The Global Language of Business

Foodservice

Implementation Guideline for Case-Level Traceability Using GS1 Standards

Release 1.0, Feb 14 2017

Table of Contents

1 Document Information 5
- 1.1 Purpose 5
- 1.2 Scope 5
- 1.3 Audience 5

2 Traceability for Foodservice 5
- 2.1 Overview 5
- 2.2 The Role of Standards 6
- 2.3 When should information be collected: Critical Tracking Events (CTEs) 6
- 2.4 What information should be collected: Key Data Elements (KDEs) 9
- 2.5 Where to get the information (KDE) 10
- 2.6 How to record the information 11
  - 2.6.1 What type of record 11
  - 2.6.2 What data format for KDE 11
- 2.7 How long to retain the information 11

3 Implementing Traceability Across the Supply Chain 12
- 3.1 Growers/Suppliers 12
  - 3.1.1 Roles & Responsibilities 12
  - 3.1.2 Business Steps and Data to be Captured for Traceability 12
- 3.2 Processors/Manufacturers 14
  - 3.2.1 Roles & Responsibilities 14
  - 3.2.2 Business Steps and Data to be Captured for Traceability 14
- 3.3 Distributors 16
  - 3.3.1 Roles & Responsibilities 16
  - 3.3.2 Business Steps and Data to be Captured for Traceability 16
- 3.4 Operators/Restaurants 17
  - 3.4.1 Roles & Responsibilities 17
  - 3.4.2 Business Steps and Data to be Captured for Traceability 18
- 3.5 Note to All Roles 18

4 Implementation Guidance 19
- 4.1 Identifying Supply Chain Parties and Locations 19
- 4.2 Identifying Cases 19
- 4.3 Batch/Lot Numbers 19
- 4.4 Case Serial Numbers 20
- 4.5 Labelling Cases for Traceability 20
- 4.6 GS1-128 Barcodes 20
- 4.7 Capturing GS1-128 Barcode Information 20

5 Resources 21

© 2017 GS1 US ALL RIGHTS RESERVED

A GS1 Standards Used in this Guideline 22
A.1 GS1 Global Traceability Standard 22
A.2 Global Location Number (GLN) 22
A.3 Global Trade Item Number (GTIN) 22
A.4 Serial Shipping Container Code (SSCC) 22
A.5 GS1 Data Carriers 23
A.6 GS1 Application Identifiers 23

B Additional Information About Critical Tracking Events 24
B.1 Transformation Events 24
B.1.1 Transformation Input Event 24
B.1.2 Transformation Output Event 24
B.2 Transportation Events 24
B.2.1 Shipping Event 24
B.2.2 Receiving Event 25
B.3 Depletion Events 25
B.3.1 Consumption Event 25
B.3.2 Disposal Event 25

C KDE for each Critical Tracking Event 26
C.1 Shipping Event KDE 26
C.2 Receiving Event KDE 26
C.3 Transformation Event KDE 27
C.4 Consumption Event KDE 27
C.5 Dispose Event KDE 28

© 2017 GS1 US ALL RIGHTS RESERVED

About GS1

GS1® is a neutral, not-for-profit, global organization that develops and maintains the most widely-used supply chain standards system in the world. GS1 Standards improve the efficiency, safety, and visibility of supply chains across multiple sectors. With local Member Organizations in over 110 countries, GS1 engages with communities of trading partners, industry organizations, governments, and technology providers to understand and respond to their business needs through the adoption and implementation of global standards. GS1 is driven by over a million user companies, which execute more than six billion transactions daily in 150 countries using GS1 Standards.

About GS1 US

GS1 US®, a member of GS1 global, is a not-for-profit information standards organization that facilitates industry collaboration to improve supply chain visibility and efficiency through the use of GS1 Standards, the most widely-used supply chain standards system in the world. Nearly 300,000 businesses in 25 industries rely on GS1 US for trading-partner collaboration that optimizes their supply chains, drives cost performance and revenue growth while also enabling regulatory compliance. They achieve these benefits through solutions based on GS1 global unique numbering and identification systems, barcodes, Electronic Product Code-based RFID, data synchronization, and electronic information exchange. GS1 US also manages the United Nations Standard Products and Services Code® (UNSPSC®).

About Foodservice GS1 US Standards Initiative

The Foodservice GS1 US Standards Initiative serves as a strategic effort in which industry trade associations and individual companies may choose to join on a voluntary basis to assist with their company's adoption and implementation of GS1 Standards. Nothing herein should be construed as constituting or implying an agreement among foodservice companies to adopt or implement GS1 Standards. Nothing herein should be construed as constituting or implying an agreement regarding any company's prices, output, markets, or dealings with customers and suppliers. Nothing herein is inconsistent with the proposition that each participating company must and will exercise its independent business judgment on all standards adoption.

© 2017 GS1 US ALL RIGHTS RESERVED

1 Document Information

The U.S. foodservice industry is comprised of a large array of trading partners, from the farmer or grower to internationally sourced suppliers. This document was developed by industry participants to define consistent business practices that can be implemented by trading partners to effectively manage case-level traceability for the foodservice industry using GS1 Standards, regardless of size or technological sophistication.

Note: As with all GS1 Standards and solutions, the Implementation Guideline for Case-Level Traceability is voluntary, not mandatory. It should be noted that use of the words "must" and "require" throughout this document relate exclusively to technical recommendations for the proper application of the standards to support the integrity of your implementation.

1.1 Purpose

The purpose of this document is to assist members of the U.S. foodservice industry in implementing business processes to support supply chain traceability at the case level using GS1 Standards. It introduces and explains key practices used to promote case-level traceability, and provides guidance about how those practices can be implemented by foodservice trading partners using GS1 Standards.

1.2 Scope

This guide is applicable to:

- All products for human consumption;
- All U.S. supply chain roles (including suppliers, manufacturers, processors, distributors, and operators); and
- Traceability practices from the supplier's processing facility to the foodservice operator.

This guideline defines the minimum business and information processes needed to support case-level traceability using GS1 Global Trade Item Number® (GTIN®) and pallet-level identification using GS1 Serial Shipping Container Code (SSCC) across the foodservice supply chain. Implementation timelines may be defined by individual trading partner relationships.

1.3 Audience

This is a practical guide that is intended for those responsible for implementing traceability in their company's operations and supply chain. It is applicable to U.S. foodservice suppliers, manufacturers, processors, distributors, wholesalers, and operators. In addition, it may also be useful to exporters and importers.

2 Traceability for Foodservice

Traceability is a visibility application that enables foodservice trading partners to track and trace product throughout the supply chain. It involves each trading partner collecting and maintaining product information that supports, at the very least, "one up/one down" visibility of the product's movement through the distribution channel.

2.1 Overview

Supply chain traceability is the net result of two complementary business processes: *internal traceability* and *external traceability*.

- *Internal traceability* involves processes within an organization to link the batch identity of raw materials to the batches of the finished goods. These processes support traceability by associating input products with output products when an industry participant creates a new product.

© 2017 GS1 US ALL RIGHTS RESERVED

- *External traceability* involves the communication of product identity and transport information between trading partners. To maintain external traceability, traceable item identification numbers must be communicated to distribution channel participants on product labels and used in related paper or electronic business documents. This links the physical products with the information needed for traceability. Standards are essential to this effort because they provide the common language that enables trading partners to exchange data and enables their IT systems to process and manage that data.

End-to-end traceability is achieved when trading partners effectively implement internal and external traceability processes that enable each traceability partner to identify the direct source and direct recipient of traceable items. This is the "one step up, one step down" principle. To have an effective traceability system across the supply chain:

- Any item that needs to be traced forward or backward should be globally and uniquely identified;
- All distribution channel participants should implement both internal and external traceability practices; and
- Implementation of internal traceability should assure that the necessary linkages between inputs and outputs are maintained.

Implementing traceability across a supply chain relies on distribution channel participants collecting, recording, storing, and sharing minimum pieces of information for traceability.

2.2 The Role of Standards

Implementing a traceability system within a supply chain entails supply chain participants linking the physical flow of products with the flow of information about them. Standards are essential to this effort because they provide a common language that helps enable trading partners to communicate with each other, and their IT systems to process and manage the data they exchange. This supports the visibility and continuity of information across the supply chain.

The GS1 System provides a solid foundation for visibility-driven applications like track and trace. The GS1 System is an integrated suite of global standards for identifying, capturing, and sharing information regarding products, locations, assets and services. GS1 Standards are used in business practices, supply chain tools and software solutions to tie all of those pieces together. These standards promote the quality and amount of data for backend systems, and facilitate the communication and sharing of information across those systems and among trading partners. (A brief definition about each GS1 Standard used in this guideline is provided in *Appendix A*.)

Important: The remainder of this chapter discusses key concepts for collecting traceability information. However, it must be emphasized that trading partners must first implement GTIN, GLN and GS1-128 barcodes in order lay the foundation for the traceability processes described.

2.3 When should information be collected: Critical Tracking Events (CTEs)

Once GLNs, GTINs, and GS1-128 barcodes are in place among trading partners, traceability information can be collected/recorded during key business steps known as Critical Tracking Events (CTEs). There are three types of CTEs that should be collected: transformation events, transportation events, and depletion events, as described in the table below. *(Note that collecting CTEs is an advanced step that can only be accomplished after GLN, GTIN, and GS1-128 barcodes are implemented.)*

© 2017 GS1 US ALL RIGHTS RESERVED

Table 2-1 Types of CTEs

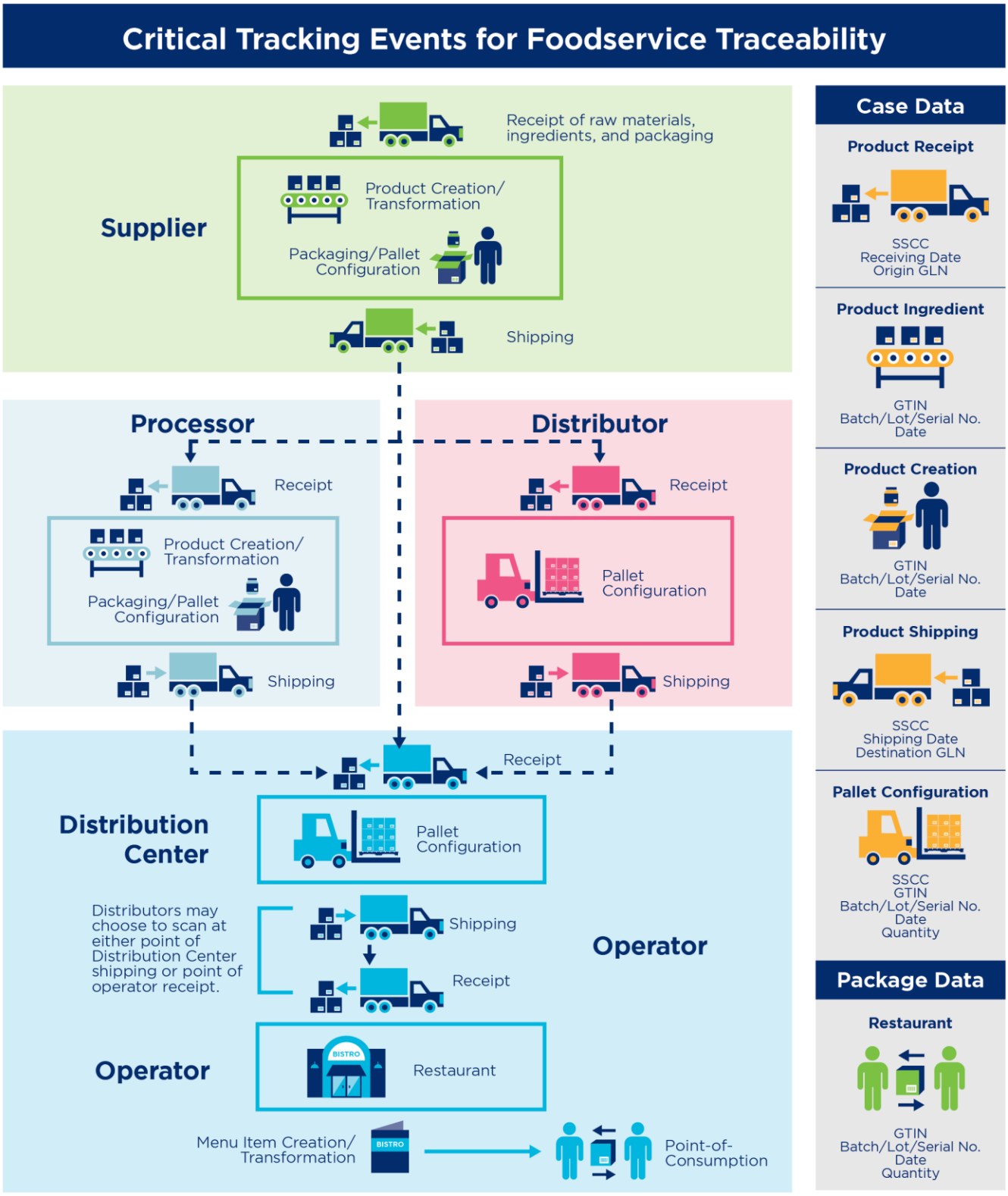
Event Type	CTE	Description
TRANSFORMATION EVENTS *events that typically support internal traceability within the four walls of a supply chain company*	TRANSFORMATION INPUT	An event where one or more materials are used to produce a traceable product that enters the supply chain. (NOTE: Materials used to produce products for immediate consumption by consumers are reported as Consumption events.)
	TRANSFORMATION OUTPUT	An event where a created traceable product is packaged and labeled for entry into the supply chain.
TRANSPORTATION EVENTS *events that typically support external traceability between supply chain companies*	SHIPPING	An event where traceable product is dispatched from a defined location to another defined location.
	RECEIVING	An event where traceable product is received at a defined location from another defined location.
DEPLETION EVENTS *events that capture how traceable product is removed from the supply chain*	CONSUMPTION	An event where a traceable product becomes available to consumers (Point-of-Sale or Prepared).
	DISPOSAL	An event where a traceable product is destroyed, discarded or otherwise handled in a manner that the product can no longer be used as a food ingredient or made available to consumers.

Additional details and insights about CTEs can be found in Appendix B.

Members of the foodservice supply chain collect/record traceability information about inbound and outbound product for each CTE at any point in the case's movement. This supports the "one up/one down" principle of tracing a product's movement through the supply chain. The following figure illustrates those key events for the foodservice supply chain.

© 2017 GS1 US ALL RIGHTS RESERVED

Figure 2-1 Critical Tracking Events for Foodservice Traceability



© 2017 GS1 US ALL RIGHTS RESERVED

2.4 What information should be collected: Key Data Elements (KDEs)

The traceability information to be collected/recorded for each Critical Tracking Event (CTEs) are known as Key Data Elements (KDEs). KDEs provide essential information about time and place of the event, the party reporting the event, and the identification of the product involved. In addition, KDEs include related essential information about the transformation, transportation, or depletion of a traceable product. In short, the KDEs associated with each Critical Tracking Event should answer the four W's:

- **What** product was involved
- **When** was it done
- **Where** was it done
- **Why** was it done

The table below lists the minimum traceability information (KDE) that trading partners need to capture about cases for each CTE.

Table 2-2 Key Data Elements (KDE)

KDE	Description
Event Location	The Event Location is the location where the event occurs (e.g., facility, plant, warehouse, building, production line, loading dock door, etc.). The preferred identification is the GS1 Global Location Number (GLN).
Data Owner	The Data Owner is the identification of the party that observed and is reporting the event and the party that should be consulted if trading partners or government authorities need more information about the event. The preferred identification is the GS1 Global Location Number for that party's corporate or regional office location.
Trading Partner	The location identification of the trading partner of the "recipient" party for a CTE. For instance, in a shipping CTE, it would be the location of the person that will receive the product being shipped. For a transformation input CTE, it would be the supplier identification of the Item ID. The preferred identification is the GS1 Global Location Number.
Activity Type	Activity Type describes the document used to identify the CTE or business process being met.
Activity Number	The Activity Number is the identification number of the Activity Type document used to uniquely identify a segment of production for a transformation event or a set of products shipped for a transportation event. For example, in a transformation event, the Activity ID ties the identity of the input products with the corresponding output products. For transportation activities, the Activity ID may be a purchase order number or a bill of lading number that as a reference number identifies the set of products shipped and received.
Date/Time of data capture	The Event Date is the calendar day at the event location (formatted as an ISO 8601 Date standard YYYYMMDD) and Event Time is the time formatted in Greenwich Mean Time when an event is completed. When an event activity is performed over an extended period, the ending time should be reported for transformation type events, and the starting time should be reported for depletion type events. Transportation type events should be the approximate time the transportation unit departed or arrived. In the event of a product transformation, it is the date and time when the input product identified is last added to the transformation event or the date and time when the output product identified is last produced.
Product Identifier	The reference value that identifies the traceable product's essential product and packaging characteristics (product specification, type of meat cut, level of processing, level of cooking, and packaging, etc.). The preferred identification is the Global Trade Item Number. For all events, the use of the GTIN as the item identifier is strongly encouraged, as it is globally unique and denotes both the supplier and product.

© 2017 GS1 US ALL RIGHTS RESERVED

KDE	Description
Batch/Lot or Serial Number	A unique coded identifier assigned by the product supplier that unites products that have undergone combination, transformation, packaging, or manipulation under a common set of circumstances such as time, production crew, or ingredient lot. If more than one batch, lot (the terms batch and lot as defined here are used interchangeably), or serial number is involved in the event, a separate event is reported for each along with the quantity of product marked with each batch/lot or serial number. The Batch/Lot or Serial Number has value only when used in conjunction with the Item Identification element value.
Product Date	Production Date, Packaging Date, Best Before Date, Sell By Date, or Expiration Date
Quantity	The Quantity is a numeric value that indicates the amount of product involved in the event.
Unit of Measure (UOM)	The Unit of Measure is the designation that indicates the measurement unit associated with the Quantity reported for the event.

Chapter 3 provides specific guidance to each supply chain participant about the KDE they need to capture for each events.

2.5 Where to get the information (KDE)

Traceability KDEs can be found in GS1-128 barcodes on a case, human-readable text on case labels, and in transactions (e.g., Purchase Orders; Invoices; Advance Ship Notices; etc.). The table below presents each KDE to be collected and the various place where that information can be found:

Table 2-3 Data sources for KDE

KDE	Data Sources
Event Location	transaction documents
Data Owner	transaction documents
Trading Partner	transaction documents
Activity Type	transaction documents
Activity Number	transaction documents
Date/Time of data capture	actual date/time
Product Identifier (GTIN)	GS1-128 barcode* or case label text
Batch/Lot or Serial Number	GS1-128 barcode* or case label text
Product Date	GS1-128 barcode* or case label text
Quantity	case label text or transaction documents
Unit of Measure (UOM)	case label text or transaction documents

* Best practice for maintaining traceability is to scan the case GS1-128 barcode to capture the foundational information of GTIN, batch/lot or serial number, and product date, and then link to the rest of the key data elements.

© 2017 GS1 US ALL RIGHTS RESERVED

2.6 How to record the information

Note: Trading partners are only responsible for storing their own traceability events, not those of their trading partners.

2.6.1 What type of record

To support traceability, each trading partner needs to create and maintain a record of each critical tracking event (CTE) which includes the key data elements (KDE). These records can take a variety of forms (e.g., spreadsheet; handwritten documents; EDI transactions; data files, etc.), and trading partners may use whichever method works best for them. However, it should be noted that best practice is to use an electronic recording method. For example, the Advance Ship Notice (ASN) is an electronic data file sent from suppliers to receivers. ASNs include all of the KDEs (e.g., GLNs, GTINs, etc.). Therefore, if you use ASNs, then you can maintain the ASN and use it as your CTE record.

NOTE: *Foodservice best practice is to apply an SSCC at the shipping level (typically, the pallet), and reference the SSCC in the ASN. SSCCs identify logistics units (pallets, shipping containers), and serve as a license plate for that particular shipment. When used in conjunction with an ASN, the SSCC identifies the shipping unit so it can be linked to the electronic ASN which contains the information about the contents of that unit. For additional guidance on the use of ASN and SSCCs in Foodservice, please see An Introduction to the GS1 Serial Shipping Container Code (SSCC).*

2.6.2 What data format for KDE

The following table defines the data format for each KDE that trading partners need to capture.

Table 2-4 KDE Data Format

KDE	Valid Values	Data Type	Length
Event Location	GLN	Numeric	13
Data Owner	GLN	Numeric	13
Trading Partner	GLN	Numeric	13
Activity Type	Bill of Lading, Purchase Order, Invoice, Production Order, etc.	Code List	1-35
Activity Number	Bill of Lading number, Purchase Order number, Invoice number, Production Order number, etc.	Alphanumeric	1-35
Date/Time of data capture	YYYYMMDD:MM:HH:SS	ISO standard	17
Product Identifier	GTIN	Numeric	14
Batch/Lot or Serial Number	Batch/Lot or Serial Number	Alphanumeric	20
Product Date	YYMMDD	Numeric	6
Quantity	Positive number	Numeric	10.3
Unit of Measure (UOM)	Pallet, cases, inner packs, consumer items	Code List	3

2.7 How long to retain the information

All companies are expected to maintain records that will facilitate timely and accurate traceability and support any product recalls. It is recommended that your company establish an internal data retention policy based on the following considerations:

© 2017 GS1 US ALL RIGHTS RESERVED

- Individual company risk tolerances. Some companies may want to store for longer/shorter periods of time based on individual risk tolerance.
- Legal/regulatory requirements.*
- Length of time product may exist in the distribution channel beyond two years. This is based on the type of product (chilled, frozen, fresh or shelf stable).
- The need to promptly retrieve data in the event of an epidemiological event which may, or may not implicate your product.
- Industry agreements or customer requirements.

*__Important__: Each company is individually responsible for meeting all statutory and/or regulatory requirements for their company and their products. Consult with your company's legal counsel or compliance team (regulatory or quality) for more specific information about statutory and regulatory requirements.

3 Implementing Traceability Across the Supply Chain

This chapter describes implementation of traceability across the foodservice supply chain. It defines the roles and responsibilities of each supply chain participant, identifies the business steps (CTEs) they need to capture, and provides guidance about the traceability information (KDE) they need to record.

Note: Each role and responsibility in this chapter has a hyperlink embedded that enables the reader to jump directly to the corresponding guidance on that topic in the next chapter.

3.1 Growers/Suppliers

3.1.1 Roles & Responsibilities

- Assign GLNs to identify entity and facility locations
- Assign GTINs to identify cases
- Capture case batch/lot or serial number
- Mark cases with GS1-128 barcodes
- Use GLNs, GTINs with batch/lot or serial number and a date, and SSCCs in transactions with trading partners (e.g., Purchase Order; Invoice; Advance Ship Notice; etc.) See *Getting Started with EDI*.
- Share product and location information electronically with trading partners via GS1 US Data Hub® and/or GS1 Global Data Synchronization Network™ (GDSN®).

3.1.2 Business Steps and Data to be Captured for Traceability

To support foodservice traceability, Growers and Suppliers record a standard set of data (known as Key Data Elements or "KDEs") whenever they perform one of the following business steps (known as Critical Tracking Events or "CTEs"):

- Receiving
- Shipping
- Transformation

The KDEs to be captured for each type of event are defined below.

© 2017 GS1 US ALL RIGHTS RESERVED

3.1.2.1 Receiving Events

KDE	Example / Guidance
Event Location	Ship-to GLN (grower/supplier or third party location)
Data Owner	Grower/Supplier GLN
Trading Partner	Ship-from GLN
Activity Type	Purchase Order
Activity Number	Purchase Order Number
Date/Time of data capture	Date/Time of Receipt
Contents of Receipt --	*capture the data below for each case received:*
Product Identifier(s)	GTIN(s)
Batch/Lot or Serial Number	*(for each GTIN)*
Product Date	e.g., Packaging Date, Sell By, etc. *(for each GTIN)*
Quantity	*(for each GTIN)*
Unit of Measure (UOM)	*(for each GTIN)*

3.1.2.2 Transformation Events

Note: When a product is combined with others, processed, reconfigured, or re-packed, the new product must have its own unique product identifier (i.e., GTIN). The linkage (auditable function) must be maintained between this new product and its original inputs such as batters, breading, seasonings, marinades, salt, citric acid, packaging materials and many others to maintain traceability. The label showing the lot identification of the traceable input item should remain on the packaging until that entire traceable item is consumed. This principle applies even when the traceable item is part of a larger packaging hierarchy.

KDE	Example / Guidance
Event Location	GLN for the facility/location where transformation event occurs
Data Owner	Grower/Supplier GLN
Trading Partner	GLN for a specific customer or another facility
Activity Type	Production Work Order
Activity Number	Production Work Order Number
Date/Time of data capture	Date/Time of Transformation
Transformation Input --	*capture the data below for each ingredient input:*
Product Identifier(s)	GTIN(s)
Batch/Lot or Serial Number	*(for each GTIN)*
Product Date	e.g., Packaging Date, Sell By, etc. *(for each GTIN)*
Quantity	*(for each GTIN)*
Unit of Measure (UOM)	*(for each GTIN)*
Transformation Output --	*capture the data below for each case output:*
Product Identifier(s)	GTIN(s)
Batch/Lot or Serial Number	*(for each GTIN)*
Product Date	e.g., Packaging Date, Sell By, etc. *(for each GTIN)*
Quantity	*(for each GTIN)*
Unit of Measure (UOM)	*(for each GTIN)*

© 2017 GS1 US ALL RIGHTS RESERVED

3.1.2.3 Shipping Events

KDE	Example / Guidance
Event Location	Ship-from GLN (grower/supplier or third party location)
Data Owner	Grower/Supplier GLN
Trading Partner	Ship-to GLN (manufacturer, processor or distributor)
Activity Type	Purchase Order
Activity Number	Purchase Order Number
Date/Time of data capture	Date/Time of Shipment
Contents of Shipment --	*capture the data below for each case shipped:*
Product Identifier(s)	GTIN(s)
Batch/Lot or Serial Number	*(for each GTIN)*
Product Date	e.g., Packaging Date, Sell By, etc. *(for each GTIN)*
Quantity	*(for each GTIN)*
Unit of Measure (UOM)	*(for each GTIN)*

3.2 Processors/Manufacturers

3.2.1 Roles & Responsibilities

- Assign GLNs to identify processing/manufacturing locations
- Scan GS1-128 barcodes on cases provided by Growers/Suppliers
- Assign GTINs to identify cases
- Capture case batch/lot or serial number
- Mark cases with GS1-128 barcodes
- Use GLNs, GTINs with batch/lot or serial number and a date, and SSCCs in transactions with trading partners (e.g., Purchase Order; Invoice; Advance Ship Notice; etc.)
- Share product and location information electronically with trading partners

3.2.2 Business Steps and Data to be Captured for Traceability

To support foodservice traceability, Processors and Manufacturers record a standard set of data (known as Key Data Elements or "KDEs") whenever they perform one of the following business steps (known as Critical Tracking Events or "CTEs"):

- Receiving
- Shipping
- Transformation

The KDEs to be captured for each type of event are defined below.

© 2017 GS1 US ALL RIGHTS RESERVED

3.2.2.1 Receiving Events

KDE	Example / Guidance
Event Location	Ship-to GLN (manufacturer/processor or third party location)
Data Owner	Manufacturer/Processor GLN
Trading Partner	Ship-from GLN (grower/supplier)
Activity Type	Purchase Order
Activity Number	Purchase Order Number
Date/Time of data capture	Date/Time of Receipt
Contents of Receipt --	*capture the data below for each case received:*
Product Identifier(s)	GTIN(s)
Batch/Lot or Serial Number	*(for each GTIN)*
Product Date	e.g., Packaging Date, Sell By, etc. *(for each GTIN)*
Quantity	*(for each GTIN)*
Unit of Measure (UOM)	*(for each GTIN)*

3.2.2.2 Transformation Events

- For transformation of goods (e.g., Fresh to Frozen)

Note: When a product is combined with others, processed, reconfigured, or re-packed, the new product must have its own unique product identifier (i.e., GTIN). The linkage (auditable function) must be maintained between this new product and its original inputs such as batters, breading, seasonings, marinades, salt, citric acid, packaging materials and many others to maintain traceability. The label showing the lot identification of the traceable input item should remain on the packaging until that entire traceable item is consumed. This principle applies even when the traceable item is part of a larger packaging hierarchy.

KDE	Example / Guidance
Event Location	GLN for the facility/location where transformation event occurs
Data Owner	Manufacturer/Processor GLN
Trading Partner	GLN for a specific customer or another facility
Activity Type	Production Work Order
Activity Number	Production Work Order Number
Date/Time of data capture	Date/Time of Transformation
Transformation Input --	*capture the case data below for each input/ingredient:*
Product Identifier(s)	GTIN(s)
Batch/Lot or Serial Number	*(for each GTIN)*
Product Date	e.g., Packaging Date, Sell By, etc. *(for each GTIN)*
Quantity	*(for each GTIN)*
Unit of Measure (UOM)	*(for each GTIN)*
Transformation Output --	*capture the data below for each case output:*
Product Identifier(s)	GTIN(s)
Batch/Lot or Serial Number	*(for each GTIN)*
Product Date	e.g., Packaging Date, Sell By, etc. *(for each GTIN)*
Quantity	*(for each GTIN)*
Unit of Measure (UOM)	*(for each GTIN)*

© 2017 GS1 US ALL RIGHTS RESERVED

3.2.2.3 Shipping Events

KDE	Example / Guidance
Event Location	Ship-from GLN (manufacturer/processor or third party location)
Data Owner	Manufacturer/Processor GLN
Trading Partner	Ship-to GLN (distributor)
Activity Type	Purchase Order
Activity Number	Purchase Order Number
Date/Time of data capture	Date/Time of Shipment
Contents of Shipment --	*capture the data below for each case shipped:*
Product Identifier(s)	GTIN(s)
Batch/Lot or Serial Number	*(for each GTIN)*
Product Date	e.g., Packaging Date, Sell By, etc. *(for each GTIN)*
Quantity	*(for each GTIN)*
Unit of Measure (UOM)	*(for each GTIN)*

3.3 Distributors

3.3.1 Roles & Responsibilities

- Assign GLNs to identify warehouse locations
- Scan GS1-128 barcodes on cases provided by processors/manufacturers and store information in internal systems
- Assign GTINs to identify any private label cases
- Capture case batch/lot or serial number
- Create GS1-128 barcodes for your cases
- Mark cases with GS1-128 barcodes
- Use GLNs, GTINs with batch/lot or serial number and a date, and SSCCs in transactions with trading partners (e.g., Purchase Order; Invoice; Advance Ship Notice; etc.)
- Share product and location information electronically with trading partners

3.3.2 Business Steps and Data to be Captured for Traceability

To support foodservice traceability, Distributors record a standard set of data (known as Key Data Elements or "KDEs") whenever they perform one of the following business steps (known as Critical Tracking Events or "CTEs"):

- Receiving
- Shipping

The KDEs to be captured for each type of event are defined below.

© 2017 GS1 US ALL RIGHTS RESERVED

3.3.2.1 Receiving Events for Distributors

KDE	Example / Guidance
Event Location	Ship-to GLN
Data Owner	Distributor
Trading Partner	Ship-from GLN (supplier)
Activity Type	Distributor's Purchase Order (PO) or Supplier's Bill of Lading (BOL)
Activity Number	Purchase Order Number or Supplier's BOL Number
Date/Time of data capture	Date/Time of Receipt
Contents of Receipt --	*capture the data below for each case received:*
Product Identifier(s)	GTIN(s)
Batch/Lot or Serial Number	*(for each GTIN)*
Product Date	e.g., Packaging Date, Sell By, etc. *(for each GTIN)*
Quantity	*(for each GTIN)*
Unit of Measure (UOM)	*(for each GTIN)*

3.3.2.2 Shipping Events for Distributors

KDE	Example / Guidance
Event Location	Ship-from GLN (distributor or third party location)
Data Owner	Distributor GLN
Trading Partner	Ship-to GLN (restaurant)
Activity Type	Restaurant's Purchase Order
Activity Number	Purchase Order Number
Date/Time of data capture	Date/Time of Shipment
Contents of Shipment --	*capture the data below for each case shipped:*
Product Identifier(s)	GTIN(s)
Batch/Lot or Serial Number	*(for each GTIN)*
Product Date	e.g., Packaging Date, Sell By, etc. *(for each GTIN)*
Quantity	*(for each GTIN)*
Unit of Measure (UOM)	*(for each GTIN)*

3.4 Operators/Restaurants

3.4.1 Roles & Responsibilities

- Assign GLNs to identify restaurant locations
- Scan GS1-128 barcodes on cases provided by distributor
- Capture KDEs via one of the below methods:
  - Scan GS1-128 barcodes on cases provided by distributor
  - Feed case level data received from delivery into corporate systems
  - Utilizes 3rd party to receive and manage traceability data for store deliveries

© 2017 GS1 US ALL RIGHTS RESERVED

3.4.2 Business Steps and Data to be Captured for Traceability

To support foodservice traceability, Operators and Restaurants record a standard set of data (known as Key Data Elements or "KDEs") whenever they perform the following business steps (known as Critical Tracking Events or "CTEs"):

- Receiving

The KDEs to be captured for these events are defined below.

3.4.2.1 Receiving Events

KDE	Example / Guidance
Event Location	Ship-to GLN (operator or restaurant location)
Data Owner	Operator/Restaurant GLN
Trading Partner	Ship-from GLN (distributor)
Activity Type	Purchase Order (PO)
Activity Number	Purchase Order Number
Date/Time of data capture	Date/Time of Receipt
Contents of Receipt --	*capture the data below for each case received:*
Product Identifier(s)	GTIN(s)
Batch/Lot or Serial Number	*(for each GTIN)*
Product Date	e.g., Packaging Date, Sell By, etc. *(for each GTIN)*
Quantity	*(for each GTIN)*
Unit of Measure (UOM)	*(for each GTIN)*

3.5 Note to All Roles

In order to support best practices for maintaining a traceability process, there are five basic business processes that should be put in place among distribution channel participants:

1. Plan and organize how to assign, collect, share, and maintain traceability information.
2. Determine how to align master data for products and distribution channel participants and other physical locations.
3. Record traceability information as products are created and shipped and modified in form (critical tracking events).
4. Request a mock trace using at least one of the four information sources listed:
   a. GTIN and some additional form of the item identification like batch/lot or serial number;
   b. GLN or some form of the traceability partners' name or attribute;
   c. GLN of the physical location for the targeted product;
   d. Dates or time periods for targeted product.
5. Use the information provided to take the appropriate action.

© 2017 GS1 US ALL RIGHTS RESERVED

4 Implementation Guidance

NOTE: If you have jumped to this chapter from supply chain role in Chapter 3, you can click on the applicable link below to return to that section:			
Grower/Supplier	Processor/Manufacturer	Distributor	Operator/Restaurant

4.1 Identifying Supply Chain Parties and Locations

In the GS1 System, parties and locations are identified using the Global Location Number (GLN). The best practice is to assign individual GLNs to your company, as well as any individual trading subsidiaries. In addition, GLNs should also be assigned to production, storage, shipping and/or receiving locations within your company to distinctly identify those locations for traceability processes.

To learn more about GLNs, visit:

- *An Introduction to the Global Location Number (GLN)*
- *Foodservice Product and Location Implementation Guide*

4.2 Identifying Cases

The best practice is to identify cases with a Global Trade Item Number (GTIN). GTINs are assigned to cases and encoded in GS1-128 barcodes by brand owners, and then all trading partners use these identifiers in transactions and supply chain communications about the case (e.g., Purchase Order; Advance Ship Notice; etc.).

To learn more about GTINs, visit:

- *Introduction to the Global Trade Item Number (GTIN).*
- *GS1 GTIN Management Standard*

4.3 Batch/Lot Numbers

All suppliers should assign batch/lot numbers (the terms batch and lot as defined here are interchangeable) and/or serial numbers to products they create. Batch/lot numbers and serial numbers associate an item with information the manufacturer considers relevant for traceability of the trade item.

A batch/lot number may be a production lot number, a shift number, a machine number, a time, or an internal production code. Pursuant to GS1 Standards, a batch/lot number is 1-20 characters and is alpha-numeric. The content and format of batch/ lot numbers typically vary from one company to another, depending on company practice and the precision desired. For example, a lot can represent all product produced in a day at one facility, or the product produced in one hour from an individual packing line, or it could represent a unique recipe run.

It is important to remember that the range of product assigned to a single batch/lot number also defines the minimum amount of product that may need to be removed from the supply chain in the event of a recall. This needs to be considered when defining your company's standard practice for setting the scope of each batch/lot number for each type of product that it produces. Industry best practices limit lot codes to no more than one day's production. Additionally, care should be exercised to assure that other regulatory lot coding requirements, such as those for thermally processed canned foods regulated by FDA, are met.

In addition to the batch/lot number, some suppliers also assign a unique serial number to each case and record the beginning and ending case serial numbers for each batch or lot.

© 2017 GS1 US ALL RIGHTS RESERVED

NOTE: If you have jumped to this chapter from supply chain role in Chapter 3, you can click on the applicable link below to return to that section:			
Grower/Supplier	Processor/Manufacturer	Distributor	Operator/Restaurant

4.4 Case Serial Numbers

Case serial numbers can be assigned to each case at the time of packing by the supplier. Pursuant to GS1 Standards, serial numbers are 1-20 characters and are alpha-numeric. Serial numbers can be assigned in place of or in addition to batch/lot numbers. Serial Numbers should be generated without any intelligence (e.g., a simple sequential number without any production facility or production date and time reference); however, it is important to link the range of serials numbers assigned to a batch/ lot number, production facility, production date and time, etc. for reference with regard to queries about the case.

4.5 Labelling Cases for Traceability

The best practice for traceability is to identify cases by their GTIN and the associated production information. This information should be marked on the product in both scannable format (i.e., GS1-128 barcode) and human readable format. To learn more about case labelling for foodservice, visit:

- *Voluntary GS1-128 Barcode Guideline for Cases/Cartons in the Foodservice Industry*

4.6 GS1-128 Barcodes

Foodservice cases should be marked with GS1-128 barcodes. GS1-128 barcodes can be used to encode multiple data elements using GS1 Application Identifiers (AIs) to define each element. (Each AI is a two, three, or four digit numeric code that precedes each data element in the barcode.) To support traceability, the GS1-128 barcodes on cases should encode the following data elements at a minimum:

- GTIN,
- Batch/Lot Number and/or Serial Number, and
- Date (e.g., production date; packaging date; expiration date; etc.)

The GS1-128 barcode can only encode a maximum of 48 characters (including AI codes). Companies will need to consider these space limitations when determining which combination of data elements they will encode. To learn more about GS1-128 barcodes for foodservice, visit:

- *Voluntary GS1-128 Barcode Guideline for Cases/Cartons in the Foodservice Industry*

4.7 Capturing GS1-128 Barcode Information

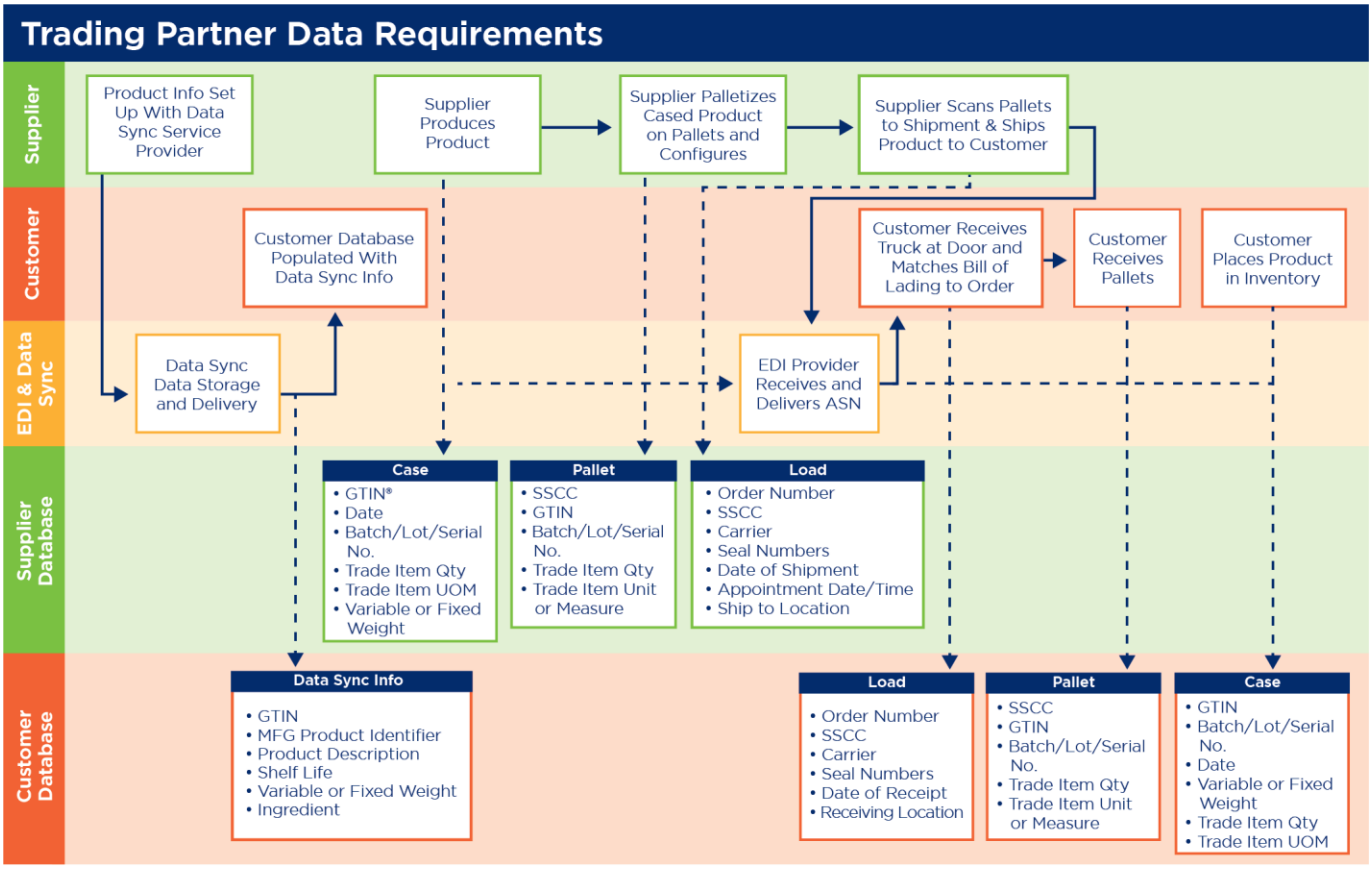
Best practices for maintaining traceability for growers, suppliers, manufacturers, processors, distributors, and foodservice operators is to capture all agreed to traceability information and store it within their systems by scanning the information directly from the case GS1-128 barcode. Scanning enables data to be captured, stored, and retrieved without the need to visually review the human-readable information and manually key that information into systems.

While the process of scanning cases outbound from distribution center to an operator is the exception today, more and more suppliers, manufacturers, processors, distributors, and operators are putting processes in place to collect and store at least the minimum case information needed to support traceability. A case can be scanned as it enters a distribution center, as it is shipped out of the distribution center, as it is received at a foodservice operator, or as it is opened for processing (which are all Critical Tracking Events).

Note: Trading partners are only responsible for storing their own traceability events, not those of their trading partners

© 2017 GS1 US ALL RIGHTS RESERVED

Figure 4-1 Trading Partner Data Requirements



5 Resources

- *Foodservice Product and Location Implementation Guide*
- *Voluntary GS1-128 Barcode Guideline for Cases/Cartons in the Foodservice Industry*
- *GS1 GTIN Management Standard*
- *Introduction to SSCC for Foodservice*
- *GLN Assignment Guidance for Foodservice*

© 2017 GS1 US ALL RIGHTS RESERVED

A GS1 Standards Used in this Guideline

Standards provide a common language trading partners use to communicate with each other, and to process and manage the data they exchange within their IT systems. This chapter provides a brief definition of each GS1 Standard used in this guideline to support case-level traceability for the foodservice supply chain.

A.1 GS1 Global Traceability Standard

This industry best practice implementation guideline is based on the GS1 Global Traceability Standard (GTS). Developed by industry, the GTS defines the globally-accepted method for uniquely identifying:

- Trading partners (e.g., grower; supplier; manufacturer; processor; distributor, operator; restaurant; etc.)
- Trading locations (e.g., manufacturing plant; a distributor's loading dock; restaurant location; etc.)
- The products your company uses or creates;
- The logistics units your company receives or ships; and
- Inbound and outbound shipments.

The GS1 Global Traceability Standard also defines the essential information to be collected, recorded and shared for "one step up, one step down" traceability. The standard is applicable to companies of all sizes and geography. To obtain a copy of the Global Traceability Standard go to: http://www.gs1.org/traceability

A.2 Global Location Number (GLN)

The Global Location Number (GLN) is the globally unique GS1 Identification Number for locations and supply chain partners. The GLN can be used to identify a *functional entity* (like accounts receivable or a bill back department), a *physical entity* (like a manufacturing plant, a distributor's loading dock, or a restaurant location), or a *legal entity* (like a parent corporation or subsidiary). The attributes defined for each GLN [e.g., name, address, location type (e.g., ship to, bill to, deliver to, etc.)] help users to assure that each GLN is specific to one unique location within the world.

A.3 Global Trade Item Number (GTIN)

The Global Trade Item Number® (GTIN®) is the globally unique GS1 Identification Number used to identify "trade items" (i.e., products and services that may be priced, ordered or invoiced at any point in the supply chain). GTINs are assigned by the brand owner of the product, and are used to identify products as they move through the global supply chain. The GTIN uniquely identifies a product at each packaging level (e.g., like a box of Brand X cereal; a case of six boxes of Brand X cereal; etc.).

A.4 Serial Shipping Container Code (SSCC)

The Serial Shipping Container Code (SSCC) is the globally unique GS1 Identification Number used to identify individual logistic units (i.e., an item of any composition established for transport and/or storage which needs to be tracked individually and managed through the supply chain). The SSCC is assigned for the lifetime of the transport item and is a mandatory element on the GS1 Logistic Label. SSCCs serve as "license plates" from the carton level to the trailer load level to facilitate simple tracking of goods and reliable look up of complex load detail.

© 2017 GS1 US ALL RIGHTS RESERVED

A.5 GS1 Data Carriers

GS1 Data Carriers provide *machine-readable representations* of GS1 Identification Numbers that facilitate automatic identification and data capture. In order to accommodate a variety of environments and applications, the GS1 System supports eight data carriers: six barcode symbologies (i.e., GS1 BarCodes) and two RFID tags [i.e., GS1 Electronic Product Code (EPC®)-enabled radio frequency identification tags (EPC/RFID Tags)].

A.6 GS1 Application Identifiers

GS1 Application Identifiers (AIs) are a finite set of specialized identifiers encoded within barcodes to indicate the type of data represented in the various barcode segments. Each AI is a two, three, or four digit numeric code. (When rendered in human-readable form, the AI is usually shown in parentheses. However, the parentheses are not part of the barcode's encoded data.) Each data element in a barcode is preceded by its AI. For example, the AI for GTIN is 01. Thus, when "01" appears in the encoded content of a barcode, it means the next 14 digits comprise a GTIN. There are approximately 100 AIs. There is an AI for each GS1 Identification Number. In addition, there are AIs for various types of secondary information to enable supply chain partners to communicate item-specific information wherever the barcode is scanned (e.g., expiration date; lot number; batch number). GS1 AI's commonly used in foodservice include:

- GTIN **AI (01)**
- Production Date **AI (11)**
- Packaging Date **AI (13)**
- Sell By Date **AI (16)**
- Best Before Date **AI (15)**
- Expiration Date **AI (17)**
- Batch/ Lot Number **AI (10)**
- Serial Number **AI (21)**

© 2017 GS1 US ALL RIGHTS RESERVED

B Additional Information About Critical Tracking Events

B.1 Transformation Events

Transformation events occur whenever a traceable product is transformed either by:

- changing the nature of the product itself by mixing different sources of product, adding ingredients, cutting, or cooking; and/or
- by changing the nature of the product packaging, such as when a company places bulk product in consumer-sized bags for consumer self-service.

There are two types of transformation events, Transformation Input for documenting the identity of input products used in a transformation event and Transformation Output for documenting the identity of output products from a transformation event.

B.1.1 Transformation Input Event

An event where one or more materials are used to produce a traceable product that enters the supply chain. Examples of a transformation input event are when raw products or product ingredients from one or more suppliers or sources are processed, combined, or further processed by cutting, cooking, repackaging, etc. The objective is to capture the supplier, product ID, and production unit designation (e.g., batch/lot number, case serial number, sell-by or use-by date, production date, etc.) of all ingredients used to create a traceable product.

B.1.2 Transformation Output Event

An event where a traceable product is packaged and labeled for entry into the supply chain. Examples of a transformation output event are when a new output product is placed into consumer item containers, inter-packs, and/or cases and all package levels are marked to indicate supplier, product ID, and production unit designation.

Note: Transformation events must share a common data element such as a production order that allows related input products to be associated with all corresponding output products to maintain internal traceability.

B.2 Transportation Events

Transportation events occur whenever a traceable product is physically transferred from one trading partner to another. This product may be used as an ingredient in a later transformation event by the receiving company, or it could be traceable product that is shipped by the receiving company to another trading partner without transformation. In some cases the transportation of a traceable product between two processing or storage facilities of the same company may be documented as a transportation event. Typically, transportation events occur as a Shipping Event followed by a Receiving Event.

B.2.1 Shipping Event

An event where traceable product is dispatched from a defined location to another defined location. Shipping CTEs are typically followed by a subsequent Receiving event. In some cases, a company could determine that shipping and receiving events should be recorded within their own company, such as when a product batch in an interim state is transferred to another production facility to complete the production process. More typically, this event occurs when a traceable product is sent by truck, rail, or ship from one supply chain company to another supply chain company.

© 2017 GS1 US ALL RIGHTS RESERVED

B.2.2 Receiving Event

An event where traceable product is received at a defined location from another defined location. Receiving CTEs typically occur in response to an earlier Shipping event. Typically, this event occurs when a traceable product is received at a location after being transported by truck, rail, or ship between any two supply chain companies but could also include receipt at one physical location after shipment from another physical location under the same ownership.

B.3 Depletion Events

Depletion events occur when the product leaves the supply chain either by consumption events that make the product available to the ultimate consumer or by disposal events that remove the product from the supply chain in a manner that it can no longer be offered to or used by consumers.

B.3.1 Consumption Event

An event where a traceable product becomes available to consumers. Examples of consumption events include: when a case of delicatessen luncheon meatloaf is opened and one or more loaf is placed in a full-service-display service case at a retail grocery store; a consumer-level tray-package of steak is sold to a consumer at a retail grocery store point-of-sale register; or a case of bulk chicken breast product is opened for use in preparing menu items at a foodservice restaurant.

B.3.2 Disposal Event

An event where a traceable product is destroyed or discarded or otherwise handled in a manner that the product can no longer be used as a food ingredient or become available to consumers. An example of a disposal event is when a case of unopened fresh meat product or other traceable product at a foodservice restaurant or grocery retail store reaches its expiration date and is properly discarded.

Note: The financial transfer of ownership over traceable product is not a CTE. It may be the cause of a later CTE such as a shipping event or occur simultaneously with a consumption CTE, but the sale or purchase of traceable product by itself is not a critical tracking event. Even in the case of a Consumption event at a retail point of sale, it is the physical transfer and assumed consumption of the product by the consumer that causes the event to be captured and not the financial transfer of ownership to the consumer.

© 2017 GS1 US ALL RIGHTS RESERVED

C KDE for each Critical Tracking Event

C.1 Shipping Event KDE

KDE	Description
Event Location	GLN – facility location
Data Owner	GLN – who is responsible for this data
Trading Partner	GLN – Ship to
Activity Type	Purchase Order, BOL, ASN
Activity Number	PO Number, BOL Number, etc.
Date/Time of data capture	ISO 8601 Date/Time
Product Identifier(s)	GTIN(s)
Batch/Lot or Serial Number	
Product Date	Production Date, Sell By, etc.
Quantity	
Unit of Measure (UOM)	

C.2 Receiving Event KDE

KDE	Description
Event Location	GLN – facility location
Data Owner	GLN – who is responsible for this data
Trading Partner	GLN – Ship to
Activity Type	Purchase Order, BOL, ASN
Activity Number	PO Number, BOL Number, etc.
Date/Time of data capture	ISO 8601 Date/Time
Product Identifier(s)	GTIN(s)
Batch/Lot or Serial Number	
Product Date	Production Date, Sell By, etc.
Quantity	
Unit of Measure (UOM)	

© 2017 GS1 US ALL RIGHTS RESERVED

C.3 Transformation Event KDE

KDE	Description
Event Location	GLN – facility location
Data Owner	GLN – who is responsible for this data
Trading Partner	GLN – specific to a customer or another facility
Activity Type	e.g., Production Work Order
Activity Number	e.g., Production Work Order Number
Date/Time of data capture	ISO 8601 Date/Time
Transformation Input	GTIN(s), Lot, Product Date (Production Date, Sell By, etc.), Quantity, UOM
Transformation Output	GTIN(s), Lot, Product Date (Production Date, Sell By, etc.)
Quantity	
Unit of Measure (UOM)	

C.4 Consumption Event KDE

KDE	Description
Event Location	GLN – facility location
Data Owner	GLN – who is responsible for this data
Trading Partner	GLN –
Activity Type	e.g., POS, served in menu item, etc.
Activity Number	e.g., Receipt number; Check number; Recipe ID; etc.
Date/Time of data capture	ISO 8601 Date/Time
Product Identifier(s)	GTIN(s)
Batch/Lot or Serial Number	
Product Date	Production Date, Sell By, etc.
Quantity	
Unit of Measure (UOM)	

© 2017 GS1 US ALL RIGHTS RESERVED

C.5 Dispose Event KDE

KDE	Description
Event Location	GLN – facility location
Data Owner	GLN – who is responsible for this data
Trading Partner	GLN
Activity Type	e.g., Discard Work Order
Activity Number	e.g., Discard Work Order Number
Date/Time of data capture	ISO 8601 Date/Time
Product Identifier(s)	GTIN(s)
Batch/Lot or Serial Number	
Product Date	Production Date, Sell By, etc.
Quantity	
Unit of Measure (UOM)	

© 2017 GS1 US ALL RIGHTS RESERVED

Proprietary Statement

This document contains proprietary information of GS1 US. Such proprietary information may not be changed for use with any other parties for any other purpose without the expressed written permission of GS1 US.

Improvements

Improvement and changes are periodically made to publications by GS1 US. All material is subject to change without notice. Please refer to GS1 US website for the most current publication available.

Disclaimer

Except as may be otherwise indicated in specific documents within this publication, you are authorized to view documents within this publication, subject to the following:

1. You agree to retain all copyright and other proprietary notices on every copy you make.
2. Some documents may contain other proprietary notices and copyright information relating to that document. You agree that GS1 US has not conferred by implication, estoppels or otherwise any license or right under any patent, trademark or copyright (except as expressly provided above) of GS1 US or of any third party.

This publication is provided "as is" without warranty of any kind, either express or implied, including, but not limited to, the implied warranties of merchantability, fitness for a particular purpose, or non-infringement. Any GS1 US publication may include technical inaccuracies or typographical errors. GS1 US assumes no responsibility for and disclaims all liability for any errors or omissions in this publication or in other documents which are referred to within or linked to this publication. Some jurisdictions do not allow the exclusion of implied warranties, so the above exclusion may not apply to you.

Several products and company names mentioned herein may be trademarks and/or registered trademarks of their respective companies. GS1 US does not, by promulgating this document on behalf of the parties involved in the creation of this document, represent that any methods, products, and/or systems discussed or recommended in the document do not violate the intellectual property rights of any third party. GS1 US has not performed a search to determine what intellectual property may be infringed by an implementation of any strategies or suggestions included in this document. GS1 US hereby disclaims any liability for any party's infringement of intellectual property rights that arise as a result of any implementation of strategies or suggestions included in this document.

This publication may be distributed internationally and may contain references to GS1 US products, programs and services that have not been announced in your country. These references do not imply that GS1 US intends to announce such products, programs or services in your country.

No Liability for Consequential Damage

In no event shall GS1 US or anyone else involved in the creation, production, or delivery of the accompanying documentation be liable for any damages whatsoever (including, without limitation, damages for loss of business profits, business interruption, loss of business information, or other loss) arising out of the use of or the results of use of or inability to use such documentation, even if GS1 US has been advised of the possibility of such damages.

IAPMO

In this publication, the letters "U.P.C." are used solely as an abbreviation for the "Universal Product Code" which is a product identification system. They do not refer to the UPC, which is a federally registered certification mark of the International Association of Plumbing and Mechanical Officials (IAPMO) to certify compliance with a Uniform Plumbing Code as authorized by IAPMO.

© 2017 GS1 US ALL RIGHTS RESERVED

GS1 US Corporate Headquarters

Princeton Pike Corporate Center, 1009 Lenox Drive, Suite 202
Lawrenceville, NJ 08648 USA
T +1 937.435.3870 | **E** info@gs1us.org
www.gs1us.org

Connect With Us

@ 2017 GS1 US All rights reserved.