



IOT Product Line

# LoRaWAN™ Network Server

## LNS-1



ProEsys presents a turnkey implementation of the LoRaWAN™ Network Server software suite, ensuring interoperability among own Gateways and LoRaWAN™ compliant end-nodes,

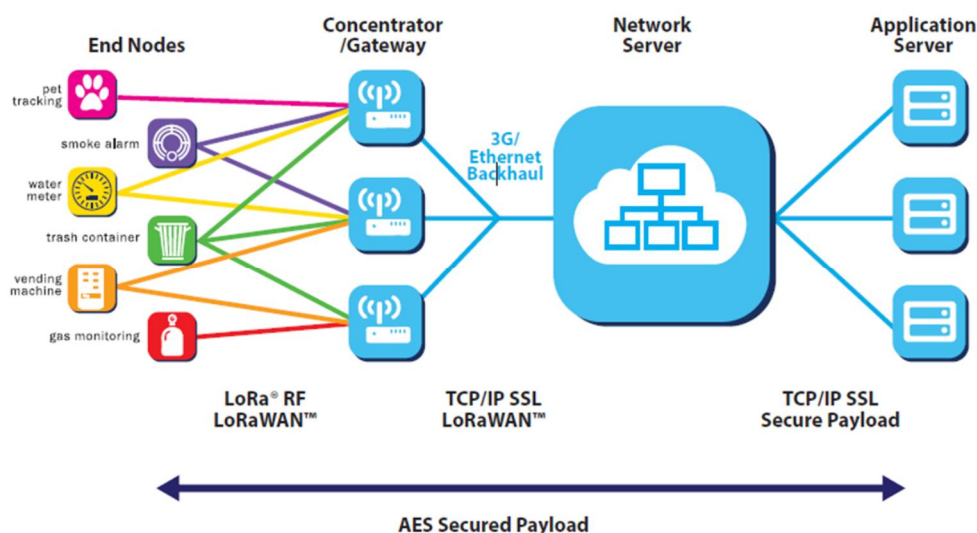
The software suite allows easy network configuration, management, encryption, archiving and data export to customer applications.

In addition, LNS-1 includes maintenance functions such as multi-level logging, remote gateway configuration and diagnostics, geographical map representation of network elements, including mobile nodes.

To maximize both battery life of the end-devices and overall network capacity, the LNS-1 manages the data rate and RF output for each end-device individually by means of an adaptive data rate (ADR) scheme.

The LNS-1 is built with a modular and scalable architecture, allowing standalone, single server installations, up to geographically distributed and redundant configurations.

Built around standard modules such as Apache, MySQL and Linux, it is easily portable to different architectures.



# FEATURES

LoRaWAN™ compliant  
Interoperable with own gateway and LoRaWAN™ standard end-nodes

Modular design

Scalable and portable from embedded architectures to nationwide redundant servers capable of handling thousands of gateways and end-nodes.

Easy to use interface

Web configuration and network management, including maps

# SPECIFICATIONS

Supported protocol	LoRaWAN™ 1.0—EU868 version
Data exchange protocols	TCP/UDP over SSL or VPN
OS	Linux server GNU
RDBMS	MySQL/Apache
Data encryption	AES-128

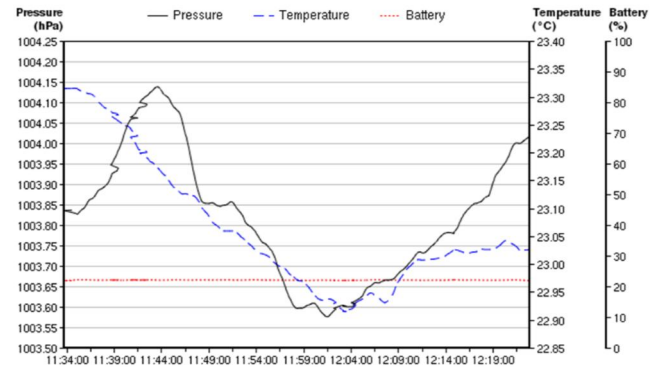
# APPLICATIONS

- Critical Infrastructure monitoring
- TELCO / Broadcasting
- Smart Grid
- Smart Agriculture
- Transportation
- Asset Tracking
- Oil & Gas monitoring

## Location Tracking

The screenshot shows a web interface for location tracking. On the left, there is a table of GPS data with columns for Time, GPS, and coordinates. On the right, there is a map of Rome, Italy, with a red dot indicating the current location. The map includes labels for various landmarks and districts like Municipio XIV and Municipio II.

## Conditions During the Last 24 Hours



## Network Activity

Below are statistics from frames transmitted by LoRaNotes across the network. You can alternatively view the most recent frame from each mote.

Time	Mote (DevEUI)	Sequence #	Freq (MHz)	Modulation	BW (Hz)	SF	Coding Rate	ADR	Gateway
2016-10-15 16:01:56	00-00-00-00-2C-60-76-43	234	868.1	LoRa	125	SF7	4/5	off	00-05-CC-FF-F1
2016-10-15 16:00:31	00-00-00-00-2C-60-76-43	233	868.3	LoRa	125	SF7	4/5	off	00-05-CC-FF-F1
2016-10-15 15:58:07	00-00-00-00-2C-60-76-43	232	868.3	LoRa	125	SF7	4/5	off	00-05-CC-FF-F1
2016-10-15 15:55:18	00-00-00-00-2C-60-76-43	230	868.5	LoRa	125	SF7	4/5	off	00-05-CC-FF-F1
2016-10-15 15:52:54	00-00-00-00-2C-60-76-43	229	868.1	LoRa	125	SF7	4/5	off	00-05-CC-FF-F1
2016-10-15 15:51:29	00-00-00-00-2C-60-76-43	228	868.3	LoRa	125	SF7	4/5	off	00-05-CC-FF-F1
2016-10-15 15:50:05	00-00-00-00-2C-60-76-43	227	868.3	LoRa	125	SF7	4/5	off	00-05-CC-FF-F1
2016-10-15 15:48:40	00-00-00-00-2C-60-76-43	226	868.3	LoRa	125	SF7	4/5	off	00-05-CC-FF-F1
2016-10-15 15:46:16	00-00-00-00-2C-60-76-43	225	868.3	LoRa	125	SF7	4/5	off	00-05-CC-FF-F1
2016-10-15 15:44:51	00-00-00-00-2C-60-76-43	224	868.3	LoRa	125	SF7	4/5	off	00-05-CC-FF-F1
2016-10-15 15:43:26	00-00-00-00-2C-60-76-43	223	868.3	LoRa	125	SF7	4/5	off	00-05-CC-FF-F1
2016-10-15 15:41:02	00-00-00-00-2C-60-76-43	222	868.3	LoRa	125	SF7	4/5	off	00-05-CC-FF-F1

The screenshot shows a web interface for gateway management. On the left, there is a table of gateway statistics with columns for Mote (DevEUI), Received, Forwarded, Errored, and Acknowledged. On the right, there is a map showing the locations of several gateways, each with a callout box displaying its ID, latitude, longitude, and altitude.



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