

GTIN (Global Trade Item Number) Case Code Assignment Strategy

The following is a strategy recommended by the Produce Traceability Initiative for produce companies to assign GTIN numbers at the case level. It is important that you read this in its entirety, and then ensure understanding. Most likely, your IT staff will initially have a better understanding of this; however, it is important for the business people (salesmen and buyers) to also understand this strategy because it will affect what numbers you place orders with, send invoices with and use as a reference when discussing traceability issues.

The examples used 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.

Assumptions for Example A

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, will be a "0".
- The second digit in this GTIN is a "0" which in this example and for simplicity, will be a "0" as well.
- The supplier in this example was issued a 6-digit GS1 Company Prefix=123456
- Because of this supplier having a 6-digit Company Prefix, the supplier has 5 digits left over to assign an item reference # for that product
- The last digit is a single digit "check digit"

Example A:

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

Putting these pieces together you get one 14-digit GTIN: 00123456000013

Buyer Database

In the current process, 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

Supplier Database

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’ and ‘GRADE’ are secondary attributes 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 “Core Attributes”.

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):

For 80 count Fuji Apples, GTIN = 0 0 123456 00001 4

For 90 count Fuji Apples, GTIN = 0 0 123456 00002 7

For 100 count Fuji Apples, GTIN = 0 0 123456 00003 2

CORE ATTRIBUTES					SECONDARY ATTRIBUTES		
<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>
00123456000014	Wa	Apple	Fuji	080	12/3lb	xfancy	Sierra
00123456000014	Wa	Apple	Fuji	080	12/3lb	xfancy	Lucky
00123456000014	Wa	Apple	Fuji	080	12/3lb	xfancy	Primo
00123456000014	Wa	Apple	Fuji	080	12/3lb	xfancy	Gold
00123456000014	Wa	Apple	Fuji	080	12/3lb	fancy	Sierra
00123456000014	Wa	Apple	Fuji	080	12/3lb	fancy	Lucky
00123456000014	Wa	Apple	Fuji	080	12/3lb	fancy	Primo
00123456000014	Wa	Apple	Fuji	080	12/3lb	fancy	Gold
00123456000027	Wa	Apple	Fuji	090	12/3lb	xfancy	Sierra
00123456000027	Wa	Apple	Fuji	090	12/3lb	xfancy	Lucky
00123456000027	Wa	Apple	Fuji	090	12/3lb	xfancy	Primo
00123456000027	Wa	Apple	Fuji	090	12/3lb	xfancy	Gold
00123456000027	Wa	Apple	Fuji	090	12/3lb	fancy	Sierra
00123456000027	Wa	Apple	Fuji	090	12/3lb	fancy	Lucky
00123456000027	Wa	Apple	Fuji	090	12/3lb	fancy	Primo
00123456000027	Wa	Apple	Fuji	090	12/3lb	fancy	Gold

00123456000032	Wa	Apple	Fuji	100	12/3lb	xfancy	Sierra
00123456000032	Wa	Apple	Fuji	100	12/3lb	xfancy	Lucky
00123456000032	Wa	Apple	Fuji	100	12/3lb	xfancy	Primo
00123456000032	Wa	Apple	Fuji	100	12/3lb	xfancy	Gold
00123456000032	Wa	Apple	Fuji	100	12/3lb	fancy	Sierra
00123456000032	Wa	Apple	Fuji	100	12/3lb	fancy	Lucky
00123456000032	Wa	Apple	Fuji	100	12/3lb	fancy	Primo
00123456000032	Wa	Apple	Fuji	100	12/3lb	fancy	Gold

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

***NOTE** that the supplier could potentially have hundreds of product codes, with several attributes beyond ‘grade’ or ‘label’, as in the above fictitious example. Yet only three 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.

What are the **RECOMMENDED “CORE ATTRIBUTES”**?

Based upon the GTIN Produce Pilot, participants agreed that the cumulative list of CORE attributes needed to sort cases of produce for the purpose of GTIN assignment are as follows (please ignore the CORE and SECONDARY attributes used in Example C above):

- | |
|---|
| <ol style="list-style-type: none"> 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 case should have a different GTIN. This is true because there is something of significance (i.e. a different core 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.

The RECOMMENDED CORE attributes above should be used to sort your item information in a fashion similar to Example C. In other words, take the RECOMMENDED CORE attributes above and make them column headings on an Excel spreadsheet. Keep the RECOMMENDED CORE attributes as the first 12 columns, and then add additional columns that would be labeled SECONDARY ATTRIBUTES (e.g. label, case height, case weight, etc.). Then, fill in the spreadsheet with all of your products. Once this is done, sort your list using the RECOMMENDED CORE attributes as your primary sort keys. You will then see which cases share the same CORE attributes. Those cases having the same CORE attributes can share the same primary GTIN number. We are not done yet, so please read on.

IDENTIFYING PRODUCTS WITH SECONDARY ATTRIBUTES

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

For 80 count Fuji Apples, GTIN = 00123456000014

For 90 count Fuji Apples, GTIN = 00123456000027

For 100 count Fuji Apples, GTIN = 00123456000032

Although most buyers would most likely order product using the core attributes, some buyers want more specificity when ordering. For example, what if a buyer wanted to order a specific variation of GTIN 00123456000014, 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 attributes were “GRADE” and “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.

00123456000014_001 = Washington Fuji Apples 80 count 12/3lb Sierra
 00123456000014_002 = Washington Fuji Apples 80 count 12/3lb Gold
 00123456000014_003 = Washington Fuji Apples 80 count 12/3lb Lucky

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 receiving 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 recognize 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 (as preferences for the buyer change).

NOTE: You can also configure your profile to indicate permissible substitutions for this buyer as well.

*The *profile* could look something like this:

Buyer: Jack's Grocer

Buyer Number: 0001234561111

GTIN

Exception Code

00123456000014

001

00123456000027

002

00123456000032

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 CORE 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 00123456000014
- 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 00123456000014, 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 (00123456000014_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 00123456000014 (thus matching what was on the purchase order)
- Step 9: Jack's Grocer receives case with GTIN 00123456000014 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.

BUYER: Which GTIN to Store

In the above example, the buyer would have to store the GTIN case code as follows:

Buyer Option 1:

If the buyer wants a specific count of apples (e.g. 80 vs. 90 vs. 100), then the buyer would have to store the corresponding three GTIN case codes as follows:

<i>GTIN Case Code</i>	<i>=</i>	<i>PLU Code</i>	<i>Commodity</i>	<i>Variety</i>	<i>Size</i>	<i>Count</i>
00123456000014		4129	Apple	Fuji	Small	080
00123456000027		4129	Apple	Fuji	Small	090
00123456000032		4129	Apple	Fuji	Small	100

NOTE: This is for one supplier. If the buyer uses multiple Fuji Apples suppliers, they would have to store their additional suppliers' GTINs for Small, Fuji, Apples as well.

Buyer Option 2:

If the buyer does not care about the specific size of Fuji Apples (e.g. 80 vs. 90 vs. 100) and only wants "SMALL", then the buyer needs to store only one of the possible three "SMALL" Fuji Apple case configurations. The buyer or the seller can determine which GTIN should be stored:

<i>GTIN Case Code</i>	<i>=</i>	<i>PLU Code</i>	<i>Commodity</i>	<i>Variety</i>	<i>Size</i>
00123456000014		4129	Apple	Fuji	Small
OR					
00123456000027					
OR					
00123456000032					

SUPPLIER: Which GTIN to share with the Buyer

The supplier has the following options:

Supplier Option 1:

The supplier could provide an item list with the following choices and ask the buyer to choose a GTIN. If the buyer does not care about the count (e.g. in the example below), the number chosen by the buyer would be the primary item shipped to the buyer, and the remaining two case configurations can be set up as "possible substitutions" for the primary item. The primary number will become the number the buyer uses to order, synchronize data, expect on an invoice and reference.

<i>GTIN Case Code</i>	<i>=</i>	<i>PLU Code</i>	<i>Commodity</i>	<i>Variety</i>	<i>Size</i>	<i>Count</i>
00123456000014		4129	Apple	Fuji	Small	080
00123456000027		4129	Apple	Fuji	Small	090
00123456000032		4129	Apple	Fuji	Small	100

Example:

If BUYER A chooses GTIN 00123456000014, then the supplier could store the following:

For Buyer A:	Primary GTIN	00123456000014
	Possible Substitute	00123456000027
	Possible Substitute	00123456000032

Supplier Option 2:

The supplier could choose a GTIN for the buyer and only send them that particular GTIN. The remaining two item numbers could be stored internally as possible substitutions. The GTIN given to the buyer would become the number the buyer uses to order, synchronize data, expect on an invoice and reference.

NOTE: Unless the purchase order is changed to reflect the substituted item, it is important to note that the GTIN that appears on the purchase order must be the same as the GTIN that appears on the invoice. Otherwise, the invoice will not reconcile with the purchase order, thereby causing a possible invoice deduction. This utility would have to be dealt with systematically or manually.

OTHER SCENARIOS

Scenario A: Buyer orders product using 'primary GTIN' and supplier has no inventory.

Option 1: Supplier notifies buyer to revise Purchase Order with new GTIN. This is the cleanest option, but also the most time-consuming and difficult.

Option 2: Supplier substitutes GTIN B for GTIN A
The invoice will have to reflect what is on the purchase order. Otherwise, at the time of reconciliation, the items will not match and most likely will result in an invoice deduction. Although this will allow the invoice to match the purchase order, it will not address the GTIN that actually appears on the case. If receiving is using the GTIN that physically appears on the case to match against the purchase order, there will be a mis-match.

Option 3: Supplier procures product from another grower/shipper
Same scenario as in Option 2 above. The supplier can use the same GTIN as what was shown on the purchase order, but the GTIN appearing on the case itself will not match the purchase order.

NOTE: If an ASN (Advanced Ship Notice) is used, the problem of substitution in Options 1 and 2 above will be solved as the supplier will be letting the buyer know of a change when the ASN is sent. That change could then be applied to the purchase order before receiving the product. This will not, however, address Option 3 above as the supplier will not

always have the opportunity to control what GTIN appears on the case procured by an outside source.

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 CORE attributes. In any event, if you have any questions, please contact United Fresh senior vice president, food safety & technology, Dr. David Gombas, at dgombas@unitedfresh.org.