TR9-1.0.0 Roaming Configuration Guidelines

NOTICE OF USE AND DISCLOSURE

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LoRaWAN® Roaming Configuration Guidelines

Technical Recommendation (TR9-1.0.0)

Authored by the Roaming Working Group of the LoRa Alliance Technical Committee

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1 Introduction

This document describes the required configuration parameters to be made on the Network Servers and Join Servers to enable Stateless Passive Roaming. Configuration for other types of roaming (i.e., Handover Roaming) will be covered in a later version of this document.

2 Conventions

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in RFC 2119.

The tables in this document are normative. The figures in this document are informative.

3 Configuration Parameters

Table 1 lists the configuration that needs to be made on the NS (Own) for a given roaming partner (Peer).

Two NSs that have a roaming agreement interconnect with each other using the sNS-fNS interface [TS2-1.0.0, TS2-1.1.1] either directly (i.e., peer-to-peer setup), or via an intermediary acting as transparent proxy towards each peer (a.k.a., roaming hub).

Configuration Parameter Type	When Using Peer-to-Peer Interconnection	When Using Hub-Based Interconnection
Peer NetID(s)	MUST be NetID assigned by the LoRa Alliance. MUST NOT be value 0 or 1. With the LoRaWAN Backend Interfaces 1.1 Specification [TS2-1.1.0], using values 0 or 1 will be allowed for the Peer only when its end-devices do not roam into the Own network.	MUST be NetID assigned by the LoRa Alliance. MUST NOT be value 0 or 1. With the LoRaWAN Backend Interfaces 1.1 Specification, using values 0 or 1 will be allowed for the Peer only when its end-devices do not roam into the Own network.
Roaming Policy	Whether the Own end-devices are allowed to - roam out to the Peer network, - activate in the Peer network. Whether the Peer end-devices are allowed to - roam into the Own network, - activate in the Own network.	Whether the Own end-devices are allowed to - roam out to the Peer network, - activate in the Peer network. Whether the Peer end-devices are allowed to - roam into the Own network, - activate in the Own network.
Peer Channel Plan	Required if the Own end-devices roam out to the Peer network.	Required if the Own end-devices roam out to the Peer network.
UDR Type	Counting frames vs. devices (only applicable to [TS2-1.1.0]).	Counting frames vs. devices (only applicable to [TS2-1.1.0]).
Peer fNS URL	URL to reach the fNS functionality of the Peer NS.	Not needed
Peer sNS URL	URL to reach the sNS functionality of the Peer NS.	Not needed
Peer NS IP Address(es)	Required if a firewall is used on the Own network.	Not needed
Peer NS HTTP Authentication Credentials	User ID and password and/or certificate credentials.	Not needed
Peer JS URL(s)	URLs to reach each JS that has hNS-JS interface with the Peer NS. Not needed if the JS JoinEUI is registered in LoRaWAN-DNS [TS2-1.0.0].	Not needed

Configuration Parameter Type	When Using Peer-to-Peer Interconnection	When Using Hub-Based Interconnection
	Required only if the Peer end-devices roam into the Own network.	
Peer JS IP Address(es)	Required if the Own firewall blocks outgoing connections and the Peer end-devices roam into the Own network.	Not needed
Peer JS HTTP Authentication Credentials	User ID and password and/or certificate credentials for each JS that has an hNS-JS interface with the Peer NS. Note that a given JS may be owned by an entity other than the Peer. Reqired only if the Peer end-devices roam into the Own network.	Not needed

Table 1 NS Configuration

Table 2 illustrates the configuration that needs to be made on each JS that has an hNS-JS interface with the Own NS and that hosts the Own end-devices that may perform activation under the coverage of the Peer. Such JSs may belong to a third party.

Configuration Parameter Type	When Using Peer-to-Peer Interconnection	When Using Hub-Based Interconnection
Peer NetID(s)	MUST be NetID assigned by the LoRa Alliance. MUST NOT be value 0 or 1. With the LoRaWAN Backend Interfaces 1.1 Specification, using values 0 or 1 will be allowed for the Peer as long as its end-devices do not roam into the Own network.	Not needed
Peer fNS URL	URL to reach the fNS functionality on the Peer NS.	Not needed
Peer NS IP Address(es)	Required if a firewall is used on a JS network.	Not needed
Peer NS HTTP Authentication Credentials	User ID and password and/or certificate credentials.	Not needed

Table 2 JS Configuration

Glossary

ED	End-device
fNS	Forwarding Network Server
HTTP	HyperText Transfer Protocol
hNS	Home Network Server
IP	Internet Protocol
LoRa®	Long Range modulation technique
LoRaWAN®	Long Range network protocol
NS	Network Server
RH	Roaming Hub
sNS	Serving Network Server

Bibliography

References

[TS2-1.0.0] LoRaWAN® Backend Interfaces Specification, Version 1.0, LoRa Alliance, October 2017

[TS2-1.1.0] LoRaWAN® Backend Interfaces Specification, Version 1.1, LoRa Alliance, October 2020

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