Technical Overview

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Introduction

Thank you for your interest in EyeSeal's container breach detection and tracking solution. We believe our innovative technology can revolutionize container security and integrity in multiple industries.

This document provides insights into our company, product specifications, and applications.

We will cover the design, attachment methods, sealing mechanism, data collection capabilities, location determination, battery life, data security, and additional valuable information.

We aim to foster a fruitful partnership and look forward to your feedback.

Answers to your specific questions

Shape and volume of the smart seal
The EyeSeal device is compact and lightweight, offering convenience and portability. For detailed information, please refer to page 6.

Method of fixing to the container
Devices are easily installed inside shipping containers by installing them on the beam above the doors using the supplied magnets or a strong adhesive. They establish direct physical contact with both container doors. A step-by-step description of the installation process can be found on page 7.

Sealing, locking
After installing the EyeSeal device inside the container and activating it, the sealing is accomplished simply by closing both doors which is recognized by both door sensors and light sensor and logged as “Sealed”. A detailed description of this process can be found on page 7.

Data collected (location, sealing status, movement, acceleration,…)
EyeSeal monitors multiple data points, including door breaches, light variations, internal temperature, humidity, and geographic location. A comprehensive overview of sensor functionality can be found on page 8.

Method of location determination and accuracy
EyeSeal utilizes triangulation with the assistance of cell tower ID and locations to accurately determine its position. This method is auditable and verifiable and does not require line-of-sight access to GPS satellites. Location data is seamlessly captured and integrated into the EyeTrack application platform and can be shared with other applications as required.

Method of sending the data,
EyeSeal ensures the highest level of data security by implementing industry-standard encryption for all the data it transmits to the EyeTrack platform. Additionally, comprehensive details about data handling can be found on pages 8 through 11.

Battery and autonomy
The device's battery is designed to remain operational for a minimum of 120 days, assuming standard alert intervals are configured. The actual battery life will vary based on the user's preferred frequency of alerts. For detailed information regarding the batteries, please refer to page 6.

On the platform and data: configurability and security
For detailed information about the configurability of the device, please refer to pages 8-11.

Moreover, EyeSeal provides the capability to share data with other platforms through APIs, allowing seamless integration and interoperability.

Track record
EyeSeal devices have been monitoring cargo shipments since 2018, passing through more than 75 countries. The device has also been tested and approved during the Gateway2Britain pilot project.

Please refer to page 12 for more detailed information about EyeSeal’s track record.

EyeSeal device installation

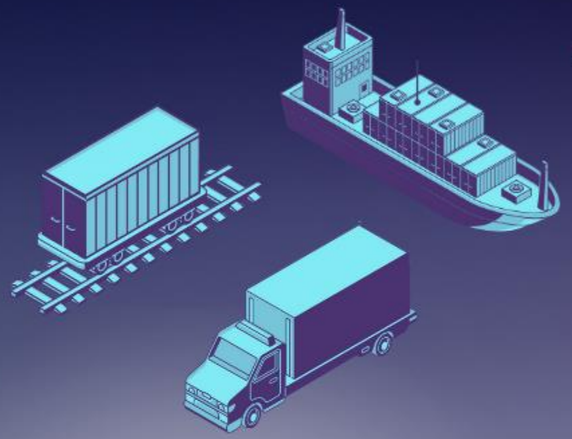
Constant monitoring during entire voyage

Cargo arrives at destination

The EyeSeal device is installed inside the shipping container and activated

EyeSeal regular updates and alerts are encrypted and transmitted via 3G GSM networks

All vector, full stack endpoint security agent managed by an AI engine in real time .



Breach alerts can trigger drone deployment (optional)

Upon arrival at final destination EyeSeal generates a full detailed forensic report of the entire voyage.

DIRECT DATA

- Location tracking
- Breach and door monitoring
- Advanced anti-hacking protection

- Light detection
- Temperature monitoring
- Humidity monitoring

Technical Specifications

Dimensions of the EyeSeal unit	
Height	81.1mm
Width	216.8mm
Depth	47.8mm
Weight	15.2 ounces (430 grams)
Housing Material	UL 940-V0 flame retardant plastic
Rubber door detector boots	Height: 78.7 mm Width: 52.7mm Depth: 50 mm

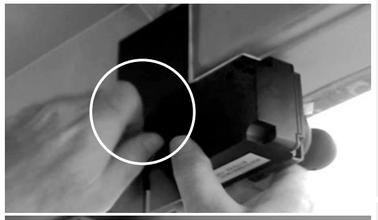
Battery specifications	
Power	9.6Ahr
Battery Type	High-capacity internal Lithium Thionyl Chloride
Autonomy	At least 120 days for standard signal configuration
Operating Temperature	-25°C to +70°C
Storage Temperature	-40°C to +85°C
Environmental Rating	IP67
UN Battery Code	3091

Cellular connectivity	
2G	GSM/GPRS, Quad band 850/900/1800/1900 MHz
3G	UMTS/HSPA+, Global, 800/850/900/AWS/ 1700/1900/2100MHz
4G	LTE CatM1(Rel.14), LTE Cat NB2 (Rel.14) w/EGPRS (2G Fallback)
Countries with coverage	170

Other specifications	
Export Control Classification	# 5A991.g
HSN Code (Harmonized Shipping Code)	8526.91.0040
Dangerous Goods designation	Type 9 (Lithium Battery)

Fixing, sealing and locking the device to the container

Align the mounting bracket on the top lintel at the center of the doors. With the mounting bracket installed, attach EyeSeal Unit to the mounting bracket using the bolt and the washer. Adjust the EyeSeal Unit until the top of the unit is seated against the lintel.



Push the unit upward until the magnet/adhesive makes full contact with the frame and tighten the bolt.

Once the unit has been fastened to the top frame, remove the activation slip to initiate the device. Alternatively, the device can also be activated before installation.

Close the left door. Make sure that the left “rubber boot” on the unit is compressed with the left door as shown. The unit is now correctly installed* and the container doors can be sealed for transport.

EyeSeal Unit

Mounting Bracket

Bolt & Washer

* Successful EyeSeal installation can be accomplished in minutes!

Sensor Data and Alerting

The EyeSeal Internal Container Breach Detector is a comprehensive solution that offers unparalleled security for cargo during shipping.

One of its key features is the EyeTrack user interface platform, which enables stakeholders to track the container's location and door seal status, regardless of whether it's being transported by truck, rail, sea, or a combination of the three.

Using the EyeTrack platform, stakeholders can access and monitor extensive sensor data captured and displayed by the Unit, including door position (open or closed), internal light values, temperature, humidity, and dew point.

By default, the Unit records this data every six hours during the entire voyage, and it's displayed as an in-route "Scheduled Monitoring" communication for stakeholders to view.

In the event of any deviation from the container's monitored data, the EyeTrack platform immediately issues an "Alert" to designated users, providing them with a date and time stamp, as well as location information. This ensures that stakeholders are notified promptly of any potential issues with the cargo, allowing them to take swift action to mitigate the situation.

The EyeTrack platform offers an ongoing full voyage "Report" that includes all the unit data collected from the origin point to the final destination. This report can be shared with all stakeholders in the supply chain, providing them with comprehensive and accurate information about the cargo's journey.

With its advanced technology, real-time data tracking, and immediate alert system, stakeholders can rest assured that their cargo is secure and protected throughout the entire journey.

Data Sharing and Shipment Tracking

Our EyeTrack® UI will allow you to provide access to as many individuals in your logistics chain that you wish to include. Including Security, Forwarders, Insurance, Consignee, Transport managers. Anyone that you allow access to the UI now has access to these reports and details.

Your team will have full details for the following key points:

- Date and time door originally closed after loading.
- Full history of container condition from loading unit
- inspection at warehouse exit.
- Exit Message prior to leaving the warehouse including full history from loading.
- Scheduled messages every six hours with full date time, and location stamp (including environmental parameters).
- Immediate alerts upon both authorized and unauthorized breaches.
- Notification of Temperature and Humidity alerts can be configured.
- When the 6 Hour scheduled messages are utilized – the Eye-Seal can provide this coverage for 120 days internationally.

With these key date, time, and locations stamps combined with the actions observed by the sensors, Law Enforcement and Insurance can define a specific timeline and location.

The Custody of the container will be known and thus responsibility properly assigned.

When thefts are undetected for several days, weeks, or months, the cargo has passed through the hands of several players along perhaps international borders and jurisdictions. At this point, it is nearly impossible to identify the Custodian of the Cargo when the said breach occurred.

However, In the Maritime field, a six-hour window is a short time frame to properly make an exchange of Custody. The Custodian will be identified with the Time and Date Stamp.

Connectivity & Data Transmission

Our devices employ an in-depth defensive framework to ensure maximum reliability and security during data transmission.

All device communications occur over a VPN from our cellular connectivity provider with no exposure of device traffic over the internet. Using private address space ensures that traffic is segregated, and devices cannot be accessed from the internet.

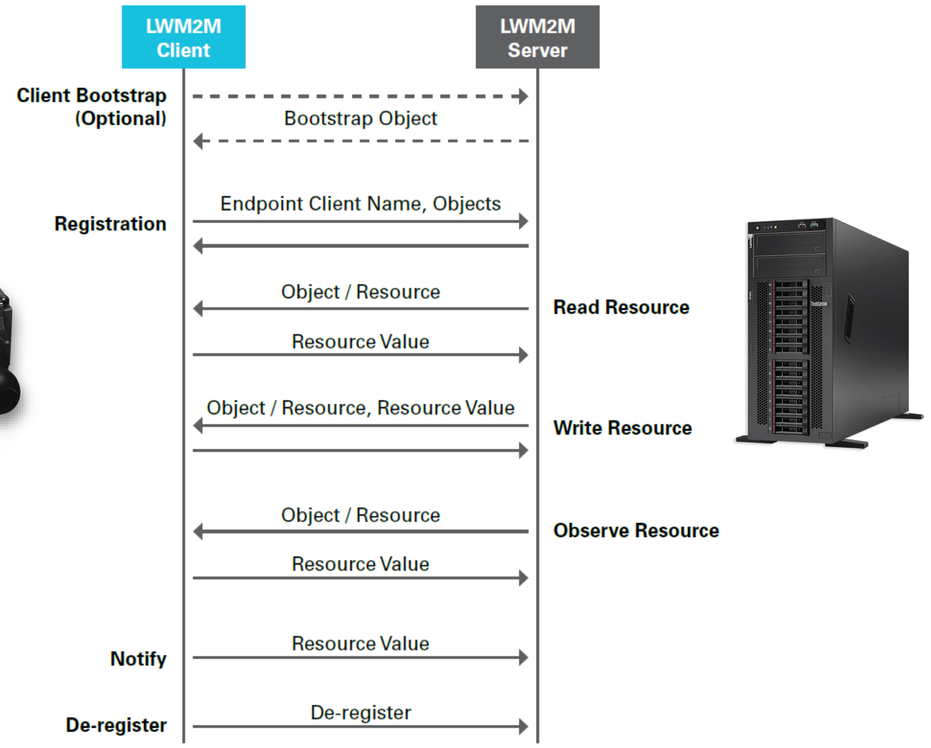
All device communications are encrypted with industry-standard DTLS encryption. This encryption is used by millions of devices around the world.

Our device secrets are provisioned at manufacturing with unique keys that are stored in an on-board secure element on the device and are securely provisioned in our cloud to ensure maximum identity protection.

We collect real-time network events from cellular operators to detect connectivity anomalies and potential network hijacking.

We employ technologies to maximize battery life and ensure efficient use of cellular bandwidth to optimize the costs associated with tracking containers.

Encrypted communication protocol between the EyeSeal device and the Multiplexer



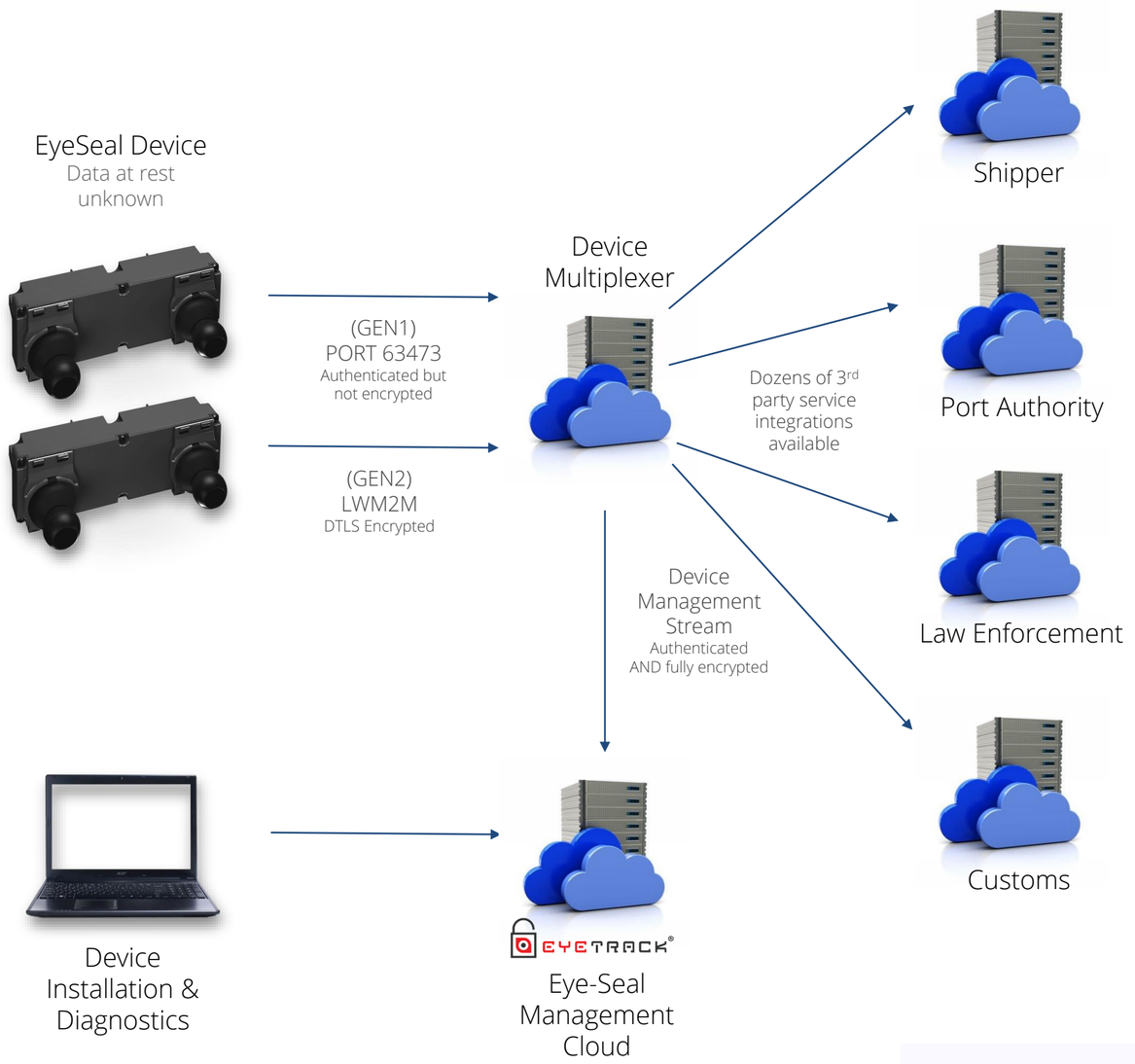
Eye-Seal system architecture diagram

The Eye-Seal architecture recognizes the need for real-time integration with 3rd party services and platforms to enable multiple consumers to process the critical container data in real-time. All data is securely collected by the Device Multiplexer and distributed to customer systems as events are received from devices.

Our solution has evolved and leverages many technical innovations to provide a highly secure and reliable service. Our devices have evolved from proprietary protocols and encryption to standards-based communications based on Lightweight M2M (LwM2M) over CoAP and DTLS. These technologies are well tested and extremely secure.

We have also migrated from using our own on-premise hosting facilities to leading hyper-cloud vendors allowing us to leverage their advanced security infrastructures to ensure our offering is able to scale while still providing industry leading security and functionality.

Device management data is forwarded by the Multiplexer to Eye-Seal's servers to enable remote management and ease deployment of new devices in the field. By segregating the data feed at the Multiplexer, our customers are well insulated against changes and evolution of our management platform.



Track record – Gateway²Britain

- The G²B project selected and tested selected track-and-trace technologies, including EyeSeal.
- 38 shipments from Flanders to the UK were simulated and 29 shipments were followed up via T&T technologies.
- The data-sharing platform offered increased automation, and better visibility of data, resulting in time savings, fewer errors, and reduced emails.
- Track & trace technologies provided a better understanding of the location, conditions, and safety of goods.
- Combining the transparent trade lane and data-sharing pillars reinforced transparency in the logistics flow.
- The G²B platform offers benefits for both private and public parties such as customs and FASFC.

EyeSeal was selected as the best internal container monitoring solution during this project

Countries visited in worldwide deployments since 2018

ALBANIA
ARGENTINA
AUSTRALIA
BAHAMAS
BELGIUM
BOLIVIA
BRAZIL
CAMBODIA
CANADA
CHILE
CHINA
COLOMBIA
CROATIA
DENMARK
DOMINICAN REPUBLIC
ECUADOR
EGYPT
FRANCE
GERMANY
GREECE
GUATEMALA
HONG KONG
INDIA
INDONESIA
IRELAND
ISRAEL
ITALY
KENYA
MALAYSIA
MALDIVES
MAURITIUS
MEXICO
MYANMAR
NICARAGUA
NORWAY
OMAN
PAKISTAN
PANAMA
PARAGUAY
PERU
PHILIPPINES
POLAND
PORTUGAL
QATAR
REUNION ISLAND
RWANDA
SAUDI ARABIA
SEYCHELLES
SINGAPORE
SOUTH AFRICA
SPAIN
SRI LANKA
SWITZERLAND
TAIWAN
TANZANIA
THAILAND
THE NETHERLANDS
TRINIDAD & TOBAGO
TURKEY
U.S. VIRGIN ISLANDS
UGANDA
U.A.E.
UNITED KINGDOM
URUGUAY
U.S.A.
VENEZUELA
VIETNAM

EYESEAL

Winner of the 2023 IoT Evolution Supply Chain and Cargo Monitoring Product of the Year Award

Fort Lauderdale, February 23, 2023

IoT Evolution™

The solution for the entire value chain

Shipper
- Brand protection
- Increased efficiency
- Secure supply-chain

Surveyors & freight forwarders
- Streamlining of operations
- Revenue opportunity
- Positive for reputation

Trade finance
- Reduced fraud
- Improved transparency
- Increased revenue

Governments
- Homeland security
- Crime mitigation
- Increased tax revenue

Cargo terminals
- Higher efficiency
- Reduced congestion
- Increased safety

Shipping companies
- Increased safety
- Reduced liability

Law enforcement
- Rule of law
- Efficiency
- Less negative impact on society

Customs
- Higher efficiency
- Secure borders
- Increased data visibility

Insurance
- Improved risk assessment
- Efficient claims processing
- Increased profitability
- Reduced instances of fraud

Digital platforms
- Lack of reliable devices
- Reliable data
- Added value services

Ground transportation
- More control
- Increased safety
- Increased efficiency

Final customer
- No surprises
- No disruptions
- Increased satifcation