



# Virtual Vault for your Pharmaceutical supply chain

## Safeguarding product authenticity and quality for your customers

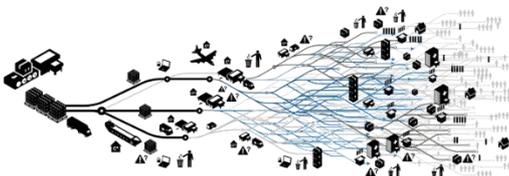
AntTail develops solutions to support pharmaceutical logistics and quality management demands to keep medication at the right quality standards and protect authenticity. In 2018 AntTail has joined forces with Royal Joh. Enschedé, which focuses on the international market for High Security Print with products such as stamps and other secured printed products. Combining secure printing with state-of-the-art IoT technology, AntTail provides solutions for a transparent supply chain.

### What is a Virtual Vault?

It is a combination of a secure printed label with a unique QR-code, connected to a sensor inside your shipper box. The sensor detects changes of the light inside the box and can detect (unplanned) opening of the box.

### Why should I want one?

Because it helps to identify problems in your logistics chain concerning counterfeit, theft and quality. It saves time and effort and because it reduces human intervention, the number of errors decreases dramatically. This makes a great business case where the numbers speak for itself.



### What problems does it solve?

Pharmaceutical supply chains are long, fragmented and vulnerable to falsification and temperature variation. The EU legislation for serialization is only mandatory for patient packaging. You need to guarantee the quality and authenticity of each shipperbox at any point in the supply chain, without opening the shipper box.

### What technology does a Virtual Vault use?

The Royal Joh. Enschedé security printing technology for the labels is the same as used for banknotes. Very high-density printing and security features that cannot be copied or reproduced. Unique QR-codes are issued per vendor. Every issued QR-code is stored in our secure Cloud and can be retrieved anytime, anywhere to check if it matches the shipment.

Every sensor is white-listed per serial number. All sensor communication is Bluetooth and encrypted. Traffic from gateways to our secure Cloud is encrypted and runs over a private APN. Our sensor and AntCloud are fully CFR 21 part 11 compliant.

### What else does it measure?

The sensor measures and stores temperature every 5 minutes to comply to GDP regulations. The sensor is capable of storing 2 years of data. When a sensor read is done, all temperature data is sent to the AntCloud and is checked against the alarm profile that was activated for this box.

### Where do I start?

You start by contacting us. We will provide you with the information you need to start your project and to make it successful in your supply chain.

AntTail provides transparency in the supply chain. AntTail designs and delivers products and services that monitor the temperature of medicine during transport and storage from manufacturer to end user. Smart sensors allow pharmaceutical companies, health providers and logistic service providers to monitor the temperature of shipments online and assure product quality. AntTail's cloud based secure SaaS-solution works with existing cold chain solutions, avoiding investments and complex implementations. AntTail has won the Eurocloud award in 2016 for the most innovative cloud solution and the IoT Award Healthcare in 2018 for a last mile solution in the pharmaceutical supply chain.

For more information: [info@anttail.com](mailto:info@anttail.com) or [www.anttail.com](http://www.anttail.com)





# Seamless monitoring for temperature sensitive medication

## A transparent supply chain for better product quality

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### What is seamless monitoring?

It means no more blank spots in the supply chain. AntTail's seamless temperature monitoring safeguards product quality as it provides a complete and auditable data record of the shipment from the manufacturing facility to any end-point.

### Why should I want it?

Because it improves quality, requires less human effort and hence saves money. Seamless monitoring provides more advanced alarm profiles on e.g. total time out of storage or stability budgets. Sophisticated alarm profiles allow better utilization of product stability data and result in less product rejection (less false positives) during storage and transport.

### How does it save money?

By lowering transport costs and preventing waste, business benefits can be calculated quickly. Furthermore, seamless monitoring gives insight into transport quality, delivery accuracy and can be used to validate authentication and integrity of your shipments. If an anomaly is detected in the cold chain, timely reporting allows fact (data) based decisions that yield short response and/or correction times.

### What is AntTail's vision?

AntTail's vision is to create and deliver better efficiency and insight in the supply chain with wireless sensors and automatic data collection into a cloud based back office minimizing human effort.



3 type of AntTail temperature sensors

### What is AntTail's solution?

To achieve data completeness, AntTail sensors are wireless and are automatically read out by gateways that are strategically placed at hubs, warehouses and destinations in the supply chain. Also, smartphone apps can be used to read out the AntTail sensor at e.g. end-points and destinations where no gateways are installed. The AntCloud automatically reports exceptions and sends alarms to assigned stakeholders, like Quality Managers and logistic partners. The monitoring service generates business overviews and shipments performance insight. The service can be used on several shipment levels (pallet, shipping box, pack outbox, SKU, reefer) and in different kind of shipping lanes (internal, external, last mile).

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