



GSMP:

General Specifications Change Notification (GSCN)

WR #	GSCN Name	Effective Date
16-000534	Identification of pieces that make up a Trade Item (shoes)	31-Jul-2017

Associated Work Request (WR) Number:

16-000534

Background:

There is an expressed need from the Apparel & Footwear Industries to separately identify the left shoe, right shoe and the pair of shoes. The benefits for this level of identification include: automation of production, anti-counterfeiting, acceleration of customer returns, shoe matching, display compliance, shoe localisation, electronic article surveillance (EAS), and enhanced consumer interaction/experience.

The solution approach shall be adaptable to other product categories/sectors (e.g. distinguishing a suit's jacket and pant, a DIY trade item consisting of several physical units). The specific business requirements for other areas of application are not in scope and will need to be addressed in separate/future WR(s).

The proposed changes here are for the GS1 General Specifications only. To fulfil the requirements of this Work Request, additional changes will be needed to the Tag Data Standards that will be covered in a separate document.

GS1 General Specification Change:

The recommended changes are highlighted below, relative to GS1 General Specifications version 17.

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Data carrier specification

Carrier choices

Medical devices (non-retail trade items), when direct marked, SHALL be marked with GS1 DataMatrix symbology. See section [2.1.42.1.4](#) Direct marking for more detail.

Symbol X-dimensions, minimum symbol height, and minimum symbol quality

See section [5.5.2.7.75-5.2.7.7](#), GS1 system symbol specification table 7.

Symbol placement

All the symbol placement guidelines defined in section 6.

Unique application processing requirements

For a description of processing requirements, see section 7.

2.1.3 Fixed measure trade items packed in several distinct pieces

2.1.3.1 Fixed measure — trade items packed in several physical units distinct pieces NOT scanned at POS

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Application description

The trade item ~~that~~ does not cross a point-of-sale, and due to its nature (e.g. size), is packed in several ~~pieces~~ physical units. The identifier of each individual ~~piece~~ component consists of the Global Trade Item Number (GTIN) of the trade item, the ~~piece~~ sequence number of the particular component, and the total number of ~~pieces~~ components in of the trade item. The GTIN on all pieces of the trade item ~~If an attribute appears on more than one component, its value~~ must be the same. See section 3, Identification of the ~~components~~ pieces of a trade item: AI (8006).

GS1 key

Definition

The Global Trade Item Number (GTIN) is the GS1 identification key used to identify trade items. For the identification of pieces of a trade item the GTIN is enhanced with a piece number and the total number of pieces. See section 3.2, Identification of the pieces of a trade item: AI (8006).

~~The key is comprised of a GS1 or U.P.C. Company Prefix followed by an item reference number and a check digit.~~

Rules

- AI (8006) SHALL NOT be used in combination with AI (01).
- AI (8006) SHALL NOT be used for the identification of pieces that are themselves trade items, such as spare parts.

Also see ~~AH~~ the GTIN rules described in section 4.

Attributes

Required

~~See section [3.2](#), Identification of the components of a trade item: AI (8006). Not applicable.~~

Optional

Not applicable

Rules

~~The use of the element string AI (8006) to identify a trade item excludes the application of the element string AI (01) on the same unit. This solution is not applicable for trade items crossing point-of-sale. Not applicable.~~



Data carrier specification

Carrier choices

For multi-sector use except for regulated healthcare retail consumer trade items, the only data carrier used to represent each individual component-piece using the GS1 Application Identifier AI (8006) is the GS1-128 barcode symbology.

For healthcare, the following carrier selections take precedence over the carrier choices above and apply to all regulated healthcare retail consumer trade items.

Figure 2.1.3-1. Healthcare carrier choices

Preferred Option	GS1-128 symbology
Option in addition to the barcode	See the "Data Carrier Specification Carrier Choices" recommendations on Options in Addition to the barcode at the end of section 2.1.2.42.1.2.4

Symbol X-dimensions, minimum symbol height, and minimum symbol quality

See section [5.5.2.7.25.5.2.7.2](#), GS1 system symbol specification table 2.

Symbol placement

All the symbol placement guidelines defined in section 6.

Unique application processing requirements

For a description of processing requirements, see section 7.

2.1.3.2 General retail consumer trade items containing several distinct pieces

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Application description

The trade item is processed at point-of-sale, and includes one or more pieces that are marked for other purposes such as inventory management, theft prevention, or quality control. When the trade item crosses point-of-sale all the pieces are packaged or presented together.

The marking on each individual piece consists of the Global Trade Item Number (GTIN) of the trade item, the piece number of the particular item, the total count of pieces and an optional serial number. The marking of the complete trade item consists of the GTIN and an optional serial number.

Definition

The Global Trade Item Number (GTIN) is the GS1 identification key used to identify trade items. For the identification of pieces of a trade item the GTIN is enhanced with a piece number and the total number of pieces. See section 3.2, Identification of the pieces of a trade item: AI (8006).

Rules

- AI (8006) SHALL NOT be used for the identification of a single trade item.
- AI (8006) SHALL NOT be used in combination with AI (01).
- The element string of AI (8006) on all pieces of the trade item SHALL contain the same GTIN, the same total number of pieces and a different piece number.
- When the pieces of a trade item are packaged together, the value of the GTIN marked on the consumer package SHALL be the same as the GTIN marked on the contained physical units.
- All of the pieces of a trade item SHALL be packaged or presented together when the trade item passes the point-of-sale.

Also see the GTIN rules described in section 4.

**Attributes****Required**

Not applicable.

Optional

Serial number

See section 3.2, Serial number: AI (21)

Rules

If used, the value of AI (21) on all pieces of a trade item and on the consumer package SHALL be identical.

Data carrier specification**Carrier choices**

For multi-sector use, except for regulated healthcare retail consumer trade items, data carriers used to represent each individual component piece using the GS1 Application Identifier AI (8006) are GS1-128, GS1 DataMatrix, GS1 QR Code and EPC/RFID.

For the carrier choices of the complete trade item see section 2.1.2.1 General retail consumer trade items scanned in general retail at POS

Symbol X-dimensions, minimum symbol height, and minimum symbol quality

See section [5.5.2.7.2](#), GS1 system symbol specification table 2.

Symbol placement

All the symbol placement guidelines defined in section 6.

Unique application processing requirements

For a description of processing requirements, see section 7.

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2.1.4 Direct marking**Application description**

Direct marking is the process of applying a permanent mark to the trade item, in order for it to be identified during its full lifetime independent of its packaging.

Three methods exist for the direct marking of trade items:

1. Direct part marking (DPM): The process of marking a symbol directly onto an item using an intrusive or non-intrusive method instead of applying a label or using another indirect marking process.
2. Durable labelling: The process of marking a symbol onto a label that is intended to permanently stay on the trade item.
3. Durable RFID-tagging: The process of applying an RFID-tag that is intended to permanently stay on the trade item.

GS1 key**Definition**

- The GTIN-12 is the 12-digit GS1 identification key composed of a U.P.C. Company Prefix, item reference, and check digit used to identify trade items.
- The GTIN-13 is the 13-digit GS1 identification key composed of a GS1 Company Prefix, item reference, and check digit used to identify trade items.
- The GTIN-14 is the 14-digit GS1 identification key composed of an indicator digit (1-9), GS1 Company Prefix, item reference, and check digit used to identify trade items.



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 ~~7.117-11~~. There are AIs that have additional syntax restrictions, e.g. numerical only; see below definition for each AI.

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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 GS1 Application Identifiers are contained in section 2 and 4.

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

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 Internal product variant	N2+N2		VARIANT
21	Serial number	N2+X..20	(FNC1)	SERIAL
22	Consumer Product Variant	N2+X..20	(FNC1)	CPV
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

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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
7020	Refurbishment lot ID	N4+X..20	(FNC1)	REFURB LOT
7021	Functional status	N4+X..20	(FNC1)	FUNC STAT
7022	Revision status	N4+X..20	(FNC1)	REV STAT
7023	Global Individual Asset Identifier (GIAI) of an assembly	N4+X..30	(FNC1)	GIAI - ASSEMBLY
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
... (*****)	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 Identification of the pieces of a trade item	N4+N14+N2+N2	(FNC1)	IPTIGCTIN
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

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Figure 3.9.4-1. Format of the element string

GS1 Application Identifier	Global Individual Asset Identifier (GIAI)	
	GS1 Company Prefix	Individual asset reference
8 0 0 4	N ₁ ... N _i	X _{i+1} ... X _{i (i≤=30)}

The data transmitted from the barcode reader means that the element string denoting a GIAI has been captured. When indicating this element string in the non-HRI text section of a barcode label, the following data title SHOULD be used (see also section 3.23.2): **GIAI**

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3.9.5 Price per unit of measure: AI (8005)

The GS1 Application Identifier (8005) indicates that the GS1 Application Identifier data field contains a price per unit of measure. This element string is used to indicate the price per unit of measure of price marked goods on a variable measure trade item to discriminate price variants of the same item. It is considered as an attribute of the respective trade item and not as part of its identification.

Content and structure of the price per unit of measure field are left to the discretion of the trading partners.

Figure 3.9.5-1. Format of the element string

GS1 Application Identifier	Price per unit of measure					
8 0 0 5	N ₁	N ₂	N ₃	N ₄	N ₅	N ₆

The data transmitted from the barcode reader means that the element string denoting the price per unit of measure has been captured. As this element string is an attribute of a trade item, it must be processed together with the GTIN of the trade item to which it relates (see section 3.3.23.3.2). When indicating this element string in the non-HRI text section of a barcode label, the following data title SHOULD be used (see also section 3.23.2): **PRICE PER UNIT**

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3.9.6 Identification of the ~~components~~ pieces of a trade item: AI (8006)

The GS1 Application Identifier (8006) indicates that the GS1 Application Identifier data fields contains the identification of a ~~distinct piece of a~~ trade item ~~and the enumeration of its components~~. ~~The piece is not traded independently and therefore cannot be assigned its own GTIN.~~

~~The GTIN that is included in this element string is the GTIN for the complete trade item. is the item number under which the whole item is traded. For the structures of the GTIN, see section 4.~~

~~The relative number field/piece number identifies a distinct piece of the trade item-shows the consecutive number of a particular component within the assembly. A component of a given trade item must always be identical for the respective trade item. The Total count provides Number of Components in the Assembly field shows the total number of distinct pieces/components of the trade item.~~

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Figure 3.9.6-1. Format of the element string

GS1 Application Identifier	Global Trade Item Number (GTIN)	Relative number of the component within the assembly/Piece number	Total count/number of components in the assembly
8 0 0 6	N ₁ N ₂ N ₃ N ₁₂ N ₁₃ N ₁₄	N ₁₅ N ₁₆	N ₁₇ N ₁₈

The data transmitted from the barcode reader means that the element string denoting the identification of a ~~component~~ piece of a trade item has been captured. This element string is normally processed as stand-alone information. When indicating this element string in the non-HRI text section of a barcode label, the following data title SHOULD be used (see also section 3.23.2): **~~IP~~TIGTIN**

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Pair of element strings				Comment
AI	Designation	AI	Designation	
394n	Percentage discount of a coupon	390n or 8111	Coupon value or Loyalty points of a coupon	Only one discount condition element string may be applied on a coupon
710, 711, 712, 713 (...)	National Healthcare Reimbursement Number	Any AI (01) allowable attributes	Any GTIN allowable attributes	When NHRN(s) are applied to the physical trade item with the mandatory association to the GTIN, any attribute AIs must only be processed with the GTIN and must not be processed with the NHRNs (AIs 710, 711, 712, 713.....) alone.
8006	Component identification	01	Identification of a trade item	Other GTINs cannot be used with AI (8006). The trade item is identified by a GTIN contained in the AI (8006).
8111	Applicable loyalty points for coupon value	390n or 394n	Coupon value or Percentage discount of a coupon	Only one discount condition element string may be applied on a coupon
8018	Global Service Relation Number for the recipient	8017	Global Service Relation Number for the provider	Only one Global Service Relation Number (recipient or provider) can be applied at one time for identification of an individual in a given service relationship

4.13.2 Mandatory association of element strings

This section defines the element strings that mandate the appearance of another element string on the same physical entity.

Figure 4.13.2-1. Mandatory association of element strings

If element string		Then mandatory associated element string	Comment
AI	Designation		
01 with N ₁ = 0	Identification of a variable measure trade item scanned at POS	30 or 3nnn* or 3nnn**	Mandatory association with a variable count or a trade measure information scanned at POS identified with GTIN-12 or GTIN-13. Only GS1 DataBar Expanded barcodes can encode associated elements strings for use at POS. (See note at bottom)
01 or 02 with N ₁ = 9	Identification of a variable measure trade item not scanned at POS	30 or 3nnn* or 3nnn** or 8001	Mandatory association with variable measure information not scanned at POS identified with a GTIN-14 starting with indicator digit 9 (See Note at bottom) Only GS1-128, ITF-14, and GS1 DataBar Expanded barcodes can encode a GTIN with N ₁ = 9.
02	Identification of logistic unit contents	00	Mandatory association with an SSCC (Serial Shipping Container Code)
02	Identification of logistic unit contents	37	Mandatory count of the contained trade items
10	Batch/lot number	01 or 02	Mandatory association with a Global Trade Item Number (GTIN) or with the identification of logistic unit contents
11, 13, 15, 16	Dates	01 or 02	Mandatory association with a GTIN or with the identification of logistic unit contents



If element string		Then mandatory associated element string	Comment
AI	Designation		
12	Due date	8020 and 415	Mandatory association with the payment slip reference number and the Global Location Number (GLN) of the invoicing party
17	Expiration date	01 or 02 or 255	Mandatory association with a GTIN or with the identification of logistic unit contents or with the Global Coupon Number
20	Internal pProduct variant	01 or 02	Mandatory association with a GTIN or with the identification of logistic unit contents
21	Serial number	01 or 8006	Mandatory association with a GTIN of a single trade item (a serial number cannot apply to a grouping of trade items) or with the identification of a piece of a trade item. SGTIN is a common term for the mandatory association of AI (21) with GTIN AI (01)
22	Consumer product variant	01	The consumer product variant must appear in conjunction with (01) on retail consumer trade items.
240	Additional product identification	01 or 02	Mandatory association with a GTIN or with the identification of logistic unit contents
241	Customer part number	01 or 02	Mandatory association with a GTIN or with the identification of logistic unit contents
242	Made-to-Order variation number	01 or 02 with N ₁ = 9	Mandatory association with a GTIN-14 with indicator digit 9 represents a custom industrial supply item
243	Packaging Component Number	01	Mandatory association with GTIN
250	Secondary serial number	01 and 21	Mandatory association with a GTIN (a secondary serial number cannot apply to a grouping of trade items) and the serial number of the trade item AI(21)
251	Reference to source entity	01	Mandatory association with GTIN of the trade item
254	Extension component of a GLN	414	Mandatory association with AI (414). Only GS1-128, GS1 DataBar Expanded symbologies, and EPC RFID tags are valid. This is used with GLN and not GTIN.
30	Variable count	01 or 02	Mandatory association with a GTIN for a variable measure trade item (e.g., GTIN-12 or GTIN-13 for trade items scanned at POS, GTIN-14s starting with indicator digit 9 for trade items not scanned at POS) or the identification of variable measure content of a logistic unit
3nnn*	Trade measures that cannot be summed	01	Mandatory association with a GTIN for a variable measure trade item (e.g., GTIN-12 or GTIN-13 for trade items scanned at POS, GTIN-14s starting with indicator digit 9 for trade items not scanned at POS)
3nnn**	Trade measures that can be summed	01 or 02	Mandatory association with a GTIN for a variable measure trade item (e.g., GTIN-12 or GTIN-13 for trade items scanned at POS, GTIN-14s starting with indicator digit 9 for trade items not scanned at POS) or the identification of variable measure content of a logistic unit
3nnn***	Logistic measures	00 or 01	Mandatory association with an SSCC or a variable measure GTIN for trade item not scanned at POS (e.g., a GTIN-14 starting with the digit 9)
337n	Kilograms per square metre	01	Mandatory association with a GTIN

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