The Global Language of Business

GS1 Global Data Model Attribute Implementation Guide

Attribute Group - Hierarchy

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1 Introduction

The purpose of the Global Data Model (GDM) is to simplify and harmonise the exchange of master data. The GDM will identify and define—in a globally consistent way—the set of foundational attributes needed to manage a product through its life cycle, such as: listing/ordering, moving, storing and selling a product both digitally and physically. The intention of the GDM is to enable an improved Consumer experience and reduce complexity by harmonising foundational data across the industry.

The purpose of the GDM Attribute Implementation Guide is to provide clarity and practical business advice regarding the use of the GDM attributes and, in some cases, instruction on managing the interaction of multiple attributes.

Attribute groups in development for Attribute Implementation Guidance are as follows:

Group Complete	Attribute Groups
✅	**Hierarchy**
	Contact information
	Identifiers
	Descriptions (brand, product, marketing)
	Weights & Dimensions
	Marketing & Consumer Facing
	Financial (Pricing, pre-tax, price)
	Packaging (sustainability, returns, recycle)
	Compliance & Regulatory
	Import classifications (country of origin)
	Nutrition Facts (food)
	Product Life Cycle (dates)
	Digital Assets (images)
	Claims & Certifications
	Category specific (Alcohol, pet, fish)

❗ Important: The Global Data Model Attribute Implementation Guide is in continuous development. The Guide will be developed and made available to the community in phases based on attribute groups

2 Trade Item Hierarchy

A trade item hierarchy consists of multiple GTINs linked together to represent a product's packaging hierarchy levels. Each level of the hierarchy is assigned a unique GTIN, and represents that specific unit, pack, case, or pallet.

The objective in this section is to understand how to set up trade items with different hierarchies – a simple hierarchy, a complex hierarchy, a hierarchy containing a variety pack and a hierarchy containing a display unit.

⚠️ **Important**: GTINs depicted in the examples in this section are represented generically (e.g. GTIN A, GTIN B, etc.). The specifics of GTIN management and options are out of scope for the Attribute Implementation Guide.

For more information on the GS1 GTIN Management Standard, please refer to www.gs1.org/gtinrules.

2.1 Simple Hierarchy

GTIN	Packaging Level Code	Product Description	Count of Each Specific Product	GTIN (Global Trade Item Number) of the Contained Product	Number of Different Products	Total Count of All Products	Base Unit Indicator	Consumer Unit Indicator	Orderable Unit Indicator	Shipping Unit Indicator	Number of Layers per GTIN	Number of Units per Layer in a GTIN
GTIN A	Base Unit or Each	ACME Regulation Size Orange Basketball 29.5"					True	True	False	False		

GTIN	Packaging Level Code	Product Description	Count of Each Specific Product	GTIN (Global Trade Item Number) of the Contained Product	Number of Different Products	Total Count of All Products	Base Unit Indicator	Consumer Unit Indicator	Orderable Unit Indicator	Shipping Unit Indicator	Number of Layers per GTIN	Number of Units per Layer in a GTIN
GTIN B	Pack or Inner Pack	ACME Regulation Size Orange Basketball 29.5", 4 pack	4	GTIN A	1	4	False	True	False	False		
GTIN C	Case	ACME Regulation Size Orange Basketball 29.5", 4 pack / 2	2	GTIN B	1	2	False	False	True	True		
GTIN D	Pallet	ACME Regulation Size Orange Basketball 29.5", 4 pack / 2 / 4	4	GTIN C	1	4	False	False	False	True	2	2

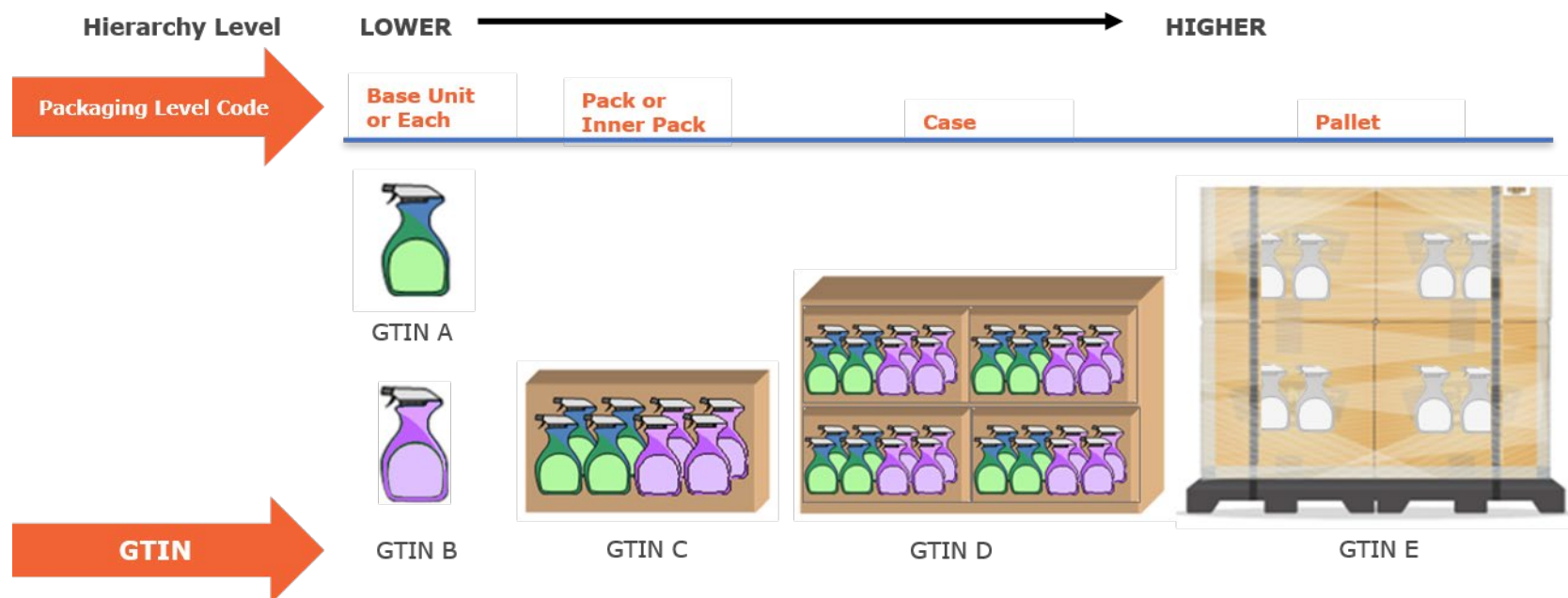## 2.2 Non-GTIN Pallet Hierarchy

GTIN	Packaging Level Code	Product Description	Count of Each Specific Product	GTIN (Global Trade Item Number) of the Contained Product	Number of Different Products	Total Count of All Products	Base Unit Indicator	Consumer Unit Indicator	Orderable Unit Indicator	Shipping Unit Indicator	Count of This Specific Item in a Non-GTIN Logistic Unit	Number of Layers per non-GTIN Pallet	Number of Units per Layer in a non-GTIN Pallet
GTIN A	Base Unit or Each	ACME Regulation Size Orange Basketball 29.5"					True	True	False	False			

GTIN	Packaging Level Code	Product Description	Count of Each Specific Product	GTIN (Global Trade Item Number) of the Contained Product	Number of Different Products	Total Count of All Products	Base Unit Indicator	Consumer Unit Indicator	Orderable Unit Indicator	Shipping Unit Indicator	Count of This Specific Item in a Non-GTIN Logistic Unit	Number of Layers per non-GTIN Pallet	Number of Units per Layer in a non-GTIN Pallet
GTIN B	Pack or Inner Pack	ACME Regulation Size Orange Basketball 29.5", 4 pack	4	GTIN A	1	4	False	True	False	False			
GTIN C	Case	ACME Regulation Size Orange Basketball 29.5", 4 pack / 2	2	GTIN B	1	2	False	False	True	True	4	2	2

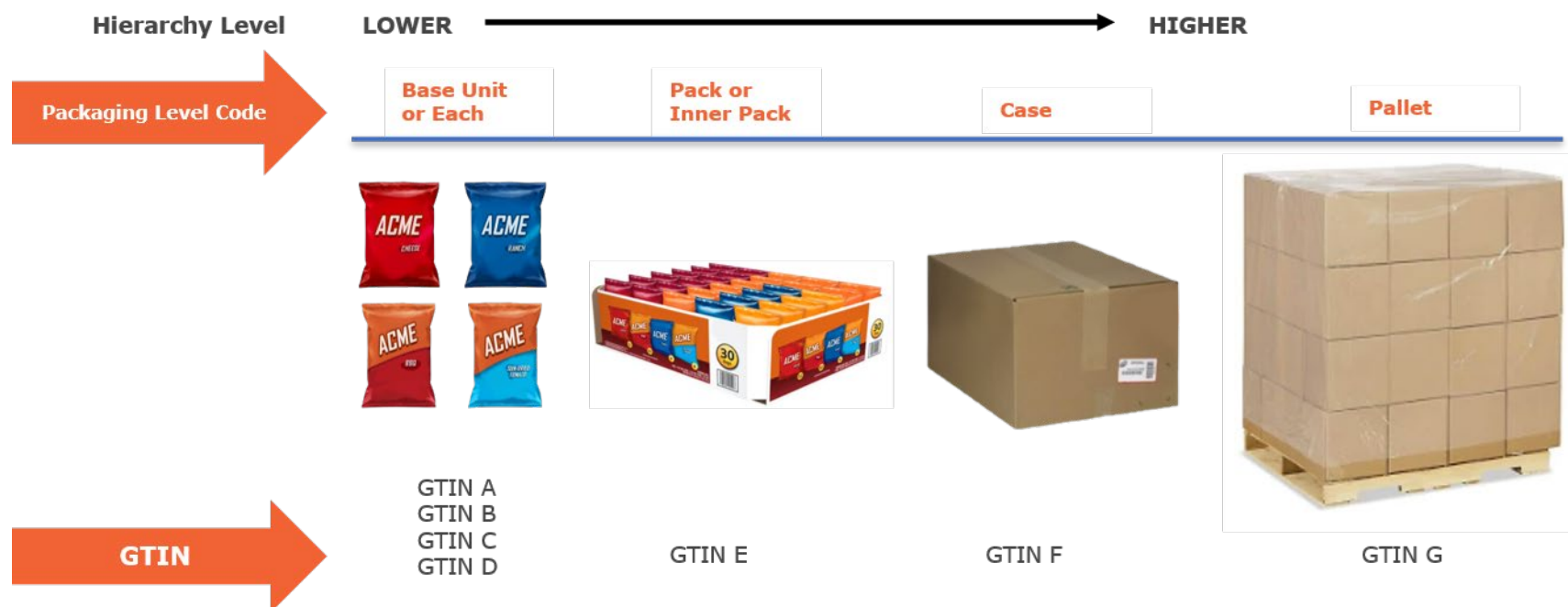## 2.3   Complex Hierarchy

GTIN	Packaging Level Code	Product Description	Count of Each Specific Product	GTIN (Global Trade Item Number) of the Contained Product	Number of Different Products	Total Count of All Products	Base Unit Indicator	Consumer Unit Indicator	Orderable Unit Indicator	Shipping Unit Indicator	Number of Layers per GTIN	Number of Units per Layer in a GTIN
GTIN A	Base Unit or Each	ACME Ocean Mist Disinfectant Spray 25 oz					True	True	False	False		
GTIN B	Base Unit or Each	ACME Lavender Disinfectant Spray 25 oz					True	True	False	False		

GTIN	Packaging Level Code	Product Description	Count of Each Specific Product	GTIN (Global Trade Item Number) of the Contained Product	Number of Different Products	Total Count of All Products	Base Unit Indicator	Consumer Unit Indicator	Orderable Unit Indicator	Shipping Unit Indicator	Number of Layers per GTIN	Number of Units per Layer in a GTIN
GTIN C	Pack or Inner Pack	ACME Ocean Mist Disinfectant Spray 25 oz / 4 ACME Lavender Disinfectant Spray 25 oz / 4, 8 pack	4 4	GTIN A GTIN B	2	8	False	True	False	False		
GTIN D	Case	ACME Ocean Mist Disinfectant Spray 25 oz / 4 ACME Lavender Disinfectant Spray 25 oz / 4, 8 pack / 4	4	GTIN C	1	4	False	False	True	True		
GTIN E	Pallet	ACME Ocean Mist Disinfectant Spray 25 oz / 4 ACME Lavender Disinfectant Spray 25 oz / 4, 8 pack / 4 / 4	4	GTIN D	1	4	False	False	False	True	2	2

2.4   Variety Pack Hierarchy

A variety Pack is a predefined pack of two or more trade items that are combined and sold together as a single trade item.
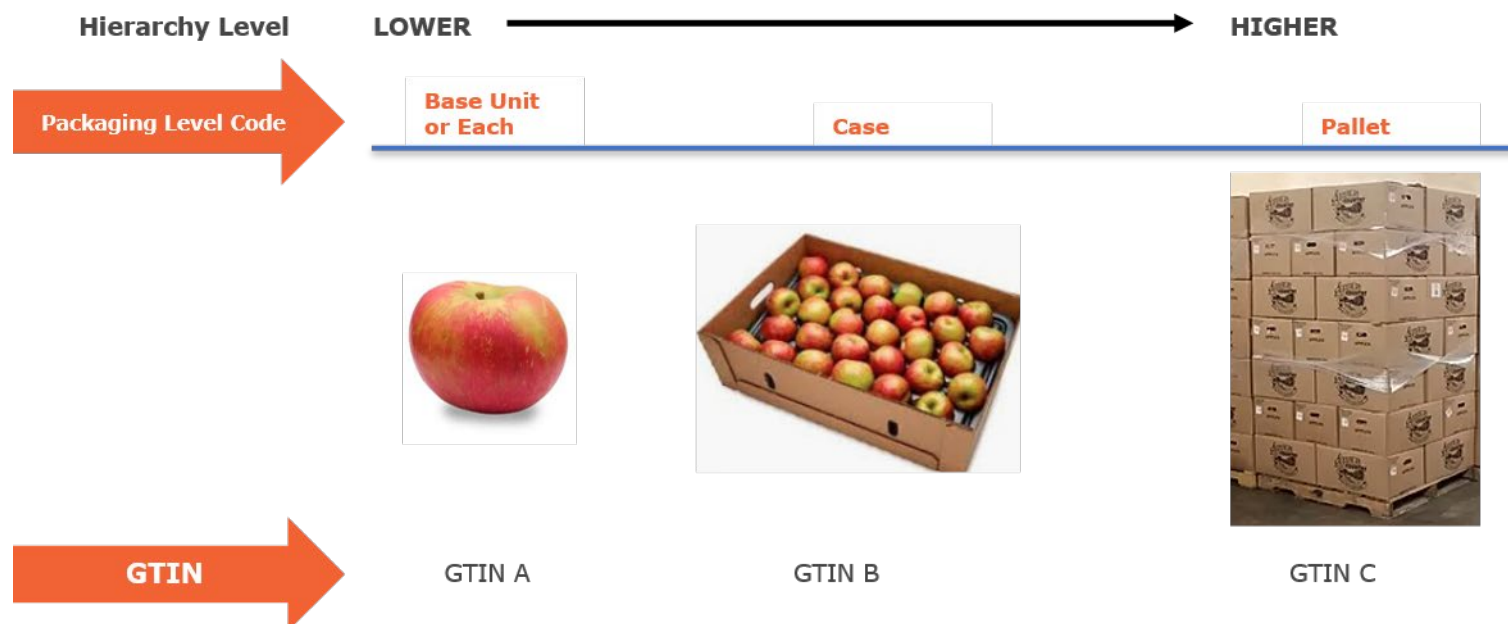

GTIN	Packaging Level Code	Product Description	Count of Each Specific Product	GTIN (Global Trade Item Number) of the Contained Product	Number of Different Products	Total Count of All Products	Base Unit Indicator	Consumer Unit Indicator	Orderable Unit Indicator	Shipping Unit Indicator	Number of Layers per GTIN	Number of Units per Layer in a GTIN
GTIN A	Base Unit or Each	ACME Cheese Flavored Snacks 2.0 oz					True	True	False	False		

GTIN	Packaging Level Code	Product Description	Count of Each Specific Product	GTIN (Global Trade Item Number) of the Contained Product	Number of Different Products	Total Count of All Products	Base Unit Indicator	Consumer Unit Indicator	Orderable Unit Indicator	Shipping Unit Indicator	Number of Layers per GTIN	Number of Units per Layer in a GTIN
GTIN B	Base Unit or Each	ACME Ranch Flavored Snacks 2.0 oz					True	True	False	False		
GTIN C	Base Unit or Each	ACME BBQ Flavored Snacks 1.75 oz.					True	True	False	False		
GTIN D	Base Unit or Each	ACME Sun-Dried Tomato Flavored Snacks 1.75 oz					True	True	False	False		
GTIN E	Pack or Inner Pack	ACME Snacks, Mix Variety Pack, 30 ct Single Bags	12 4 10 4	GTIN A GTIN B GTIN C GTIN D	4	30	False	True	False	False		
GTIN F	Case	ACME Snacks, Mix Variety Pack, 30 ct / 4	4	GTIN E	1	4	False	False	True	True		
GTIN G	Pallet	ACME Snacks, Mix Variety Pack, 30 Single Bags/ 4 / 32	32	GTIN F	1	32	False	False	False	True	4	8

2.5 Loose or Prepacked Product Hierarchy

GTIN	Packaging Level Code	Product Description	Count of Each Specific Product	GTIN (Global Trade Item Number) of the Contained Product	Number of Different Products	Total Count of All Products	Base Unit Indicator	Consumer Unit Indicator	Orderable Unit Indicator	Shipping Unit Indicator	Number of Layers per GTIN	Number of Units per Layer in a GTIN	Variable Measure Indicator	Loose or Pre-Packed Code
GTIN A	Base Unit or Each	ACME Honeycrisp Apples 1 ea.					True	True	False	False			True	Loose

GTIN	Packaging Level Code	Product Description	Count of Each Specific Product	GTIN (Global Trade Item Number) of the Contained Product	Number of Different Products	Total Count of All Products	Base Unit Indicator	Consumer Unit Indicator	Orderable Unit Indicator	Shipping Unit Indicator	Number of Layers per GTIN	Number of Units per Layer in a GTIN	Variable Measure Indicator	Loose or Pre-Packed Code
GTIN B	Case	ACME Honeycrisp Apples 40 lbs.	1	GTIN A	1	1	False	False	True	True			True	Loose
GTIN C	Pallet	ACME Honeycrisp Apples 40 lbs. / 7 / 5	35	GTIN B	1	35	False	False	False	True	7	5	True	Loose

2.6   Hierarchy Attributes – Business Process Notes

These attributes must be evaluated in conjunction with each other to understand a specific GTIN.

BMS ID	ADB Name	ADB Business Definition	Business Process Notes
56	Base Unit Indicator	The indicator that specifies this product does not contain another intended sellable unit.	The lowest level of the hierarchy shall be designated as the base unit. The base unit has no smaller units identified by a GTIN contained within it. In the case of assortments, each hierarchy shall have at least one base unit.
57	Consumer Unit Indicator	The indicator that specifies the product can be purchased or, in some trade channels (e.g., food service, healthcare), used by, the consumer.	At least one level of the hierarchy shall be designated as a consumer unit. Consumer units are the levels of the hierarchy designated for sale to the customer.

58	Shipping Unit Indicator	The indicator identifying that the information provider considers the trade item as a shipping unit.	It is expected that at least one level of the hierarchy be designated as a shipping unit. Exceptions include services and empty returnable assets.
60	Orderable Unit Indicator	The indicator that specifies the product can be ordered.	At least one level of the hierarchy shall be designated as an orderable unit. The orderable unit and the shipping unit do not need to be the same, but often are.
66	Packaging Level Code	The code that describes the product's packaging level.	Packaging Level Code indicates whether the unit is an each, case, pack, etc. It does not imply that a unit is a consumer, shipping or orderable unit.
199	Number of Different Products	The number of different products, each with a unique GTIN, within this item.	This is the number of unique GTINs at the next lower level of the hierarchy. The attribute does not have to be populated if the product is a base unit.
200	Total Count of All Products	The total count of all products within this item.	This is the sum all pieces in the package, regardless of GTIN.
202	Count of Each Specific Product	The count of each specific product within this item.	This attribute shows the total quantity of each unique GTIN on the next lower level of the hierarchy, by unique GTIN. **Count of Each Specific Product** and **GTIN of the Contained Product** shall be populated together.
3619	Count of This Specific Item in a Non-GTIN Logistic Unit	The count of this specific item in the non-GTIN logistic unit.	When a product is associated with a pallet to which no GTIN is assigned, this attribute is populated on the highest hierarchy level to which a GTIN is assigned.
203	GTIN (Global Trade Item Number) of the Contained Product	The GTIN that uniquely identifies the next lower level product within the packaging/item hierarchy.	This attribute provides the GTIN referenced in the attribute **Count of Each Specific Product**. **Count of Each Specific Product** and **GTIN of the Contained Product** shall be populated together.

3614	Number of Layers per GTIN	The number of complete layers in the logistic unit identified by a GTIN, such as a pallet.	Number of layers may also be known regionally as "HI".
3616	Number of Layers per non-GTIN Pallet	The number of complete layers in the pallet not identified by a GTIN.	When a product is associated with a pallet to which no GTIN is assigned, this attribute is populated on the highest hierarchy level to which a GTIN is assigned.
3618	Number of Units per Layer in a GTIN	The number of units in a complete layer in a logistic unit identified by a GTIN, such as a pallet.	Number of units per layer may also be known regionally as "TI".
3620	Number of Units per Layer in a non-GTIN Pallet	The number of units in a complete layer in a pallet not identified by a GTIN.	When a product is associated with a pallet to which no GTIN is assigned, this attribute is populated on the highest hierarchy level to which a GTIN is assigned.
3908	Variable Measure Indicator	The indicator that specifies the product content is variable.	A value of "true" indicates that the product has variable content. A value of "false" indicates that the product has fixed content.
3909	Loose or Pre-Packed Code	The code which informs the buyer of how the product is packed for the selling of products that vary in weight or quantity.	A value of "Loose" designates that the product is not packaged but could be bagged at point of sale. A value of "Pre-packed" designates that the product is contained in a package.