



WR #	GSCN Name	Effective Date
21-000258	Clarification of GTIN-14 creation	Nov-2021

Associated Work Request (WR) Number:

N/A

Background:

The GS1 General Specifications refer to the use of GTIN-14s in several places, but the two main sections that show how GTIN-14s are created are sections 2.1.7.2 Trade item groupings of identical trade items and 2.1.1.10 GTIN data string.

Section 2.1.7.2 makes clear that GTIN-14s may be derived from GTIN-13s, GTIN-12s and GTIN-8s, but section 2.1.1.10 does not include the GTIN-12 and GTIN-8 based options in its summary of GTIN data strings.

It is proposed to remove the references to the structures of all the GTIN options (GS1 Company Prefix, U.P.C. Company Prefix, GS1-8 Prefix, item references and check digits) in section 2.1.1.10 GTIN data string as this section is not intended to explain how to create GTINs but rather their format. This will mean that Figure 2.1.1.10-1 cannot suggest that GTIN-14s may only be created from GTIN-13s.

The revised Figure 2.1.1.10-1 will simply show that there are four different lengths of GTINs.

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GS1 General Specifications Change:

2.1.1.10 GTIN data string

A GTIN may be an eight, twelve, thirteen or fourteen-digit string. These strings will be unique when they incorporate a GS1 Company Prefix, U.P.C. Company Prefix or GS1-8 Prefix as required, and if they are always treated as a data string of digits plus a final check digit. The check digit is explained in section 7.9. Its verification ensures that the number is correctly composed.

Figure 2.1.1.10-1. Overview of GTIN formats

GTIN Formats														
←-----														
(GTIN-8)						N ₁	N ₂	N ₃	N ₄	N ₅	N ₆	N ₇	N ₈	
(GTIN-12)		N ₁	N ₂	N ₃	N ₄	N ₅	N ₆	N ₇	N ₈	N ₉	N ₁₀	N ₁₁	N ₁₂	
(GTIN-13)		N ₁	N ₂	N ₃	N ₄	N ₅	N ₆	N ₇	N ₈	N ₉	N ₁₀	N ₁₁	N ₁₂	N ₁₃
(GTIN-14)	N ₁	N ₂	N ₃	N ₄	N ₅	N ₆	N ₇	N ₈	N ₉	N ₁₀	N ₁₁	N ₁₂	N ₁₃	N ₁₄

←-----														
GS1 Company Prefix						Item-reference						Check digit		
(GTIN-13)		N ₁	N ₂	N ₃	N ₄	N ₅	N ₆	N ₇	N ₈	N ₉	N ₁₀	N ₁₁	N ₁₂	N ₁₃
(GTIN-14)	N ₁	N ₂	N ₃	N ₄	N ₅	N ₆	N ₇	N ₈	N ₉	N ₁₀	N ₁₁	N ₁₂	N ₁₃	N ₁₄
U.P.C. Company Prefix						Item-reference						Check digit		
(GTIN-12)		N ₁	N ₂	N ₃	N ₄	N ₅	N ₆	N ₇	N ₈	N ₉	N ₁₀	N ₁₁	N ₁₂	
GS1-8 Prefix						Item-reference						Check digit		
(GTIN-8)						N ₁	N ₂	N ₃	N ₄	N ₅	N ₆	N ₇	N ₈	

When any of these GTINs is encoded in a data carrier that must encode a fixed-length data string of 14-digits, the GTINs less than 14-digits in length must be prefixed by leading zeroes that simply act as filler digits.

Figure 2.1.1.10-2. 14-digit representation of the four GTIN formats

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added zero(es)						right aligned GTIN string								
(GTIN-8)	0	0	0	0	0	N ₁	N ₂	N ₃	N ₄	N ₅	N ₆	N ₇	N ₈	
(GTIN-12)	0	0	N ₁	N ₂	N ₃	N ₄	N ₅	N ₆	N ₇	N ₈	N ₉	N ₁₀	N ₁₁	N ₁₂
(GTIN-13)	0	N ₁	N ₂	N ₃	N ₄	N ₅	N ₆	N ₇	N ₈	N ₉	N ₁₀	N ₁₁	N ₁₂	N ₁₃
(GTIN-14)	N ₁	N ₂	N ₃	N ₄	N ₅	N ₆	N ₇	N ₈	N ₉	N ₁₀	N ₁₁	N ₁₂	N ₁₃	N ₁₄

The presence or lack of these leading zeroes does not change the GTIN concerned.

- ✓ **Note:** GTINs may be stored with or without leading zeroes in the same database field, depending on the requirements of the particular application.
- ✓ **Note:** A GTIN-12 may start with one, two or three leading zeroes. These zeroes are meaningful since they are part of the U.P.C. Company prefix, and therefore these must be preserved when storing the GTIN-12 in a database field. For the list of U.P.C. Prefix ranges see section 1.4.