The Global Language of Business

GSMP:

General Specifications Change Notification (GSCN)

GSCN #	GSCN Name	Effective Date
16-410	Allowed Implied Decimal Point Position Value for AI	7 Nov 2016

Associated Work Request (WR) Number:

WR 16-410

Background:

1) The GS1 Gen Specs v16 (and earlier) are unclear and ambiguous as to what are the allowed implied decimal point position values for Application Identifiers that support this feature. Specific examples would be AI(392n) and AI(394n), among many others. Development of a proper parsing algorithm for syntax validation (for example, by a barcode verifier manufacturer or user) cannot proceed with making assumptions as to what is allowed and proper or otherwise. Without further clarification data integrity is at risk.
2) Further to this issue, in "Figure 3.2 1. GS1 Application Identifiers", in the leftmost column titled "AI", for the AIs that support the implied decimal place feature, the "n" that is supposed to be shown in the 4th position of the AI to indicate the implied decimal point position has been omitted for all but AI(394n).

GS1 General Specification Change:

The recommended changes are highlighted in the attached excerpt from the GS1 General Specifications, v16.

Disclaimer

3.1 Introduction

This section describes the meaning, structure, and function of the GS1 system element strings so they can be correctly processed in users' application programmes. An element string is the combination of a GS1 Application Identifier and a GS1 Application Identifier data field. The allowable character set to be used for GS1 Application Identifier element strings is defined in section ~~7.11~~7.11. There are AIs that have additional syntax restrictions, e.g. numerical only; see below definition for each AI.

Automatic processing of element strings in business applications requires information about the type of transaction to which the transferred data refers. See section 7 for an explanation of this process. Element strings can be carried by GS1-128, GS1 DataBar symbology, GS1 Composite, GS1 DataMatrix and GS1 QR Code symbols. The rules for use and interrelationships between the Application Identifiers are contained in section 2 and 4.

When a pre-defined length GS1 key and attributes are encoded together, the GS1 key SHOULD appear before the attributes. In most cases pre-defined length element strings SHOULD be followed by non pre-defined element strings. The sequence of pre-defined and non pre-defined element strings should be at the discretion of the ~~brand owner~~creator of the element strings.

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3.2 GS1 Application Identifiers in numerical order

Figure 3.2-1. GS1 Application Identifiers

AI	Data Content	Format (*)	FNC1 required (****)	Data title
00	*Serial Shipping Container Code (SSCC)*	N2+N18		SSCC
01	*Global Trade Item Number (GTIN)*	N2+N14		GTIN
02	*GTIN of contained trade items*	N2+N14		CONTENT
10	*Batch or lot number*	N2+X..20	(FNC1)	BATCH/LOT
11 (**)	*Production date (YYMMDD)*	N2+N6		PROD DATE
12 (**)	*Due date (YYMMDD)*	N2+N6		DUE DATE
13 (**)	*Packaging date (YYMMDD)*	N2+N6		PACK DATE
15 (**)	*Best before date (YYMMDD)*	N2+N6		BEST BEFORE or BEST BY
16 (**)	*Sell by date (YYMMDD)*	N2+N6		SELL BY
17 (**)	*Expiration date (YYMMDD)*	N2+N6		USE BY OR EXPIRY
20	*Variant number*	N2+N2		VARIANT
21	*Serial number*	N2+X..20	(FNC1)	SERIAL
240	*Additional item identification*	N3+X..30	(FNC1)	ADDITIONAL ID
241	*Customer part number*	N3+X..30	(FNC1)	CUST. PART NO.
242	*Made-to-Order variation number*	N3+N..6	(FNC1)	MTO VARIANT
243	*Packaging component number*	N3+X..20	(FNC1)	PCN
250	*Secondary serial number*	N3+X..30	(FNC1)	SECONDARY SERIAL
251	*Reference to source entity*	N3+X..30	(FNC1)	REF. TO SOURCE
253	*Global Document Type Identifier (GDTI)*	N3+N13+X..17	(FNC1)	GDTI
254	*GLN extension component*	N3+X..20	(FNC1)	GLN EXTENSION COMPONENT
255	*Global Coupon Number (GCN)*	N3+N13+N..12	(FNC1)	GCN
30	*Count of items (variable measure trade item)*	N2+N..8	(FNC1)	VAR. COUNT

AI	Data Content	Format (*)	FNC1 required (****)	Data title
310n (***)	*Net weight, kilograms (variable measure trade item)*	N4+N6		NET WEIGHT (kg)
311n (***)	*Length or first dimension, metres (variable measure trade item)*	N4+N6		LENGTH (m)
312n (***)	*Width, diameter, or second dimension, metres (variable measure trade item)*	N4+N6		WIDTH (m)
313n (***)	*Depth, thickness, height, or third dimension, metres (variable measure trade item)*	N4+N6		HEIGHT (m)
314n (***)	*Area, square metres (variable measure trade item)*	N4+N6		AREA (m^2)
315n (***)	*Net volume, litres (variable measure trade item)*	N4+N6		NET VOLUME (l)
316n (***)	*Net volume, cubic metres (variable measure trade item)*	N4+N6		NET VOLUME (m^3)
320n (***)	*Net weight, pounds (variable measure trade item)*	N4+N6		NET WEIGHT (lb)
321n (***)	*Length or first dimension, inches (variable measure trade item)*	N4+N6		LENGTH (i)
322n (***)	*Length or first dimension, feet (variable measure trade item)*	N4+N6		LENGTH (f)
323n (***)	*Length or first dimension, yards (variable measure trade item)*	N4+N6		LENGTH (y)
324n (***)	*Width, diameter, or second dimension, inches (variable measure trade item)*	N4+N6		WIDTH (i)
325n (***)	*Width, diameter, or second dimension, feet (variable measure trade item)*	N4+N6		WIDTH (f)
326n (***)	*Width, diameter, or second dimension, yards (variable measure trade item)*	N4+N6		WIDTH (y)
327n (***)	*Depth, thickness, height, or third dimension, inches (variable measure trade item)*	N4+N6		HEIGHT (i)
328n (***)	*Depth, thickness, height, or third dimension, feet (variable measure trade item)*	N4+N6		HEIGHT (f)
329n (***)	*Depth, thickness, height, or third dimension, yards (variable measure trade item)*	N4+N6		HEIGHT (y)
330n (***)	*Logistic weight, kilograms*	N4+N6		GROSS WEIGHT (kg)
331n (***)	*Length or first dimension, metres*	N4+N6		LENGTH (m), log
332n (***)	*Width, diameter, or second dimension, metres*	N4+N6		WIDTH (m), log
333n (***)	*Depth, thickness, height, or third dimension, metres*	N4+N6		HEIGHT (m), log
334n (***)	*Area, square metres*	N4+N6		AREA (m^2), log
335n (***)	*Logistic volume, litres*	N4+N6		VOLUME (l), log
336n (***)	*Logistic volume, cubic metres*	N4+N6		VOLUME (m^3), log
337n (***)	*Kilograms per square metre*	N4+N6		KG PER m^2

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AI	Data Content	Format (*)	FNC1 required (****)	Data title
340n (***)	*Logistic weight, pounds*	N4+N6		GROSS WEIGHT (lb)
341n (***)	*Length or first dimension, inches*	N4+N6		LENGTH (i), log
342n (***)	*Length or first dimension, feet*	N4+N6		LENGTH (f), log
343n (***)	*Length or first dimension, yards*	N4+N6		LENGTH (y), log
344n (***)	*Width, diameter, or second dimension, inches*	N4+N6		WIDTH (i), log
345n (***)	*Width, diameter, or second dimension, feet*	N4+N6		WIDTH (f), log
346n (***)	*Width, diameter, or second dimension, yard*	N4+N6		WIDTH (y), log
347n (***)	*Depth, thickness, height, or third dimension, inches*	N4+N6		HEIGHT (i), log
348n (***)	*Depth, thickness, height, or third dimension, feet*	N4+N6		HEIGHT (f), log
349n (***)	*Depth, thickness, height, or third dimension, yards*	N4+N6		HEIGHT (y), log
350n (***)	*Area, square inches (variable measure trade item)*	N4+N6		AREA (i^2)
351n (***)	*Area, square feet (variable measure trade item)*	N4+N6		AREA (f^2)
352n (***)	*Area, square yards (variable measure trade item)*	N4+N6		AREA (y^2)
353n (***)	*Area, square inches*	N4+N6		AREA (i^2), log
354n (***)	*Area, square feet*	N4+N6		AREA (f^2), log
355n (***)	*Area, square yards*	N4+N6		AREA (y^2), log
356n (***)	*Net weight, troy ounces (variable measure trade item)*	N4+N6		NET WEIGHT (t)
357n (***)	*Net weight (or volume), ounces (variable measure trade item)*	N4+N6		NET VOLUME (oz)
360n (***)	*Net volume, quarts (variable measure trade item)*	N4+N6		NET VOLUME (q)
361n (***)	*Net volume, gallons U.S. (variable measure trade item)*	N4+N6		NET VOLUME (g)
362n (***)	*Logistic volume, quarts*	N4+N6		VOLUME (q), log
363n (***)	*Logistic volume, gallons U.S.*	N4+N6		VOLUME (g), log
364n (***)	*Net volume, cubic inches (variable measure trade item)*	N4+N6		VOLUME (i^3)
365n (***)	*Net volume, cubic feet (variable measure trade item)*	N4+N6		VOLUME (f^3)
366n (***)	*Net volume, cubic yards (variable measure trade item)*	N4+N6		VOLUME (y^3)

AI	Data Content	Format (*)	FNC1 required (****)	Data title
367n (***)	*Logistic volume, cubic inches*	N4+N6		VOLUME (i^3), log
368n (***)	*Logistic volume, cubic feet*	N4+N6		VOLUME (f^3), log
369n (***)	*Logistic volume, cubic yards*	N4+N6		VOLUME (y^3), log
37	*Count of trade items*	N2+N..8	(FNC1)	COUNT
390n (***)	*Applicable amount payable or Coupon value, local currency*	N4+N..15	(FNC1)	AMOUNT
391n (***)	*Applicable amount payable with ISO currency code*	N4+N3+N..15	(FNC1)	AMOUNT
392n (***)	*Applicable amount payable, single monetary area (variable measure trade item)*	N4+N..15	(FNC1)	PRICE
393n (***)	*Applicable amount payable with ISO currency code (variable measure trade item)*	N4+N3+N..15	(FNC1)	PRICE
394n (***)	*Percentage discount of a coupon*	N4+N4	(FNC1)	PRCNT OFF
400	*Customer's purchase order number*	N3+X..30	(FNC1)	ORDER NUMBER
401	*Global Identification Number for Consignment (GINC)*	N3+X..30	(FNC1)	GINC
402	*Global Shipment Identification Number (GSIN)*	N3+N17	(FNC1)	GSIN
403	*Routing code*	N3+X..30	(FNC1)	ROUTE
410	*Ship to - Deliver to Global Location Number*	N3+N13		SHIP TO LOC
411	*Bill to - Invoice to Global Location Number*	N3+N13		BILL TO
412	*Purchased from Global Location Number*	N3+N13		PURCHASE FROM
413	*Ship for - Deliver for - Forward to Global Location Number*	N3+N13		SHIP FOR LOC
414	*Identification of a physical location - Global Location Number*	N3+N13		LOC No
415	*Global Location Number of the invoicing party*	N3+N13		PAY TO
420	*Ship to - Deliver to postal code within a single postal authority*	N3+X..20	(FNC1)	SHIP TO POST
421	*Ship to - Deliver to postal code with ISO country code*	N3+N3+X..9	(FNC1)	SHIP TO POST
422	*Country of origin of a trade item*	N3+N3	(FNC1)	ORIGIN
423	*Country of initial processing*	N3+N3+N..12	(FNC1)	COUNTRY - INITIAL PROCESS.
424	*Country of processing*	N3+N3	(FNC1)	COUNTRY - PROCESS.
425	*Country of disassembly*	N3+N3+N..12	(FNC1)	COUNTRY - DISASSEMBLY
426	*Country covering full process chain*	N3+N3	(FNC1)	COUNTRY – FULL PROCESS
427	*Country subdivision Of origin*	N3+X..3	(FNC1)	ORIGIN SUBDIVISION
7001	*NATO Stock Number (NSN)*	N4+N13	(FNC1)	NSN

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AI	Data Content	Format (*)	FNC1 required (****)	Data title
7002	*UN/ECE meat carcasses and cuts classification*	N4+X..30	(FNC1)	MEAT CUT
7003	*Expiration date and time*	N4+N10	(FNC1)	EXPIRY TIME
7004	*Active potency*	N4+N..4	(FNC1)	ACTIVE POTENCY
7005	*Catch area*	N4+X..12	(FNC1)	CATCH AREA
7006	*First freeze date*	N4+N6	(FNC1)	FIRST FREEZE DATE
7007	*Harvest date*	N4+N6..12	(FNC1)	HARVEST DATE
7008	*Species for fishery purposes*	N4+X..3	(FNC1)	AQUATIC SPECIES
7009	*Fishing gear type*	N4+X..10	(FNC1)	FISHING GEAR TYPE
7010	*Production method*	N4+X..2	(FNC1)	PROD METHOD
703s	*Number of processor with ISO Country Code*	N4+N3+X..27	(FNC1)	PROCESSOR # s
710	*National Healthcare Reimbursement Number (NHRN) – Germany PZN*	N3+X..20	(FNC1)	NHRN PZN
711	*National Healthcare Reimbursement Number (NHRN) – France CIP*	N3+X..20	(FNC1)	NHRN CIP
712	*National Healthcare Reimbursement Number (NHRN) – Spain CN*	N3+X..20	(FNC1)	NHRN CN
713	*National Healthcare Reimbursement Number (NHRN) – Brasil DRN*	N3+X..20	(FNC1)	NHRN DRN
nnn (*****)	*National Healthcare Reimbursement Number (NHRN) – Country "A" NHRN*	N3+X..20	(FNC1)	NHRN xxx
8001	*Roll products (width, length, core diameter, direction, splices)*	N4+N14	(FNC1)	DIMENSIONS
8002	*Cellular mobile telephone identifier*	N4+X..20	(FNC1)	CMT No
8003	*Global Returnable Asset Identifier (GRAI)*	N4+N14+X..16	(FNC1)	GRAI
8004	*Global Individual Asset Identifier (GIAI)*	N4+X..30	(FNC1)	GIAI
8005	*Price per unit of measure*	N4+N6	(FNC1)	PRICE PER UNIT
8006	*Identification of the components of a trade item*	N4+N14+N2+N2	(FNC1)	GCTIN
8007	*International Bank Account Number (IBAN)*	N4+X..34	(FNC1)	IBAN
8008	*Date and time of production*	N4+N8+N..4	(FNC1)	PROD TIME
8010	*Component / Part Identifier (CPID)*	N4 + X..30	(FNC1)	CPID
8011	*Component / Part Identifier serial number (CPID SERIAL)*	N4 + N..12	(FNC1)	CPID SERIAL
8012	*Software version*	N4 + X..20	(FNC1)	VERSION
8017	*Global Service Relation Number to identify the relationship between an organisation offering services and the provider of services*	N4+N18	(FNC1)	GSRN - PROVIDER
8018	*Global Service Relation Number to identify the relationship between an organisation offering services and the recipient of services*	N4+N18	(FNC1)	GSRN - RECIPIENT
8019	*Service Relation Instance Number (SRIN)*	N4+N..10	(FNC1)	SRIN
8020	*Payment slip reference number*	N4+X..25	(FNC1)	REF No

AI	Data Content	Format (*)	FNC1 required (****)	Data title
8110	*Coupon code identification for use in North America*	N4+X..70	(FNC1)	-
8111	*Loyalty points of a coupon*	N4+N4	(FNC1)	POINTS
8112	Paperless coupon code identification for use in North America	N4+X..70	(FNC1)	-
8200	*Extended Packaging URL*	N4+X..70	(FNC1)	PRODUCT URL
90	*Information mutually agreed between trading partners*	N2+X..30	(FNC1)	INTERNAL
91 to 99	*Company internal information*	N2+X..30	(FNC1)	INTERNAL

NOTES:

(*): The first position indicates the length (number of digits) of the GS1 Application Identifier. The following value refers to the format of the data content. The following convention is applied:

- n implied decimal point position
- N numeric digit
- X any character in *Figure 7.11-1~~Figure 7.11-1~~*
- N3 3 numeric digits, predefined~~fixed~~ length
- N..3 up to 3 numeric digits
- X..3 up to 3 characters in *Figure 7.11-1~~Figure 7.11-1~~*

(**): If only year and month are available, DD must be filled with two zeroes.

(***): The fourth digit of this GS1 Application Identifier indicates the number of decimal places (and in that way the implied decimal point position).

Example:

- 3100 Net weight in kg without a decimal point
- 3102 Net weight in kg with two decimal places~~points~~

(****): All GS1 Application Identifiers indicated with (FNC1) are defined as of variable length and SHALL be delimited unless this element string is the last one to be encoded in the symbol. The delimiter SHALL be a Function 1 Symbol Character in GS1-128 symbology, GS1 DataBar Expanded Versions and GS1 Composite symbology and SHOULD be a Function 1 Symbol Character in GS1 DataMatrix and GS1 QR Code symbology.

(*****) An example to illustrate future additional NHRNs. If additional NHRN AIs are required, a request for a new NHRN AI SHALL be made through the GS1 GSMP.

3.3 GS1 Application Identifiers starting with digit 0

3.3.1 Identification of a logistic unit (SSCC): AI (00)

The Application Identifier (00) indicates that the GS1 Application Identifier data field contains an SSCC (Serial Shipping Container Code). The SSCC is used to identify logistic units (see section *2.22.2*).

The extension digit is used to increase the capacity of the serial reference within the SSCC. It is assigned by the company that constructs the SSCC. The extension digit ranges from 0-9.

The GS1 Company Prefix is allocated by GS1 Member Organisations to the company that allocates the SSCC – here the physical builder or the brand owner of the logistic unit (see section *1.4.4*). It makes the SSCC unique worldwide but does not identify the origin of the unit.

The structure and content of the serial reference is at the discretion of owner of the GS1 Company Prefix to uniquely identify each logistic unit.

The check digit is explained in section *7.9*. Its verification, which must be carried out in the application software, ensures that the number is correctly composed.

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Figure 5.10.2.3-1. Example of GS1 DataBar Expanded Stacked barcode that uses concatenation

(01)90614141000015(3202)000150

Concatenation may not be desirable in all circumstances (e.g., GS1 Logistics Labels are often constructed using multiple rows of barcode), in such cases the barcode containing the additional attribute data encoded using GS1 Application Identifiers SHOULD be printed in close proximity to the barcode containing the GS1 identification key.

Figure 5.10.2.3-2. Example of mixed GS1 symbologies (GTIN encoded in UPC-E, Best before date in Composite)

(15)021231

5.10.3 Application Identifiers with implied decimal point positions

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For all GS1 Application Identifiers with an implied decimal point position, the following rules apply:

For pre-defined length AIs

- For pre-defined length application identifiers with a data field length of 9 or less, the maximum number of decimal places is equal to the length of the AI data field as indicated in the format of the application identifier, minus 1. For example, for an AI with data format N8 the maximum number of decimal places is 7.
- For pre-defined length application identifiers with a length greater than 9, the maximum number of decimal places is 9. For example, for an AI with data format N12 the maximum number of decimal places is 9.

Example for pre-defined length AIs:

The data field format of AI (394n) is N4, so the maximum number of implied decimal places is 3.

Element string (3943)1020 specifies that the data field includes 3 decimal places, and therefore has an implied decimal point after the first digit: 1.020

For variable-length AIs

- For variable-length application identifiers with encoded data of 9 digits or less, the maximum number of decimal places is equal to the length of the encoded data, minus 1. For example, for a data field containing 4 digits the maximum number of decimal places is 3.

- For variable-length application identifiers with encoded data of more than 9 digits, the maximum number of decimal places is 9. For example, for a data field containing 11 digits the maximum number of decimal places is 9.

Example for variable-length AIs:

The data field format of AI (392n) is N..15, so the maximum number of implied decimal places is 9. Element string (3929)300123456789 specifies a data field of 12 digits that includes 9 decimal places, and therefore has an implied decimal point after the third digit: 300.123456789.

Element string (3923)3000200 specifies a data field of 7 digits that includes 3 decimal places, and therefore has an implied decimal point after the fourth digit: 3000.200

Note: Consult the specific Application Identifier for additional restrictions that may apply to that Application Identifier.