The Global Language of Business

Foodservice

GS1 US Guidance for Sharing Product Attributes via GDSN in Foodservice

Release 2.2, Dec 21, 2020

Table of Contents

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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 help 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.

1 Introduction

This document provides implementation guidance for a variety of advanced topics encountered when foodservice industry members implement the GS1 Global Data Synchronization Network™ (GDSN®). These topics are frequently discussed within the GDSN community, and the practices discussed in this document are common to members of the Foodservice GS1 US Standards Initiative ("the Initiative") in the US target market. Members of the GDSN Implementation Workgroup of the Initiative worked together to develop this guidance and best practices document to support organizations in the implementation of GS1 Standards.

Important: As with all GS1 Standards and solutions, the *GS1 US Guidance for Sharing Product Attributes via GDSN in Foodservice* 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 Document Summary and Change Log

Document Item	Current Value
Document Title	GS1 US Guidance for Sharing Product Attributes via GDSN in Foodservice
Date Last Modified	DEC 21 2020
Document Description	Supplements the formal GS1 Global Data Synchronization Network (GDSN) standards with guidance for a variety of advanced topics encountered when foodservice industry members share product attributes via GDSN.
Change Log	Attribute information has been updated, added and removed based on the GDSN 3.1.9 to 3.1.11 release and industry feedback.

1.2 Document Purpose

The purpose of this document is to supplement the *GDSN Foodservice and Retail Grocery Attribute Interactive Spreadsheet Tool* with guidance to increase consistency and improve implementation by explaining advanced topics and providing examples.

1.3 Who Will Use this Document?

Business users who are implementing and/or operating the GDSN may use this document to supplement the formal GS1 GDSN standards with additional guidance. This document is aimed primarily at business users who need to understand the data content or process standards. Technical users involved with implementation may also find topics of interest.

1.4 Scope of this Document

The scope is the data and processes for the synchronization of Trade Items within the GDSN by the foodservice community. In this version of the document, the scope is limited to the attributes as defined by the Initiative. While there are other attributes available in GDSN, they will only be in scope for this document if defined for use by the Initiative.

If you need additional training or advice, please contact your solution provider, data pool, or GS1 US® or refer to the *Additional Resource* section in this document.

2 Technical GDSN Topics

2.1 Element Naming

All **Module, Class, and Code List names** used in the GDSN Schema have no spaces, and all words in the name are capitalized. For example:

- TradeItemDescritionModule
- AllergenInformation
- LevelOfContainmentCodeList

All **attribute names** used in the GDSN Schema have no spaces, and all words in the name are capitalized with the exception of the first word. For example:

- globalLocationNumber
- uniqueCreatorIdentification

2.2 Cardinality Terminology for Attributes

For data synchronization, attributes have a characteristic which details if the attribute must be populated or not. This characteristic is called "cardinality." While the GDSN standards specify the baseline cardinality of the attributes overall, the Foodservice GS1 US Standards Initiative has analyzed and supplemented the cardinality of attributes over and above that assigned by GDSN where appropriate for the foodservice industry. For example, the GDSN specifies an attribute as optional, but the Initiative has determined that the attribute should be populated for a specific foodservice use case. This determination does not prescribe any need or eliminate the ability to require population of any attribute by a Data Recipient.

The cardinality of each attribute is listed in the *GDSN Foodservice and Retail Grocery Attribute Interactive Spreadsheet Tool*. Cardinality term definitions are provided below.

- **GDSN MANDATORY-** These attributes are mandatory or core attributes for the GDSN Message. A message cannot be published without these elements.
- **REQUIRED -** The Initiative recommends these minimum attributes for the GDSN message. A message may not be accepted by a Trading Partner if these attributes are not completed.
- **VOLUNTARY / OPTIONAL** - While these attributes are not GDSN Mandatory or Required, they add value to the foodservice industry, and consequently may be requested by Trading Partners.

2.3 Package Measurement Rules

- All references in this document use the new title (i.e., *GS1 Package Measurement Rules)*.
- However, the Global Data Dictionary (GDD) has not yet been updated for the title change, and therefore GDD definitions use the original title (i.e., *GDSN Package Measurement Rules*).

For clarity, these documents are one and the same.

2.4 Code Lists

The GDSN utilizes GS1® defined code lists as well as externally managed code lists (e.g., UNCEFACT, ISO, etc.). Code lists used in the GDSN are managed outside of the schema due to both frequency of update and requirements that vary between target markets.

There are several externally managed code lists, which are used in several areas of the schema to provide code values. The table below lists of some of these externally managed code lists. All of the

code lists for the foodservice attributes can be found in the *GDSN Foodservice and Retail Grocery Attribute Interactive Spreadsheet Tool*.

Table 2-1 Externally Managed Code Lists

Code List	Comments
IS0 639-1	Codes for the representation of names of languages. Available for purchase at the following website: http://www.iso.org/iso/home/store/catalogue_tc/catalogue_detail.htm?csnumber=22109
ISO 3166-1	Part 1 – Country Codes (Three Digit Format). Available for purchase at the following website: http://www.iso.org/iso/home/store/catalogue_tc/catalogue_detail.htm?csnumber=63545
ISO 3166-2	Part 2 – Alpha Country Subdivision. Available for purchase at the following website: http://www.iso.org/iso/home/store/catalogue_tc/catalogue_detail.htm?csnumber=63546
ISO 4217	Codes for the representation of currencies and funds. Available for purchase at the following website: http://www.iso.org/iso/home/store/catalogue_tc/catalogue_detail.htm?csnumber=64758
United Nations Recommendation 20	Codes for the representation of units of measure. This list is supplemented by temporary GS1 Codes while requests are made to the managing body for update. Available at the following website: http://www.unece.org/fileadmin/DAM/cefact/recommendations/rec20/rec20_rev4E_2006.pdf
FAO INFOODS Tagnames	Codes for the representation of nutrients. This list is supplemented by temporary GS1 Codes while requests are made to the managing body for update. Available at the following website: http://www.fao.org/infoods/infoods/standards-guidelines/food-component-identifiers-tagnames/en/

3 Finding Attribute Information & Code Lists

3.1 GDSN Foodservice and Retail Grocery Attribute Interactive Spreadsheet Tool

The GS1 US *GDSN Foodservice and Retail Grocery Attribute Interactive Spreadsheet Tool* is an interactive spreadsheet designed to help companies understand and use product attributes for successfully sharing product information via the GDSN. It includes recommendations for food and non-food items, attribute definitions, examples, and other critical attribute information for variants and components. It was prepared with input from the Product Information and Images (PII) Workgroup of the Foodservice GS1 US Standards Initiative.

The spreadsheet tool includes:

- Attributes
- GDD attribute requirements including:
  - Definitions
  - Modules
  - Cardinality
- Foodservice Guidance for both food and non-food items
- Associated Code Lists

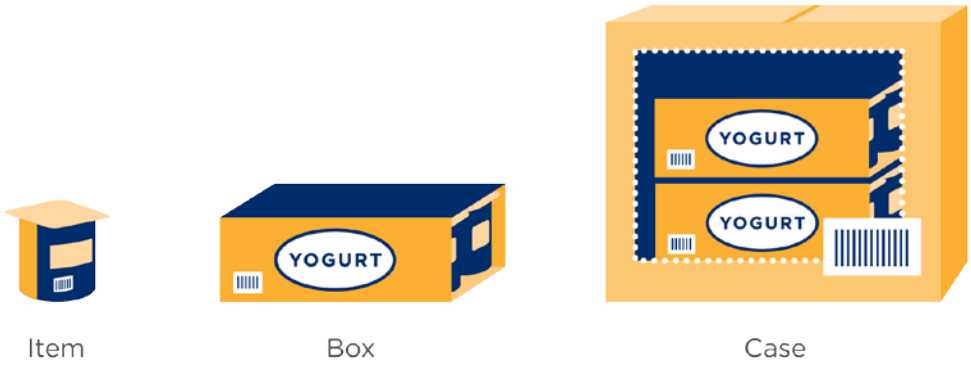
3.2 GS1 Global Attribute Explorer

GS1 Global Attribute Explorer® is an intuitive, browser-based search and discovery tool for GDSN attribute information, including GDD definition, metadata, etc. In addition, it offers a centralized location where Data Recipients can post their data attribute requirements, and where Data Sources can search and discover trading partner requirements and review the associated attribute standards.

4 Hierarchy Information

Manufacturers send data to GDSN data pools in streams of packaging levels that are tied together using hierarchy information stored in the *Parent/Child* and *Quantity* attributes. Family relationships along with *netContent* information enable Trading Partners to build informative and structured hierarchies utilizing standardized information. Today, many buy-side participants include *netContent* quantities in their "standard" hierarchies and utilize *netContent* counts in their ordering.

Figure 4-1 Trade Item Hierarchies



In order for the Supply Chain to have a complete understanding of an item and the interplay of item relationships, a complete and accurate packaging hierarchy is the foundation. The key is to populate the *Parent*, *Child*, *Quantity of Next Lower Level*, and *netContent* attributes accurately and in a consistent manner. Currently, different Trading Partners may be storing information in a variety of ways for the same product.

For example, the product pictured above may currently be represented in business systems as a:

- ITEM of 1 yogurt (ordered 1 EACH at a time)
- BOX of 6 yogurt (ordered in increments of 1 BOXES)
- CASE of 2 BOXES of yogurt (ordered in increments of 1 CASE)

After standards are applied, the hierarchy for this item could be stored as a:

- CASE of 2 EACH (12 UNITS)
- Ordered using the GTIN of the CASE or
- Ordered using the GTIN of the EACH (in increments of 1 or 12 depending on the trading relationship)

Buyers will still be able to calculate their costs at the individual item, but will do so using the multiplier provided in the *netContent* of the EACH.

Current EDI and ordering practices may include cross references, multipliers and/or packaging factors that help Trading Partners to agree that an order received is in-line with the expectations of the buyer and in the terms of the seller. Trading partners need to exercise caution as they migrate to GTINs in their ordering to assure that they transition smoothly to standardized hierarchies.

The following examples are used to describe the hierarchy of Trade Items. They show how a CASE contains PACKS, which in turn contains EACHES. **It is through the communication of Parent/Child and related quantity attributes that Data Recipients are able to construct the correct hierarchy from the data sent by suppliers**.

An accurate packaging hierarchy is the foundation for effective data synchronization and Manufacturers should take great care to assure that their hierarchies are reflected correctly. To support that effort, the remainder of this chapter presents examples of different hierarchies and guidance on how to effectively communicate each hierarchy.

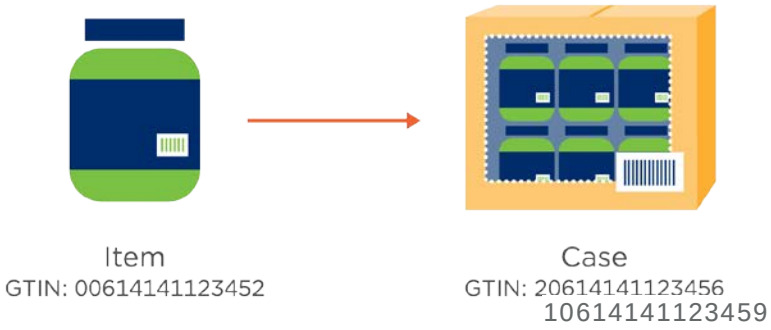
Note About Values in the First Position of "Each" GTINs in this Chapter: The "eaches" in this chapter have been assigned GTIN-12s (as would be common for point-of-sale products that use UPC-A). For clarity regarding Indicator Digits and packaging level in this chapter, it is important to understand that the first position of the "each" GTINs presented here is a "leading 0" and not an Indicator Digit (which must be a numerical character between 1-9).

GTIN-12s are 12 digits in length and do not have an Indicator Digit. However, GTINs must be stored as 14 digits (regardless of how they are assigned and encoded). Therefore, the GTIN-12s for the "eaches" in this chapter are shown in 14-digit format using leading zeros per the standards.

4.1 Two-Level Hierarchy

The figure below illustrates a simple two-level hierarchy including the attributes and values necessary to correctly communicate the hierarchy.

Figure 4-2 Two-Level Hierarchy



Packaging string: Case of 4 Each (500 Ounces per Each)

Table 4-1 Attributes & Values

Attribute ► Pack Level ▼	GTIN	Child	QuantityOfNext LowerLevelTrade Item	netContent & UOM	Quantity of Children	TotalQuantityOf NextLowerLevel TradeItem
EACH	00614141123452	n/a	n/a	500 ONZ	n/a	n/a
CASE	10614141123459	00614141123452	4	n/a	1	4

4.2 Three-Level Hierarchy

The figure below illustrates a three-level hierarchy including the attributes and values necessary to correctly communicate the hierarchy.

Figure 4-3 Three-Level Hierarchy

Packaging string: Case of 4 Packs of 50 Each (1 Ounce per Each)

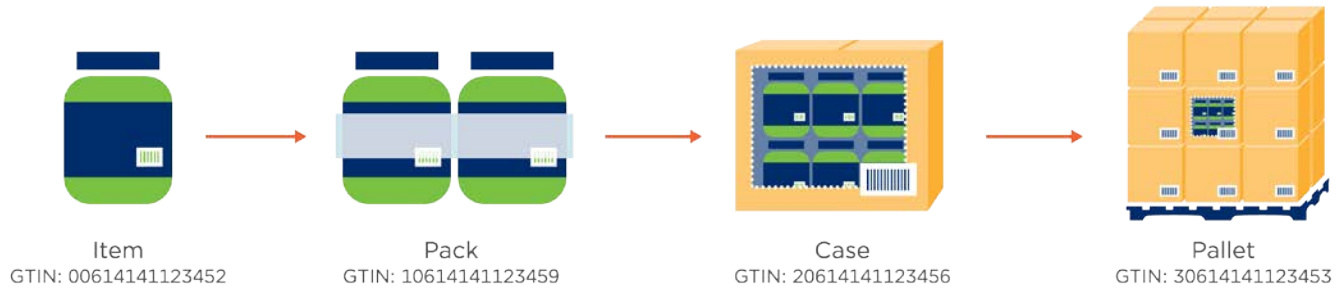
Table 4-2 Attributes & Values

Attribute ► Pack Level ▼	GTIN	Child	QuantityOfNext LowerLevel TradeItem	netContent and UOM	Quantity of Children	TotalQuantityOf NextLowerLevel TradeItem
EACH	00614141123452	n/a	n/a	1 ONZ	n/a	n/a
PACK	10614141123459	00614141123452	50	n/a	1	50
CASE	20614141123456	10614141123459	4	n/a	1	4

4.3 Complex Hierarchy

The figure below illustrates a more complex but typical hierarchy where the lowest GTIN in the hierarchy is assigned at a low level (selling unit) and the hierarchy includes multiple packs / inner packs. The attributes and values required to correctly communicate this hierarchy are included below the chart.

Figure 4-4 Complex Hierarchy



Packaging string: Pallet of 3 Cases of 7 Packs of 24 Each (24 Ounce per Each)

Table 4-3 Attributes & Values

Attribute ► / Pack Level ▼	GTIN	Child	QuantityOfNext LowerLevelTrade Item	netContent and UOM	Quantity of Children	TotalQuantityOf NextLowerLevel TradeItem
EACH	00614141123452	n/a	n/a	5 mg	n/a	n/a
PACK	10614141123459	00614141123452	2	n/a	1	2
CASE	20614141123456	10614141123459	6	n/a	1	6
PALLET	30614141123453	20614141123456	18	n/a	1	12

- The *Pallets /Logistics Units* section below presents a diagram that demonstrates a hierarchy through the pallet level for Manufacturers who desire to assign GTINs at the pallet level.

Note: In GDSN, hierarchies are always described from the largest item (e.g., case) to the smallest (e.g., each). When published, the Data Source publishes the highest parent item in the hierarchy, and the data pool automatically includes this item and all smaller child items within it, down to and including the lowest level of the hierarchy.

4.4 Complex Hierarchies (Multiple Unique Products per Hierarchy)

When a Trade Item contains more than one kind of Trade Item, a single parent will have more than one child GTIN, and the attributes *QuantityOfChildren* and *TotalQuantityOfNextLowerLevelTradeItem* become important to understanding the contents of the kit:

- **In simple hierarchies**: these two fields are populated with values of "1"
- **In complex hierarchies**: these two fields reflect the count of unique GTINs and their associated quantities

Figure 4-5 Complex Hierarchy

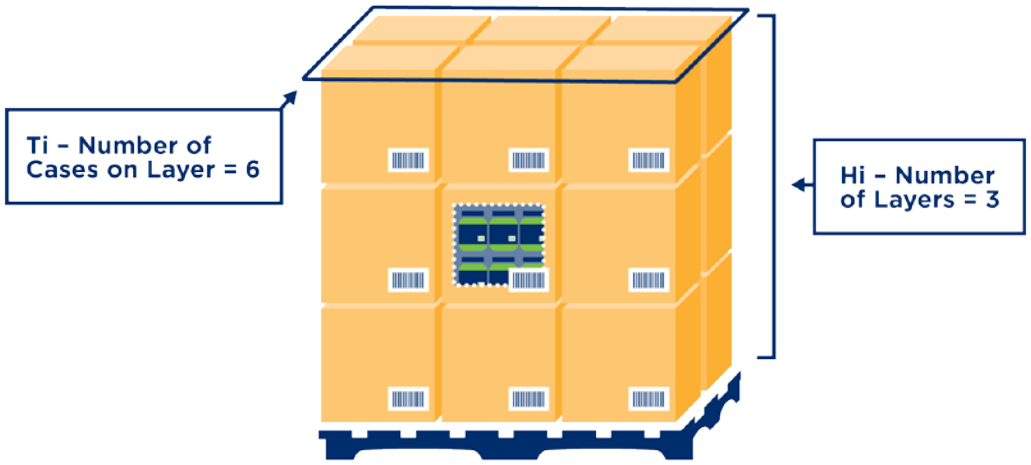
Table 4-4 Attributes & Values

Attribute ► / Pack Level ▼	GTIN	Quantity of Children	Child	QuantityOfNext LowerLevel TradeItem	TotalQuantity OfNextLower LevelTrade Item
EACH - Scissors	06141417777773	N/A	N/A	N/A	N/A
EACH - Roll of Tape	06141415555557	N/A	N/A	N/A	N/A
EACH - Box of Bandages	06141414444449	N/A	N/A	N/A	N/A
PACK - First Aid Kit	06141413333331	3	06141417777773	1	9
			06141415555557	2	
			06141414444449	6	
PACK – Pack of 10 First Aid Kits	10614141333339	1	06141413333331	10	10
CASE - 12 Packs of First Aid Kits	20614141333336	1	10614141333338	12	12

5 Pallets / Logistics Units

This section explains how to populate attributes describing how a Trade Item is palletized or otherwise prepared into a unit load (also sometimes known as a logistics unit). One of the most common forms of unit load is the pallet, used for transportation and storage purposes. Some companies use a GTIN to identify a standard pallet (or other unit load) of product as a Trade Item in its own right (i.e., it is priced, ordered and/or invoiced). This is referred to as "GTIN Logistics Units." Other companies who have a product that only exists in a single unit load format ("palletization") may choose to send the palletization information associated with the highest level of the product hierarchy, typically a case. This is referred to as "Non-GTIN Logistics Units." This section describes the attributes and GDSN handling for both.

Figure 5-1 Ti/Hi Example



Ti/Hi is a concept used to describe how product is stacked on a pallet. The "TI" is the number of cartons on a layer, and the "HI" is the number of layers of cartons on a pallet. The Ti/Hi for the example pallet displayed in the Figure above would be 6x3.

5.1 When Would I Use This?

- Data Sources looking to send unit load ("palletization") information in a consistent way in accordance with the GS1 Data Alignment standards.
- Data Receivers looking to integrate unit load information into their system without human intervention.

5.2 Scenario/Assumptions

The supplier supplies the Trade Item in a standardized layout in a unit load (e.g., on a pallet).

When sending data about logistics units:

1. The parties involved in the GDSN data synchronization (Data Source, Data Recipient, and their respective data pool(s)) should have the capability to support the attributes for GTIN Logistics Units. *(Note: This is expected, as the attributes are in classes commonly used throughout GDSN.)*
2. If the parties mutually agree to trade at a level below the logistics unit, then the parties involved in the GDSN data synchronization (Data Source, Data Recipient, and their respective data pool(s)) may choose to have the capability to support the optional extension for Non-GTIN Logistics Units. *(Note: This latter capability is optional in GDSN. Without this capability, only a reduced range of attributes may be synchronized for Non-GTIN Logistics Units.)*

5.3 "GTIN Logistics Units" versus "Non-GTIN Logistics Units"

The data attributes used to synchronize logistics unit information vary depending on whether the unit is a "GTIN Logistics Unit" or a "Non-GTIN Logistics Unit":

- A **"GTIN Logistics Unit"** *(commonly referred to as a GTIN pallet or a pallet GTIN)* is a logistics unit that is identified by a GTIN. This GTIN is allocated to the logistics unit itself.
- A **"Non-GTIN Logistics Unit"** *(commonly referred to as a Non-GTIN pallet or an unmarked pallet)* is a logistic unit that is not identified by a GTIN. It is actually not identified by any Trade Item identifier.

The table below provides guidance for deciding whether to use "GTIN Logistics Units" or "Non-GTIN Logistics Units."

Table 5-1 Rules for GTIN Logistics Unit s vs. Non-GTIN Logistics Unit s

Scenario	Rule	Application
If a standard logistics unit configuration is ordered, invoiced or priced …	A GTIN needs to be assigned to it.	GTIN Logistics Units
If there are multiple standard logistics unit configurations available for a synchronized item within a target market …	A GTIN needs to be assigned to each configuration regardless of whether it is ordered, invoiced, or priced.	GTIN Logistics Units
If there is only one standard logistics unit configuration in a target market, there are currently two prevalent business practices for obtaining information …	At the logistics unit level when a GTIN is assigned to the logistics unit.	GTIN Logistics Units
	At the "case" level when a GTIN is not assigned to the logistics unit. *(There are additional attributes that need to be added to support this "case" level processing.)*	Non-GTIN Logistics Units

5.4 Attributes

As noted above, the data attributes used to synchronize logistics unit information vary depending on if the unit is a "GTIN Logistics Unit" or a "Non-GTIN Logistics Unit." The table below identifies the attributes to be used for each application.

Table 5-2 Data Attributes Used to Synchronize Logistics Unit Information

Business Requirement	Data Attribute Name Used for a **"GTIN Logistics Unit"**	Data Attribute Name Used for a **"Non-GTIN Logistics Unit"** *(the data must be attached to the highest hierarchy level identified with a GTIN)*
"Cases" Per Layer †	quantityOfTradeItemsContainedInACompleteLayer	quantityOfTradeItemsPerPalletLayer
Layers Per Logistics Unit	quantityOfCompleteLayersContainedInATradeItem	quantityOfLayersPerPallet
"Cases" Per Logistics Unit †	quantityOfNextLowerLevelTradeItem	quantityOfTradeItemsPerPallet
Logistics Unit Gross Weight	grossWeight	NonGTINLogisticsUnitInformationModule/grossWeight
Logistics Unit Height	height	NonGTINLogisticsUnitInformationModule/height
Logistics Unit Depth	depth	NonGTINLogisticsUnitInformationModule/depth
Logistics Unit Width	width	NonGTINLogisticsUnitInformationModule/width
Stacking Factor	stackingFactor *	NonGTINLogisticsUnitInformationModule/logisticsUnitStackingFactor *
Stacking Factor Type	stackingFactorType *	N/A
Platform Terms & Conditions	platformTermsAndConditionsCode *	platformTermsAndConditionsCode *
Platform Type	platformTypeCode *	platformTypeCode *
Irregular Pallet Configuration*	isTradeItemPackedIrregularly *	isNonGTINLogisticUnitPackedIrregularly *

† **Note:** Although in most cases, the highest level below the logistics unit may be a case (CA), it may alternatively be another level such as display (DS).

*** Note:** *stackingFactor*, *stackingFactorType*, *platformTermsAndConditionsCode*, *platformTypeCode* and *isTradeItemPackedIrregularly* are optional. For a particular Trade Item:

- **Either:** these values may be unvarying (static) for this Trade Item – *if so, they should be passed as master data populated with the normal values for the Trade Item*
- **Or:** these values may vary for each transaction (e.g., if there is no "normal" platform used for this Trade Item) – *if so, they should be passed in the Despatch Advice / Advance Ship Notice (and not as master data)*

5.5 Rules

- **Weight & Dimensions Not Including the Shipping Platform:** When Trade Item information does not contain the weight and dimensions of the shipping platform, the attribute

platformTypeCode should be populated with *Code 27 - Platform of Unspecified Weight or Dimension* (i.e., the highest level of the hierarchy is being shipped on a shipping platform of unknown dimensions or unknown weight, and the platform weight or dimension may differ within the same shipment). All other values (including null) would indicate that the weight and dimensions include the shipping platform.

- **Attributes to be Validated on Receiving:** Data Sources should use only the attributes for the option which applies to the GTIN hierarchy. However, for receiving, Data Receivers should not validate only the appropriate attributes for the selected option in order to help the transition from past practice. This is because if a supplier transitions a product from Non-GTIN Logistics Units to GTIN Logistics Units, there is often an interim period when only some customers can use the appropriate data attributes. During this interim period, Data Sources may be required to send the data in both levels of the hierarchy (i.e. logistics and the next lower level (e.g., case)) in order to enable continuous synchronization with existing customers. The Data Recipient should take the attributes at the first (highest) level of the hierarchy they can process.
- **Co-Dependent Attributes:** When using the Non-GTIN Logistics Unit option, if one of the following attributes is populated, then all of them must be populated:
  - *NonGTINLogisticsUnitInformationModule/grossWeight*
  - *NonGTINLogisticsUnitInformationModule/depth*
  - *NonGTINLogisticsUnitInformationModule/height*
  - *NonGTINLogisticsUnitInformationModule/width*
  - *logisticsUnitStackingFactor*
  - *platformTermsAndConditionsCode*
  - *platformTypeCode*
  - *quantityOfTradeItemsPerPallet*
  - *quantityOfLayersPerPallet*
  - *quantityOfTradeItemsPerPalletLayer*

Note: In the examples throughout the remainder of this section, the level below the logistics unit is always referred to as a "case." Although in most instances the highest level below the logistics unit may be a case (CA), it may alternatively be another level such as display (DS).

5.6 Example 1: Highest Level of Hierarchy is a Pallet Identified by a GTIN

Example 1 is a hierarchy in which the highest level of the hierarchy (here a pallet) is identified by a GTIN. The product is a 200g jar of Gold coffee, packed in cases of 12 jars. The cases are palletized: 8 cases per layer and 4 layers per pallet.

The GTINs are:

- jar EA 3033718207536
- case CA 3033710218738
- pallet PL 3033711078317

In GDSN, this is published at the highest level of the item hierarchy: **pallet GTIN = 3033711078317**.

Table 5-3 Example 1: Highest level of the hierarchy is a pallet identified by a GTIN

Information	Data Attribute Name (sent for the pallet GTIN 3033711078317)	Sample Value
Cases Per Layer	quantityofTradeitemsContainedinaCompleteLayer	8
Layers Per Logistics Unit	quantityOfCompleteLayersContainedInATradeItem	4
Cases Per Logistics Unit	quantityOfNextLowerLevelTradeItem	32
Logistics Unit Gross Weight	grossWeight	299.88 KGM
Logistics Unit Height	height	984 MMT
Logistics Unit Depth	depth	1200 MMT
Logistics Unit Width	width	800 MMT
Stacking Factor	stackingFactor *	1
Stacking Factor Type	stackingFactorType *	STORAGE_UNSPECIFIED
Pallet Terms & Conditions	platformTermsAndConditions *	<not used>
Platform Type	platformTypeCode *	11 [Flat pallet with dimensions of 1200 x 1000 mm ISO 6780 ISO 2 Pallet, EUR 2 Pallet]
Irregular Pallet Configuration*	isNonGTINLogisticUnitPackedIrregularly *	<not used> or FALSE

Note: *stackingFactor*, *stackingFactorType*, *platformTermsAndConditionsCode*, *platformTypeCode* and *isNonGTINLogisticUnitPackedIrregularly* are optional. For a particular Trade Item:

- **Either:** these values may be unvarying (static) for this Trade Item – *if so, they should be passed as master data populated with the normal values for the Trade Item*
- **Or:** these values may vary for each transaction (i.e., there is no "normal" platform used for this Trade Item) – *if so, they should be passed in the Despatch Advice / Advance Ship Notice, and not as master data*

5.7 Example 2: Highest Level of Hierarchy is a Pallet Not Identified by a GTIN

In Example 2, the highest level of the hierarchy (here a pallet) is not identified by a GTIN. The product is a 200g jar of Gold coffee, packed in cases of 12 jars. The cases are palletized: 8 cases per layer and 4 layers per pallet.

The GTINs are:

- jar EA 3033718207536
- case CA 3033710218738
- pallet <no GTIN>

In GDSN, this is published at the highest level of the item hierarchy: **case GTIN = 3033710218738**.

Table 5-4 Example 2: Highest level of the hierarchy is a pallet not identified by a GTIN

Information	Data Attribute Name (sent for the case GTIN 3033710218738)	Sample Value
Cases Per Layer	quantityofTradeitemsContainedinaCompleteLayer	8
Layers Per Logistics Unit	quantityOfCompleteLayersContainedInATradeItem	4
Cases Per Logistics Unit	quantityOfNextLowerLevelTradeItem	32
Logistics Unit Gross Weight	NonGTINLogisticsUnitInformationModule/grossWeight	299.88 KGM
Logistics Unit Height	NonGTINLogisticsUnitInformationModule/height	984 MMT
Logistics Unit Depth	NonGTINLogisticsUnitInformationModule/depth	1200 MMT
Logistics Unit Width	NonGTINLogisticsUnitInformationModule/width	800 MMT
Stacking Factor	logisticsUnitStackingFactor *	1
Pallet Terms & Conditions	platformTermsAndConditionsCode *	2 {Exchange Pallet}
Platform Type	platformTypeCode *	11 [Flat pallet with dimensions of 1200 x 1000 mm ISO 6780 ISO 2 Pallet, EUR 2 Pallet]
Irregular Pallet Configuration*	IsNonGTINTradeItemPackedIrregularly*	<not used> or FALSE

Note: *logisticsUnitStackingFactor*, *platformTermsAndConditionsCode*, *platformTypeCode* and *IsNonGTINTradeItemPackedIrregularly* are optional. For a particular Trade Item:

- **Either:** these values may be unvarying (static) for this Trade Item – *if so, they should be passed as master data, populated with the normal values for the Trade Item*
- **Or:** these values may vary for each transaction (i.e., there is no "normal" platform used for this Trade Item) – *if so, they should be passed in the Despatch Advice / Advance Ship Notice, and not as master data*

5.8 Example 3: Quarter or Half Pallets on Pallet

In Example 3, the product is a bottled water which is 8*25 cl multi-pack, packed in cases of 3. The cases are palletized: 54 cases per half pallet and 2 half pallets per pallet.

The GTINs are:

- 8 bottles EA 03179730107834
- case CA 03179730107888
- half pallet CA 03179730107765
- pallet PL 03179730107758

In GDSN, this is published at the highest level of the item hierarchy: **pallet GTIN = 03179730107758**.

Figure 5-2 Example of Half Pallet GTIN 03179730107765

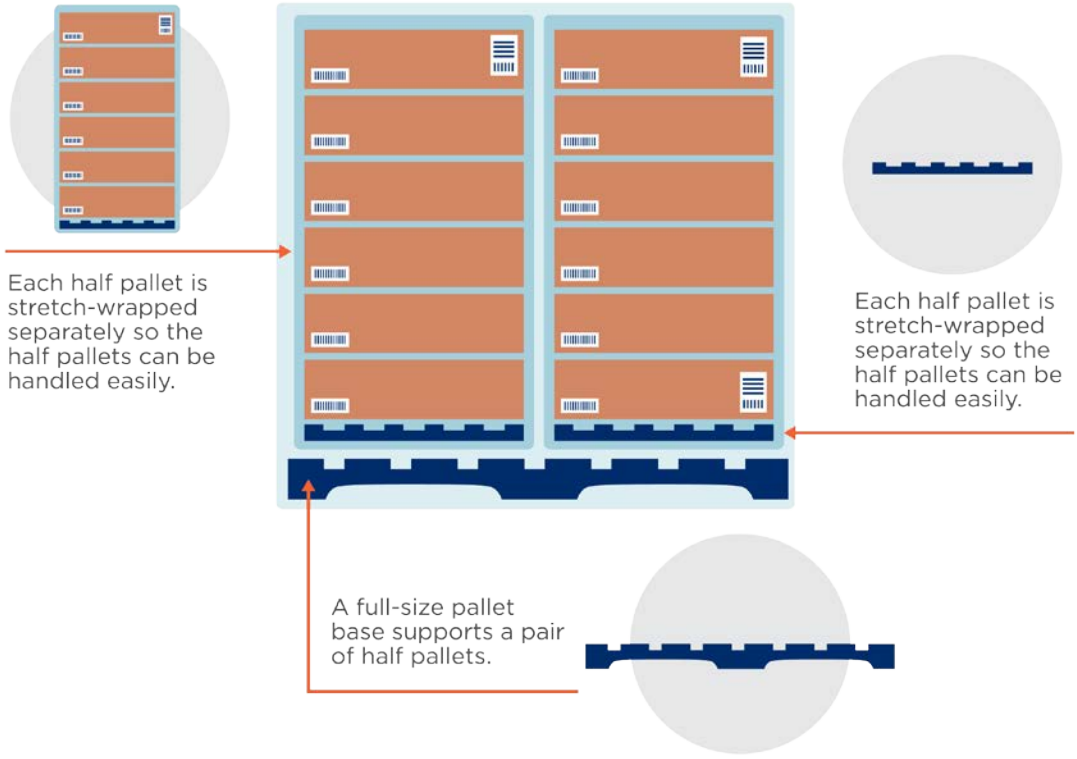


Table 5-5 Example 3: Quarter or Half Pallets on Pallet (Part 1)

Information	Data Attribute Name *(sent for the pallet GTIN 03179730107758)*	Sample Values
Cases Per Layer	quantityofTradeitemsContainedinaCompleteLayer	2
Layers Per Logistics Unit	quantityOfCompleteLayersContainedInATradeItem	1
Cases Per Logistics Unit	quantityOfNextLowerLevelTradeItem	2
Logistics Unit Gross Weight	grossWeight	1018 KGM
Logistics Unit Height	height	1771 MMT
Logistics Unit Depth	depth	1013 MMT
Logistics Unit Width	width	1268 MMT
Stacking Factor	stackingFactor *	1
Stacking Factor Type	stackingFactorType *	TRANSPORT_LOAD
Pallet Terms & Conditions	platformTermsAndConditionsCode *	2 {Exchange Pallet}
Platform Type	platformTypeCode *	12 [Quarter size of the standard EuroPallet with dimensions of 600 x 400 mm, Quarter size of the standard EuroPallet (EUR)]
Irregular Pallet Configuration*	isTradeItemPackedIrregularly*	<not used> or FALSE

Note: *logisticsUnitStackingFactor*, *platformTermsAndConditionsCode*, *platformTypeCode* and *IsTradeItemPackedIrregularly* are optional. For a particular Trade Item:

- **Either:** these values may be unvarying (static) for this Trade Item – *if so, they should be passed as master data, populated with the normal values for the Trade Item*
- **Or:** these values may vary for each transaction (i.e., there is no "normal" platform used for this Trade Item) – *if so, they should be passed in the Despatch Advice / Advance Ship Notice, and not as master data*

Table 5-6 Example 3: Quarter or Half Pallets on Pallet (Part 2)

Information	Data Attribute Name *(sent for the case (half pallet) GTIN 30337110218738)*	Sample Values
Cases Per Layer	quantityofTradeitemsContainedinaCompleteLayer	6
Layers Per Logistics Unit	quantityOfCompleteLayersContainedInATradeItem	9
Cases Per Logistics Unit	quantityOfNextLowerLevelTradeItem	54
Logistics Unit Gross Weight	grossWeight	488,875 KGM
Logistics Unit Height	height	1607 MMT
Logistics Unit Depth	depth	1013 MMT
Logistics Unit Width	width	634 MMT
Stacking Factor	stackingFactor *	1
Stacking Factor Type	stackingFactorType *	TRANSPORT_ROAD
Pallet Terms & Conditions	platformTermsAndConditionsCode *	2 {Exchange Pallet}
Platform Type	platformTypeCode *	31 [Half size flat pallet with dimensions of 1000 x 600 mm. 1/2 ISO 2 Pallet.]
Irregular Pallet Configuration*	isTradeItemPackedIrregularly *	<not used> or FALSE

Note: *logisticsUnitStackingFactor*, *platformTermsAndConditionsCode*, *platformTypeCode* and *IsTradeItemPackedIrregularly* are optional. For a particular Trade Item:

- **Either:** these values may be unvarying (static) for this Trade Item – *if so, they should be passed as master data, populated with the normal values for the Trade Item*
- **Or:** these values may vary for each transaction (i.e., there is no "normal" platform used for this Trade Item) – *if so, they should be passed in the Despatch Advice / Advance Ship Notice, and not as master data*

5.9 Example 4: Multiple Configurations – GTINs Assigned to Each Configuration

In Example 4, the product is a 200g jar of coffee, packed in cases of 12 jars. The cases are palletized in two different ways for different distribution channels. In the first configuration, there are 8 cases per layer and 4 layers per pallet. In the second configuration, there are 10 cases per layer and 6 layers per pallet.

The GTINs are:

- jar EA 3033718207536
- case CA 3033710218738
- pallet configuration 1 PL 3033711078317
- pallet configuration 2 PL 3033711078324

In GDSN, this is published at the highest level of each item hierarchy: **once for pallet GTIN = 3033711078317 and once for pallet GTIN = 3033711078324**

Table 5-7 Example 4: Multiple Configurations (Part 1)

Information	Data Attribute Name (sent for the pallet GTIN 3033711078317)	Sample Value
Cases Per Layer	quantityOfTradeItemsContainedInACompleteLayer	8
Layers Per Logistics Unit	quantityOfCompleteLayersContainedInATradeItem	4
Cases Per Logistics Unit	quantityOfNextLowerLevelTradeItem	32
Logistics Unit Gross Weight	grossWeight	299.88 KGM
Logistics Unit Height	Height	987 MMT
Logistics Unit Depth	Depth	1200 MMT
Logistics Unit Width	Width	800 MMT
Stacking Factor	stackingFactor *	1
Stacking Factor Type	stackingFactorType *	TRANSPORT_ROAD
Pallet Terms & Conditions	platformTermsAndConditionsCode *	<not used>
Platform Type	platformTypeCode *	11 [Flat pallet with dimensions of 1200 x 1000 mm ISO 6780 ISO 2 Pallet, EUR 2 Pallet]
Irregular Pallet Configuration*	isTradeItemPackedIrregularly *	<not used> or FALSE

Note: *logisticsUnitStackingFactor*, *platformTermsAndConditionsCode*, *platformTypeCode* and *IsTradeItemPackedIrregularly* are optional. For a particular Trade Item:

- **Either:** these values may be unvarying (static) for this Trade Item – *if so, they should be passed as master data, populated with the normal values for the Trade Item*
- **Or:** these values may vary for each transaction (i.e., there is no "normal" platform used for this Trade Item) – *if so, they should be passed in the Despatch Advice / Advance Ship Notice, and not as master data*

Table 5-8 Example 4: Multiple Configurations (Part 2)

Information	Data Attribute Name (sent for the pallet GTIN 3033711078324)	Sample Value
Cases Per Layer	quantityOfTradeItemsContainedInACompleteLayer	10
Layers Per Logistics Unit	quantityOfCompleteLayersContainedInATradeItem	6
Cases Per Logistics Unit	quantityOfNextLowerLevelTradeItem	60
Logistics Unit Gross Weight	grossWeight	547.28 kg
Logistics Unit Height	height	1422 mm
Logistics Unit Depth	depth	1200 mm
Logistics Unit Width	width	1000 mm
Stacking Factor	stackingFactor *	1
Stacking Factor Type	stackingFactorType *	TRANSPORT_ROAD
Pallet Terms & Conditions	platformTermsAndConditionsCode *	<not used>
Platform Type	platformTypeCode *	12 [Quarter size of the standard EuroPallet with dimensions of 600 x 400 mm, Quarter size of the standard EuroPallet (EUR)]
Irregular Pallet Configuration*	isTradeItemPackedIrregularly*	<not used> or FALSE

Note: *logisticsUnitStackingFactor*, *platformTermsAndConditionsCode*, *platformTypeCode* and *IsTradeItemPackedIrregularly* are optional. For a particular Trade Item:

- **Either:** these values may be unvarying (static) for this Trade Item – *if so, they should be passed as master data, populated with the normal values for the Trade Item*
- **Or:** these values may vary for each transaction (i.e., there is no "normal" platform used for this Trade Item) – *if so, they should be passed in the Despatch Advice / Advance Ship Notice, and not as master data*

5.10 Example 5: Transitioning from Non-GTIN Logistics Units to GTIN Logistics Units

This example illustrates the transition from *Example 2*, where the Highest Level of Hierarchy is a Pallet Not Identified by a GTIN, to *Example 1* where Highest Level of Hierarchy is a Pallet Identified by a GTIN. In this scenario, the original publication occurred at the case level (See *Example 2*). Now the Manufacturer has decided to begin trading at the pallet level, and in doing so created another logistics unit configuration: a pallet. Because there will then be two concurrent logistics unit configurations, the Manufacturer will need to assign a GTIN to the pallet level for each configuration (See *Example 4*).

The recommended process is as follows:

1. Assign a GTIN and create a record for the new pallet, indicating the existing case as the Next Lower Level GTIN.
2. Publish a new item to the Operator for the new configuration, publishing at the pallet level.
3. Send a Change for the existing case record, removing the Non-GTIN Logistics Unit attributes.
4. The Operator now has two publications: one at the pallet level and the other at the case level.
5. The Operator will need to send a positive CIC for the new pallet configuration and a rejected CIC for the case configuration.
6. The supplier can later send a Hierarchy Withdrawal message for the case if it is no longer offered to the Operator.
7. The records can contain the appropriate ordering true/false flags, depending upon the configuration and the Operator.

Note: The technical details of how this is achieved using standard messages between data pools within the GDSN is more complex. For further details, users may also obtain advice from their Data Pool and/or from GS1 US.

6 Metric and Imperial Measurements

In trade, most countries use the metric system of measurements, but some prefer the imperial system of measurements. This chapter illustrates how such measurements should be passed in the GDSN.

6.1 Scenario / Assumptions

Data Sources looking to provide information on a Trade Item in more than one target market with more than one measurement system. In each target market, the Data Source has determined which measurement system is required.

Most commonly, the U.S. imperial measurement system is used in the U.S.A., and the metric system is most commonly used in other target markets. The final decision rests with the Data Source.

Note: Please refer to the *GS1 Package Measurement Rules*.

6.2 When Would I Use This?

For all global measurement attributes, Data Sources require the ability to send either metric or imperial measurements, depending on the Target Market. For each Target Market, there will be only one value, as determined by the Data Source. The Data Source should provide the measurement system that is required in a specific target market.

Important: In the event there is a regulatory framework requiring a particular unit of measure, it is the Data Recipient's responsibility to ensure that local regulations are adhered to.

6.3 Attributes in Scope

The Data Source in each target market can provide only one value for weights, dimensions and temperatures. The following attributes, as relevant to the foodservice community, represent a sample

of where this would apply. There are other applicable attributes in GDSN, which are trading partner specific and are not addressed in this guidance document.

- depth
- grossWeight
- height
- quantityContained
- servingSize
- storageHandlingTemperatureMaximum
- storageHandlingTemperatureMinimum
- width

6.4 Business Rules

- Suppliers may use any valid unit of measure (UOM) and it is up to their Trading Partners to convert the UOM between increments within a measurement system (e.g., suppliers transact with pound measurement versus recipient who stores data as ounces inches versus feet; etc.).
- For those attributes that have code lists specified in the Business Message Standard, always use a valid value from the code list specified.
- For more information, please refer to the *GS1 Package Measurement Rules*.
- If a Data Source uses the same measurement system for the same attribute in more than one Target Market, then the Data Source must take care to ensure that values are consistent (e.g., if sending Depth to both France and Germany in the metric system, it is acceptable to send 100 mm to one and 10 cm to the other).
- **Important:** The GTIN Management Standard must always be followed.
- When a truly global Trade Item crosses from a “metric” Target Market to an “imperial” Target Market (for example: UK to US), it is expected that the Data Source would ensure approximate conversions of data are made between the two measurement systems.

7 Populating Ranges, Minimums & Maximums, and Attribute Pairing

7.1 Minimums & Maximums

When populating data where there is a Minimum and Maximum set of values, these attributes should be populated with the lower limit in the minimum and the upper limit in the maximum. However, not all situations have a range for the information being requested.

- When there is a "Range of Values," the lower value is populated in the Minimum Value Field and the higher value is populated in the Maximum Value Field.
- When there is a "Less Than or Up To a Value," the Minimum Value Field is left null and the Maximum Value Field contains the upper limit value.
- When there is a "Greater Than or No Less Than Value," the Minimum Value Field contains the lower limit value and the Maximum Value Field is left null.
- When there is a "Single or Recommended Value," the same value is populated in the Minimum Value Field and the Maximum Value Field.

The table below gives guidance as best practice on how to populate.

Table 7-1 Minimum / Maximum Best Practices

Information Type Available	Populated In	Value
Range of Lowest to Highest	Minimum Values Field	Lowest Value
	Maximum Values Field	Highest Value
Less Than a Value	Minimum Values Field	Null value
	Maximum Values Field	Highest Value
Greater Than a Value	Minimum Values Field	Lowest Value
	Maximum Values Field	Null Value
Single or Recommended Value	Minimum Values Field	Single Value populated in both fields
	Maximum Values Field	

7.2 Attribute Pairing Examples

EXAMPLE 1: A Trade Item has a storage temperature **range** of -5 F to 36 F. Since there is a range, both Minimum and Maximum values would be populated and would be different.

Attribute	Value	UoM
maximumTemperature	36	F
minimumTemperature	-5	F

EXAMPLE 2: A Trade Item has an individual unit size of **no more than** 5 oz. Since the value is a less than value, only Maximum value would be populated.

Attribute	Value	UoM
individualUnitMaximum	5	oz
individualUnitMinimum		

EXAMPLE 3: A Trade Item has an order quantity of **no less than** 12. Since the value is a greater than value, only Minimum value would be populated.

Attribute	Value
orderQuantityMaximum	
orderQuantityMinimum	12

EXAMPLE 4: A Trade Item has a recommended deliver to distribution center temperature of 25 F. Since there is no range, both Minimum and Maximum values would be populated and would be the same.

Attribute	Value	UoM
maximumTemperature	25	F
minimumTemperature	25	F

8 Items with Returnable Assets

Returnable assets are pieces of an item, primarily packaging or shipping items, which are used in the shipping, storage or other handling of the item but should be returned to the Manufacturer for reuse in future instances of the item. Examples of returnable assets include crates, totes, bins, dollies, etc. This chapter describes how information on items with returnable assets would be provided. It primarily focuses on the hierarchy and GTIN levels which might be communicated through GDSN. Each level would have attributes populated to describe it and its relation to other levels of the hierarchy.

8.1 When Would I Use This?

This approach would be used to help describe the different hierarchies used when returnable assets are assembled.

8.2 Examples of Returnable Assets

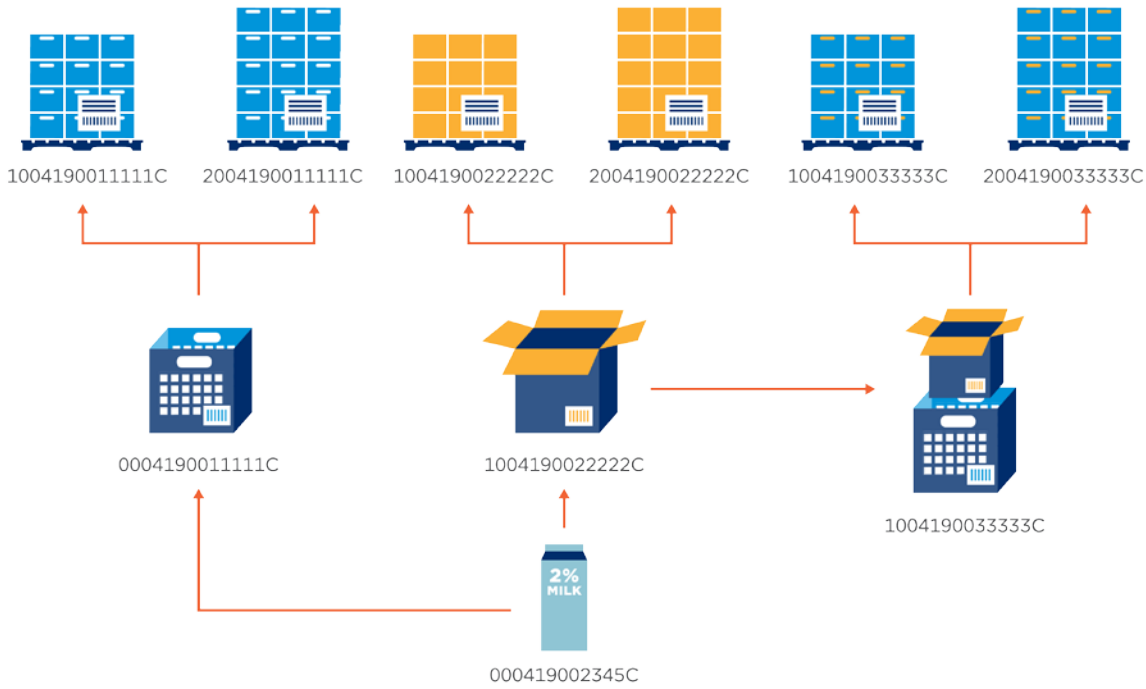
The following is an example diagram of a bag in box dairy product.

The item is a bladder of milk. The GTIN assigned to the bladder is a base level (i.e., zero level). This bladder can be shipped in three different styles of packaging:

- returnable crate,
- disposable box, or
- disposable box in a returnable crate.

Each of these layers can be given a new base level GTIN (i.e., zero level) as they are considered individual ordering levels in this example. Then, as other levels of the hierarchy are built, they are assigned GTINs built off of the appropriate zero level by changing the packaging indicator and the check digit (denoted with a “C”).

Figure 8-1 Returnable asset hierarchy example



9 Data Synchronization Information Flow

In the foodservice industry there are various partners who are involved in the movement of products from the source to the consumer. It is important to understand how product data should flow from one partner to the next along the way. Knowing where the data came from and which pieces of information can be altered from the original message is important to understand how the information can be utilized. This section provides guidance as to how information should flow and which pieces of information can be altered along the way.

The information provided here is guidance on the best practice for product information flow. By Trading Partner agreement, data can flow from one party to another in a manner not presented in this chapter. For example, if a Manufacturer and a Operator agree, product information can flow between the two even if the item is purchased and physically received from another party. It is important to note that because this is not best practice, it should not be expected practice. It is only accomplished through a specific arrangement between both parties outside of the GDSN Messaging structure.

9.1 Partner Naming Terms Defined

The following are naming terms used in this section. Understanding these terms will help the reader to follow along with the diagrams and text.

9.1.1 Manufacturer

For the purpose of GDSN, the term *Manufacturer* applies to any party who manufactures or otherwise produces a product. The term Manufacturer can also refer to the Brand Owner. In other words (and in many cases), the Brand Owner is also the Manufacturer. For the purposes of GDSN, the terms Manufacturer and Brand Owner are interchangeable.

A Manufacturer is a sender of GDSN data (i.e., the data source for GDSN data about its products). Nonetheless, if the Manufacturer receives product information via GDSN from an upstream trading partner, the Manufacturer would also be a receiver of GDSN data.

9.1.2 Distributor

The term *Distributor* applies to any party who provides product from a Manufacturer to an Operator or Store. A Distributor is both a receiver and a sender of GDSN data. The Distributor's process and systems should allow synchronization of product information for a GTIN from multiple sources. Reconciliation of the multiple sets of product information should occur upon receipt by the Distributor's systems. Distributor-specific supply chain attributes may be changed and a Distributor "standard" record should be created/designated. (The list of attributes which a Distributor can change are provided below.) A copy of the original GDSN attributes as published should always be maintained as well.

9.1.3 Re-Distributor

For this chapter, the term *Re-Distributor* applies to any party who provides product from a Distributor to a buyer. This party role can be performed by a Distributor or a Manufacturer (who is not the initial Manufacturer of the product). This party may also be referred to as a Buyer.

A Re-Distributor is both a receiver and a sender of GDSN data. The Re-Distributor's process and systems should allow synchronization of product information for a GTIN from multiple sources. Reconciliation of the multiple sets of product information should occur upon receipt by the Re-Distributor's systems. Re-Distributor specific supply chain attributes may be changed and a Re-Distributor "standard" record should be created/designated. (The list of attributes which a Re-Distributor can change are provided below.) A copy of the original GDSN attributes as published should always be maintained as well.

9.1.4 Broker

For this chapter, the term *Broker* applies to any party who acts as a sales agent, or assists in the sale of a product (although Brokers do not typically take possession of a product). A Broker is a receiver of GDSN data. The Broker's process and systems should therefore allow for the synchronization of product information for a GTIN from multiple sources. Reconciliation of the multiple sets of product information should occur within the Broker's systems. A copy of the original GDSN attributes as published should always be maintained as well.

9.1.5 Co-op / Buying Group

For this chapter, the term *Co-op/Buying Group* applies to any party who provides product buying as an aggregate service for a collection or group of buyers. A Co-op/Buying Group is a receiver of GDSN data. The Co-Op/Buying Group's process and systems should allow synchronization of product information for a GTIN from multiple sources. Reconciliation of the multiple sets of product information should occur upon receipt by the Co-Op/Buying Group's systems. A copy of the original GDSN attributes as published should always be maintained as well.

9.1.6 Operator

For this chapter, the term *Operator* applies to any party who buys product to provide to a consumer either directly or through the use of stores. An Operator is a receiver of GDSN data. (If the Operator in turn sends product information via GDSN to their stores or business units, they will also be a sender of GDSN data.) The Operator's process and systems should allow for the synchronization of product information for a GTIN from multiple sources. Reconciliation of product information from multiple sources occurs within the Operator's systems. A copy of the original GDSN attributes as published by the Manufacturer should always maintained as well.

9.1.7 Store

For this chapter, the term *Store* applies to any party who provides product directly to a consumer. This party is usually the retail outlet of an Operator. A Store will only need to be a receiver of GDSN data if the Operator utilizes GDSN to share product information via GDSN. (As mentioned in the previous section, this typically takes place within the Operator's internal system.)

9.1.8 3rd Party Service Provider

For this chapter, the term *3rd Party Service Provider* applies to any party who provides the ability to store, manipulate and/or share product information using GDSN and perhaps other mechanisms. A 3rd Party Service Provider is a receiver of GDSN data.

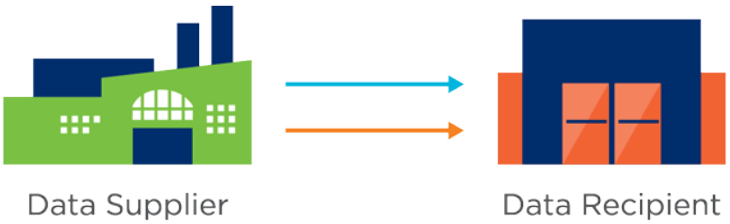
9.2 GDSN Product Information Flow

As discussed earlier, there are various partners who are involved in the movement of products from the source to the consumer in the foodservice industry. This section describes and briefly introduces the basic information flows between partners, as well as some of the more complex information flows between foodservice partners.

GDSN encourages product information to flow along the same pathways as the buying and selling of the product. Hence, the selling side is titled the Data Supplier and the buying side is titled the Data Recipient. The information contained in the GDSN message has elements which can be used to enhance the buying process (e.g., some attributes can have one value based on the buying relationship between Party A and Party B, and a different value when Party B sells the same product to Party C).

The following chart depicts a simplified view of the product information flow from the data supplier to the data recipient.

Figure 9-1 GDSN Product information Flow



The blue line between the parties is the GDSN itself.

9.3 Foodservice Product Information Flow: Basic 2-Party Scenario

This scenario is the basic flow of product and product information from one side of the supply chain to the other for Manufacturer/National Brand products. For this scenario, the physical product flows from the Manufacturer to the Operator. While not noted in the diagram for simplicity, the orders typically flow along the same line as the physical product. Product information should flow between the Trading Partners in the same fashion. The rationale for this approach is that the product information shared is appropriate for the buying relationship.

The chart below depicts the GDSN product information flow from the Manufacturer(s) to an Operator which follows the flow of the product from Manufacturer(s) to the Operator.

Figure 9-2 Foodservice Product Information Flow: Basic 2-Party Scenario

- *The blue line between the parties is the product information flow including the GDSN itself.*
- *The red line between the parties is the physical product flow.*

9.4 Foodservice Product Information Flow: Basic 3-Party Scenario

This scenario is the basic flow of product and product information from one side of the supply chain to the other for Manufacturer/National Brand products and Distributor Brand products. For this scenario, the physical product flows from the Manufacturer to the Distributor to the Operator. While not noted in the diagram for simplicity, the orders typically flow along the same line as the physical product. Product information should flow between the Trading Partners in the same fashion.

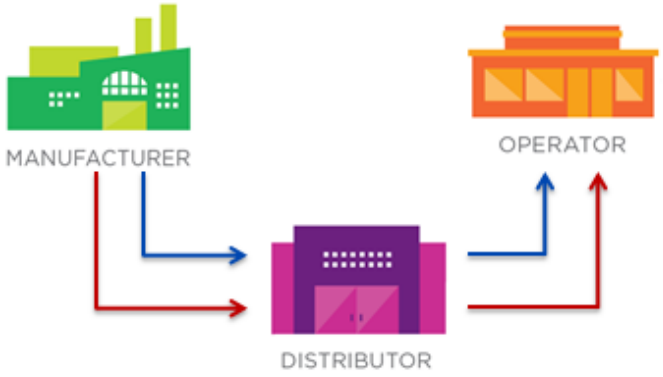
Rationales for this approach:

- Some data in GDSN can be different when published from different parties. For example, there are attributes in GDSN for how the item is sold. The Manufacturer could have the Case as the orderable, dispatch and invoice unit with an order quantity of even case count, and the Distributor could have the Each as orderable, dispatch and invoice unit with an order quantity of an even each. This approach ensures information shared is appropriate for the buying relationship.

- Manufacturers do not have visibility to all parties who are buying their products. This makes direct publication to all parties impractical.

The following chart depicts product information flow where the Manufacturer sells national and distributor-branded products to a Distributor, and the Distributor sells national and distributor-branded products to the Operator.

Figure 9-3 Foodservice Product Information Flow: Basic 3-Party Scenario



- *The blue line between the parties is the product information flow including the GDSN itself.*
- *The red line between the parties is the physical product flow.*

9.5 Foodservice Product Information Flow: Expanded

This scenario is the basic flow of product and product information from one side of the supply chain to the other for Multi-Source Manufacturer/National Brand and Distributor Brand products. For Multi-Source or Distributor Branded product, there can be several Manufacturers for the same GTIN. For example, a Distributor has a product made for them by a Manufacturer on the east coast and a different Manufacturer on the west coast. All Manufacturers produce the product to the same specification, recipe and requirements. To the user of the product, there is no noticeable difference. The item has one GTIN assigned by the Distributor -- it is the same product just physically manufactured by 2 different parties. The Distributor may ask each of the Manufacturers to send a GDSN message to the recipients of that item to ensure correct data from the production run measures.

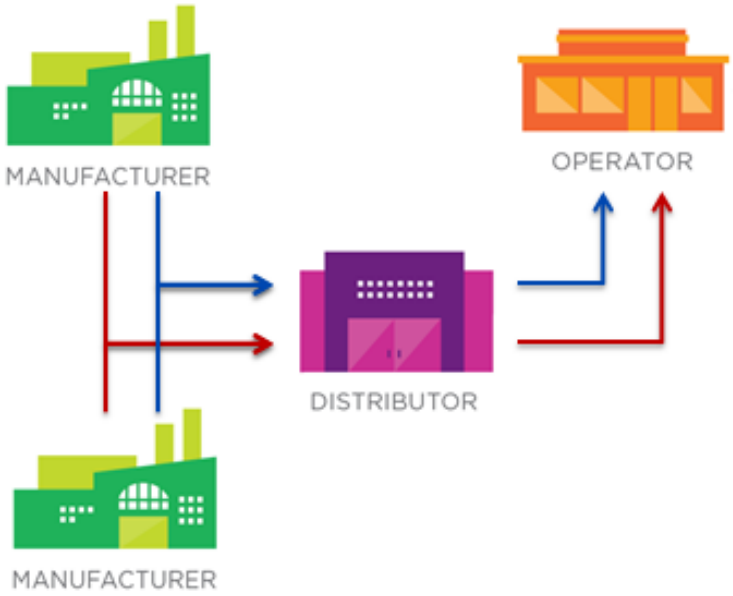
For this scenario, physical product flows from multiple Manufacturers to the Distributor to the Operator. While not noted in the diagram for simplicity, the orders typically flow along the same line as the physical product. Product information should flow between the Trading Partners in the same fashion.

Rationales for this approach:

- Some data in GDSN can be different when published from different parties. For example, there are attributes in GDSN for how the item is sold. The Manufacturer could have the Case as the orderable, dispatch and invoice unit with an order quantity of even case count, and the Distributor could have the Each as orderable, dispatch and invoice unit with an order quantity of an even each. This approach ensures information shared is appropriate for the buying relationship.
- This approach minimizes the number of messages for the same product to Operators.
- Manufacturers do not have visibility to all parties who are buying their products. This makes direct publication to all parties impractical.

The following chart depicts product information flow from one party to the next where multiple Manufacturers sell national and distributor branded products to a Distributor, and the Distributor sells national and distributor branded products to Operators.

Figure 9-4 Foodservice Product Information Flow: Expanded



- *The blue line between the parties is the product information flow including the GDSN itself.*
- *The red line between the parties is the physical product flow.*

9.6 Foodservice Product Information Flow: Brokers

For this scenario, the Manufacturer approves a Broker to represent the Manufacturer in a local marketplace. The Broker, representing the Manufacturer, negotiates the sale of product to Distributors. They also negotiate the sale of product to local Operators through the Distributor on behalf of the Manufacturer.

This scenario is the basic flow of product and product information from one side of the supply chain to the other for Manufacturer/National Brand and Distributor Brand products where a Broker is involved in the ordering. The physical product flows from the Manufacturer to the Distributor to the Operator. Orders flow through the Broker, who is acting as a clearinghouse for them. The Broker helps to bring Trading Partners together and/or establish contracts for purchasing products. Product information should flow between the Trading Partners along the physical product flow, with an additional feed being sent to the Broker for their use as well.

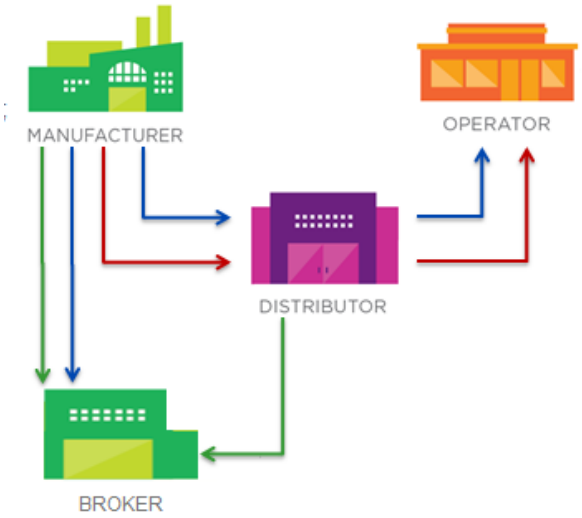
The Broker will only receive product information. Responsibility for sharing product information with the other parties via the GDSN remains with the Manufacturer. The Broker must become a GDSN-compliant entity and enable their systems to receive GDSN data, including receipt of the same GTIN from multiple sources as defined in other areas of this section.

Rationales for this approach:

- Some data in GDSN can be different when published from different parties. For example, there are attributes in GDSN for how the item is sold. The Manufacturer could have the Case as the orderable, dispatch and invoice unit with an order quantity of even case count, and the Distributor could have the Each as orderable, dispatch and invoice unit with an order quantity of an even each. This approach ensures information shared is appropriate for the buying relationship.
- Sharing the product information with the Broker allows for accurate records to be utilized in the sales and contracting phases.

The following chart depicts product information flow from one party to the next.

Figure 9-5 Foodservice Product Information Flow: Brokers



- *The blue line between the parties is the product information flow including the GDSN itself.*
- *The red line between the parties is the physical product flow.*
- *The green line between the parties is the order/PO flow.*

9.7 Foodservice Product Information Flow: Re-Distributor

For this scenario, the Manufacturer sells National and Distributor-branded products to Re-Distributor. The Re-Distributor sells National and Distributor-branded products to the Distributor. The Distributor sells National and Distributor-branded products to the Operator.

This scenario is the basic flow of product and product information from one side of the supply chain to the other for Manufacturer/National Brand and Distributor-Brand products where at least one Re-Distributor is involved. The physical product flows from the Manufacturer to the Re-Distributor to the Distributor to the Operator. There can be more than one Re-Distributor utilized. While not noted in the diagram for simplicity, the orders typically flow along the same line as the physical product. Product information should flow between the Trading Partners in the same fashion.

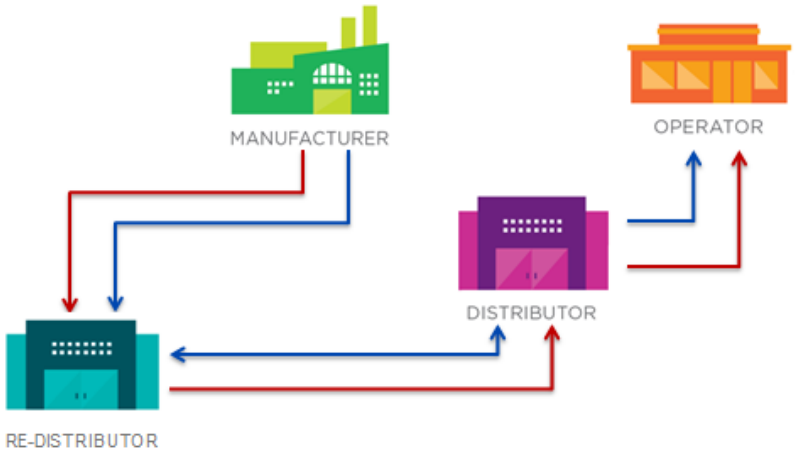
The Distributor may buy products directly from the Manufacturer on a regular basis and just “fill in” their inventory with purchases of the same item from the Re-Distributor. Differences in supply chain characteristics (such as Ti/Hi, Orderable Unit, or Available to Order Date) between the Manufacturer and the Re-Distributor will require the Distributor to receive multiple GDSN records for the same GTIN (similar to receiving product information on the same GTIN from multiple Manufacturers as defined in other areas of this section). A copy of the original GDSN attributes as published should always be maintained.

Rationales for this approach:

- Some data in GDSN can be different when published from different parties. For example, there are attributes in GDSN for how the item is sold. The Manufacturer could have the Case as the orderable, dispatch and invoice unit with an order quantity of even case count, and the Re-Distributor could have the Each as orderable, dispatch and invoice unit with an order quantity of an even each. This approach ensures information shared is appropriate for the buying relationship.
- Manufacturers do not have visibility to all parties who are buying their products. This makes direct publication to all parties impractical.

The following chart product information flow from one party to the next.

Figure 9-6 Foodservice Product Information Flow: Re-Distributor



- *The blue line between the parties is the product information flow including the GDSN itself.*
- *The red line between the parties is the physical product flow.*

9.8 Foodservice Product Information Flow: Re-Distributor Expanded National Brand

Operators can deal directly with Manufacturers under certain conditions. They may establish large, often national, regional, or market supply contracts. These contracts typically account for variables in the supply chain such as transportation, promotions and marketing which serve to promote consistency in supply and other factors. "Operators" in this scenario may include:

- National Chain Accounts
- Regional Chain Account
- Contract Management Organizations
- Schools and Universities
- Healthcare Organizations
- Local Operators

In this type of scenario, the Manufacturer negotiates the contract with the Operator, and the Operator approves the Distributor(s) from whom they will purchase the product(s) as there are often more than one Distributor in a given market, each serving a different channel. The Distributor then acquires product from the Manufacturer(s) or Re-Distributor and supplies the Operator.

This scenario, encompassing most of the previous scenarios, is a complex flow of product and product information from one side of the supply chain to the other for Manufacturer/National Brand, and Distributor-Brand products where at least one Manufacturer and at least one Re-Distributor is involved.

For this scenario, the physical product flows from the Manufacturer(s) to the Re-Distributor(s) and/or to the Distributor, and from the Re-Distributor(s) to the Distributor then to the Operator, based on approval from the Operator. There can be more than one Manufacturer and/or Re-Distributor utilized. While not noted in the diagram for simplicity, the orders typically flow along the same line as the physical product for the main order flow. There are situations where orders flow from the Operator and/or their Stores directly to the Distributor. Product information should flow between the Trading

Partners as noted in previous scenarios. However, there may be additional Non-GDSN data flow from a Operator to their Stores using internal systems.

The Operator may receive product information directly from the Manufacturer in addition to the Distributor(s). The information received from the Manufacturers may align with specific contracts established between the two parties.

"Chain" Operator Store orders may be at the case or item level (not at the pallet level). Orders may be placed directly to the Distributor or via their corporate office depending on their internal systems. Product information used to generate these orders may be provided through the Operator's internal systems as opposed to GDSN. This non-GDSN Information should be built off of the product information supplied to the Operator via its GDSN connection.

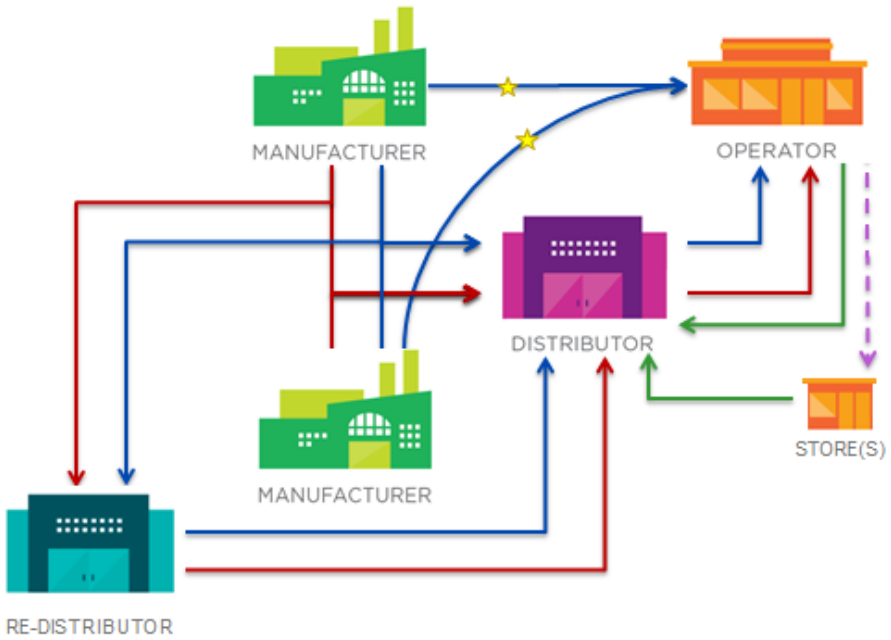
Product information may be received from multiple sources for the same product. Differences in supply chain characteristics (such as Ti/Hi, Orderable Unit, or Available to Order Date) from the different product information sources will require the Operator to receive and reconcile multiple GDSN records for the same GTIN. A copy of the original GDSN attributes as published should always be maintained.

Rationales for this approach:

- Some data in GDSN can be different when published from different parties. For example, there are attributes in GDSN for how the item is sold. The Manufacturer could have the Case as the orderable, dispatch and invoice unit with an order quantity of even case count, and the Distributor could have the Each as orderable, dispatch and invoice unit with an order quantity of an even each. This approach ensures information shared is appropriate for the buying relationship.
- Product information can enable accurate information when a national contract is established.

The following chart depicts product information flow from one party to the next.

Figure 9-7 Foodservice Product Information Flow: Re-Distributor Expanded National Brand



- *The blue line between the parties is the product information flow including the GDSN itself.*
- *The red line between the parties is the physical product flow.*
- *The green line between the parties is the order/PO flow.*
- *The dashed purple line between the parties is non-GDSN product information flow.*

9.9 Foodservice Product Information Flow: Re-Distributor Expanded Private Label

In this scenario, the Manufacturer negotiates a contract for product directly with an Operator to produce **private label and/or proprietary branded** products. The Operator approves local Distributor(s) from whom they will purchase the product(s). The Distributor acquires product from Manufacturer(s) and/or Re-Distributors. Operators typically involved in this process are:

- National Chain Accounts
- Regional Chain Accounts

This scenario, encompassing most of the previous scenarios, is a complex flow of product and product information from one side of the supply chain to the other for an Operator's Private Label or Proprietary products where at least one Manufacturer and at least one Re-Distributor is involved.

For this scenario, the physical product flows from the Manufacturer(s) to the Re-Distributor(s) and/or to the Distributor, and from the Re-Distributor(s) to the Distributor then to the Operator, based on approval from the Operator. There can be more than one Manufacturer and/or Re-Distributor utilized. While not noted in the diagram for simplicity, the orders typically flow along the same line as the physical product for the main order flow. There are situations where orders flow from the Operator and/or their Stores directly to the Distributor. Product information should flow between the Trading Partners as noted in previous scenarios. However, there may be additional non-GDSN data flow from a Operator to their Stores using internal systems.

The Operator may receive product information directly from the Manufacturer in addition to the Distributor(s). The information received from the Manufacturers may align with specific contracts established between the two parties.

"Chain" Operator Store orders may be at the case or item level (not the pallet level). Orders may be placed directly to the Distributor or via their corporate office depending on their internal systems. Product information used to generate these orders may be provided through the Operator's internal systems as opposed to GDSN. This non-GDSN Information should be built off of the product information supplied to the Operator via its GDSN connection.

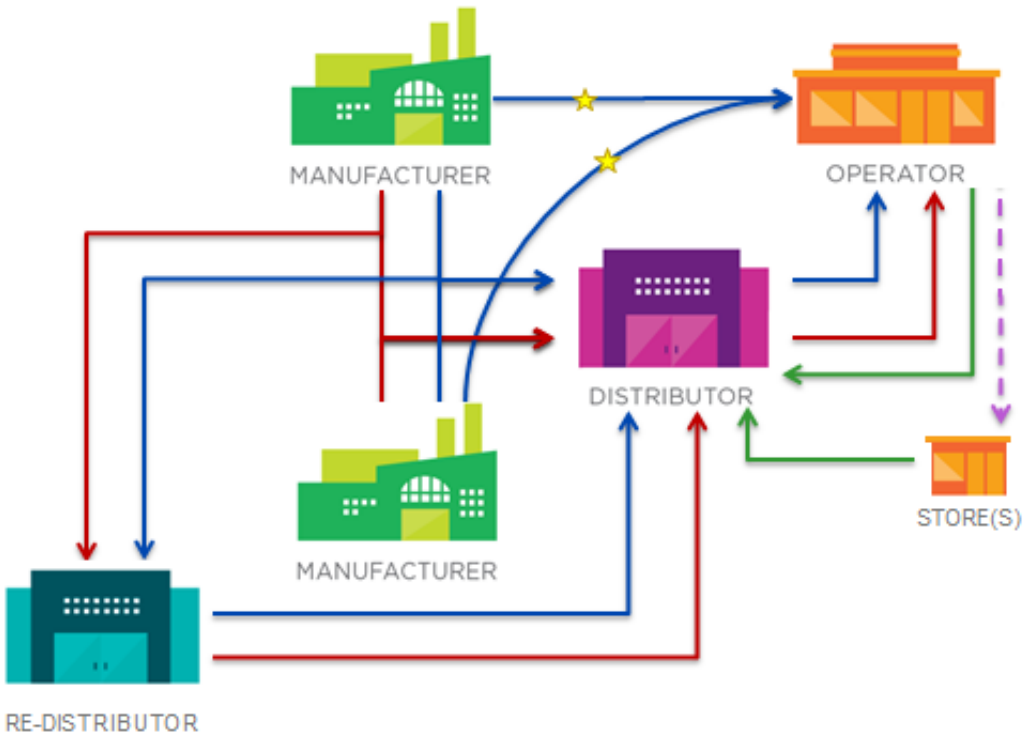
Product information may be received from multiple sources for the same product. Differences in supply chain characteristics (such as Ti/Hi, Orderable Unit, or Available to Order Date) from the different product information sources will require the Operator to receive and reconcile multiple GDSN records for the same GTIN. A copy of the original GDSN attributes as published should always be maintained.

Rationales for this approach:

- Some data in GDSN can be different when published from different parties. For example, there are attributes in GDSN for how the item is sold. The Manufacturer could have the Case as the orderable, dispatch and invoice unit with an order quantity of even case count, and the Distributor could have the Each as orderable, dispatch and invoice unit with an order quantity of an even each. This approach ensures information shared is appropriate for the buying relationship.

The following chart depicts product information flow from one party to the next.

Figure 9-8 Foodservice Product Information Flow: Re-Distributor Expanded Private Label



- *The blue line between the parties is the product information flow including the GDSN itself.*
- *The red line between the parties is the physical product flow.*
- *The green line between the parties is the order/PO flow.*
- *The dashed purple line between the parties is non-GDSN product information flow.*

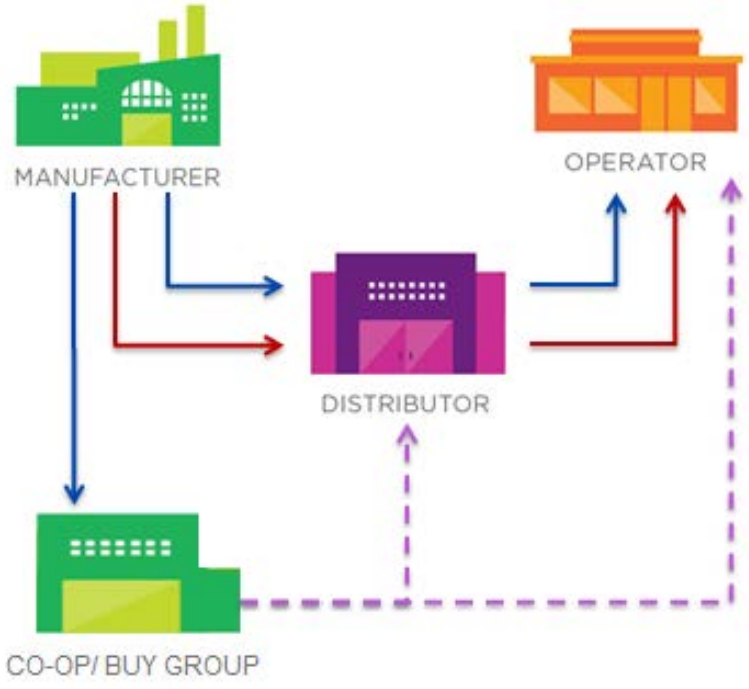
9.10 Foodservice Product Information Flow: Co-op / Buying Group

In this scenario, the Manufacturer negotiates contracts with a purchasing cooperative or buying group which utilizes a Distributor to handle product logistics. Operators contract with the purchasing cooperative or buying group for products.

This scenario is a basic flow of product and product information from one side of the supply chain to the other where a Co-Op/Buying Group is involved. Distributors and Operators utilizing a Co-op/Buying Group who have developed GDSN capability will receive product information through the GDSN from the Manufacturer. Distributors and Operators utilizing a Co-op/Buying Group who have not developed GDSN capability will receive product information from the Co-Op/Buying Group through non-GDSN mechanisms. Non-GDSN product information should be marked with the effective date of last update from the Manufacturer. Product information received through the GDSN by the Co-op/Buying Group may be sent through the GDSN. Product Information received outside of the GDSN may not be sent through the GDSN.

The following chart depicts product information flow from one party to the next.

Figure 9-9 Foodservice Product Information Flow: Co-op / Buying Group



- *The blue line between the parties is the product information flow including the GDSN itself.*
- *The red line between the parties is the physical product flow.*
- *The dashed purple line between the parties is non-GDSN product information flow.*

9.11 Foodservice Product Information Flow: 3rd Party Service Providers

Third Party Service Providers use product information for their tools and services offerings. Third Party Service Providers include:

- **Solution Providers** - Companies who act on behalf of an entity (e.g., Manufacturer, Distributor or Operator) to facilitate product information publishing and/or receipt **via the GDSN.** They are an extension of the entity's IT resources. These parties may receive product information via GDSN and/or non-GDSN messages. If receiving information via GDSN, the Solution Provider will need a GLN.
- **3rd Party IT Companies** - Companies who have a need to use foodservice product information for their tools and services offerings. Offerings may include services, web tools, and ordering catalogs. These parties may receive product information via GDSN and/or non-GDSN messages. If receiving information via GDSN, the 3rd Party IT Company will need a GLN.

This scenario is a basic flow of product information from a Trading Partner to a 3rd Party Service Provider of their choosing.

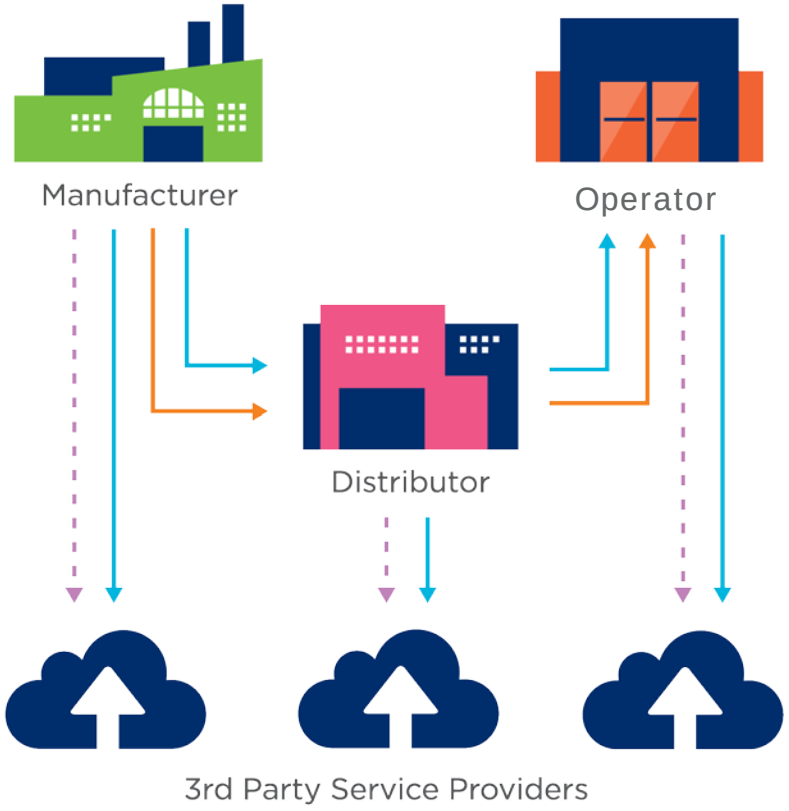
Foodservice companies may utilize 3rd Party Service Providers to work with GDSN data. For these services, product information may be shared directly between the Foodservice company and the 3rd Party Service Providers as needed (i.e., does not require the use of GDSN). However, 3rd Party Service Providers should not be used to share data from one Trading Partner to the next. Instead, data should

only be shared between and among Trading Partners via the GDSN in order to promote data integrity. For example:

- A Manufacturer may enter data into a 3rd Party Service Provider. Then, that data would be loaded into a GDSN-certified data pool to share with other Trading Partners using GDSN.
- A Data Recipient gets their data from a GDSN-certified data pool, and then may load the data into a 3rd Party Service Provider to integrate the information.

The following is a chart depicting product information flow from one party to the next.

Figure 9-10 Foodservice Product Information Flow: 3rd Party Service Providers



- *The blue line between the parties is the product information flow including the GDSN itself.*
- *The red line between the parties is the physical product flow.*
- *The dashed purple line between the parties is non-GDSN product information flow.*

10 Downstream Changeability of Data Attributes

Based on the *Data Synchronization Information Flows* described in the previous section, there are several flows where an item message will be sent from a Manufacturer (Original Data Source) to a Distributor or other middle partner (i.e., Downstream Information Provider). At some point in the process, the Downstream Information Provider might elect to send a message on to their own set of Downstream Recipients (customers) which may include other Distributors or Operators.

In these scenario, many of the attributes should not be changed and should remain the same values as provided by the Manufacturer. These non-changeable attributes are relevant to the item itself and not applicable to the sales relationship. However, certain attributes can be changed in subsequent GDSN messages (and therefore different from what the Manufacturer initially provided) because business is conducted differently between the Distributor and their customers versus the Distributor and the Manufacturer. For example:

- **Dimensions (Height, Depth, and Width) -** These attributes are inherent to the item and do not change just because a different party is selling the item.
- **Is Trade Item Orderable, Despatch Unit, Invoice Unit-** These values can change based on the selling relationship and are not inherent to the item only. A Manufacturer may only sell in even case amounts, but the Distributor may break the case and allow orders, shipments, and invoices at lower levels.

This section is provided in order to mitigate any questions resulting from the business relationship as applied to GTIN attributes and the downstream GDSN message which contains them.

10.1 Basic Rules

1. All efforts should be made to have the information populated in the original message from the Manufacturer to avoid the possibility of incorrect data being populated by a Downstream Information Provider.
2. Where an attribute is allowed to be changed, the attribute does not have to change.
3. The business relationship between the Downstream Information Provider and the Downstream Recipient will determine if a change is necessary or warranted.
4. If an attribute is not provided by the Manufacturer, but is needed in downstream processes, a Downstream Information Provider ***may*** populate the attribute with the correct value.
5. Attribute content which has not been provided by the Manufacturer ***may*** be provided by the Downstream Information Provider even if this table states the attribute is not changeable.

10.2 Working with the Table

The following table denotes the **changeability of data attributes when published by Downstream Information Providers to Downstream Recipients.** Where an attribute is changeable, the table includes examples of potential rationales for why a change might occur to help clarify the ability to change.

Table 10-1 Downstream Changeability of Attributes

FSI Common Name	GS1 Global Data Dictionary Tag	FSI Changeable Downstream?
Allergen Information	allergenStatement	NO
	allergenSpecificationAgency	NO
	allergenSpecificationName	NO
	allergenTypeCode	NO
	isAllergenRelevantDataProvided	NO
	levelOfContainmentCode	NO
BarCode / Data Carrier	dataCarrierTypeCode	YES - Can only Add additional values if applied by the downstream Information Provider.
	dataCarrierFamilyTypeCode	YES - Can only Add additional values if applied by the downstream Information Provider.
Battery Information	batteryTypeCode	NO
Brand Name	brandName	NO
	subBrand	NO
	languageSpecificBrandName	NO
	languageSpecificSubbrandname	NO
Catch Weight	isTradeItemAVariableUnit	NO
Certifications	certificationAgency	NO
	certificationEffectiveEndDateTime	NO
	certificationEffectiveStartDateTime	NO
	certificationIdentification	NO
	certificationStandard	NO
Chemical Ingredient	chemicalIngredientConcentration *(value and UOM)*	NO
	chemicalIngredientConcentrationBasis	NO
	chemicalIngredientName	NO
	rEACHChemicalRegistrationNumber	NO
Chemical Ingredient Organization List	chemicalIngredientIdentification	NO
	chemicalIngredientScheme	NO
	chemicalIngredientOrganisation	NO
Child Nutrition Information	childNutritionExpirationDateTime	NO
	childNutritionLabelStatement	NO
	childNutritionProductIdentification	NO
	childNutritionQualifier	NO
	childNutritionQualifierCode	NO
	childNutritionQualifiedValue	NO

FSI Common Name	GS1 Global Data Dictionary Tag	FSI Changeable Downstream?
	childNutritionValue	NO
	childNutritionLabelDocument	NO
	nutritionalLabelTypeCode	NO
Child Trade Item	quantityOfNextLowerLevelTradeItem	NO
	gtin (child)	NO
Company Name (Brand Owner)	brandOwner	NO
	partyRoleCode *(=Brand Owner)*	NO
	partyName	NO
	gln	NO
Company Name (Information Provider)	informationProviderOfTradeItem	YES - GDSN Rules require the actual provider of the message be listed.
	partyRoleCode *(=Information Provider)*	YES - GDSN Rules require the actual provider of the message be listed.
	partyName	YES - GDSN Rules require the actual provider of the message be listed.
	gln	YES - GDSN Rules require the actual provider of the message be listed.
Company Name (Manufacturer)	manufacturerOfTradeItem	YES - Can only be changed if downstream Information Provider or Operator is the Private Brand Owner and lists themselves as the Manufacturer for the downstream recipients.
	partyRoleCode *(=Manufacturer)*	YES - Can only be changed if downstream Information Provider or Operator is the Private Brand Owner and lists themselves as the Manufacturer for the downstream recipients.
	partyName	YES - Can only be changed if downstream Information Provider or Operator is the Private Brand Owner and lists themselves as the Manufacturer for the downstream recipients.
	gln	YES - Can only be changed if downstream Information Provider or Operator is the Private Brand Owner and lists themselves as the Manufacturer for the downstream recipients.
Components of a Product	componentDescription	NO
	componentIdentification	NO
	componentNumber	NO
	extension (Components) (repeat only applicable attributes for each component identified by component number)	VARIES - See the actual attributes which are being populated for their ability to change or not.
Country Of Origin (Ingredient Level)	countryCode *(for countryOfOrigin)*	NO
	countryOfOrigin	NO

FSI Common Name	GS1 Global Data Dictionary Tag	FSI Changeable Downstream?
	countrySubdivisionCode *(for countryOfOrigin)*	NO
	countryCode *(for countryOfActivity)*	NO
	countryOfActivity	NO
	countrySubdivisionCode *(for countryOfActivity)*	NO
	ingredientPlaceOfActivity	NO
	productActivityTypeCode	NO
Country of Origin (Item Level)	countryCode *(for countryOfOrigin)*	NO
	countryOfOrigin	NO
	countrySubdivisionCode *(for countryOfOrigin)*	NO
	countryOfActivity	NO
	productActivityRegionDescription	NO
	productActivityTypeCode	NO
	countryCode *(for countryOfActivity)*	NO
	countrySubdivisionCode *(for countryOfActivity)*	NO
Dangerous Goods/ Hazardous Information	classOfDangerousGoods	NO
	dangerousGoodsPackingGroup	NO
	dangerousGoodsTechnicalName	NO
	unitedNationsDangerousGoodsNumber	NO
	dangerousGoodsLimitedQuantitiesCode	NO
	dangerousGoodsPackagingTypeCode	NO
Dangerous Substance (Ingredient Level)	isDangerousSubstance	NO
Delivery Purchasing Information	orderSizingFactor	YES - Can be changed or added (if not provided from supplier) based on how the downstream Information Provider is set up to build loads. This can specifically be different if the downstream Information Provider breaks cases and the original Data Source does not.
	startAvailabilityDateTime	YES - Will change with each publication of the message. This signifies when the item is available from the Information Provider of the message. This may not be a date in the past.
	startDateTimeOfExclusivity	YES
EAN UCC Code and Type	gs1TradeItemIdentificationKeyCode	NO
	gs1TradeItemIdentificationKeyValue	NO

FSI Common Name	GS1 Global Data Dictionary Tag	FSI Changeable Downstream?
Effective Date of Change	effectiveDateTime	YES - Will change with each publication of the message. This signifies when the Data Recipient should begin to use the item information. This cannot be a date in the past. If the supplier is setting the date to a point in the future to signify a future change to the item, the downstream Information Provider will need to evaluate their inventory levels and determine when the changes being made will affect their customers and similarly change this to a date in the future.
Farming and Processing Information	geneticallyModifiedDeclarationCode *(Item level)*	NO
	growingMethodCode	NO
	geneticallyModifiedDeclarationCode *(Ingredient level)*	NO
File Link Information	alternateText	NO
	titleText	NO
	fileSequenceNumber	NO
For More Information (Contact Information)	partyRoleCode *(= Other)*	YES - Contact information is based on the sales relationship. The downstream Information Provider should only pass their Consumer Support contact as this is the consumer facing information contact. All other contacts are for the relationship between the Supplier and the downstream Information Provider as part of their sales relationship and not applicable to any other sales relationship.
	gln (Entity)	YES - Contact information is based on the sales relationship. The downstream Information Provider should only pass their Consumer Support contact as this is the consumer facing information contact. All other contacts are for the relationship between the Supplier and the downstream Information Provider as part of their sales relationship and not applicable to any other sales relationship.
	partyName	YES - Contact information is based on the sales relationship. The downstream Information Provider should only pass their Consumer Support contact as this is the consumer facing information contact. All other contacts are for the relationship between the Supplier and the downstream Information Provider as part of their sales relationship and not applicable to any other sales relationship.
	contactTypeCode	YES - Contact information is based on the sales relationship. The downstream Information Provider should only pass their Consumer Support contact as this is the consumer facing information contact. All other contacts are for the relationship between the Supplier and the downstream Information Provider as part of their sales relationship and not applicable to any other sales relationship.

FSI Common Name	GS1 Global Data Dictionary Tag	FSI Changeable Downstream?
	availableTime	YES - Contact information is based on the sales relationship. The downstream Information Provider should only pass their Consumer Support contact as this is the consumer facing information contact. All other contacts are for the relationship between the Supplier and the downstream Information Provider as part of their sales relationship and not applicable to any other sales relationship.
	communicationChannelCode	YES - Contact information is based on the sales relationship. The downstream Information Provider should only pass their Consumer Support contact as this is the consumer facing information contact. All other contacts are for the relationship between the Supplier and the downstream Information Provider as part of their sales relationship and not applicable to any other sales relationship.
	communicationValue	YES - Contact information is based on the sales relationship. The downstream Information Provider should only pass their Consumer Support contact as this is the consumer facing information contact. All other contacts are for the relationship between the Supplier and the downstream Information Provider as part of their sales relationship and not applicable to any other sales relationship.
	afterHoursCommunicationChannel	YES - Contact information is based on the sales relationship. The downstream Information Provider should only pass their Consumer Support contact as this is the consumer facing information contact. All other contacts are for the relationship between the Supplier and the downstream Information Provider as part of their sales relationship and not applicable to any other sales relationship.
	gln (Contact Type)	YES - Contact information is based on the sales relationship. The downstream Information Provider should only pass their Consumer Support contact as this is the consumer facing information contact. All other contacts are for the relationship between the Supplier and the downstream Information Provider as part of their sales relationship and not applicable to any other sales relationship.
	targetMarketCountryCode *(for Contact Type)*	YES - Contact information is based on the sales relationship. The downstream Information Provider should only pass their Consumer Support contact as this is the consumer facing information contact. All other contacts are for the relationship between the Supplier and the downstream Information Provider as part of their sales relationship and not applicable to any other sales relationship.

FSI Common Name	GS1 Global Data Dictionary Tag	FSI Changeable Downstream?
	targetMarketSubdivisionCode *(for Contact Type)*	YES - Contact information is based on the sales relationship. The downstream Information Provider should only pass their Consumer Support contact as this is the consumer facing information contact. All other contacts are for the relationship between the Supplier and the downstream Information Provider as part of their sales relationship and not applicable to any other sales relationship.
	communicationChannelCode *(= After Hours)*	YES - Contact information is based on the sales relationship. The downstream Information Provider should only pass their Consumer Support contact as this is the consumer facing information contact. All other contacts are for the relationship between the Supplier and the downstream Information Provider as part of their sales relationship and not applicable to any other sales relationship.
	communicationValue *(for After Hours)*	YES - Contact information is based on the sales relationship. The downstream Information Provider should only pass their Consumer Support contact as this is the consumer facing information contact. All other contacts are for the relationship between the Supplier and the downstream Information Provider as part of their sales relationship and not applicable to any other sales relationship.
GHS Detail	gHSSignalwordsCode	NO
	gHSSymbolDescriptionCode	NO
GHS Hazard Statement	hazardStatementsCode	NO
	hazardStatementsDescription	NO
GHS Precautionary Statement	precautionaryStatementsCode	NO
	precautionaryStatementsDescription	NO
Global Product Classification (GPC)	additionalTradeItemClassificationCodeSequenceNumber	NO
	gpcCategoryCode	NO
Grade Code	gradeCodeReference	NO
	codeListAgencyName	NO
	codeListName	NO
GTIN	gtin	NO
Handling Information	stackingPatternTypeCode	NO
Individual Unit Measures	individualUnitMaximumSize *(value and UOM)*	NO
	individualUnitMinimumSize *(value and UOM)*	NO
Ingredient Information	additiveStatement	NO
	ingredientPlaceOfActivity	NO
	ingredientName	NO

FSI Common Name	GS1 Global Data Dictionary Tag	FSI Changeable Downstream?
	ingredientSequence	NO
	ingredientStatement	NO
	ingredientFarmingAndProcessing	NO
	isIngredientRelevantDataProvided	NO
Inner Pack - Quantity (No GTIN Assigned)	quantityOfInnerPack	NO
Inner Pack - Quantity of Items Within (No GTIN Assigned)	quantityOfNextLevelTradeItemWithinInnerPack	NO
Is Item the Base Unit (Lowest Packaging Level)	isTradeItemABaseUnit	NO
Is Trade Item Consumer Unit?	isTradeItemAConsumerUnit	NO
Is Trade Item Invoice Unit?	isTradeItemAnInvoiceUnit	YES - Can change to match the sales agreement between the downstream Information Provider and their customers.
Is Trade Item Orderable?	isTradeItemAnOrderableUnit	YES - Can change to match the sales agreement between the downstream Information Provider and their customers.
Is Trade Item Probiotic?	microbiologicalOrganismCode	NO
Is Trade Item Reinstated	isTradeItemReinstated	NO
Is Trade Item Shipping Unit?	isTradeItemADespatchUnit	YES - Can change to match the sales agreement between the downstream Information Provider and their customers.
Kosher, Gluten, Vegetarian, etc.	dietTypeCode	NO
	dietTypeSubcode	NO
Kosher, Gluten, Vegetarian, etc. Certification	dietCertification	NO
	certificationAgency *(for specified dietTypeCode)*	NO
	certificationIdentification *(for specified dietTypeCode)*	NO
	certificationEffectiveEndDate	NO
	certificationEffectiveStartDate	NO
	certificationStandard *(for specified dietTypeCode)*	NO
Lethal Dose Concentration	lethalConcentration50	NO
	lethalConcentration50Basis	NO
	lethalDose50	NO
	lethalDose50Basis	NO
	routeOfExposureCode	NO

FSI Common Name	GS1 Global Data Dictionary Tag	FSI Changeable Downstream?
	testSpeciesCode	NO
	testSpeciesDescription	NO
Links to Safety Data Sheet	contentDescription	YES - Can add safety data sheet files, but should not remove existing files.
	fileEffectiveEndDateTime	YES - Can add safety data sheet files, but should not remove existing files.
	fileEffectiveStartDateTime	YES - Can add safety data sheet files, but should not remove existing files.
	fileFormatName	YES - Can add safety data sheet files, but should not remove existing files.
	fileName	YES - Can add safety data sheet files, but should not remove existing files.
	referencedFileTypeCode	YES - Can add safety data sheet files, but should not remove existing files.
	uniformResourceIdentifier	YES - Can add safety data sheet files, but should not remove existing files.
Links to Websites, Images, Documents, Video, Audio Files	contentDescription	YES - Can add images and other files, but should not remove existing images or files.
	fileEffectiveEndDateTime	YES - Can add images and other files, but should not remove existing images or files.
	fileEffectiveStartDateTime	YES - Can add images and other files, but should not remove existing images or files.
	fileFormatName	YES - Can add images and other files, but should not remove existing images or files.
	fileName	YES - Can add images and other files, but should not remove existing images or files.
	referencedFileTypeCode	YES - Can add images and other files, but should not remove existing images or files.
	uniformResourceIdentifier	YES - Can add images and other files, but should not remove existing images or files.
Manufacturer Product Number	additionalTradeItemIdentificationTypeCode *(= Manufacturer Part Number)*	YES - Should only be changed if downstream Information Provider or Operator is the Private Brand Owner and does not wish to have the source Manufacturer's number known to downstream recipients. Can add additional values as needed or applicable.
	additionalTradeItemIdentification *(number)*	YES - Should only be changed if downstream Information Provider or Operator is the Private Brand Owner and does not wish to have the source Manufacturer's number known to downstream recipients. Can add additional values as needed or applicable.
Marketing Information	tradeItemFeatureBenefit	YES - Can only Add additional values if applied by the downstream Information Provider.

FSI Common Name	GS1 Global Data Dictionary Tag	FSI Changeable Downstream?
	tradeItemMarketingMessage	YES - Can change message to be in line with the format/structure used by the downstream Information Provider.
	tradeItemStory	NO
	brandMarketingDescription	NO
Marketing Information	econtentEnvironmentTypeCode	YES
	econtentTradeItemStatement	YES
	tastingNotes	YES
	targetConsumerMaximumUsage	NO
	targetConsumerMinimumUsage	NO
	targetConsumerUsageTypeCode	NO
Non Food Ingredient Information	additiveStatement	NO
Number of Next Lower Level GTINs	quantityOfChildren	NO
Nutrient Database Number	foodBeverageCompositionCode	NO
	foodBeverageCompositionDatabaseCode	NO
Nutrient Label Contents & Measures	dailyValueIntakeReference	NO
	measurementPrecisionCode	NO
	nutrientBasisQuantity	NO
	nutrientBasisQuantityDescription	YES
	nutrientBasisQuantityTypeCode	NO
	nutritionalClaimNutrientElementCode	NO
	nutritionalClaimTypeCode	NO
	nutrientTypeCode	NO
	nutrientValueDerivationCode	NO
	dailyValueIntakePercent	NO
	preparationStateCode	NO
	quantityContained *(value and UOM)*	NO
	dailyValueIntakePercentMeasurementPrecisionCode	NO
	descriptionOnNutrientQualifier	NO
	nutrientSource	NO

FSI Common Name	GS1 Global Data Dictionary Tag	FSI Changeable Downstream?
Nutrient Relevant Data Provided	isNutrientRelevantDataProvided	NO
Nutrition Fact Serving Size & UOM	servingSize *(value and UOM)*	NO
	servingSizeWeight *(value and UOM)*	NO
Nutrition Program	nutritionalProgramCode	NO
Organic (Ingredient Level)	organicClaimAgencyCode *(for Ingredient level)*	NO
	organicTradeItemCode *(for Ingredient level)*	NO
Organic (Item Level)	organicClaimAgencyCode *(for Item level)*	NO
	organicTradeItemCode *(for Item level)*	NO
Organic Certification	organicCertificationEffectiveEndDateTime	NO
	organicCertificationEffectiveStartDateTime	NO
	organicCertificationIdentification	NO
	organicClaimAgencyTypeCode	NO
Out-Of-Box Dimensions	dimensionTypeCode	NO
	depth *(Out of Box) (value and UOM)*	NO
	height *(Out of Box) (value and UOM)*	NO
	width *(Out of Box) (value and UOM)*	NO
Package Marks	hasBatchNumber	NO
	isPackagingMarkedReturnable	NO
	isTradeItemMarkedAsRecyclable	NO
	packagingMarkedLabelAccreditationCode	NO
	tradeItemDateOnPackagingTypeCode	NO
	consumerFriendlyDateOnPackagingDescription	NO
Packaging Information	isTradeItemBiodegradable	NO
	packagingFeatureCode	NO
	packagingRecyclingSchemeCode	NO
	packagingSustainabilityStatement	NO
	packagingTypeCode	NO
	shippingContainerQuantityDescription	NO
	shippingContainerQuantity	NO
Packaging Material	packagingMaterialTypeCode	NO

FSI Common Name	GS1 Global Data Dictionary Tag	FSI Changeable Downstream?
Pallet Ti Hi (No Pallet GTIN)	quantityOfLayersPerPallet	YES - If the downstream Information Provider has configured the items into a standard pallet configuration different from what was supplied to them and has not assigned a Pallet GTIN, these attributes can be different than received.
	quantityOfTradeItemsPerPallet	YES - If the downstream Information Provider has configured the items into a standard pallet configuration different from what was supplied to them and has not assigned a Pallet GTIN, these attributes can be different than received.
	quantityOfTradeItemsPerPalletLayer	YES - If the downstream Information Provider has configured the items into a standard pallet configuration different from what was supplied to them and has not assigned a Pallet GTIN, these attributes can be different than received.
Pallet Ti Hi (Pallet GTIN)	quantityOfCompleteLayersContainedInATradeItem	NO
	quantityOfTradeItemsContainedInACompleteLayer	NO
Preparation & Cooking Instructions	preparationInstructions	NO
	preparationTypeCode	NO
	recipe	YES
	servingSizeDescription	NO
	servingSuggestion	NO
Private Label/ Restricted Distribution	brandDistributionTypeCode	YES - Can only be changed if a Private Brand (downstream Information Provider)
Product Characteristics	productCharacteristicSequenceNumber	NO
Product Formulation Statement	creditableIngredientTypeCode	NO
	doesTradeItemMeetWholeGrainRichCriteria	NO
	productFormulationStatementDescription	NO
	productFormulationStatementDocument	NO
	totalCreditableIngredientTypeAmount	NO
	totalPortionWeightAsPurchased *(value and UOM)*	NO
	yieldServingsPerUnit *(value and UOM)*	NO
Product Names & Descriptions	functionalName	NO
	tradeItemDescription	NO
	additionalTradeItemDescription	NO
	descriptionShort	NO

FSI Common Name	GS1 Global Data Dictionary Tag	FSI Changeable Downstream?
Product Variant	productionVariantDescription	NO
	productionVariantEffectiveDateTime	NO
	extension (Variant) (repeat all attributes for the item for each instance of productionVariantDescription)	VARIES - See the actual attributes which are being populated for their ability to change or not.
REACH Information	isSubstanceOfVeryHighConcern	NO
	isTradeItemREACHRelevant	NO
REACH Use Information	rEACHChemicalProductUseDescriptorCode	NO
	rEACHEnvironmentReleaseUseDescriptoryCode	NO
	rEACHProcessUseDescriptorCode	NO
	rEACHSectorUseDescriptorCode	NO
Regulated Trade Item Information	doesTradeItemContainElectricalComponents	NO
	regulationLevelCodeReference	NO
	regulationTypeCode	YES - Can only Add additional values if applied by the downstream Information Provider.
Return Information	isNonSoldTradeItemReturnable	YES - Based on sales relationships, this can be different from what was received from the supplier (e.g., the downstream Information Provider may decide to allow a return of an item from an Operator, but the supplier may not allow a return from the downstream Information Provider).
Safety Data Sheet (SDS) Information	sDSStandardCode	NO
	sDSStandardVersion	NO
	sDSSheetNumber	NO
	firstAidProceduresDescription	NO
	flashPointTemperature *(value and UOM)*	NO
	lowerExplosiveLimit	NO
	physicalFormDescription	NO
	upperExplosiveLimit	NO
	chemicalIngredientConcentrationLowerValue *(value and UOM)*	NO
	chemicalIngredientConcentrationMeasurementPrecision	NO
	chemicalIngredientConcentrationUpperValue *(value and UOM)*	NO
	flashPointDescriptor	NO

FSI Common Name	GS1 Global Data Dictionary Tag	FSI Changeable Downstream?
	flashPointTemperatureLowerValue *(value and UOM)*	NO
	flashPointTemperatureMeasurementPrecision	NO
	flashPointTemperatureUpperValue *(value and UOM)*	NO
	isProductClassifiedAsNonHazardous	NO
	volatileOrganicCompoundPercentMeasurementPrecision	NO
Seasonal	isTradeItemSeasonal	NO
	seasonalAvailabilityEndDateTime	NO
	seasonalAvailabilityStartDateTime	NO
Servings of the Trade Item Unit	numberOfServingsPerPackage	NO
	numberOfServingsPerPackageMeasurementPrecisionCode	NO
Shelf Life	minimumTradeItemLifespanFromTimeOfProduction	NO
	minimumTradeItemLifespanFromTimeOfArrival	YES - Will change as the downstream Information Provider will have already exhausted some of the time they were given as a minimum from their supplier.
Storage & Usage	consumerStorageInstructions	NO
	consumerUsageInstructions	NO
	consumerUsageLabelCode	NO
Storage Temperature Max & Min with UoM	maximumTemperature *(value and UOM)*	NO
	minimumTemperature *(value and UOM)*	NO
	temperatureQualifierCode	NO
Target Market	targetMarketCountryCode	YES - If the downstream Information Provider is selling the item into a different target market, they will need to ensure the item meets the regulatory needs of that market. If not, they should have a discussion with the original Data Source prior to selling in that market.
Total Quantity of Next Lower Package Level	totalQuantityOfNextLowerLevelTradeItem	NO
Trade Item Dates	cancelledDateTime	YES - Can be changed or added (if not provided from supplier) if the downstream Information Provider is no longer carrying the item. However, when the Manufacturer discontinues, the downstream Information Provider should change this value similarly.

FSI Common Name	GS1 Global Data Dictionary Tag	FSI Changeable Downstream?
	discontinuedDateTime	YES - Can be changed or added (if not provided from supplier) if the downstream Information Provider is no longer carrying the item. However, when the Manufacturer discontinues, the downstream Information Provider should change this value similarly.
Trade Item Measurements	depth *(value and UOM)*	NO
	height *(value and UOM)*	NO
	width *(value and UOM)*	NO
	inBoxCubeDimension *(value and UOM)*	NO
	isSizeTypeVariant	NO
	netContent *(value and UOM)*	NO
Trade Item Unit Descriptor	tradeItemUnitDescriptorCode	NO
Trade Item Weights	drainedWeight *(value and UOM)*	NO
	GrossWeight *(value and UOM)*	NO
	NetWeight *(value and UOM)*	NO

11 Additional Resources

For more guidance and updated references for these and other topics, please see the following additional resources:

- *GDSN Foodservice and Retail Grocery Attribute Interactive Spreadsheet Tool* -
- *GDSN Trade Item Implementation Guide*
- *GS1 Package Measurement Rules*
- *GS1 US Education and Training*
- *Foodservice GS1 US Standards Initiative*

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