GLN Overview

“The identification of everything makes anything possible”

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Introduction to GS1

Expertise

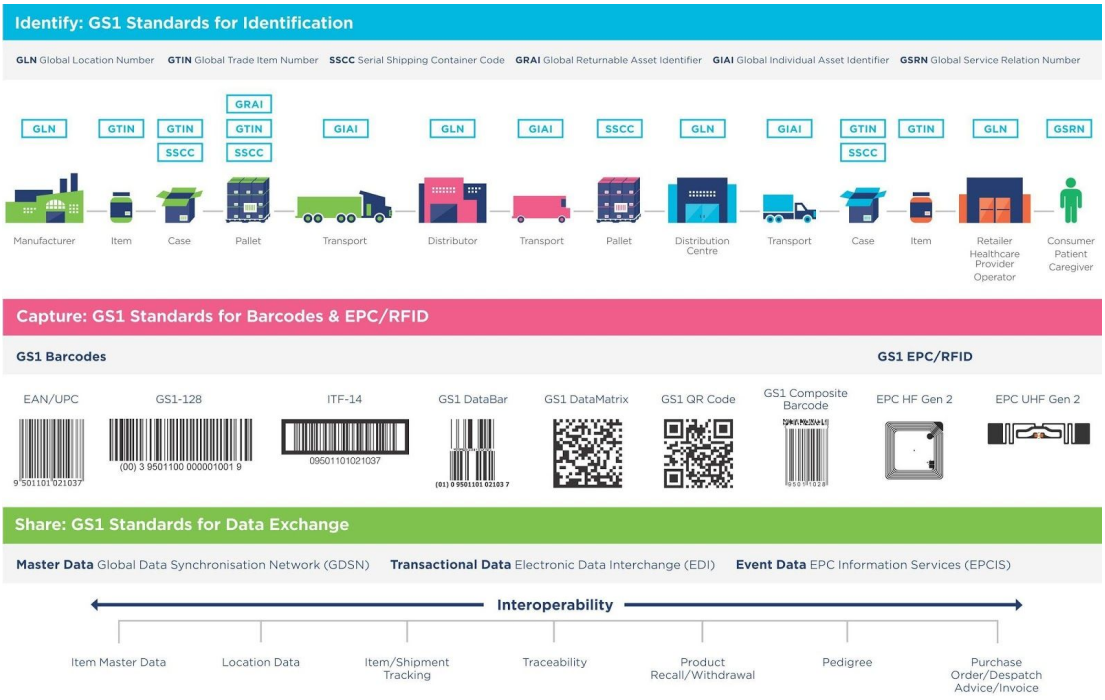
- Most widely used system of standards in the world

Reach & Impact

- Over 2.5 million businesses
- 6 billion scans daily
- 114 member organizations representing 120 countries

Pioneer

- 40+ year history transforming the way we work and live with U.P.C. and RFID



GS1 Company Prefix (GCP)


THE GLOBAL LANGUAGE OF BUSINESS

GS1 COMPANY PREFIX CERTIFICATE

LICENSED TO

ABC Company

"LICENSEE"

GS1 Company Prefix: 0012345

For use in creating GS1 Identification Numbers

Global Trade Item Number (GTIN)
Serial Shipping Container Code (SSCC)
Global Location Number (GLN)
Global Document Type Identifier (GDTI)
Global Service Relation Number (GSRN)
Global Individual Asset Identifier (GIAI)
Global Returnable Asset Identifier (GRAI)
Global Identification Number for Consignment (GINC)
Global Shipment Identification Number (GSIN)

U.P.C. Company Prefix: 012345

For use when creating U.P.C. barcodes

Legal Entity GLN: 0012345999994

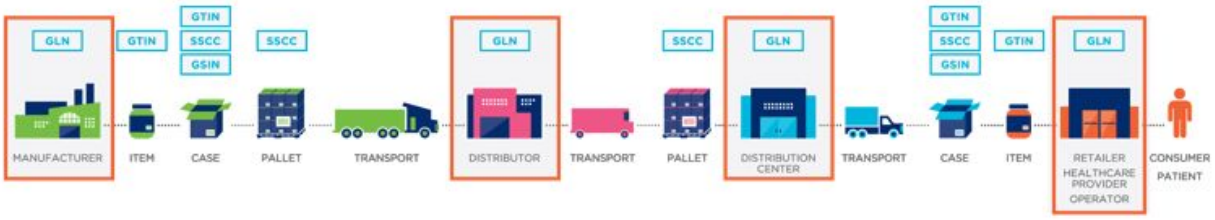
To continue the use of this prefix, your license must be renewed on or before: xx/xx/xxxx

Account Number: xxxxxxxx

What is a Global Location Number (GLN)?

- Being able to identify locations with a unique number is vital to the automation of many business processes.
- Global Location Number (GLN) is the GS1 Identification Key used to globally and uniquely identify locations (physical or digital) or entities (legal or functional).
- GLNs enable used to identify their locations accurately in a way that can be used with all trading partners.

GLN in the Supply Chain



Examples of GLN

GLN uniquely identifies any physical location, digital location, legal entity or functional entity.

1. **Physical locations:**

A site (an area, a structure or group of structures) or an area within the site where something was, is, or will be located.

   a. Manufacturing facility, warehouse facility, distribution facility, retail store
   b. Dock doors, floor #, section of floor, room
   c. Shelf, section on shelf

2. **Digital locations:**

An electronic (non-physical) address that is used for communication between computer systems.

   a. EDI gateway
   b. ERP system
      a. Delivery of an invoice by EDI or email to an accounting system

3. **Legal entities:**

Any business, government body, department, charity, individual or institution that has standing in the eyes of the law and has the capacity to enter into contracts.

   a. Whole companies, subsidiaries or divisions
   b. Suppliers, distributors, banks, freight carriers

4. **Functional entities:**

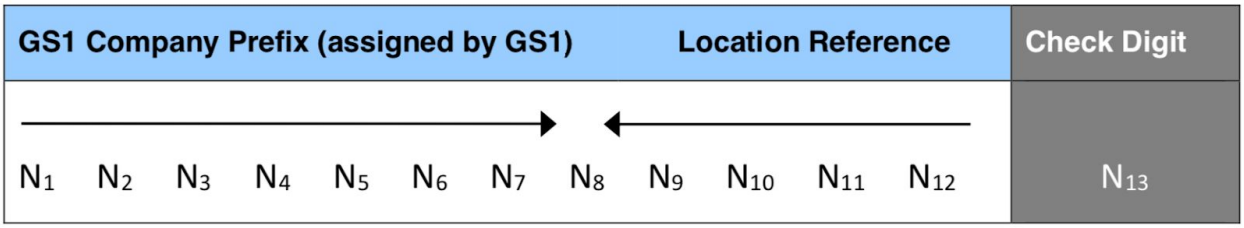
A specific department within a legal entity.

a. accounting
b. accounts payable
c. returns

Structure of GLN

The GLN has a unique **13 digit structure**, formed in a similar way to a GTIN-13, and is constructed as follows:

- **GS1 Company Prefix:** assigned by a local GS1 Member Organization to a company (7-10 digits in length)
- **Location Reference:** allocated by the company to a location or party (2-5 digits in length)
- **Check Digit:** calculated according to GS1 algorithm (1 digit) (check digits can be calculated using the GS1 Check Digit Calculator)



- GLNs may be encoded within a barcode for a specific business application and placed on shipping labels: e.g. “ship to-deliver to” locations, “bill to – invoice to” locations, and “purchased from” locations.

Application Identifiers (AIs): GLN in AIDC applications

Overview of AIs
GS1 Application Identifiers (AIs) are **prefixes used in barcodes and EPC/RFID-tags to define the meaning and format of data attributes.** They provide product data beyond the GTIN, such as the batch/lot number, serial number, best before date and expiration date. For location, application identifiers can indicate indicate a **physical location, a delivery location, or a party.**

GLN is used in applications that cover the electronic sharing of location information and automatic identification and data capture (AIDC). The following applications focus on the use of the GLN in AIDC applications.

Three broad categories of AI use:

1. **Identification of a physical location**
    a. e.g. through a label attached to a loading dock or to a shelf location in a warehouse.
        i. **AI (414) Physical**
        ii. **AI (254) GLN extension component**
2. **Specification of a delivery location**
    a. e.g. a ship-to location on a logistic label.
        i. **AI (410) Ship to - Deliver to**
        ii. **AI (413) Ship for - Deliver for - Forward to**
        iii. **AI (416) Production or service location**
3. **Specification of an entity**
    a. e.g. the invoicing party on a payment slip.
        i. **AI (411) Bill to - Invoice to**
        ii. **AI (412) Purchased From**
        iii. **AI (415) Invoicing Entity**

Full List of Application Identifiers

Assigning GLNs

Objectives

- to promote efficient use of the GS1 Company Prefix
- to define a standardized approach:
    - for the creation of location identifiers, descriptions, and geo-location assignment used in internal and external traceability systems
- Do **not** build intelligence into your assignments.

GLN Structure Example

Location	GS1 Company Prefix	Location Reference	Check Digit
Corporate Entity	0614141	00000	5
Corporate Headquarters Building	0614141	00001	2
Philadelphia Factory	0614141	00002	9
Cherry Hill Factory	0614141	00003	6
Willow Grove Sales Office	0614141	00004	3
Philadelphia Distribution Center	0614141	00005	0

What is the first step for manufacturers, distributors, and retailers to identify themselves with GLNs?

GS1 US Data Hub® | Location (user guide) provides trading partners with a single source of information for locations and how they are related. With a GS1 US Data Hub subscription, you can create and manage locations, view and use third-party location data, or do both. The tool supports:

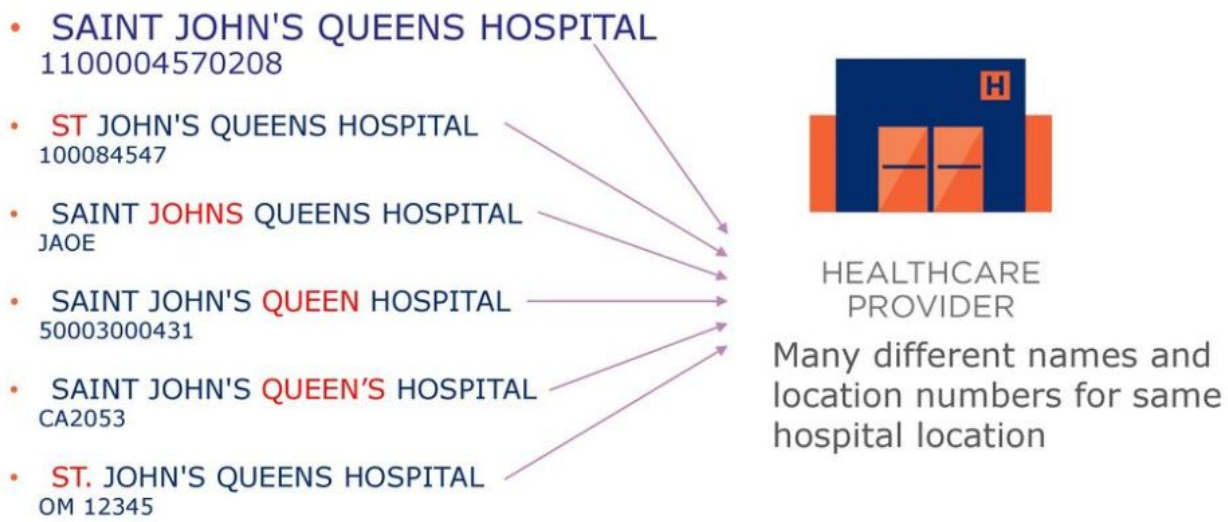
- Improved order-to-cash efficiency
- Better accuracy in location information
- Traceability

How to Assign GLNs

Why Use GLNs?

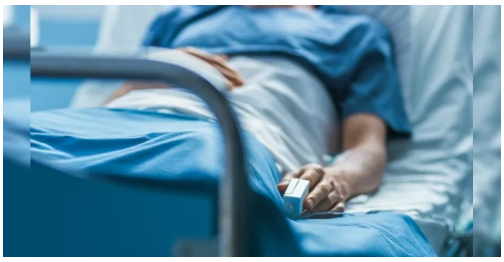
- **LOCATIONS:** A location is an object or point in the physical world - a building with a postal address, a structure or even a specific location within a site. Any location may be identified with a GLN:

One Hospital

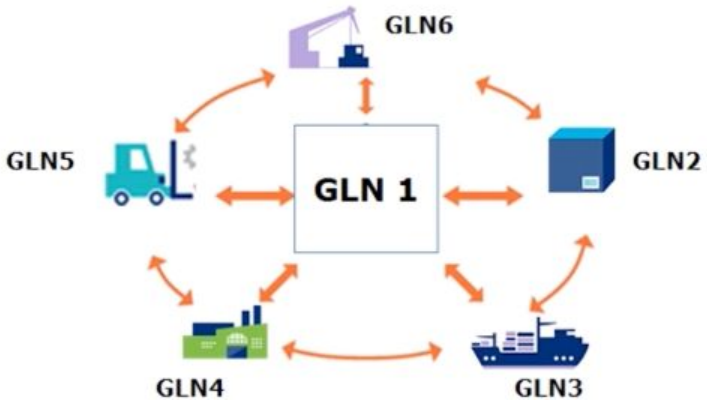


Within the Hospital





- **ENTITIES:**
    - Entity is an organization or a function thereof, which may have a physical location.
    - GLNs are used to identify each party in the supply chain.
    - Identification in this manner is a prerequisite to efficient electronic communication between partners.



- GLNs **reduce input errors and increase efficiency** in communications between trading partners about location.
- GLNs are **globally unique** and provide a universal way to communicate a specific physical location or party.
- GLNs help **avoid duplicate identifiers** for the same location, or worse yet, assigning the same location identifier to two different locations.

Benefits of GLN

The use of GS1 Global Location Numbers (GLNs) provides companies with a method of **identifying locations, within and outside their company**, that is:

- **Simple:** An easily defined data structure with integrity checking that facilitates processing and transmission of data.
- **Unique:** GLNs are globally unique if used according to the GS1 GLN Allocation Rules.
- **Multi-sectoral:** The GLN allows any location to be identified for any company, regardless of its activity anywhere in the world. This allows for the GLN to be used across many industry sectors.
- **Global:** Implemented around the world and supported by GS1 US and the international network of other GS1 Member Organizations covering more than 100 countries.

Furthermore,

- The use of GLN **saves time and money** as the number can be moved quickly and confidently through the supply chain.
- GLNs may be **assigned to any location to meet the needs/requirements** of businesses anywhere in the world—from loading docks to buildings on government bases to circuit boards in a router.
    - A GLN may be assigned to generic **departments** at the same location as well as to **unstaffed operation points** (e.g., automated teller machines, vending machines, etc.)
- GLNs can be **encoded in data carriers**

- GLNs provide a globally unique **answer to the "where?" portion of EPC Information Services (EPCIS)-read events** that are used as the basis for global visibility and traceability in the supply chain.
- The structure of the GLN and its assignment rules are **administered by GS1®,** a not-for-profit standards organization, and is **supported by implementation guidance, business examples, and maintenance.**

Using GLN's in Electronic Data Exchange

GLNs are a vital component for the efficient and effective use of GS1 system standards. GLNs are used to identify all the locations and entities to simplify the exchange of data.

- **GDSN**

GDSN enables trading partners to **share reliable master data**. A GLN must be associated with the master data for the relevant location or entity. GLNs are required to identify each party that provides or subscribes to information.

GLN Master Data

Master Data is the core data that is associated with the GLN. This data set does not change during transactions. The following is a list of the **master data attributes** that are recommended to be shared only once per GLN when sharing trace-back data.

Table 2: GLN Master Data

Master Data Common Name	Attribute Name	Description	Required / Optional
GLN	locationIdentification	13 digits	Required
Physical Location Extension	locationExtension	Up to 20 characters	Optional
Description	locationDescription	Free Text, 178 char	Required
Location Type	locationType	Multiple types allowed: Ship To, Bill To, Deliver To, Ship From, Paid By, Order From, Recall, Org Entity, Remit To, etc.	Required
Address Line 1	addressLine1		Required
Address Line 2	addressLine2		Optional
City	city		Required

State or Region	stateOrRegion	The state, province, or region using the standard two-letter abbreviation specified in ISO 3166-2:1998 country subdivision code [16].	Required
Postal Code	postalCode	The ZIP or other postal code.	Required
Country	country		Required
Latitude	latitude	(for Fields)	Required
Longitude	longitude	(for Fields)	Required
Contact Name	contactName		Required
Contact Email	contactEmail		Required
Contact Phone	contactPhone		Required
Create Date	createDate	Date this location becomes active	Required
Inactivation Date	inactivationDate	Date this location is no longer used by the information provider	Optional
Parent Location GLN	parentLocation	Used to describe a location hierarchy	Optional
Industry Sector	industrySector	Fresh Produce, Foodservice, Retail	Optional
Role	role	Pick best one for location: Manufacturer, Distributor, Operator, Grower, Packer, Shipper, Re-packer, Broker, 3PL, Brand Owner, Retailer, Restaurant Operator	Optional
Information Provider GLN	informationProviderGLN	The entity providing this information. Usually points to the primary business GLN listed in the spreadsheet or database.	Optional

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- **EDI**
    - Electronic Data Interchange (EDI) uses GLNs to identify all trading partners and physical locations. Also, the EDI mailbox or network address for companies is often identified with a GLN. The EDI standards promoted by the GS1 system (EANCOM, GS1 XML) make full use of GLNs to simplify the **automation of business messaging**.
    - GLNs and associated information of trading partners are communicated at the start of the relationship through the party information message (PARTIN). GLNs are then used during the **trading relationship** in any other business message, such as invoice, order, pay, or deliver.

- **EPCIS**

Electronic Product Code Information Services (EPCIS) is a GS1 Standard that enables disparate applications to create and share **visibility event data**, both within and across enterprises. GS1 EPCIS implementations use the GLN (sGLN) to identify Read Points and Business Locations and more.

A Read Point indicates the specific location *at which an event took place*, and thereby the whereabouts of objects at the time of a given event. A Business Location indicates the specific place of objects *following a given event*.

GLN in Action: Case-Study for Livestock and Meat Traceability

The study below, "Use of EPC RFID Standards for Livestock and Meat Traceability," demonstrates how SGLNs can be used to track and trace Livestock and Meat.

The study uses an eleven **(11) step process** model that identifies, captures and shares data exchanges of **EPC read events** among supply chain participants that cover the movement of **live deer from New Zealand to cartons of finished venison cuts at a German retailer**.

Read Event Number	Process Step, EPC Identifier and RFID Hardware Used	Process Step Image
1	**Tagging of Animals on Farm at Downlands Deer** EPC Item Identifier (Deer) - sGTIN per individual animal range EPC Location Identifier: (Downlands Deer) – urn:epc:id:sgln:942900.009772.xxx Item (Deer) sGTIN Range: urn:epc:id:sgtin:9421900217.003.1073742106 - 1073742127 RFID Reader Utilised – Motorola MC3190Z EPCIS: Event: ObjectEvent; Action: ADD; BizStep: urn:epcglobal:cbv:bizstep:commissioning; Disposition: urn:epcglobal:cbv:disp:active; ReadPoint: urn:epc:id:sgln:942900.009772.DEER_CRUSH; BizLocation: urn:epc:id:sgln:942900.009772.ON_FARM	
2	**Animals Leave Farm and are Loaded onto Truck via Farm Race at Downlands Deer** EPC Item Identifier (Deer) - sGTIN per individual animal range in Read Event # 1 EPC Location Identifier: (Downlands Deer) – urn:epc:id:sgln:942900.009772.xxx RFID Reader Utilised – Impinj Speedway R420 EPCIS: Event: ObjectEvent; Action: OBSERVE; BizStep: urn:epcglobal:cbv:bizstep:shipping; Disposition: urn:epcglobal:cbv:disp:in_transit; ReadPoint: urn:epc:id:sgln:942900.009772.LOADING_RAMP; BizLocation: Not applicable	

3

Animals Arrive at Mountain River Processor Holding Yard

EPC Item Identifier (Deer) - sGTIN per individual animal range in Read Event # 1
EPC Location Identifier (Mountain River) - urn:epc:id:sgln:942900.009774.xxx
RFID Reader Utilised – Impinj Speedway R420

EPCIS:

Event	ObjectEvent
Action	OBSERVE
BizStep	urn:epcglobal:cbv:bizstep:receiving
Disposition	urn:epcglobal:cbv:disp:active
ReadPoint	urn:epc:id:sgln:942900.009774.UNLOADING_RAMP
BizLocation	urn:epc:id:sgln:942900.009774.HOLDING_PEN_2

4

Animals Arrive at Mountain River Processor Stun Box

EPC Item Identifier (Deer) - sGTIN per individual animal range in Read Event # 1
EPC Location Identifier (Mountain River) - urn:epc:id:sgln:942900.009774.xxx
RFID Reader Utilised – Impinj Speedway R420

EPCIS:

Event	ObjectEvent
Action	DELETE
BizStep	urn:epcglobal:cbv:bizstep:transforming
Disposition	urn:epcglobal:cbv:disp:in_progress
ReadPoint	urn:epc:id:sgln:942900.009774.STUN_BOX
BizLocation	urn:epc:id:sgln:942900.009774.BONING_ROOM
Batch	EPCIS Pilot

5

Cartons of Finished Venison Cuts Moved into Chiller Room

EPC Item Identifier (Cartons) - sGTIN per carton label range urn:epc:id:sgtin:94130000.01420.1 - 99
EPC Location Identifier (Mountain River) - urn:epc:id:sgln:942900.009774.xxx
RFID Reader Utilised - Impinj Speedway R420

EPCIS:

Event	ObjectEvent
Action	ADD
BizStep	urn:epcglobal:cbv:bizstep:commissioning
Disposition	urn:epcglobal:cbv:active
ReadPoint	urn:epc:id:sgln:942900.009774.BONING_ROOM_EXIT
BizLocation	urn:epc:id:sgln:942900.009774.CHILLER_ROOM
Batch	EPCIS Pilot

:

6

Cartons of Venison Cuts Loaded Into Export Shipping Container at Mountain River Processor

EPC Item Identifier (Cartons) - sGTIN per carton label range urn:epc:id:sgtin:94130000.01420.1 - 99
EPC Item Identifier (Shipping Container) - urn:epc:id:grai:942900000.135.24680
EPC Location Identifier (Mountain River) - urn:epc:id:sgln:942900.009774.xxx
RFID Reader Utilised - Motorola MC3190Z

EPCIS:

Event	AggregationEvent
Action	ADD
BizStep	urn:epcglobal:cbv:bizstep:staging_outbound
Disposition	urn:epcglobal:_container_closed
ReadPoint	urn:epc:id:sgln:942900.009774.CHILLER_ROOM_EXIT
BizLocation	urn:epc:id:sgln:942900.009774.CONTAINER_ON_SITE

7

Container Leaving Mountain River Processor

EPC Item Identifier (Shipping Container) - urn:epc:id:grai:942900000.135.24680
EPC Location Identifier (Mountain River) - urn:epc:id:sgln:942900.009774.xxx
RFID Reader Utilised – Motorola MC3190Z

EPCIS:

Event	ObjectEvent
Action	OBSERVE
BizStep	urn:epcglobal:cbv:bizstep:shipping
Disposition	urn:epcglobal:in_transit
ReadPoint	urn:epc:id:sgln:942900.009774.EXIT_GATE
BizLocation	Not Applicable

8

Container Arriving at The Port of Lyttleton, Christchurch, New Zealand

EPC Item Identifier (Shipping Container) - urn:epc:id:grai:942900000.135.24680
EPC Location Identifier (Lyttleton Port) - urn:epc:id:sgln:942900.009778.xxx
RFID Reader Utilised – Motorola MC3190Z

EPCIS:

Event	ObjectEvent
Action	OBSERVE
BizStep	urn:epcglobal:cbv:bizstep:shipping
Disposition	urn:epcglobal:in_transit
ReadPoint	urn:epc:id:sgln:942900.009778.ENTRY_GATE
BizLocation	Not Applicable

9

Cartons of Venison Cuts Receipted on arrival at Prime Meat's Warehouse, Hamburg, Germany

EPC Item Identifier (Cartons) - sGTIN per carton label range urn:epc:id:sgtin:94130000.01420.1 - 99
EPC Location Identifier (Prime Meat) - urn:epc:id:sgln:4006468.00000.xxx:
RFID Reader Utilised - Tracient Padl Reader

EPCIS:

Event	AggregationEvent
Action	DELETE
BizStep	urn:epcglobal:cbv:bizstep:receiving
Disposition	urn:epcglobal:sellable_not_accessable
ReadPoint	urn:epc:id:sgln:4006468.00000.DOCK_DOOR
BizLocation	urn:epc:id:sgln:4006468.00000.CHILLER

10

Cartons of Venison Cuts loaded onto truck Prime Meat's Warehouse, Hamburg, Germany

EPC Item Identifier (Cartons) – sGTIN per carton label range urn:epc:id:sgtin:94130000.01420.1 - 99
EPC Location Identifier (Prime Meat) - urn:epc:id:sgln:4006468.00000.xxx
RFID Reader Utilised - Tracient Padl Reader

EPCIS:

Event	ObjectEvent
Action	OBSERVE
BizStep	urn:epcglobal:cbv:bizstep:shipping
Disposition	urn:epcglobal:in_transit
ReadPoint	urn:epc:id:sgln:4006468.00000.DOCK_DOOR
BizLocation	Not applicable

11

Cartons of Venison Cuts arrive at Retailer in Hamburg, Germany

EPC Item Identifier (Cartons) - sGTIN carton label range urn:epc:id:sgtin:94130000.01420.1 - 99
EPC Location Identifier (Retailer # 1) - urn:epc:id:sgln:4023339.00000.xxx
RFID Reader Utilised – Tracient Padl Reader

EPCIS:

Event	ObjectEvent
Action	DELETE
BizStep	urn:epcglobal:cbv:bizstep:receiving
Disposition	urn:epcglobal:sellable_accessible
ReadPoint	urn:epc:id:sgln:4023339.00000.IN_STORE
BizLocation	urn:epc:id:sgln:4023339.00000.RECEIVING_BAY

- Source: Use of EPC RFID Standards for Livestock and Meat Traceability

References

- GS1 General Specifications
- Introduction to GLN
- GS1 EPCIS Standard
- Core Business Vocabulary Standard
- GS1 Global Traceability Standard
- Produce Traceability Initiative Guidance for Global Location Number (GLN) Assignment
- Use of EPC RFID Standards for Livestock and Meat Traceability

Glossary

FAQs