



Produce Traceability Initiative GTIN Case Code Assignment Strategy

The following is the PTI-recommended strategy for produce companies to assign GTIN numbers at the case level. It is important that you read this in its entirety, to ensure your understanding. Most likely, your Information Technology staff will initially have a better understanding of this; however, it is important for the business professional (salesmen and buyers) to also understand this strategy because it will affect what numbers are assigned to products, what numbers are used to place orders, what numbers appear on invoices, and what numbers are used as a reference when discussing traceability issues.

The examples used below are fairly simple to allow for clarity and understanding of the basic concept. If you follow the basic concept of this strategy, it should address the majority of your products. Please note, however, that as with most strategies, it does not address every situation or exception that arises. As is the situation today, you have to plan for exceptions and this strategy offers a method to deal with these as well. The ultimate goal of this strategy is to minimize the exceptions not covered by this strategy; thus, minimizing the work to handle these exceptions.

Format of a GTIN

A GTIN number used on a case is 14 digits long (see example below):

- The first digit is the packaging indicator, which in this example and for simplicity, the recommendation for produce companies would be to use a “1”, which is fully within the expanded list of permissible guidelines from GS1.
- The second digit in this GTIN is a ”0”, which indicates that your Company Prefix was issued by GS1 US or GS1 Canada.
- The supplier in this example was issued a 6-digit UPC Company Prefix=123456 (NOTE: a Company Prefix can be between 6 digits long and 9 digits long). See Milestone #1 on the www.producetraceability.org website.
- Because of this supplier having a 6-digit UPC Company Prefix, the supplier has 5 digits left over to assign a case reference # for that product
- The last digit is a single digit “check digit”

Example A:

		UPC Comp		Case		Check	
		<u>Prefix</u>		<u>Ref #</u>		<u>Digit</u>	
1	+	0	+	123456	+	00001	+
						3	= 14 digits

Putting these pieces together you get one 14-digit GTIN: 10123456000013

Today's Buying Practices

In today's environment, buyers typically order loose/bulk produce from a more macro view than how the supplier actually stores information for that product. For example, most buyers would order Fuji Apples using the following attributes of the product:

Example B:

<i>PLU Code</i>	<i>Commodity</i>	<i>Variety</i>	<i>Size</i>	<i>Pack Type</i>
4129	Apple	Fuji	Small	Volume Fill

Following the same example, the supplier might include several additional attributes when storing information on that item that the buyer would not care to have distinguished. These additional attributes we will call "Secondary Attributes", as they are not considered relatively "important" from the standpoint of the buyer when identifying an item.

In the fictitious example below, 'LABEL' is a secondary attribute that would still remain on the supplier's database, but would not be used to define the GTIN case code given to the buyer. Those attributes used to define the primary GTIN case codes are named "Primary Attributes".

One way to view the difference between Primary and Secondary attributes is to use the example of a catalog. If your company has a catalog designed to be used by your buyers when buying your products, you would most likely show only the Primary Attributes, not the Secondary Attributes, on the catalog. You would then assign a GTIN for each line item that appears on your catalog.

NOTE: In the example to follow, a PLU sticker would still be applied to all of the items inside the case, as 80-count, 90-count and 100-count are all considered "Small" and they would therefore have the same PLU sticker applied to the items inside all three case configurations. However, as the case configurations are different (i.e. 80 apples in one case, 90 apples in one case and 100 apples in one case), their corresponding GTIN case codes would be different:

Example C (fictitious example):

PRIMARY ATTRIBUTES						SECONDARY ATTRIBUTE	
<u>GTIN Case Code</u>	<u>Origin</u>	<u>Com</u>	<u>Var</u>	<u>Size</u>	<u>Pack</u>	<u>Grade</u>	<u>Label</u>
10123456000014	WA	Apple	Fuji	080	12/3lb	xfancy	Sierra
10123456000014	WA	Apple	Fuji	080	12/3lb	xfancy	Lucky
10123456000014	WA	Apple	Fuji	080	12/3lb	xfancy	Primo
10123456000014	WA	Apple	Fuji	080	12/3lb	xfancy	Gold
10123456000916	WA	Apple	Fuji	080	12/3lb	fancy	Sierra
10123456000916	WA	Apple	Fuji	080	12/3lb	fancy	Lucky

10123456000916	WA	Apple	Fuji	080	12/3lb fancy	Primo
10123456000916	WA	Apple	Fuji	080	12/3lb fancy	Gold
10123456000027	WA	Apple	Fuji	090	12/3lb xfancy	Sierra
10123456000027	WA	Apple	Fuji	090	12/3lb xfancy	Lucky
10123456000027	WA	Apple	Fuji	090	12/3lb xfancy	Primo
10123456000027	WA	Apple	Fuji	090	12/3lb xfancy	Gold
10123456000921	WA	Apple	Fuji	090	12/3lb fancy	Sierra
10123456000921	WA	Apple	Fuji	090	12/3lb fancy	Lucky
10123456000921	WA	Apple	Fuji	090	12/3lb fancy	Primo
10123456000921	WA	Apple	Fuji	090	12/3lb fancy	Gold
10123456000032	WA	Apple	Fuji	100	12/3lb xfancy	Sierra
10123456000032	WA	Apple	Fuji	100	12/3lb xfancy	Lucky
10123456000032	WA	Apple	Fuji	100	12/3lb xfancy	Primo
10123456000032	WA	Apple	Fuji	100	12/3lb xfancy	Gold
10123456000935	WA	Apple	Fuji	100	12/3lb fancy	Sierra
10123456000935	WA	Apple	Fuji	100	12/3lb fancy	Lucky
10123456000935	WA	Apple	Fuji	100	12/3lb fancy	Primo
10123456000935	WA	Apple	Fuji	100	12/3lb fancy	Gold

In the fictitious example above, only six primary GTIN case codes would need to be communicated to the buyer (provided they do not care about ‘LABEL’), in lieu of 24 GTIN case codes if there were a number assigned for every minor difference of these cases of apples. These six primary GTIN case codes were created using the following “PRIMARY” attributes: Origin, Commodity, Variety, Size, Pack and Grade.

**NOTE that the supplier could potentially have hundreds of product codes, with several attributes beyond ‘LABEL’, as in the above fictitious example. Yet only six primary GTIN case codes would be required to be communicated and used by the buyer in Example C. This will minimize the numbers that need to be communicated and maintained between trading partners.*

RECOMMENDED PRIMARY ATTRIBUTES

Based upon the GTIN Produce Pilot conducted in 2006, and using the Product Attributes List at the end of Appendix A, participants agreed that the cumulative list of PRIMARY attributes needed to sort cases of produce for the purpose of GTIN assignment are as follows (NOTE: ignore the PRIMARY and SECONDARY attributes used in the fictitious Example C above):

1. Commodity
2. Variety
3. Origin

4. Grade
5. Size
6. Count
7. Shipping Container
8. Inner Pack Style
9. Inner Pack Quantity
10. Inner Pack Size
11. Inner Pack UOM
12. Growing Method

NOTE: With few exceptions (e.g. contract prices), if there is a different price point between two similar cases of product, each of these cases should have a different GTIN. This is true because there is something of significance (i.e. a different primary attribute) that is different between the two similar cases that would warrant a different price. The same concept generally holds true with this strategy. If there is enough of a difference between two similar cases of product that would cause the buyer to consistently want to order them separately, they both should have their own GTIN.

STEPS TO CREATE GTINs

Step 1: Become familiar with the product attributes (see Product Attributes List at the end of Appendix A).

Step 2: Determine which of the product attributes should be PRIMARY versus SECONDARY. Use the Recommended Primary Attributes above as a starter.

Step 3: Sort your product attributes in order of importance, with the PRIMARY attributes appearing first and your SECONDARY attributes coming last.

Step 4: On a spreadsheet, create columns for each of your product attributes, with the most important attribute to the furthestmost left and the remaining to the right (as completed in Step 3).

Step 5: Fill your spreadsheet in with all of your products.

Step 6: Then sort your entire spreadsheet using all of the primary attributes as sort keys.

Step 7: Evaluate the sorted list to see which cases share the same PRIMARY attributes. Those cases having the same PRIMARY attributes can share the same primary GTIN number. Those cases not having the same PRIMARY attributes would most likely have a different GTIN.

USING SECONDARY ATTRIBUTES

A logical question at this point should be: If the GTIN takes care of items with similar PRIMARY attributes, how do I identify those products that have the same PRIMARY attributes

(and thus same primary GTIN), but different SECONDARY attributes? This will be needed if you have a buyer that wants to order cases with more specificity than the PRIMARY attributes allow.

In order to minimize the number of GTINs created (and thus its accompanying maintenance), the GTIN Assignment Strategy above was created with a way to handle items with SECONDARY attributes without creating even more GTIN numbers that would need to be shared between buyer and seller.

In Example C above, six GTIN numbers were created:

- For 80 count x-fancy Fuji Apples, GTIN = 10123456000014
- For 80 count fancy Fuji Apples, GTIN = 10123456000916
- For 90 count x- fancy Fuji Apples, GTIN = 10123456000027
- For 90 count fancy Fuji Apples, GTIN = 10123456000921
- For 100 count x-fancy Fuji Apples, GTIN = 10123456000032
- For 100 count fancy Fuji Apples, GTIN = 10123456000935

Although most buyers would most likely order product using the PRIMARY attributes, some buyers want more specificity when ordering. For example, what if a buyer wanted to order a specific variation of GTIN 10123456000014, specifically a “Sierra” version of this GTIN? Rather than creating yet another GTIN number for Sierra Fuji Apples, we can incorporate the use of “Exception Codes” that are used internally to differentiate items sharing the same primary GTIN number, yet having a different secondary attribute. This would allow the same primary GTIN to be communicated to all of your buyers, while managing a “profile” of preferences internally within the suppliers system to handle buyer-specific requests.

To illustrate, let’s look at an example:

In Example C above, the SECONDARY attribute was “LABEL”. If a supplier were to assign “*Exception Codes*” to these SECONDARY attributes, such as LABEL, it would look something like the following (NOTE: in this example, a 3-digit number was used for the exception code. It could be whatever number of digits you desire).

<u>Exception Code</u>		<u>LABEL</u>
001	=	Sierra
002	=	Gold
003	=	Lucky

The supplier can now attribute an *Exception Code* to each primary GTIN that has “Sierra” or “Gold” or “Lucky” as a LABEL by adding some separator between the primary GTIN and its accompanying Exception code.

- 10123456000014_001 = Washington Fuji Apples 80 count 12/3lb Sierra
- 10123456000014_002 = Washington Fuji Apples 80 count 12/3lb Gold
- 10123456000014_003 = Washington Fuji Apples 80 count 12/3lb Lucky

PROFILES

A “*profile*” would be created for each buyer that indicates any pertinent Exception Codes required by the buyer. This process is actually already being done in the produce industry by your Sales Representative. If an item is not available, those processing the order will call the Sales Rep and ask them “What product should I substitute?” They would also call the Sales Rep to find out if a “special” pack should be shipped in lieu of the “generic” pack. “*Profiling*” does the same thing as the Sales Rep, but rather stores these preferences in a *profile* so that systems can use this in an automated fashion.

Once an order is received from a specific buyer, the supplier’s system can determine who the buyer is (when using a form of Electronic Commerce, your computer system uses the Global Location Number (GLN) or the Dunn & Bradstreet number to identify who the buyer is). Your system can then go to that buyer’s profile to determine if there are any Exception Codes for that buyer or for the item being ordered by the buyer. The profile is typically created by the Sales Rep and then maintained by those taking the actual orders (as preferences for the buyer change).

NOTE: You can also configure your profile to indicate permissible substitutions.

EXAMPLE PROFILE

<u>Buyer:</u> Jack’s Grocer	<u>Buyer Number:</u> 0001234561111
<u>GTIN</u>	<u>Exception Code</u>
10123456000014	001
10123456000027	002
10123456000032	002

NOTE: The profile above is one example of how a profile might look. Pilot participants had different solutions employing the same methodology. Remember that using this strategy of “profiles” only includes exceptions and/or possible substitutions. If the buyer in the above example ordered cases of apples as defined by the PRIMARY attributes alone, and from the perspective of ordering, did not care about the secondary attributes, there would be no reason to have exceptions for this buyer.

Therefore, any order that comes in from Jack’s Grocer having any of the GTINs indicated in their respective profile, will have the corresponding Exception Codes appended to the primary GTIN when routed to the suppliers shipping facility. The added Exception Code is only used internally by the supplier and will therefore be stripped off prior to the invoice being generated. In addition, only the primary GTIN number will appear on the case to ensure what is shown on the case will match what is on the purchase order and also on the invoice.

SUMMARY OF SCENARIO:

Step 1: Jack’s Grocer submits a Purchase Order with GTIN 10123456000014

- Step 2: Supplier receives Purchase Order and determines the buyer to be Jack's Grocer
- Step 3: The system searches for the profile for Jack's Grocer
- Step 4: The profile for Jack's Grocer has an entry for GTIN 10123456000014, indicating that Jack's Grocer wants the Sierra Label, and therefore the Exception Code of 001 is appended to the GTIN.
- Step 5: Supplier routes order to shipping facility with the Exception Code of 001 appended to the GTIN (10123456000014_001). In this example, the Exception Code is appended to the GTIN using an “_”.
- Step 6: Shipping facility notes that the “Sierra” Label of Fuji Apples should be shipped to Jack's Grocer.
- Step 7: After product is shipped, supplier strips Exception Code off of product in their system before generating the invoice.
- Step 8: Invoice is created using just the primary GTIN 10123456000014 (thus matching what was on the purchase order)
- Step 9: Jack's Grocer receives case with GTIN 10123456000014 appearing on the case
- Step 10: Receipt of product matches Purchase Order which matches the Invoice

NOTE: If an item does not require any Exception Codes, there is no need to include it in the buyer's profile.

The GTIN Assignment Strategy as articulated above might be difficult to fully understand unless you go through the exercise of laying your products across a spreadsheet using the PRIMARY attributes. In any event, if you have any questions, please contact Gary Fleming at PMA (gffleming@pma.com).

PRODUCT ATTRIBUTE LIST

The product attributes immediately following are designed to help companies with their GTIN assignment strategy. These attributes are typically used when describing virtually all types of produce items (NOTE: not all produce commodities will use every attribute noted below). Therefore, only use the attributes that are relevant for your commodities.

Use the attributes list below to determine which of these attributes are “primary” versus “secondary” for the products you sell. Remember, view the attributes your company would include on a catalog to your buyer as Primary Attributes and those that would not be on that catalog as Secondary Attributes. Then follow the “**Steps To Create GTINs**” above.

Commodity

The name of the industry recognized grouping of a species by the consumer, buyer and seller when purchasing and/or ordering fresh produce items.

Example: Watermelon is considered a commodity (rather than “melons”) as it is more commonly used when buying the product. For those melons that are not considered high-volume, their Commodity value will be “melon varieties”.

Variety Group

Used for grouping sets of like varieties for a specific commodity.

Example: For the commodity Watermelon, the Variety Group would be Seedless. For the commodity Grapes, the Variety Group would be Red Seedless.

Variety

Represents the name of the sub-species for a commodity.

Examples: For the Commodity Apple, the Variety would be Red Delicious, Granny Smith, or Braeburn.

Variety Refinement

Used to further define the characteristics of a variety (such as the blush or type of point on an apple).

Examples: For the Commodity Tomato, Variety = Roma, Variety Refinement = on the vine

Origin

Defines the item’s source location in terms of individual country, state/province, and growing region fields. UN standards are used for Country and State/Province abbreviations (Note this U.N. standard matches that used by the U.S. Postal Service for states within the U.S.)

Country

The country from which the item is sourced.

Example: For the Commodity = Apple, Country = U.S.

State/Province

The state/province from which the item is sourced.

Example: For the Commodity = Apple, State = Washington

Growing Region

User-defined region that further describes what region the commodity is grown. This attribute is considered informational only.

Example: For the Commodity = Apple, Growing Region = Yakima

Trade Item Pack

The Trade Item Pack uses the three sub-attributes *Shipping Container*, *Net Weight* and *Net Weight UOM* when describing the trade unit item.

Shipping Container

The type of container in which the trade item is shipped.

Example: Carton

Net Weight

The net weight of the contents of the trade item (gross weight less packaging materials).

Example: 40

Net Weight UOM

The measure used to describe the weight. The standard two-character code is used for Pound, Ounce, Kilogram, Inch, Quart, or other UOM.

Examples: LB, OZ, IN, QT

Count

The quantity of individual pieces within the container (when there is no Consumer Pack).

Example: 48

Inner Pack

The Inner Pack refers to the items found inside the Trade Item that would be used as the consumer unit and uses the four sub-attributes *Pack Style*, *Pack Quantity*, *Pack Size*, and *Pack Size UOM*.

Pack Style

The packaging style of the units held within the Trade Item Pack.

Examples: Clamshell, Bunch, Bag, Tray Pack, 3-Layer, Volume Fill, etc.

Pack Quantity

The number of consumer units held within the Trade Item.

Example: '8' refers to 8 consumer units within the Trade Item

Pack Size

The size of the units held in the packaged format within the Trade Item Pack. In the localized example, this is '5' given the bags are 5-pounds each.

Examples: 5

Pack Size UOM

A two-character code describing the unit of measure for the Pack Size. In the localized example, this is 'lb', showing that the bags are measured in pounds.

Examples: LB

Size

Generally accepted numeric industry sizes are normally used. When industry practice defines Size by the count of individual pieces, use Count to indicate that value.

Example: 2½ refers to the size of an Apple in diameter (or metric equivalent)

Size UOM

Size Unit of Measure (Size UOM) is used as a secondary attribute to further clarify the numeric value in the Size field.

Examples: "in" = inches, "cm" = centimeters

Size Group

Used when not referring to Size as a numeric value.

Examples: Small, Medium, Large, Jumbo

Grade

The grade of the commodity. Grades established by USDA or CFIA are used, as well as those of specific states (where applicable).

Examples: U.S. #1, GDS, USXF, WAXF

Harvest/Post Harvest

Storage/Handling

Describes a method used when harvesting, handling and/or storing product. It can therefore be used as a differentiator between similar products.

Examples: Controlled Atmosphere, Hydrocooled, Hand Picked, Machine Picked, Iceless

Treatment

Describes the topical application of a type of treatment on a product that occurs after the product has been harvested.

Examples: Waxed, Smart Fresh, Taste Mark

Maturity

A process used to enhance the maturity level of an item or the level at which the product is actually ripened.

Examples: Pre-conditioned, Tree Ripened, Breakers, Gassed, Jet Fresh

Growing Method

An attribute that describes growing characteristics.

Examples: Conventional, Organic, Genetically Modified, Hothouse, Kosher, NutriClean, IPM, Fly-Free, and Residue Free.

Label/Brand

Can be used to identify Label/Brand when used to differentiate product quality and infer product characteristics not otherwise addressed in other attributes.

Examples: Sierra, Lucky