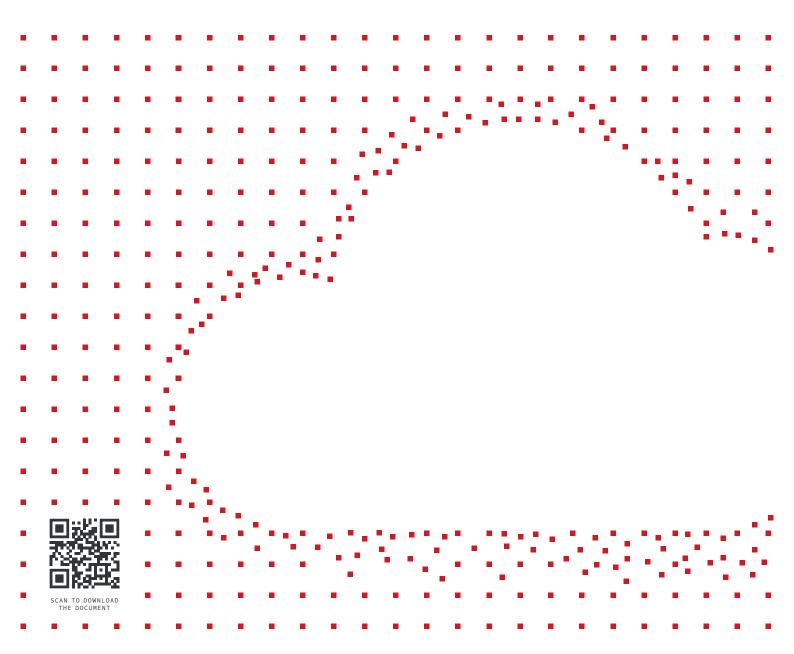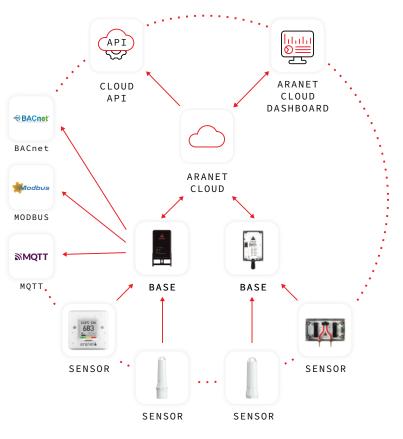# Aranet IoT ecosystem

Integration
with 3rd parties

Aranet IoT ecosystem

Aranet is a smart wireless monitoring IoT solution that collects, records, reports, and analyzes real-time data from distributed sensor networks. Aranet ecosystem comprises Aranet sensors, Aranet PRO base stations, and Aranet Cloud.
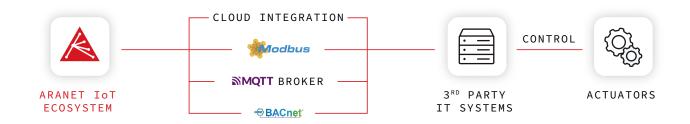
Aranet sensors can be set up in spaces where it is necessary to monitor various physical parameters. Sensors measure and send data wirelessly to the Aranet PRO base station that collects and stores all the measurements. Finally, Aranet Cloud gathers the data from base stations and enables 24/7 uninterrupted and secure centralized data monitoring and analysis across all the monitored locations, regardless of whether it's a single venue or multiple geographically distributed locations.

Integration with 3rd parties

Aranet ecosystem is a simple and effective solution that can be integrated with 3rd party IT systems at two interconnection levels:

- Aranet PRO base station level integration via MQTT, BACnet IP or Modbus TCP/IP data communication protocols

- Aranet Cloud level integration via Aranet Cloud APIs

PRO base station integrations

via MQTT

MQTT is a lightweight publish/subscribe messaging transport protocol that can be used for Aranet integration both with web-based and cloud IT systems like, Amazon AWS IoT Core services, Azure IoT Hub, IBM Maximo, and other cloud platforms or with local BMS or HVAC controllers or climate computers that might not even have access to the Internet.

- Instant push-type Aranet data upload to 3rd party IT systems
- Latest sensors measurements, alarm messages and their inventory data
- Supported data formats: MQTT generic (raw), JSON array, Azure IoT Hub defined format

via Modbus TCP/IP

Modbus is a proven, widely available, and well-adopted data exchange protocol in various IT and IoT monitoring and management systems. It is the de facto standard for connecting industrial electronic devices and one of the preferred protocols for data exchange also in BMS as well.

- Pull-type integration when 3rd party IT system requests data from the Aranet bases
- Modbus TCP/IP version supported with Aranet bases acting as Modbus servers
- Latest sensors measurement data and alarm messages

via BACnet IP

BACnet IP is a communication protocol specifically designed for building automation and control networks.

- Aranet base corresponds to BACnet Smart Sensor device profile B-SS-B
- Analog Inputs or Analog Values objects for measurement data
- Engineering Data Exchange file generation for ease of offline integration configuration

MQTT/Modbus to other protocols

If the IT system does not support MQTT, Modbus or BACnet protocol directly, it is possible to use proxy devices to convert Aranet data to the necessary format, for example, OPC UA, LonWorks, KNX, or even analog 4-20mA or 0-10V signals. Raspberry Pi or other single-board computers and MQTT or Modbus converters can be used as proxy devices. Typical scenarios for such installations would be to connect to existing BMS or HVAC controllers or building automation systems.

BASE STATION — PUBLISH → RASPBERRY PI WITH MQTT BROKER — SUBSCRIBE → CONVERTER — LonWorks / KNX → HVAC/BMS CONTROLLER — CONTROL → ACTUATORS

Aranet Cloud level integration

Aranet Cloud integrations enable developers and partners to instantly access Aranet ecosystem data of all their devices via a single connection regardless of whether it's a single venue or multiple geographically distributed locations.

Push-type integrations

Push-type integrations are a widely used data exchange solution in various IT monitoring and management systems. It is a standardized way for centralized sensor data transfer from multiple base station installations via one centralized endpoint.

The main features of Push-type integrations:

- Centralized data upload for all the necessary sensors via a single connection

- Push-type integration with instant Aranet data upload to 3rd party IT system

- Latest or historic sensor measurement data upload during the initial data transmissions

- User-defined data transmission intervals and sensor selection for which measurements should be uploaded

- Guaranteed data delivery to 3rd party IT systems and historic data retransmission if the connection is temporarily lost

- Supported data format: JSON Array

Aranet Cloud API

Aranet Cloud API allows to access the sensor and cloud data outside of the Aranet ecosystem. Cloud API is a Pull-type integration. By using Aranet Cloud API, Aranet Cloud can be integrated with any other Web or cloud-based IT system or used as a data source for 3rd party applications.

The main features of Aranet Cloud API:

- Centralized data access for all the necessary sensors via a single connection

- Pull-type API integration providing access to data in Aranet Cloud

- On-demand data access from Aranet Cloud without the need to establish data storage on 3rd party IT system

- Ability to request current, latest, and specified period data

- Access to cloud-specific data like virtual sensors, alarms, assets

- Authorization using API key

- API documentation – all currently available endpoints are documented via Swagger

- Supported data format: JSON

PUSH/CLOUD API

JSON

ARANET CLOUD   APP   WEB   3RD PARTY IT SYSTEMS   CONTROL   ACTUATORS