

Case Study

Securing the Third-Party Logistics Ecosystem & Mitigating Supply Chain Risk

DUST Identity & LogiSeguridad

Executive summary.

Companies today are recognizing that they need to enhance their supply chain security and improve transparency in order to ensure end-to-end traceability and compliance. The challenge for logistics operations in particular is that they inherently involve multiple stakeholders that combine different types of transportation systems. It is a complex environment that spans the full-lifecycle from sourcing and suppliers to distribution to service operations. In conjunction, there is an increased reliance on third-party logistics (3PL) partners, requiring an even greater demand to improve accountability and visibility.

Couple this with the arms race we're seeing in supply chain security and logistics security specifically. Existing security solutions applied to measures such as seals and container locks are constantly hacked, compromised or reverse-engineered (thus circumventing the detection of tampering). Recent reports in the news about the vulnerability of existing tools demonstrate the growing threat. In June 2019, there was a massive and historic drug seizure in a Philadelphia port where containers, loaded with 15.5 tons of cocaine, were re-sealed during the voyage of the MSC Gayane.

As goods and intermediate goods (parts, raw materials, etc.) are shipped, there is a need for a solution that will prevent fraud and tampering as well as data manipulation as bad actors are looking for different vectors to interfere with the delivery. Theft, tampering and insertion of non-genuine articles present significant financial risks including loss of revenue and fines as well as reputational risk and legal repercussions. These concerns are most pronounced for companies that export goods especially where it involves multimodal transportation of containers. Maritime logistics present a recurrent target with a significant attack surface given the scale of the shipments. Consider the MSC Oscar, the largest shipping vessel, with a 20,000 container capacity. According to WTO about 10% of global trade is counterfeit -- that would mean 2,000 containers on the Oscar!

LogiSeguridad, a South American logistics company based out of Barranquilla, Atlántico, Colombia, helps de-risk the shipping and exporting process. The company, in this case a 3PL, produces highly specialized, high security tags, container locks and document pouches designed to greatly increase the hurdle to inserting unauthorized materials into a container and removing legitimate products from the shipment. In order to circumvent attempts to defeat existing security mechanisms, LogiSeguridad is constantly on the lookout for the next generation of security techniques while simultaneously acting as a trusted 3PL to its customers. LogiSeguridad looked to DUST Identity to strengthen its current security measures by seeking an unclonable and tamper-evident solution.

Company

LogiSeguridad

Industry

Shipping & Exporting
Security & Logistics

Outcome

DUST Identity demonstrated the ability to improve the security of LogiSeguridad's tamper-evident container seals.

“Compared to different options in the market, the DUST solution appears to be the most secure and innovative technology.”

- Juan Berrío, CEO, LogiSeguridad

The problem.

LogiSeguridad's specialty tags utilize a wide range of security techniques to make producing non-genuine versions of its tags more difficult. The techniques include serialization, holograms, special printing techniques and invisible markings. In addition, the tags are produced in a specialized, secure facility to reduce the possibility of leakage at the point of production. Though the combination of multiple security mechanisms makes their tags more secure than most other options, it does not eliminate the possibility of a breach. No matter the amount of conventional security barriers, having a compromise in those measures remains a major concern for LogiSeguridad.

The solution.

DUST is adding an unclonable identity layer onto LogiSeguridad's labels and container locks for better security and efficiency in the verification and validation processes. To improve the security of their products, LogiSeguridad engaged DUST Identity to trial the incorporation of the Diamond Unclonable Security Tag (DUST) Solution to the security stack for its existing and future measures. By providing every tag with a unique, unclonable DUST ID that can only be authenticated when in direct physical contact, the security of LogiSeguridad's measures becomes impossible to break or hack.

How it works: When applied to a surface, the DUST marking creates a unique, physically unclonable "fingerprint" based on the configuration of quantum engineered nano-diamonds. No existing tools can recreate a known pattern precisely, nor can the patterns be removed intact from a given surface. With DUST, security is embedded in the scan of the random nano-diamond configuration, and not only the marking material. Therefore, DUST can be distributed widely and used at any point in the supply chain without fear of compromise. It also allows individual item serialization and therefore provides the physical-digital binding to track and secure items at any point in the supply chain.

LogiSeguridad sent DUST Identity a variety of labels and container lock types to assess the feasibility of incorporating the DUST Solution into the current anti-tamper measures being employed. The articles had different substrates, made from different materials, color combinations and security measures already in place. In addition to marking, enrolling and authenticating these items, DUST Identity also performed environmental testing to ensure the tags durability when deployed in the field.

Labels and Container Lock Examples



The conclusion.

DUST Identity demonstrated the ability to improve the security of the current LogiSeguridad products with DUST tags that withstand the environmental conditions for this application. Acting as a complementary solution, DUST Identity enhances LogiSeguridad's current security measures, allowing verification and validation of the cargo and its chain of custody. At the same time, the solution provides a competitive edge to its customers and prevents manipulation or tampering with LogiSeguridad customers' cargo and goods.