

Wireless tracking, monitoring and streamlining operations



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The Globe Tracker Yard and Terminal Infrastructure Network enhances yard and terminal operational efficiency and provides a communications link with customers to facilitate value-added services. Strategic placement of Globe Tracker Infrastructure Communications Units throughout the yard or terminal, produces, in-effect, blanket coverage of the area. These Infrastructure Communications Units (ICU) continuously communicate with each other. They also communicate with GT Communications Units installed in assets, containers, trucks, ITVs, reach stackers, chassis etc, located in the coverage area. This continuous communication allows the yard operator to determine the exact real-time location of every GT-enabled customer and yard asset in the coverage area. Additionally, these GT-enabled assets can communicate real-time events, such as temperature alarms and door status changes directly to the asset owners – the yard's customers. These real-time alerts can be passed to the terminal operator, thus allowing for optimisation of terminal and yard operational efficiency, and provision of value-added services to customers.

Globe Tracker's solution extends beyond marine terminals to inland hubs, container depots, rail yards, intermodal yards and logistics staging areas, where operations require tracking and cargo integrity/security. Owners and freight forwarders will be able to achieve proof of delivery and verification of cargo security from origin to final destination.

Features and benefits

Globe Tracker's Yard and Terminal Infrastructure offers the following benefits:

- It is the most cost-effective asset-tracking and monitoring solution for yards and terminals, with its inexpensive 'cloud' services and

hardware guaranteed and maintained under GT Total Care;

- Unmatched coverage with penetrating Sub GHz radio technology; locates and communicates with assets even in multiple rows and stacks;
- Optimises container and trailer-flow through terminals and yards, saving time and money, and improving equipment operating efficiencies;
- Features yard and terminal alerts, including asset arrival and departure, movement within the yard and terminal, interchanges between cranes, chassis, trucks and lifts, geo-fence position alerts, power on/off, etc;
- Geo zones within yards and terminals track containers through pre-cleared, customs-cleared, maintenance and other areas defined by the operators;
- Accurate asset positioning within yards and terminals' X, Y and Z planes;
- Asset event alerts such as temperature alarms or door open are communicated through the GT I-Network to the asset owner and shared in real-time with the yard/terminal operator through GT's Trade Data Exchange Network, and
- Improved logistics and exchange verification through GT's Trade Data Exchange Network and I-Networks.

How it all comes together

Rational tracking and monitoring of containers and other assets in yards and terminals requires reliable full 'field of interest' coverage and real-time communications at a reasonable total cost. GPS, optical, cellular and Wi-Fi solutions all require compromises, and are currently expensive, in both initial and long-term cost, due to maintenance and service disruption impacts. The Globe Tracker Yard

and Terminal Infrastructure Solution offers unparalleled real-time communications coverage at a fraction of the initial out-of-pocket cost and many times that advantage over time with GT Total Care warranty.

GT Comm. Units entering a yard or terminal recognise and connect themselves to the area's infrastructure network. Once connected, the GT Comm. Units change their operating profile to 'Infrastructure Mode'. In Infrastructure Mode, the units collect and report data from their associated peripherals and real-time events to their owner's remote server through the infrastructure network. These real-time events are shared, at the asset owner's discretion, with the yard or terminal operator through Globe Tracker's Trade Data Exchange Network for appropriate action.

The GT Infrastructure Network also monitors Sub GHz devices deployed by the yard or terminal operator to track their operations, movements, position changes, process flow, various operator-deployed sensors, etc. It is the GT Infrastructure Network and proprietary GT triangulation algorithms that provide the X- and Y-positioning and precision to within one metre.

The Globe Tracker eSeal

The Globe Tracker eSeal works as a peripheral to the GT Communications Unit, the industry's most advanced real-time tracking and monitoring communications device. The GT eSeal is designed to be inserted into the lock loops of a container or truck trailer door, have its locking cap attached by trusted personnel and then continuously report its real-time closed status to its associated GT Communications Unit as it moves through its supply chain journey. The GT Communications Unit reports this status

to its owner for inclusion in the container's or trailer's trip report.

The Globe Tracker eSeal – features and benefits

- Single-close and multiple open and close versions, both with guaranteed 70+ days of battery life, confirmed by LED each time the eSeal is closed;
- Easy 'no tools required' installation; insert the eSeal shaft through the lock loops, attach the end cap, watch for the activation LED to light;
- Continuous real-time door lock loops monitoring;
- Customisable eSeal alerts and reports;
- Real-time eSeal status data is incorporated into the GT communications unit data;
- Historical eSeal status data with GPS location and time stamp is saved to the asset owner's database;
- eSeal data can be seamlessly shared with customers, supply chain partners, customs and border protection agencies, and
- End-to-end, real-time electronic surveillance for containers, trailers, rail cars and air cargo containers.

Small, inexpensive and smart

The Globe Tracker eSeal is installed on the outside of a cargo container or truck trailer through the lock-loops on their doors. Removing the eSeal to separate the lock-loops and open the cargo doors requires the eSeal's 'cap' to be removed. The eSeal will be available in at least two versions, a 'close-once' version and a 'multiple-open and close' version that allows the eSeal to be opened and closed multiple times.

The Close-Once eSeal is installed by inserting its lock-rod through the lock-loops of the door and 'snapping' its cap onto the end of its lock-rod. The eSeal is opened by removing the eSeal's cap from the end of the eSeal's lock-rod such that the lock-rod can be extracted from the door's lock-loops. The eSeal's cap is removed from the lock-rod by breaking it off the end of the eSeal's lock-rod or by cutting the lock-rod itself.

The Multiple-Open and Close eSeal is installed similarly but is opened in a non-destructive manner such that it can be reclosed again. All of these actions are recorded in real-time by the eSeal and through its associated GT Communications Unit and are sent over the SAAN to the asset owner. The GT Communications Unit can be set-up to monitor eSeal data and within the context of other certain parameters and information – such as whether it is able to communicate with an authorised GT Infrastructure Network or

not – can initiate an immediate push signal, sending an eSeal alert through the GT SAAN to the asset owner.

Both eSeal versions are associated with specific assets, containers, truck trailers, etc. through the GT SAAN by their asset owners. Both eSeals are physically rugged, waterproof, meet IP67 requirements, and are capable of operation in temperatures ranging from -40°C to +70°C.

eSeal benefits:

- eSeals have a guaranteed 70+ days active battery life and a one-year shelf life;
- Ruggedised IP67 waterproof enclosure assures continuous performance;
- The shaft of the barrier-type bolt seal is made of 5/16in (8mm) diameter steel;
- eSeals reliably communicate with their associated GT Communications Unit's 433 MHz radio subsystem using Globe Tracker's open-license proprietary Sub GHz communications protocol;
- The eSeal's steel lock mechanism, steel bolt shaft and electronics are encased in impact-resistant plastic housings;
- A large integrated event log helps to ensure that eSeal events are not lost; and,
- Temperature operating range is between -40°C and +70°C.

Part two of this article will look at **GT Comm.** – the Globe Tracker Communications Unit

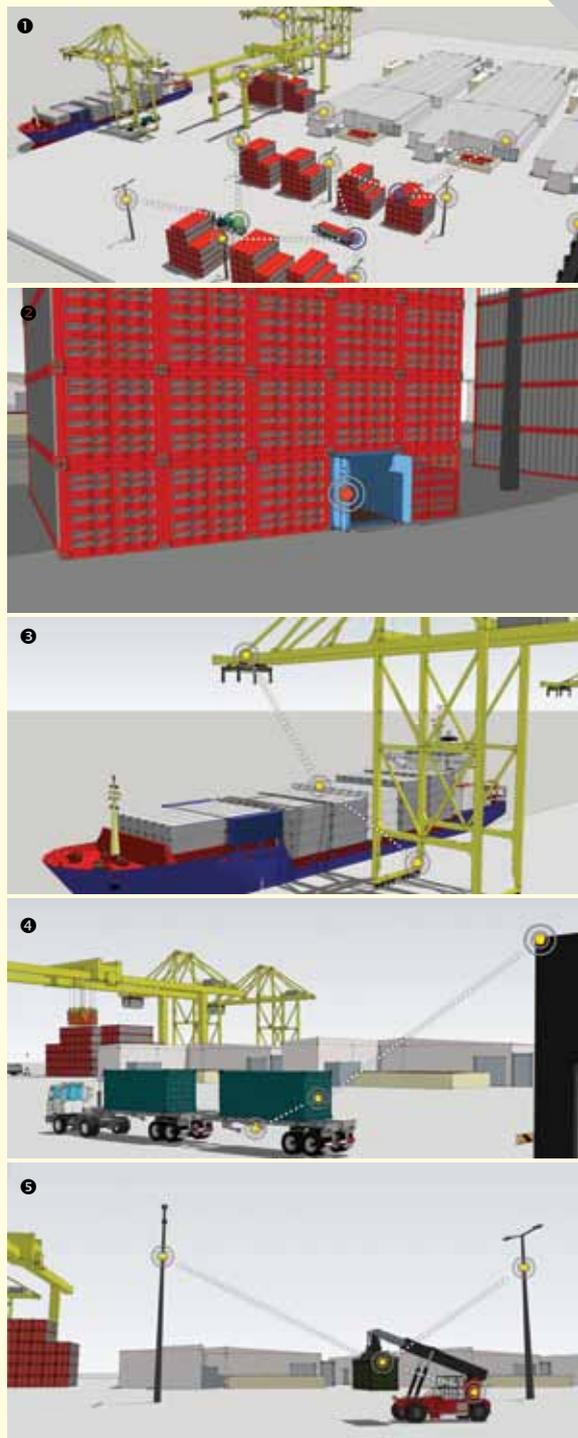
About the organisation

Globe Tracker International is a privately-held Danish company specialising in supply chain visibility and profitability. It is a leading provider of data sharing, data analytics, and global asset tracking and monitoring services and equipment. Globe Tracker opened a development centre in Beijing, China, in February 2007, and now has offices and development centres in Qingdao, China; Toronto, Canada; Copenhagen, Denmark; Reykjavik, Iceland; and Melbourne, Florida, US.

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1. Multiple GT Infrastructure Units are installed across terminals, yards, warehouses and depots to ensure blanket Sub GHz communications coverage for GT Communications Units and Sub GHz peripherals entering their field of coverage; 2. GT eSeals, installed in container door lock loops, also monitor and report real-time open/close events; 3. GT eSeals on containers can communicate with terminal infrastructure while still on the vessel; 4. GT multi-use eSeals can be installed, in seconds, on a container, either when unloaded from a vessel or when passing through a terminal gate; 5. GT eSeals can provide Lat/Long location to within 1m accuracy anywhere in the terminal.