

# Realm Enablement Suite

Transmit smart data from edge to endpoint

Globalstar 



The Realm Enablement Suite is an edge-to-endpoint, AI-enabling solution for IoT, built on innovative edge hardware, Globalstar's reliable network, and the Realm Cloud. The suite consists of high-performance devices and modules that use an Edge Application Platform to enable the automation of remote processes and deliver smart data to the endpoint. In addition, Realm Cloud offers a robust mobile device management (MDM) platform for device configurations, subscriptions, data analytics, and dashboard visualizations. As a result, the Realm Enablement Suite delivers value for our VARs by slashing the time and cost of solutions and applications development while providing more efficient use of assets and data for enterprises.

Realm transforms the IoT and asset tracking value chain from the ground up to slash development time, support your most advanced applications and create capabilities you never imagined were possible.

## Realm Technology Stack

### REALM EDGE SOLUTIONS

- **Devices and Modules:** Low-cost, high-performance devices and modules equipped to interface with industry-standard sensors and providing the processing power to host AI applications and process Smart Data for cost-effective transmission.
- **Edge Application Platform:** Powering development of custom applications to run at the edge. Managing device configuration and uploads.

### ULTRA-RELIABLE NETWORK

- Delivering data from the edge securely, reliably and affordably over the Globalstar Satellite Network

### REALM CLOUD

- Providing everything you need to manage devices, configurations, subscriptions and data translation, with a rich array of features to help you create IoT applications and integrations.

## Devices and Modules

### INTEGRITY 150

*Transmit smart data at the edge*

Integrity 150 is a next-generation, solar-powered data transmitter and asset tracker that interfaces with industry-standard sensors over Bluetooth and delivers Smart Data from the edge. Users can quickly program AI-enabled applications and computing solutions using

the Edge Application Platform to process location and sensor data at the edge for low-cost Smart Data transmission. In addition, it delivers zero-maintenance ownership with the longest-lasting battery (10+ years) and shelf life available. With its low-power design built for the world's most challenging environments, the Integrity 150 reliably delivers secure data and location reporting with unprecedented payload options.

### ST150M MODEM MODULE AND DEVELOPER KIT *Slash hundreds of hours of development time*

The ST150M satellite modem module can be quickly and effectively integrated into technology to develop unlimited applications for a range of markets. Like the Integrity 150, the modem leverages industry leading BLE5, Nordic C, and comprehensive unified APIs, empowering rapid development and customization of firmware for more advanced smart data applications and enabling AI at the edge. In addition, the ST150M provides both wired and BLE access to the fully programmable 24 I/Os for interface with sensors and actuators. The ST150 Dev Kit includes ST150M module on a dev board with satellite and GPS patch antennas, all mounted on an Arduino Shield, to develop and test technology designs before committing them to hardware.

### Automate Processes at the Edge

The onboard processing capacity of Realm edge devices make it possible to fully automate remote processes to save money, increase productivity, improve margins and enhance safety. The module contains 24 configurable

*Transmit smart data from edge to endpoint*

Input/Outputs (I/Os) that interface with sensors and actuators. This combination of custom software and powerful hardware can not only detect change but take immediate and high-value action in response, such as –

#### **PREVENTING PIPELINE OR PROCESS EQUIPMENT FAILURE**

If a sensor detects a problematic rise or fall in pressure, edge devices can trigger local audible and visible alerts, open or close valves and remotely shut down pumps as needed.

#### **AVOIDING TOXIC RELEASES**

When sensors detect dangerously high water in a tailing or wastewater pond, edge devices can turn on a pump to lower the level, trigger alarms and trigger more complex actions.

#### **MANAGING IRRIGATION REMOTELY**

If soil moisture sensors in irrigation equipment detect low moisture, edge devices can turn on irrigation pumps and save the need for a visit to the site.

#### **STOPPING CATASTROPHIC ENGINE BREAKDOWNS**

When sensors monitoring key engine factors detect a dangerous change, such as a sudden drop in oil pressure, edge devices can trigger alarms and, after a pause for human interaction, switch off the engine.

The same software developed for the edge device can automatically dispatch smart messages over the Globalstar Satellite Network to alert managers to the issues and supply data to management systems. Eight of the devices' 24 I/Os can be configured as analog, which allows them to measure and report changes per connected analog sensor.

## **Edge Application Platform**

The low-code Edge Application Platform is the key to unlocking the unlimited capabilities of these rugged, reliable devices in the field and slashing hundreds of hours of development time for new products. The standards-based architecture means that new features and platform upgrades can reliably access the same hardware interfaces, APIs, and applications as previous versions with no specialized coding.

The Platform provides access to the firmware and base applications that run the devices and an extensive and growing library of applications to interface with sensors measuring temperature, humidity, magnetic fields, angular position, motion, proximity, and other metrics. No more writing custom code to control every aspect of hardware operation. Also included are hardware interfaces allowing full driver/hardware abstraction and APIs that give your custom applications access to device capabilities. The GitHub application library invites developers to share new and updated apps with the Realm customer base.

## **Edge Application Platform Layers**

### **APPLICATION LAYER**

The base applications that run the Integrity 150 and ST150M, as well as Bluetooth services, are open to developers for integration with their software, including theft alert, messaging, tracking, SOS and BLE.

### **UNIFIED API LAYER**

Application program interfaces (APIs) enable your custom applications to immediately access the full capabilities of devices, including sensor support, without additional coding.

### **LIBRARY LAYER**

An extensive and growing library of applications can be uploaded to devices in their current form or modified to interface with sensors measuring temperature, humidity, magnetic fields, angular position, motion, proximity, and other metrics. No more writing custom code to control every aspect of hardware operation. We invite all integrators to share their successful modifications or new applications with other Realm integrators in the GitHub project library.

### **HARDWARE APPLICATION LAYER**

Hardware interfaces allow full driver/hardware abstraction within Realm devices to simplify and speed development.

## **Realm Cloud**

Realm Cloud provides everything you need to manage devices, configurations and subscriptions, as well as translate and manage data, analytics and dashboard visualizations. Featuring a microservice and API-based architecture, with DevOps automation, Realm Cloud is a multi-tenant environment with an elastic infrastructure that grows with you. It delivers a rich array of features: analytics, a rules engine, advanced GIS, data management, edge-device management, complex event processing, security, and compliance. Your team can focus on creating IoT applications and integrations, while leveraging our platform features for all the rest.

## **Realm Cloud Features**

- Enhanced device and data management, security and analytics
- Performance management
- Device configurator and data decoding
- Alerts & notifications management with a rules-based engine
- Device level details including location and associated sensor data
- Account and company management



## Integrity 150

*Transmit Smart Data from the Edge*

Integrity 150 is a next-generation, solar-powered data transmitter and asset tracker that interfaces with industry-standard sensors over Bluetooth and delivers Smart Data from the edge. Users can quickly program AI-enabled applications and computing solutions using the Edge Application Platform to process location and sensor data at the edge for low-cost Smart Data transmission. In addition, it delivers zero-maintenance ownership with the longest-lasting battery (10+ years) and shelf life available. With its low-power design built for the world's most challenging environments, the Integrity 150 reliably delivers secure data and location reporting with unprecedented payload options.

- Standard and Customizable Messaging
- BLE5
- Tamper Detection
- Integrated Accelerometer
- Alternative Reporting
- Change of Location
- Integrated BLE Sensor protocol
- Together with Globastar's new Application Enablement Platform, integration and customization with modular software is at your fingertips



## ST150M

You'll benefit from the ST150M low power design, which allows you to minimize battery requirements, size, and maximize the green with Solar applications. Its well-established AT command set is conveniently abstracted through our Unified API.

- Globalstar Modem
- GPS Receiver
- Nordic 52840 MCU
- 8MB External Flash
- 3-axis accelerometer
- 24 configurable I/O pins
- Surface mount design
- Integrated voltage regulation
- Integrated BLE Sensor protocol
- Together with Globastar's new Application Enablement Platform, integration and customization with modular software is at your fingertips



## ST150M Modem Module and Development Kit

*Slash hundreds of hours of development time*

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- ST150M mounted on Dev board
- Satellite and GPS patch antenna mounted on Arduino Shield
- Segger Embedded Studio available at no additional cost
- I2C shield compatible
- Most I/O pins are available through the shield
- UART is available through the shield
- SPI is available through the shield
- Together with Globastar's new Application Enablement Platform, integration and customization with modular software is at your fingertips



## STX3

The low-cost way to add simplex satellite communications to any OEM product. STX3 satellite modem with integrated GPS is the smallest mountable modem, ideal for remote sensing, tracking, and monitoring applications. In addition, an STX3 Development Kit with Bluetooth makes it simple to set up and send custom, user-defined data over the Globalstar satellite network.



For more information on how Globalstar's advanced product technologies can become an integral part of your wireless solution, please visit us online at [www.globalstar.com](http://www.globalstar.com).