Container Monitoring System

IoT Sensors

- ***Position and deviation of the route***
- ***Temperature***
- ***Humidity***
- ***Concentration of Gases***

Optional IoT Sensors

- ***Vibrations***
- ***Impacts***
- ***Proximity***
- ***Door opening and seal integrity***
- ***Weight***

Communications technologies for 6loWPAN networks

- ***Wi-SUN***

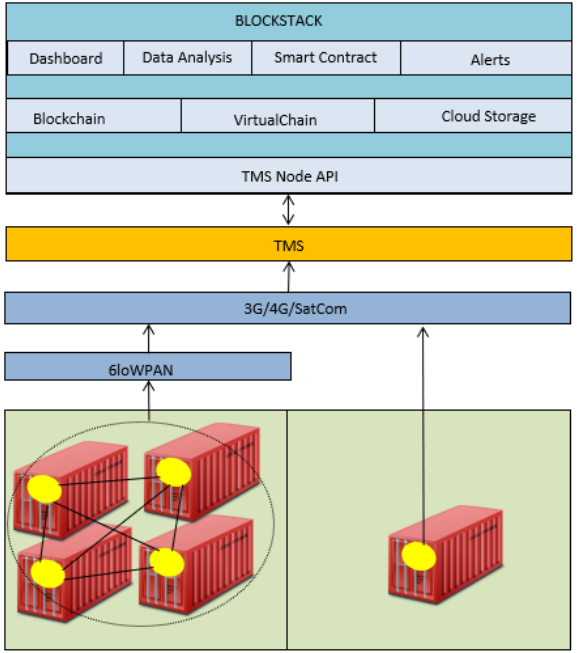
Wi-SUN (Wireless Smart Ubiquitous Network) is a wireless communication technology designed for Utilities, Smart Cities and IoT. Wi-SUN is based on various IEEE, IETF, and ANSI/TIA standards supporting low power and lossy networks.

Wi-SUN is an established suite of IoT technologies that is based on IEEE 802.15.4, TCP/IP, and related standard protocols.

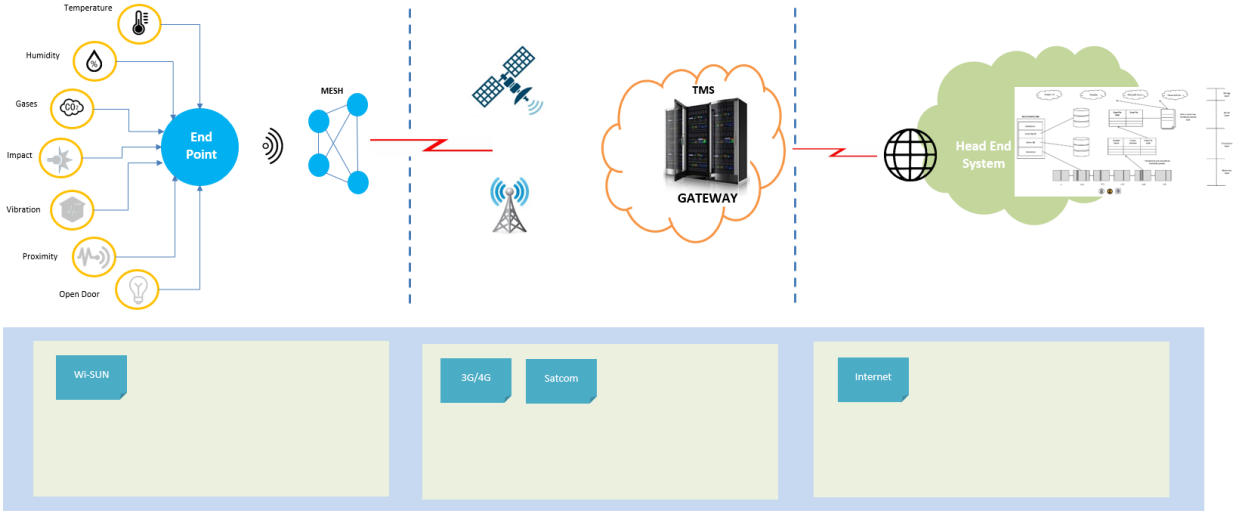
Important characteristics of Wi-SUN include the following:

- Coverage: Range measured in kilometers.
- Development Ecosystem: Wi-SUN Alliance with task groups for targeted use cases and assured interoperability
- High Bandwidth: Up to 300 kbps.
- Low Latency: 0.02 seconds
- Mesh Routing: Resilient and scalable
- Power Efficiency: less than 2 uA when resting; 8 mA when listening
- Scalability: Networks to 5,000 devices; 10 million endpoints worldwide
- Security: Public key certificates, AES, HMAC, dynamic key refresh, hardened crypto

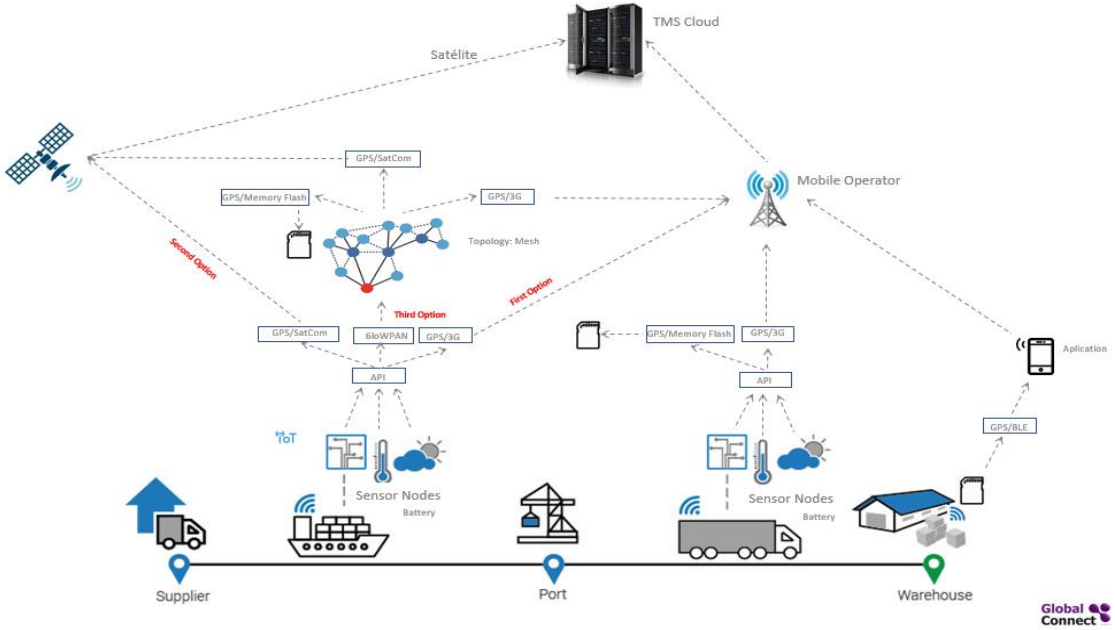
General System Architecture



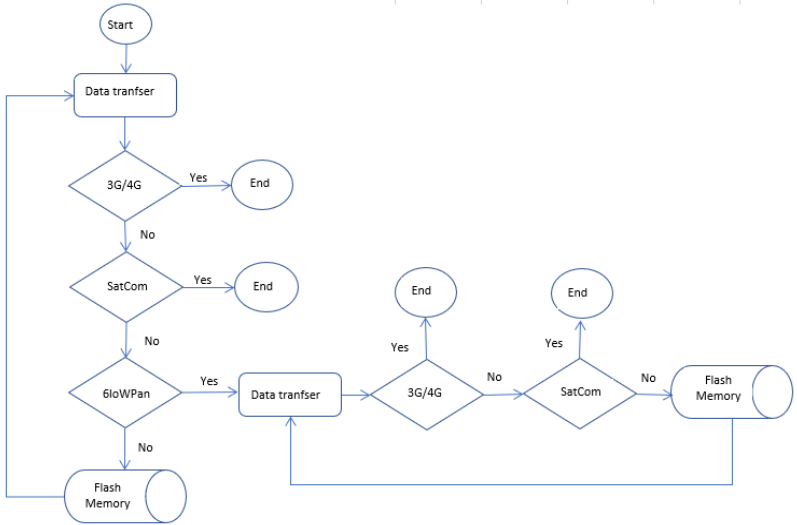
General System Architecture



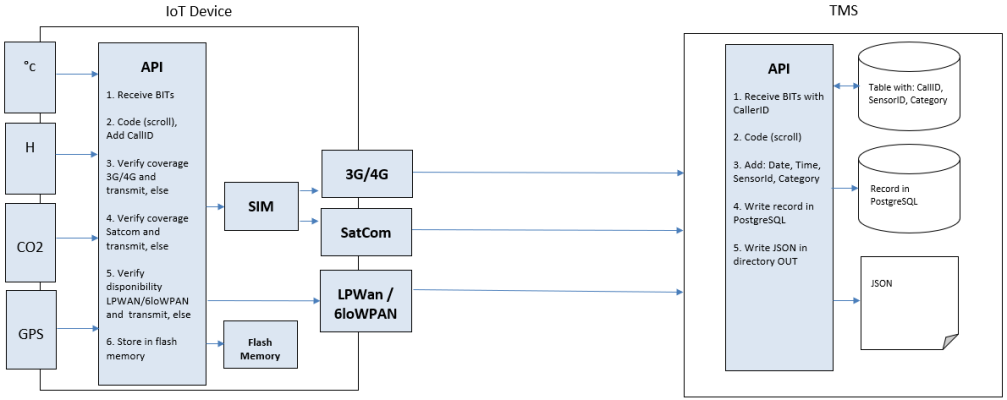
General System Architecture



General System Architecture



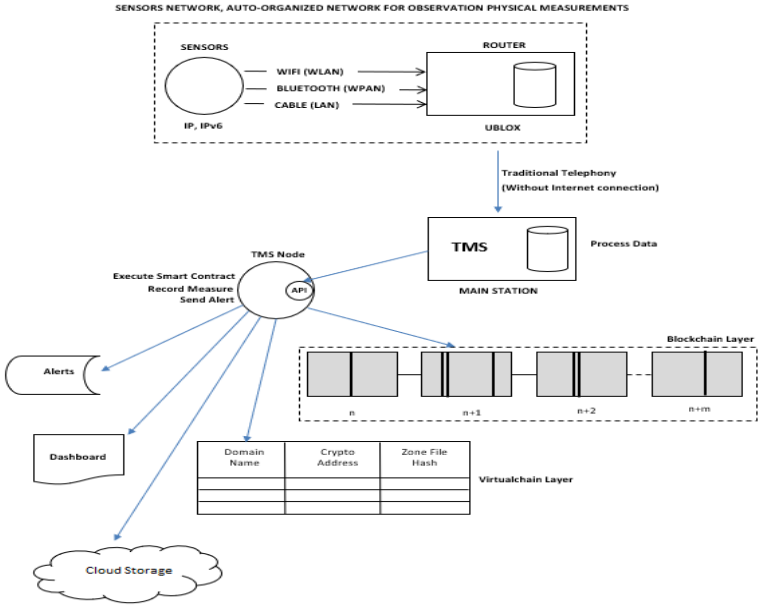
The IoT devices and the Gateway TMS central station



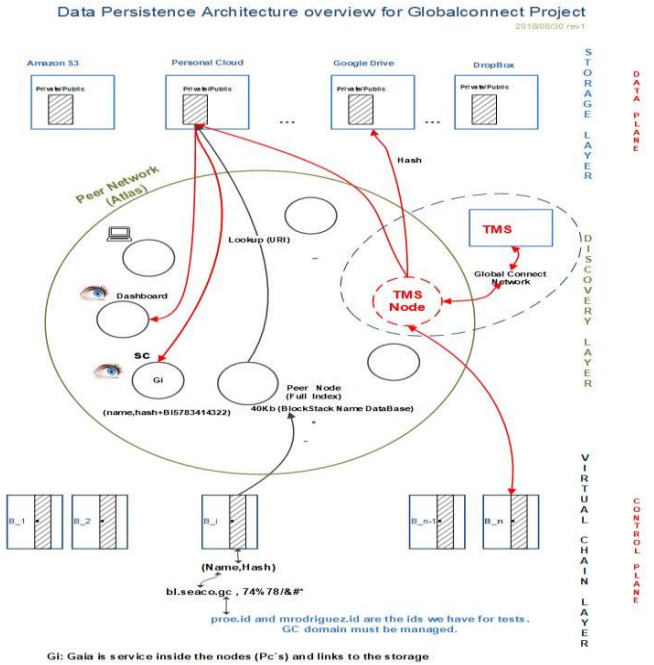
Example Event with JSON


```
{
  "data": [
    {
            "DTEvent": "2018-10-21T12:34:00:7992",
            "EventsContainer": [
               {
                     "CallID": "9835676546",
                     "EventsSensor": [
                        {
                           "ContainerSensorId": 4019,
                           "ContainerCategorySensorId": 34,
                           "Value": "1",
                           "PositionsGPS": {
                                 "coordinates": [
                                   -0.308595436,
                                   39.43556368
                                 ]
                                 "type": Point
                           },
                           "DTregistry": "2018-10-21T10:30:44:00Z",
                        },
                        {
                           "ContainerSensorId": 4020,
                           "ContainerCategorySensorId": 34,
                           "Value": "14",
                           "PositionsGPS": {
                                 "coordinates": [
                                   -0.308595436,
                                   39.43556368
                                 ]
                                 "type": Point
                           },
                           "DTregistry": "2018-10-21T10:33:59:00Z",
                        }

                     ]
               }
            ]
      }

  ]
}
```

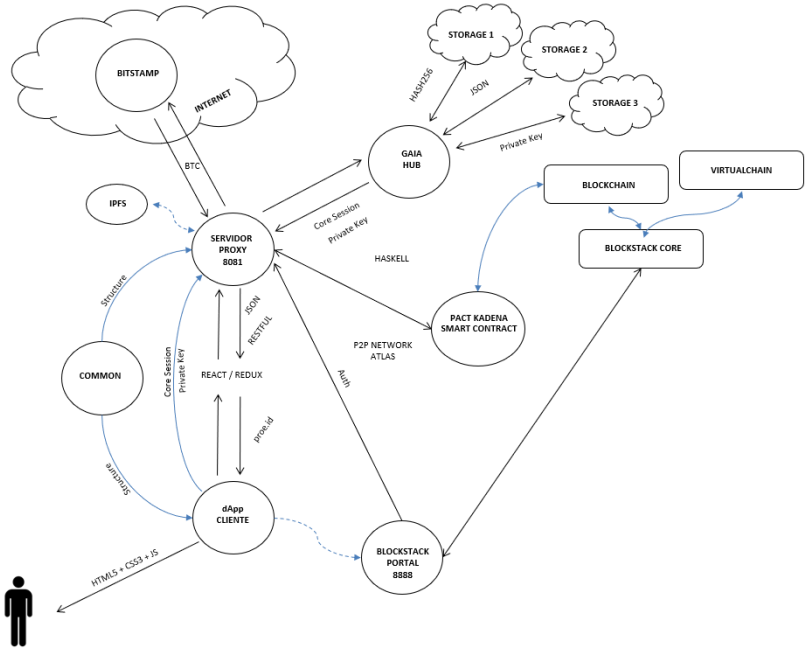
Gateway TMS central station and the TMS Node API



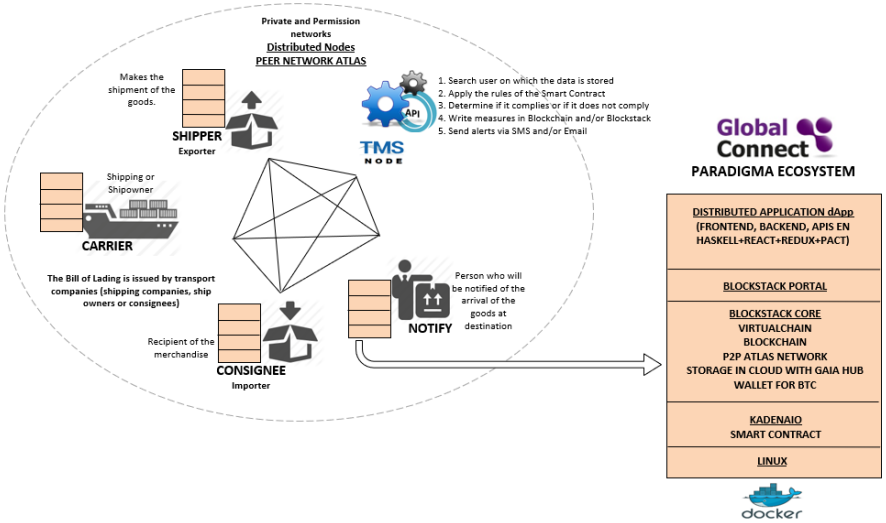
Blockchain with Blockstack



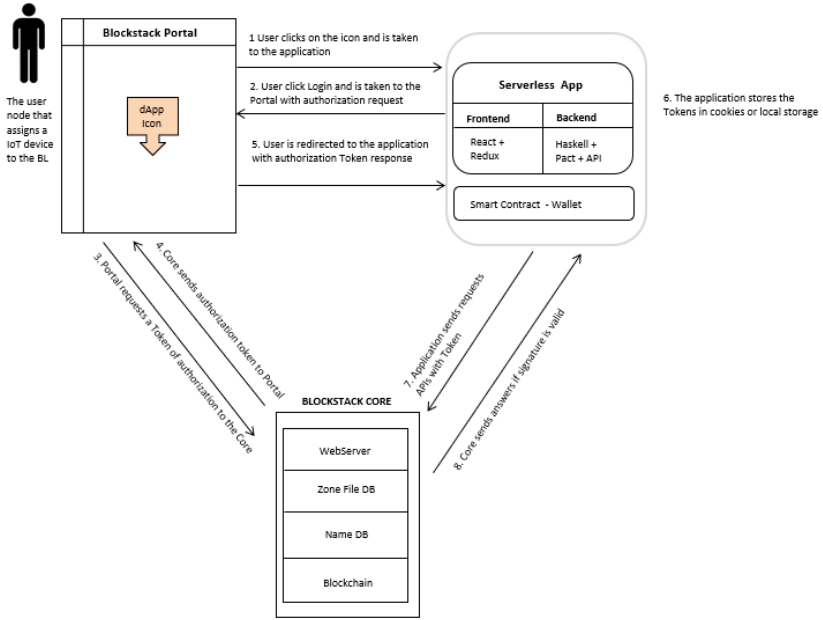
Blockchain with Blockstack



dApp


Private and Permission networks
Distributed Nodes
PEER NETWORK ATLAS
Makes the shipment of the goods.
SHIPPER
Exporter
API
TMS
NODE
1. Search user on which the data is stored
2. Apply the rules of the Smart Contract
3. Determine if it complies or if it does not comply
4. Write measures in Blockchain and/or Blockstack
5. Send alerts via SMS and/or Email
Shipping or Shipowner
CARRIER
The Bill of Lading is issued by transport companies (shipping companies, ship owners or consignees)
Person who will be notified of the arrival of the goods at destination
NOTIFY
Recipient of the merchandise
CONSIGNEE
Importer
Global Connect
PARADIGMA ECOSYSTEM
DISTRIBUTED APPLICATION dApp
(FRONTEND, BACKEND, APIS EN HASKELL+REACT+REDUX+PACT)
BLOCKSTACK PORTAL
BLOCKSTACK CORE
VIRTUALCHAIN
BLOCKCHAIN
P2P ATLAS NETWORK
STORAGE IN CLOUD WITH GAIA HUB
WALLET FOR BTC
KADENAIO
SMART CONTRACT
LINUX
docker

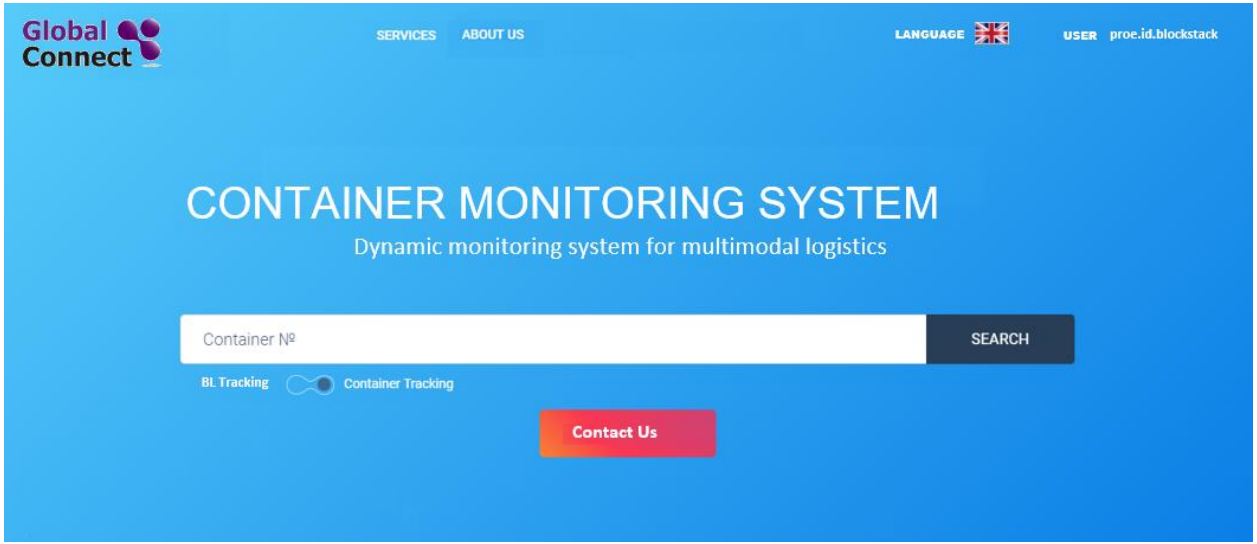
dApp


Blockstack Portal
dApp Icon
The user node that assigns a IoT device to the BL
1 User clicks on the icon and is taken to the application
2. User click Login and is taken to the Portal with authorization request
5. User is redirected to the application with authorization Token response
Serverless App
Frontend
Backend
React + Redux
Haskell + Pact + API
Smart Contract - Wallet
6. The application stores the Tokens in cookies or local storage
3. Portal requests a Token of authorization to the Core
4. Core sends authorization token to Portal
7. Application sends requests APIs with token
8. Core sends answers if signature is valid
BLOCKSTACK CORE
WebServer
Zone File DB
Name DB
Blockchain

Dashboard


Global Connect
Container Monitoring System
Global Connect is a descentralized, encrypted tracking app, built on Blockstack (with Blockchain and Smart Contract)
Log In with Blockstack
Contract ID:
Package Ownership:
Threshold:
Current Temp:
Time:
Contract Status:
Contract ID:
Package Ownership:
Threshold:
Current Temp:
Time:
Contract Status:

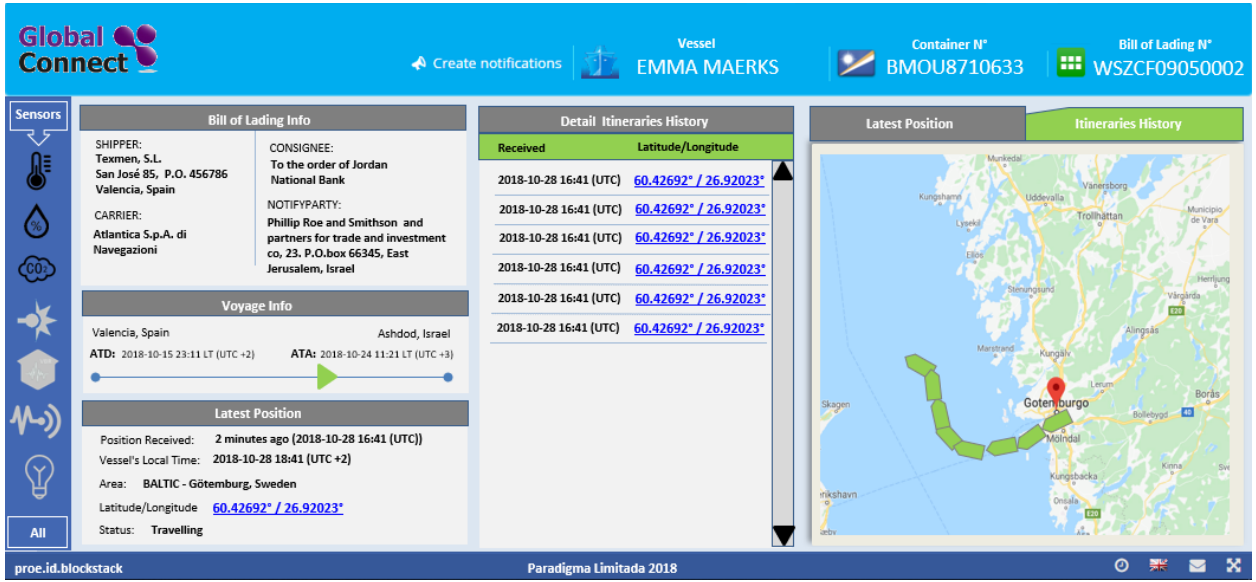
Dashboard


Global Connect
SERVICES
ABOUT US
LANGUAGE
USER proe.id.blockstack
CONTAINER MONITORING SYSTEM
Dynamic monitoring system for multimodal logistics
Container №
SEARCH
BL Tracking
Container Tracking
Contact Us

Dashboard


Global Connect
Create notifications
Vessel
EMMA MAERKS
Container N°
BMOU8710633
Bill of Lading N°
WSZCF09050002
Sensors
All
Bill of Lading Info
SHIPPER:
Texmen, S.L.
San José 85, P.O. 456786
Valencia, Spain
CARRIER:
Atlantica S.p.A. di Navegazioni
CONSIGNEE:
To the order of Jordan National Bank
NOTIFYPARTY:
Phillip Roe and Smithson and partners for trade and investment co, 23. P.O.box 66345, East Jerusalem, Israel
Voyage Info
Valencia, Spain
Ashdod, Israel
ATD: 2018-10-15 23:11 LT (UTC +2)
ATA: 2018-10-24 11:21 LT (UTC +3)
Latest Position
Position Received: 2 minutes ago (2018-10-28 16:41 (UTC))
Vessel's Local Time: 2018-10-28 18:41 (UTC +2)
Area: BALTIC - Göteborg, Sweden
Latitude/Longitude 60.42692° / 26.92023°
Status: Travelling
Sensor Info
Temperature: 5 °C
Received: 2 minutes ago (2018-10-28 16:41 (UTC))
Humidity: 65%
Received: 2 minutes ago (2018-10-28 16:41 (UTC))
CO2: 2%
Received: 2 minutes ago (2018-10-28 16:41 (UTC))
Impact:
Received:
Vibration:
Received:
Proximity:
Received:
Door Opening:
Received:
Latest Position
Itineraries History
Göteborg
proe.id.blockstack
Paradigma Limitada 2018

Dashboard


Global Connect
Create notifications
Vessel
EMMA MAERKS
Container N°
BMOU8710633
Bill of Lading N°
WSZCF09050002
Sensors
All
Bill of Lading Info
SHIPPER:
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San José 85, P.O. 456786
Valencia, Spain
CARRIER:
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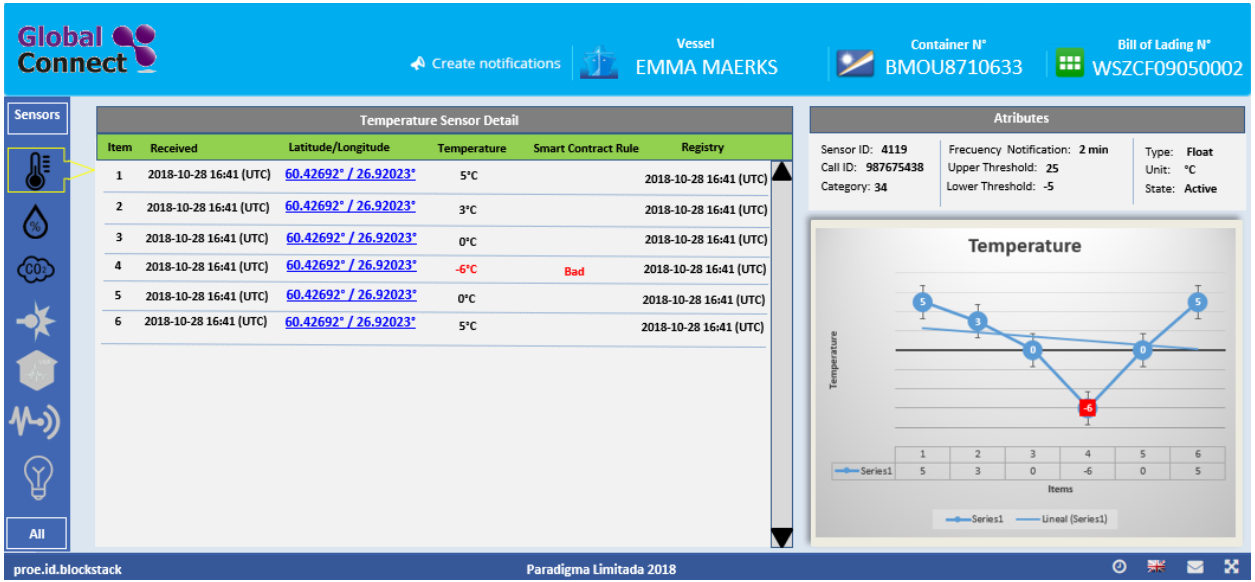
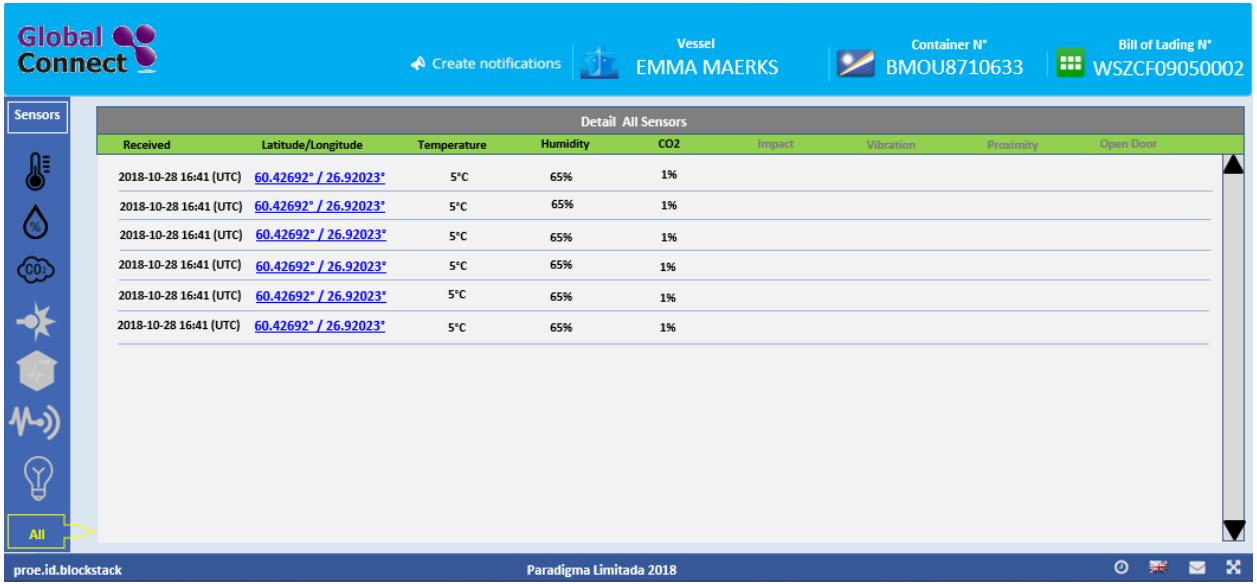
Vessel's Local Time: 2018-10-28 18:41 (UTC +2)
Area: BALTIC - Götemburg, Sweden
Latitude/Longitude 60.42692° / 26.92023°
Status: Travelling
Detail Itineraries History
Received
Latitude/Longitude
2018-10-28 16:41 (UTC) 60.42692° / 26.92023°
2018-10-28 16:41 (UTC) 60.42692° / 26.92023°
2018-10-28 16:41 (UTC) 60.42692° / 26.92023°
2018-10-28 16:41 (UTC) 60.42692° / 26.92023°
2018-10-28 16:41 (UTC) 60.42692° / 26.92023°
2018-10-28 16:41 (UTC) 60.42692° / 26.92023°
Latest Position
Itineraries History
Göteborg
Mölndal
proe.id.blockstack
Paradigma Limitada 2018

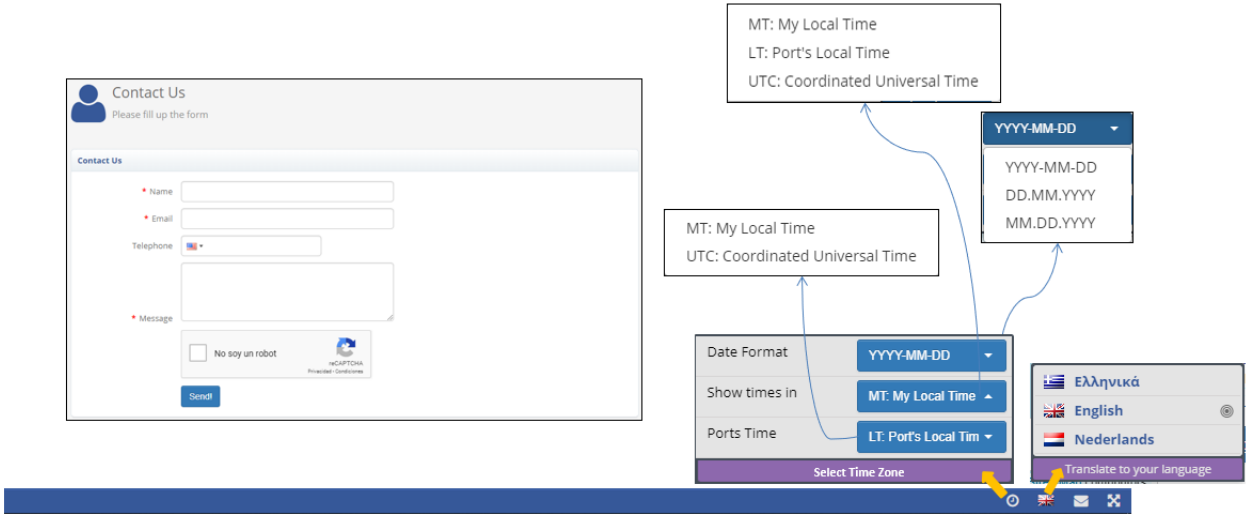
Dashboard


Global Connect
Create notifications
Vessel
EMMA MAERKS
Container N°
BMOU8710633
Bill of Lading N°
WSZCF09050002
Sensors
All
Temperature Sensor Detail
Item Received Latitude/Longitude Temperature Smart Contract Rule Registry
1 2018-10-28 16:41 (UTC) 60.42692° / 26.92023° 5°C 2018-10-28 16:41 (UTC)
2 2018-10-28 16:41 (UTC) 60.42692° / 26.92023° 3°C 2018-10-28 16:41 (UTC)
3 2018-10-28 16:41 (UTC) 60.42692° / 26.92023° 0°C 2018-10-28 16:41 (UTC)
4 2018-10-28 16:41 (UTC) 60.42692° / 26.92023° -6°C Bad 2018-10-28 16:41 (UTC)
5 2018-10-28 16:41 (UTC) 60.42692° / 26.92023° 0°C 2018-10-28 16:41 (UTC)
6 2018-10-28 16:41 (UTC) 60.42692° / 26.92023° 5°C 2018-10-28 16:41 (UTC)
Atributes
Sensor ID: 4119
Call ID: 987675438
Category: 34
Frecuency Notification: 2 min
Upper Threshold: 25
Lower Threshold: -5
Type: Float
Unit: °C
State: Active
Temperature
Temperature
Items
Series1
Lineal (Series1)
proe.id.blockstack
Paradigma Limitada 2018

Dashboard


Global Connect
Create notifications
Vessel
EMMA MAERKS
Container N°
BMOU8710633
Bill of Lading N°
WSZCF09050002
Sensors
All
Detail All Sensors
Received
Latitude/Longitude
Temperature
Humidity
CO2
Impact
Vibration
Proximity
Open Door
2018-10-28 16:41 (UTC) 60.42692° / 26.92023° 5°C 65% 1%
2018-10-28 16:41 (UTC) 60.42692° / 26.92023° 5°C 65% 1%
2018-10-28 16:41 (UTC) 60.42692° / 26.92023° 5°C 65% 1%
2018-10-28 16:41 (UTC) 60.42692° / 26.92023° 5°C 65% 1%
2018-10-28 16:41 (UTC) 60.42692° / 26.92023° 5°C 65% 1%
2018-10-28 16:41 (UTC) 60.42692° / 26.92023° 5°C 65% 1%
proe.id.blockstack
Paradigma Limitada 2018

Dashboard


Contact Us
Please fill up the form
Contact Us
* Name
* Email
Telephone
* Message
No soy un robot
Send!
MT: My Local Time
LT: Port's Local Time
UTC: Coordinated Universal Time
YYYY-MM-DD
YYYY-MM-DD
DD.MM.YYYY
MM.DD.YYYY
MT: My Local Time
UTC: Coordinated Universal Time
Date Format
YYYY-MM-DD
Show times in
MT: My Local Time
Ports Time
LT: Port's Local Tim
Select Time Zone
Ελληνικά
English
Nederlands
Translate to your language