
	URI	GET /application/spn/allowed_values			
Parameters	Name	Type	Mandatory	Description	
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Authorization	Bearer <token>			
Body					
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Location				
Parameters	Name	Type	Description		
Body	Status	Value			
	200	AllowedValuesDto			
	4xx, 5xx	ErrorDto			

1.2 End-device fleet management

1.2.1 Add end-device

Used to add a new end-device

Request					
Signature	Method	addEndDevice			
	URI	POST /application/spn/end_devices			
Parameters	Name	Type	Mandatory	Description	
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Authorization	Bearer <token>			
Body	endDeviceDto	EndDeviceDto			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Location	/application/spn/end_device/{endDeviceId}			
Parameters	Name	Type	Description		
	endDeviceId	String	End-device identifier		
Body	Status	Value			
	201	Created			
	4xx, 5xx	ErrorDto			

1.2.2 Delete end-device

Request				
Signature	Method	deleteEndDevice		
	URI	DELETE /application/spn/end_devices/{endDeviceId}		
Parameters	Name	Type	Mandatory	Description
	endDeviceId	String	Yes	End-device identifier
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Authorization	Bearer <token>		
Body				
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Location			
Parameters	Name	Type	Description	
Body	Status	Value		
	204	No Content		
	4xx, 5xx	ErrorDto		

1.2.3 Update end-device

Request				
Signature	Method	updateEndDevice		
	URI	PUT /application/spn/end_devices/{endDeviceId}		
Parameters	Name	Type	Mandatory	Description
	endDeviceId	String	Yes	End-device identifier
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Authorization	Bearer <token>		
Body	endDeviceParametersDto	EndDeviceParametersDto		
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Location			
Parameters	Name	Type	Description	
Body	Status	Value		
	204	No Content		
	4xx, 5xx	ErrorDto		

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1.2.4 Delete end-device fleet

Request					
Signature	Method	deleteEndDeviceFleet			
	URI	DELETE /application/spn/end_devices			
Parameters	Name	Type	Mandatory	Description	
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Authorization	Bearer <token>			
Body					
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Location				
Parameters	Name	Type	Description		
Body	Status	Value			
	204	No Content			
	4xx, 5xx	ErrorDto			

1.2.5 Get end-device fleet

Request				
Signature	Method	getEndDeviceFleet		
	URI	GET /application/spn/end_devices/{activationType}		
Parameters	Name	Type	Mandatory	Description
	activationType	String	Yes	"OTAA" or "ABP"
	page	Integer	No	Page number
	page_size	Integer	No	Page size value
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Authorization	Bearer <token>		
Body				
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Location			
Parameters	Name	Type	Description	
Body	Status	Value		
	200	PaginatedDto<EndDeviceDto>		
	4xx, 5xx	ErrorDto		

1.2.6 Download end-device fleet

Request					
Signature	Method	downloadEndDeviceFleet			
	URI	GET /application/spn/end_devices/file			
Parameters	Name	Type	Mandatory	Description	
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Authorization	Bearer <token>			
Body					
Response					
Header	Name	Value			
	Content-Type	text/plain; charset=utf-8			
	Location				
Parameters	Name	Type	Description		
Body	Status	Value			
	200	File content (CSV file)			
	4xx, 5xx	ErrorDto			

1.2.7 Upload end-device fleet

Request				
Signature	Method	uploadEndDeviceFleet		
	URI	POST /application/spn/end_devices/file		
Parameters	Name	Type	Mandatory	Description
Header	Name	Value		
	Content-Type	Content-Type: multipart/form-data; boundary=		
	Authorization	Bearer <token>		
Body	End-device fleet file	End-device fleet file (CSV file) with the following properties: Content-Disposition: form-data; name="file"; filename="end_device_fleet.csv" Content-Type: text/plain		
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Location			
Parameters	Name	Type	Description	
Body	Status	Value		
	204	No Content		
	4xx, 5xx	ErrorDto		

1.2.8 Get end-device id list

Request				
Signature	Method	getEndDeviceIdList		
	URI	GET /application/spn/end_devices_id		
Parameters	Name	Type	Mandatory	Description
	search	String	Yes	Part of end-device id
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Authorization	Bearer <token>		
Body				
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Location			
Parameters	Name	Type	Description	
Body	Status	Value		
	200	<EndDeviceIdListDto>		
	4xx, 5xx	ErrorDto		

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1.3 Gateway fleet management

1.3.1 Add gateway

Used to add a new gateway

Request				
Signature	Method	addGateway		
	URI	POST /application/spn/gateways		
Parameters	Name	Type	Mandatory	Description
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Authorization	Bearer <token>		
Body	gatewayDto	GatewayDto		
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Location	/application/spn/gateways/{gatewayId}		
Parameters	Name	Type	Description	
	gatewayId	String	Gateway identifer	
Body	Status	Value		
	201	Created		
	4xx, 5xx	ErrorDto		

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1.3.2 Delete gateway

Request				
Signature	Method	deleteGateway		
	URI	DELETE /application/spn/gateways/{gatewayId}		
Parameters	Name	Type	Mandatory	Description
	gatewayId	String	Yes	Gateway identifier
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Authorization	Bearer <token>		
Body				
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Location			
Parameters	Name	Type	Description	
Body	Status	Value		
	204	No Content		
	4xx, 5xx	ErrorDto		

1.3.3 Delete gateway fleet

Request		
Signature	Method	deleteGatewayFleet
	URI	DELETE /application/spn/gateways
Parameters	Name	Type	Mandatory	Description
Header	Name	Value
	Content-Type	application/vnd.kerlink.iot-v1+json
	Authorization	Bearer <token>
Body		
Response		
Header	Name	Value
	Content-Type	application/vnd.kerlink.iot-v1+json
	Location	
Parameters	Name	Type	Description
Body	Status	Value
	204	No Content
	4xx, 5xx	ErrorDto

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1.3.4 Get gateway fleet

Request				
Signature	Method	getGatewayFleet		
	URI	GET /application/spn/gateways		
Parameters	Name	Type	Mandatory	Description
	page	Integer	No	Page number
	page_size	Integer	No	Page size value
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Authorization	Bearer <token>		
Body				
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Location			
Parameters	Name	Type	Description	
Body	Status	Value		
	200	PaginatedDto<GatewayDto>		
	4xx, 5xx	ErrorDto		

1.3.5 Download gateway fleet

Request					
Signature	Method	downloadGatewayFleet			
	URI	GET /application/spn/gateways/file			
Parameters	Name	Type	Mandatory	Description	
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Authorization	Bearer <token>			
Body					
Response					
Header	Name	Value			
	Content-Type	text/plain; charset=utf-8			
	Location				
Parameters	Name	Type	Description		
Body	Status	Value			
	200	File content (CSV file)			
	4xx, 5xx	ErrorDto			

1.3.6 Upload gateway fleet

Request					
Signature	Method	uploadGatewayFleet			
	URI	POST /application/spn/gateways/file			
Parameters	Name	Type	Mandatory	Description	
Header	Name	Value			
	Content-Type	Content-Type: multipart/form-data; boundary=			
	Authorization	Bearer <token>			
Body	Gateway fleet file	Gateway fleet file (CSV file) with the following properties: Content-Disposition: form-data; name="file"; filename="gateway_fleet.csv" Content-Type: text/plain			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Location				
Parameters	Name	Type	Description		
Body	Status	Value			
	204	No Content			
	4xx, 5xx	ErrorDto			

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1.4 Rx data management

1.4.1 Get Rx data

Request				
Signature	Method	getRxData		
	URI	GET /application/spn/rx_data/{endDeviceId}		
Parameters	Name	Type	Mandatory	Description
	endDeviceId	String	No	Specify a particular end-device
	page	Integer	No	Page number
	page_size	Integer	No	Page size value
	date	Integer	No	Filter with date greater or equal than the value (Unix timestamp format)
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Authorization	Bearer <token>		
Body				
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Location			
Parameters	Name	Type	Description	
Body	Status	Value		
	200	PaginatedDto<RxDataDto>		
	4xx, 5xx	ErrorDto		

1.4.2 Download Rx data

Request		
Signature	Method	downloadRxData
	URI	GET /application/spn/rx_data/file

	Name	Type	Mandatory	Description
Parameters				

	Name	Value
Header	Content-Type	application/vnd.kerlink.iot-v1+json
	Authorization	Bearer <token>
Body		

Response		

	Name	Value
Header	Content-Type	text/plain; charset=utf-8
	Location	

	Name	Type	Description
Parameters			

	Status	Value
Body	200	File content (CSV file)
	4xx, 5xx	ErrorDto

1.4.3 Delete All Rx data

Request					
Signature	Method	deleteAllRxData			
	URI	DELETE /application/spn/rx_data			
Parameters	Name	Type	Mandatory	Description	
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Authorization	Bearer <token>			
Body					
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Location				
Parameters	Name	Type	Description		
Body	Status	Value			
	200	No Content			
	4xx, 5xx	ErrorDto			

1.5 Tx data management

1.5.1 Get Tx data

Request				
Signature	Method	getTxData		
	URI	GET /application/spn/tx_data		
Parameters	Name	Type	Mandatory	Description
	page	Integer	No	Page number
	page_size	Integer	No	Page size value
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Authorization	Bearer <token>		
Body				
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Location			
Parameters	Name	Type	Description	
Body	Status	Value		
	200	PaginatedDto<TxDataDto>		
	4xx, 5xx	ErrorDto		

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1.5.2 Add Tx data

Request					
Signature	Method	addTxData			
	URI	POST /application/spn/tx_data			
Parameters	Name	Type	Mandatory	Description	
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Authorization	Bearer <token>			
Body	txDataDto	TxDataDto			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Location	/application/spn/tx_data/{txDataId}			
Parameters	Name	Type	Description		
	txDataId	String	Tx data identifier		
Body	Status	Value			
	201	Created			
	4xx, 5xx	ErrorDto			

1.5.3 Download Tx data

Request					
Signature	Method	downloadTxData			
	URI	GET /application/spn/tx_data/file			
Parameters	Name	Type	Mandatory	Description	
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Authorization	Bearer <token>			
Body					
Response					
Header	Name	Value			
	Content-Type	text/plain; charset=utf-8			
	Location				
Parameters	Name	Type	Description		
Body	Status	Value			
	200	File content (CSV file)			
	4xx, 5xx	ErrorDto			

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1.5.4 Upload Tx data

Request					
Signature	Method	uploadTxData			
	URI	POST /application/spn/tx_data/file			
Parameters	Name	Type	Mandatory	Description	
Header	Name	Value			
	Content-Type	Content-Type: multipart/form-data; boundary=			
	Authorization	Bearer <token>			
Body	Tx data file	Tx data file (CSV file) with the following properties: Content-Disposition: form-data; name="file"; filename="tx_data.csv" Content-Type: text/plain			
Response					
Header	Name	Value			
	Content-Type	application/vnd.kerlink.iot-v1+json			
	Location				
Parameters	Name	Type	Description		
Body	Status	Value			
	204	No Content			
	4xx, 5xx	ErrorDto			

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1.5.5 Delete Tx data

Request				
Signature	Method	deleteTxData		
	URI	DELETE /application/spn/tx_data/{txDataId}		
Parameters	Name	Type	Mandatory	Description
	txDataId	Unsigned integer	No	Tx data identifier. If not set, all Tx data are deleted
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Authorization	Bearer <token>		
Body				
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Location			
Parameters	Name	Type	Description	
Body	Status	Value		
	204	No Content		
	4xx, 5xx	ErrorDto		

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1.5.6 Delete all Tx data

Request				
Signature	Method	deleteAllTxData		
	URI	DELETE /application/spn/tx_data		
Parameters	Name	Type	Mandatory	Description
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Authorization	Bearer <token>		
Body				
Response				
Header	Name	Value		
	Content-Type	application/vnd.kerlink.iot-v1+json		
	Location			
Parameters	Name	Type	Description	
Body	Status	Value		
	204	No Content		
	4xx, 5xx	ErrorDto		

2. Data Transfer Object

2.1 CsvloDto

Field	Type	Description
rotation_time	String	Rotation frequency: - "month" - "week" - "day" - "hour"
rotation_count	Unsigned integer	Max number of files archived in file system

2.2 LoftpDto

Field	Type	Description
enable	Boolean	Enable state of Local FTP service: - True: enable - False: disable

2.3 ReftpDto

Field	Type	Description
enable	Boolean	Enable state of remote FTP service: - True: enable - False: disable
user	String	User
password	String	Password
host	String	Host
port	Integer	Port
path	String	Path (Must start and end with '/')

2.4 RhttpDto

Field	Type	Description
enable	Boolean	Enable state of remote HTTP service: - True: enable - False: disable

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secure	Boolean	True: https False: http
host	String	Host
port	Integer	Port
path	String	Path (Must start but not end with '/')

2.5   SmsmaDto

Field	Type	Description
enable	Boolean	Enable state of SMS manager service: - True: enable - False: disable

2.6   NorenDto

Field	Type	Description
enable	Boolean	Enable state of node-RED service: - True: enable - False: disable

2.7   RegionDto

Field	Type	Description
region	Unsigned integer	Available region: - 0: none - 1: Europe 868 - 2: Asia 923 - 3: Australia 923 - 4: Korea 923 - 5: Japan 923 - 6: America 915

2.8   ChanMultiSFDto

Field	Type	Description
enable	Boolean	Enable/disable

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radio	Integer	Radio selection
if	Integer	Relative frequency

2.9 RxRadioDto

Field	Type	Description
radio_0	Object	Radio 0
radio_0.enable	Boolean	Enable/disable
radio_0.freq	Integer	Frequency
radio_1	Object	Radio 1
radio_1.enable	Boolean	Enable/disable
radio_1.freq	Integer	Frequency
chan_multisf_0	ChanMultiSFDto	Channel multi spreading factor 0
chan_multisf_1	ChanMultiSFDto	Channel multi spreading factor 1
chan_multisf_2	ChanMultiSFDto	Channel multi spreading factor 2
chan_multisf_3	ChanMultiSFDto	Channel multi spreading factor 3
chan_multisf_4	ChanMultiSFDto	Channel multi spreading factor 4
chan_multisf_5	ChanMultiSFDto	Channel multi spreading factor 5
chan_multisf_6	ChanMultiSFDto	Channel multi spreading factor 6
chan_multisf_7	ChanMultiSFDto	Channel multi spreading factor 7
chan_monosf	Object	Channel mono spreading factor
chan_monosf.enable	Boolean	Enable/disable
chan_monosf.radio	Integer	Radio selection
chan_monosf.if	Integer	Relative frequency
chan_monosf.bandwidth	Integer	Bandwidth
chan_monosf.spread_factor	Integer	Spreading factor
chan_fsk	Object	Channel FSK
chan_fsk.enable	Boolean	Enable/disable
chan_fsk.radio	Integer	Radio selection
chan_fsk.if	Integer	Relative frequency
chan_fsk.bandwidth	Integer	Bandwidth
chan_fsk.datarate	Integer	Data rate

2.10 TxRadioDto

Field	Type	Description
tx_power	Float	Tx power
antenna_gain	Float	Antenna gain
insertion_loss	Float	Insertion loss

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2.11 VersionDto

This DTO overloads the one described in [1].

Field	Type	Description
firmware_version	String	Firmware version
hardware_serial_number	String	Hardware serial number
gateway_id	String	Gateway identifier
operating_mode	String	Operating mode - "restricted" - "slave" - "standalone" - "master"

2.12 StatusDto

This DTO overloads the one described in [1].

Field	Type	Description
license	Object	License
license.expiration_date	Unsigned integer	Expiration date in UTC Epoch format
license.gateway_number	Unsigned integer	Number of gateways
license.max_number_of_gateways	Unsigned integer	Max number of gateways
license.end_device_number	Unsigned integer	Number of end-devices
license.max_number_of_end_devices	Unsigned integer	Max number of end-devices
network	Object	Network
network.lan	Object	LAN
network.lan.status	Boolean	LAN status
network.lan.hardware_address	String	LAN hardware address
network.lan.address	String	LAN address
network.lan.broadcast	String	LAN broadcast
network.lan.netmask	String	LAN netmask
network.wlan	Object	LAN
network.wlan.status	Boolean	WLAN status

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network.wlan.hardware_address	String	WLAN hardware address
network.wlan.address	String	WLAN address
network.wlan.broadcast	String	WLAN broadcast
network.wlan.netmask	String	WLAN netmask
network.gsm	Object	GSM
network.gsm.status	Boolean	GSM status
network.gsm.address	String	GSM address
network.gsm.broadcast	String	GSM broadcast
network.gsm.netmask	String	GSM netmask

2.13 LoraDto

Field	Type	Description
nwk_id	Integer	Network identifier

2.14 EndDeviceIdListDto

Field	Type	Description

activation_type	String	{
		    OTAA,
		    ABP
		}

lenght	Unsigned integer	Number of elements return
list	Array string	List of end-device identifier

2.15 EndDeviceDto

Field	Type	Description

activation_type	String	{
		    OTAA,
		    ABP
		}

dev_eui	String	64 bit end-device id, EUI-64 (unique)
app_eui	String	Global application identifier in IEEE EUI64 (mandatory if activation_type = OTAA)
app_key	String	AES 128 application key
dev_addr	String	32 bit device address (non-unique)

		within the current network
nwks_key	String	AES 128 network session key
apps_key	String	AES 128 application session key
end_device_parameters	EnpDeviceParametersDto	End-device parameters values
status	String	{ UNKNOWN, NEVER_SEEN, JOINED, MIC_ERROR, FCOUNT_ERROR, UPLINK_OK }

2.16 EndDeviceParametersDto

Field	Type	Description
rx_window	Unsigned integer	- Window 1: 1 - Window 2: 2 - Automatic window: 3
rx_frequency	Unsigned integer	Region dependent - Minimum value: AllowedValuesDto→rx_frequency_minimum - Maximum value: AllowedValuesDto→rx_frequency_maximum
rx_datarate	Unsigned integer	Region dependent - Allowed values in AllowedValuesDto→datarate_list
class	String	{ A, C }

2.17 GatewayDto

Field	Type	Description
gateway_id	String	Gateway identifier, hexadecimal value, upper case, 1 to 16 digits
ip_address	String	Gateway IP address
number_packets_received	Unsigned integer	Number of packets received
number_packets_sent	Unsigned integer	Number of packets sent
seen_time	Unsigned integer	Last time gateway received a data, in Unix

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disabled	Boolean	Gateway status

2.18 RxDataDto

Field	Type	Description
rx_data_id	Integer	Rx data identifier
end_device_id	String	Device EUI or Device Address (depends on activation procedure)
received_time	String	Reception time of Rx data
sequence_number	Integer	Sequence number
port	Integer	Fport
radio_id	Integer	Radio identifier
channel	Integer	Channel identifier
snr_db	Float	SNR (dB)
rssi_dbm	Integer	RSSI (dBm)
frequency_hz	Integer	Rx central frequency in Hz
modulation_type	String	Modulation type
data_rate	String	Data rate
coding_rate	String	ECC coding rate
adr	Boolean	ADR: Adaptive Data Rate
payload	String	Payload

2.19 TxDataDto

Field	Type	Description
tx_data_id	Unsigned integer	Tx data identifier
end_device_id	String	Device EUI or Device Address (depends on activation procedure)
port	Unsigned integer	Port
acknowledge	Boolean	Data acknowledged
try_number	Unsigned integer	Max try number if transmission failed
payload	String	Payload
update_time	Unsigned integer	Timestamp of last action
status	Integer	Tx data status

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```
{
    -5: PENDING,
    -4: QUEUED,
    -3: SENT,
    -2: RFU,
    -1: FAILED,
     0: SUCCEED
     1: TRY 1
     2: TRY 2
     3: TRY 3
     4: TRY 4
     5: TRY 5
}
```

2.20 DataRateDto

Field	Type	Description
datarate_id	Unsigned integer	DataRate ID [0-14]
datarate_name	String	DataRate friendly name

2.21 PacketsForwardingDto

Field	Type	Description
enable	Boolean	Enable state packets forwarding service: - True: enable - False: disable
host	String	Host

2.22 AllowedValuesDto

Field	Type	Description
rx_frequency_minimum	Unsigned integer	Rx frequency min
rx_frequency_maximum	Unsigned integer	Rx frequency max
datarate_list	Object{} of DataRateDto	Object of DataRateDto
datarate_list.datarate_0	DataRateDto	DataRate object (DR0)
datarate_list.datarate_1	DataRateDto	DataRate object (DR1)
datarate_list.datarate_2	DataRateDto	DataRate object (DR2)
datarate_list.datarate_3	DataRateDto	DataRate object (DR3)
datarate_list.datarate_4	DataRateDto	DataRate object (DR4)

datarate_list.datarate_5	DataRateDto	DataRate object (DR5)
datarate_list.datarate_6	DataRateDto	DataRate object (DR6)
datarate_list.datarate_7	DataRateDto	DataRate object (DR7)
datarate_list.datarate_8	DataRateDto	DataRate object (DR8)
datarate_list.datarate_9	DataRateDto	DataRate object (DR9)
datarate_list.datarate_10	DataRateDto	DataRate object (DR10)
datarate_list.datarate_11	DataRateDto	DataRate object (DR11)
datarate_list.datarate_12	DataRateDto	DataRate object (DR12)
datarate_list.datarate_13	DataRateDto	DataRate object (DR13)
datarate_list.datarate_14	DataRateDto	DataRate object (DR14)
rx2_frequency	Unsigned integer	Region dependent
rx2_datarate	Unsigned integer	Region dependent
tx_frequency_minimum	Unsigned integer	Tx frequency min
tx_frequency_maximum	Unsigned integer	Tx frequency max
region_min	Unsigned integer	Board minimal region
region_max	Unsigned integer	Board maximal region

2.23 ErrorDto

Field	Type	Description

code	String	Message code:
		{
		    ERROR_BAD_PARAMETER,
		    ERROR_INTERNAL,
		    ERROR_INVALID_JSON,
		    ERROR_LICENSE
		    ERROR_LOGIN,
		    ERROR_NOT_IMPLEMENTED,
		    WARNING_SYSTEM_BUSY,
		    WARNING_INVALID_FIRMWARE
		}

message	String	Error message
parameters	Object[]	The array objects used to build the message

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2.24 PaginatedDto

Field	Type	Description
page	Integer	Page number [1..n]
nb_pages	Integer	Number of pages
page_size	Integer	The page size
count	Integer	The number of elements per page
total_count	Integer	The total number of elements

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