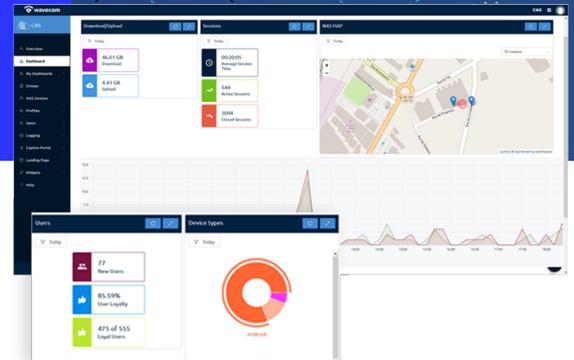# IoT Manager

Multi-tenant platform that provides full management and monitoring in all the Wavecom gateway interfaces and associated sensors. Also ensures analytics/reporting.

A MULTITENANT IOT CONNECTIVITY PLATFORM

wavecom Technologies

Components Specifications

Management

- Cloud-based or on-premises infrastructure
- Web-GUI
- Multi-tenant architecture
- Different User Role hierarchy - determine the levels of access for users
- Device provision
- Kubernetes based - a portable, extensible, open-source platform for managing containerized workloads and services

Monitoring Features

- Map overview for all wavecom gateways
  - Color Status Overview based on Active/disable/maintenance
  - GPS location
- Overview dashboard of active/disabled/maintenance equipments
- Network statistics/status of all Wavecom gateway interfaces
  - Interface status
  - Bandwidth consumption
  - Errors
  - DHCP statistics
  - VLAN Status active
- History (Status, Network Statistics)
- System Statistics
  - Voltage
  - CPU utilisation
  - RAM utilization
  - Temperature
  - Interfaces status
  - Up/Down bit rates, mode of operation,
  - Accumulated traffic analysis in a period of time
- Radio utilization and load Statistics
  - Number of packets received/transmitted
  - RSSI statistics
- LoRa packets history (total/per device)
- Data APIs (metrics)

LoRaWAN Features

- Standard LoRaWAN Server built-in
- UDP and MQTT messages supported
- Live frame-logging:
  - Logs per gateway and device
  - Radio condition in real-time
  - Number of packets received (RX)/transmitted(TX)
  - Channels statistics
- Supported bands:
  - EU 433
  - EU 863-870
- OTAA and ABP activation methods supported
- Supported LoRaWAN versions: from 1.0.0 to 1.1.0
- Class A, B and C devices supported
- Adaptive Data Rate (ADR) support
- Scripting capabilities for payload decoding
- Integration with FIWARE,GCP,AWS,Azure IoT, IBM Watson, ThingsBoard.io, myDevices, Semtech LoRa Cloud and with wide range of applications
- Connectors: HTTP, InfluxDB
- Data storage using InfluxDB and PostgreSQL database engines
- Bulk importation of multiple devices
- Class configuration per device
- Application server's management (add, edit, delete)
- REST API available
- REST API based on Swagger Specification with Over-the-air activation (OTAA)
- Provide an API according to NGSIv2 data model (specification recommended by European Union
- RESTFUL API's for Application Server connectivity
- Storage timeline access to device payload data
- Backup session keys (Manual/Automatic in LoRaWAN)

Components Specifications

Management Features

- Manage inventory (Add, edit and delete) through a Web GUI
  - Devices TAGs by groups (project /site/other)
- Manage frequency plan for different Wireless interfaces (WiFi, LoRaWAn,3G/4G)
- Manage multi devices
  - DHCP configuration
  - VLAN configuration
  - NAT configuration
  - Link aggregation configuration
- Simple task to apply one configuration to multiple devices
- Gateways mode configuration
  - Point-to-Point
  - Point-to-Multipoint
  - Mesh
- Track faulty equipments
- Gateways Secure connections through OpenVPN

Cellular Features

- Activation and Deactivation
- Cellular technology configuration
- Modems configuration and prioritization
- Load balancing and failover configuration

Ethernet Features

- Activation and Deactivation
- Ethernet port configuration (speed, duplex)
- Load balancing and failover configuration

Security Features

- VPN
  - VPN client for secure connections (OpenVPN, IPSec, DWVPN)
  - Encryption AES128/256, Hashing MD5, PKI certificates.
  - TLS/SSL encryption for API communications
- Different access levels

Others

- Alarms
  - Configurable thresholds for several parameters: Uplink connectivity status, Voltage, temperature, CPU, RAM (memory load), network interface statistics, LoRaWAN statistics, cellular statistics,
  - History (List of the last alarms and thresholds)
    - Gateways
    - End Devices
- Event Logging
- Reports generation for each interface: (LoRaWAN/Cellular/Ethernet/System)
  - PDF and CSV export
- Android mobile application to manage the network server
- IoT Manager software compatible with Wi-Fi Guest authentication module - CAS(Cloud- Based Authentication System). Module that provides tailored captive portals to manage WiFi free WiFi

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About Wavecom

Wavecom has been in the field for 20 years with a solid know-how and expertise in wireless and IP-based systems and applications.
We are passionate about communications, namely: connectivity solutions for smart cities, transportation and the internet of things.

What Matters to Us

We understand about the integrators' challenges and our goal is to equip them with the indispensable technology, insights, advice and tools to help them to achieve their most pressing objectives.
We seek to guarantee the satisfaction of our customers through their constant feedback aiming to improve our products and processes.

Why

Because with our capacity for innovation and knowledge of integrator's activity, we believe that we can improve people's quality of life through the products we manufacture.

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NP 4457:2007, ISO 9001, ISO 14001 e ISO 45001:2018

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