The Global Language of Business

GS1 Style Guide

sets rules and conventions for grammatical style, naming conventions, figure and table use etc. to improve the quality and consistency of all GS1 documentation

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Document Summary

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Log of Changes

Release	Date of Change	Changed By	Summary of Change
1	Sep 2006	M. Mowad	Initial Version
1.1	March 2007	M. Mowad	Corrected incorrect links to external documents

Section 16: Changed information on Cross-references for the GS1 General Specifications manual. |
| 1.2 | April 2006 | M. Mowad | Updated Section 2 with modified versioning strategy

Changed the name in Section 3 to Document Versioning and updated with modified versioning strategy |
| 1.3 | Dec 2007 | M. Mowad | Section 3.1 – fixed typographical errors

Sections 2 and 3 – Updated BMS Procedures and reorganised the sections |
| 1.4 | Nov 2008 | M. Mowad | Section 27.4 – Updated the measurement section per CR-07-306. |
| 2.0/3.0 | Mar 2010 | M. Mowad | Added or modified the following sections to support EPC Documents:

Section 2.- updated "File Naming Conventions"

Section 3 – updated "Issuing and Dating" Technical Documents

Section 25.2 - Added instructions on how to indicate "Non-Normative" text

Section 27 (new) – added section on "Open Issue" text |
| 4.0 | Dec 2014 | D. Buckley | Update following GSMP Community Review comments, logical restructuring of section order, removal of outdated examples using EAN.UCC and improved presentation of new GS1 branding terms. |
| 4.1 | May 2015 | D. Buckley | Minor corrections and the following added:

Section 3.3 – updated "Issuing and dating" technical documents & [former] Section 3.6.- "File naming conventions" combined

Section 3.17 (new) - listing contributors

Section 3.18 (new) – change log

Section 3.19 (new) – inserting images |

Release	Date of Change	Changed By	Summary of Change
4.2	Aug 2015	D. Buckley	Errata fix to Sections 3.3.1 & 3.8.2
4.2.1	Oct 2015	D. Buckley	Clarification in Section 3.8.2
4.3	Nov 2015	D. Buckley	Added Section 3.20 (new) – Maintaining www.gs1.org
4.4	Feb 2016	D. Buckley	Updated Section 1.2 (update) with full list of GS1's registered trademarks, Section 3.9 (update) on table layout and Section 3.20 (update) best practice GS1 glossary definitions.
4.4.1	Nov 2016	D. Buckley	Removal of eCom and other editorial updates
4.5	Oct 2017	D. Buckley	Add "Global Model Number (GMN)" to list of keys
4.6	Jan 2018	D. Buckley	Updated Section 3.8 (Cross references) & refresh
4.6.1	Apr 2019	D. Buckley	Updated Section 3.4.3 (ISO/IEC Directives cross-reference update on verbal forms)
5.0	Jun 2020	J.Gordon & D.Buckley	Major refresh, simplification and revision to reflect move toward HTML based publications
5.0.1	Aug 2020	D.Buckley	Errata fix to section number and some text
5.1	May 2021	J.Gordon & D.Buckley	New sections: 2.17 Example companies 2.18 GS1 prefix 952 for examples 3.16 Referenced sources
5.2	Jun 2022	D.Courtney, J.Gordon & D.Buckley	Minor edits and corrections (e.g., removed link to Economist Style Guide, abbreviation for Number, avoiding manual page breaks, move to dash [-] not underscore [_] in file names, etc.)
5.3	May 2023	J.Gordon & D.Buckley	Improvements for the Oxford comma, additional barcode examples and clarity around referring to external standards organisations.
5.4	Aug 2023	J.Gordon & D.Buckley	Updates on GS1 spelling rules, with emphasise on the exception for machine-readable artefacts.
5.5	Nov 2024	J.Gordon & D.Buckley	Multiple sections, GDD replaced by GS1 Navigator 2.1.1 New for machine-readable artefacts 2.8.1 New Avoid using colours to convey meaning in images 2.21 New barcode vs symbol usage 3.2 Update to the disclaimer 3.16 Updated on referenced documents
5.6	Jul 2025	J.Gordon & D.Buckley	2.7 Removed exceptions for the GS1 General Specifications figure and table numbering 2.8.2 Greater emphasis on accessibility for all 2.13 Unit of measure clarifications 2.18 Link added to the *2D in Retail Colour and Quality Guideline* 3.2 Update to the disclaimer 3.15 Referenced sources layout aligned with industry norms 5 Simplified content checklist

Disclaimer

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1 Introduction

1.1 Purpose

GS1 is a multinational organisation with writers located all over the world. Without a unified GS1 documentation style, problems with inconsistency and poor readability can occur across documents and across departments.

A document with typographical errors, ungrammatical constructs, or inconsistent structure and format can create questions about the accuracy of the content itself and ultimately reflects poorly on GS1 as a whole. Writers who dismiss the importance of presentation (consistent style, format, word use and so on) risk dissatisfied and unhappy readers.

To address these issues, GS1 has created an authoritative GS1 Style Guide that serves several purposes:

- To set rules and conventions for grammatical style, standardised spellings, proper word usage and correct punctuation

- To provide guidelines for writing procedures and scenarios, as well as using graphics

- To provide a standard, unifying document that all writers in GS1, regardless of their level or function, can or use to easily and quickly improve the quality and consistency of their documentation

The information in this GS1 Style Guide is based on the previous GSMP Style Guide developed for technical publications and updates from the 2014 GS1 global branding project. Another important reference for ensuring consistency to the new branding and this style guide is: GS1 standards glossary of terms: www.gs1.org/glossary

2   Applicable to all GS1 documentation

2.1   GS1 spelling rules

It is essential that all GS1 documentation: press release, training, standard, website, etc. use consistent spelling and style. The chosen GS1 spelling and style is British English per the Collins online dictionary:

✅   **Note**: When using MS Word, set the language to English (U.K.).

Within British English often two alternate spellings are acceptable for example organisation and organization. In such cases GS1 must make a choice. The table below summarises the GS1 preference.

Table 2-1 Examples of spelling conversions

American English	British English
analyze	analyse
artifact	artefact
center	centre
defense	defence
license*	licence
liter	litre
organization	organisation
organize	organise
pre-defined	predefined
program	programme
serialization	serialisation
standardize	standardise
synchronization	synchronisation

* in British English licence with a c is used for the noun and license with an s is used for the verb.

2.1.1   Exceptional spelling rules for GS1 machine-readable artefacts

A machine-readable artefact is defined as: *Any GS1 technical file, which may be part of a GS1 standard, guideline or service, where the intended use is for direct machine-to-machine interpretation. This includes but is not limited to: GS1 Web Vocabulary; Application Programming Interfaces (APIs); Machine-readable code; Uniform Resource Identifiers (URIs).*

For such items, the US spellings per the Merriam-Webster English Dictionary shall be used.

The rationale for this exception is that most machine-readable artefacts are based on 3rd party platforms, such as https://www.schema.org/ and https://www.w3.org/, which themselves are based on US English.

2.2   Terminology rules

Use www.gs1.org/glossary to define and research terminology.

Use the **registered trademark symbol** ®**,** the first time any GS1 registered trademark appears in the document and only once. If the first occurrence is a heading, use the symbol in the next occurrence.

- Example:
  - GS1 DataBar® is the preferred barcode symbol (first occurrence).

- Exception:
  - Do not use ® on GS1 since the ® sign is included in the logo and the words "*GS1 and the GS1 logo are registered trademarks of GS1 AISBL*" are always included in the disclaimer.

Non-exhaustive list of registered trademarks held by GS1:

- DataBar®
- EAN®
- EANCOM®
- EPCglobal® *limited use with regard to legal entity*
- GDSN®
- GS1®

Follow these additional guidelines for terminology:

- barcode *is one word*
- business-to-business (B2B)
- business-to-business-to-consumer (B2B2C)
- business-to-consumer (B2C)
- business-to-government (B2G)
- data pool *is two words*
- database *is one word*
- defence
- e-commerce
- e-tailer
- email *is one word and does not include a hyphen*
- EPC/RFID for standards and guidelines. *RAIN RFID may be used in marketing and communications material ONLY.*
- EU Food Information Regulation 1169/2011 (EU 1169)
- European Union (EU)
- go to market
- Industry/industries – use when referring to all industry sectors
- internet
- Marketplaces *is one word*
- omni-channel
- online *is one word and does not include a hyphen. Use this term when referring to the media type, rather than alternatives such as "web"*
- order-to-cash
- point-of-sale (POS)
- Verified by GS1 *never GS1 Verified or VbG*
- web
- webpage *is one word*
- website *is one word*

2.3 Use sentence case for headings

Minimising the use of capital letters in headings makes them easier to read, so use sentence case – when only the first word is capitalised:

- Rationale: overuse of capitals can make text more difficult to read; use of lowercase gives us a more relaxed and approachable tone of voice.
- Examples:
  - Correct: GS1 helps companies drive efficiency and safety
  - Incorrect: GS1 helps companies drive Efficiency and Safety
  - Correct: Our business benefits in retail
  - Incorrect: Our Business Benefits in Retail

2.3.1 Capitalisation of terms

For GS1 terms, follow the style shown in the www.gs1.org/glossary. Use initial capital letters for nouns that identify a particular person, place or thing, including the proper name of an entity.

Note: Do **NOT** capitalise initial letter of the word "standard" even when using with GS1 unless referencing the title of a specific document (e.g., [GS1 Digital Link Standard](#))

- Rationale: Minimal use of capitals makes text easier to read; use of lowercase gives us a more relaxed and approachable tone of voice; GS1 is an adjective describing "standards" in this case
- Examples:
  - Correct: GS1 is a standards organisation
  - Correct: GS1 develops global standards
  - Correct: GS1 standards help companies improve supply chain efficiency
  - Incorrect: GS1 Standards help companies improve supply chain efficiency

Spelling for terms that begin with capital letters when GS1 is used as part of the name:

- GS1 Application Identifiers
- GS1 Architecture Principles
- GS1 Company Prefix
- GS1 Data Quality
- GS1 Data Quality Framework (DQF)
- GS1 DataBar
- GS1 DataMatrix (note *Data Matrix* is the generic symbology used to encode GS1 Digital Link)
- GS1 Digital Link
- GS1 EANCOM
- GS1 EDI
- GS1 EPCglobal
- GS1 General Specifications
- GS1 Global Data Model
- GS1 GLN Registry
- GS1 GLN Service
- GS1 Global Data Synchronisation Network (GDSN)
- GS1 Global Electronic Party Information Registry (GEPIR)

- GS1 Global Registry Platform (GRP)
- GS1 Global Standards Management Process (GSMP)
- GS1 identification key
- GS1 Licence Registry (used to power the GDSN)
- GS1 Logistics Interoperability Model (LIM)
- GS1 Navigator
- GS1 Prefix
- GS1 QR Code (note *QR Code* is the generic symbology used to encode GS1 Digital Link)
- GS1 System Architecture
- GS1 XML
- Verified by GS1

2.3.2 Capitalisation in abbreviations

When an abbreviation is first used in a document, spell out the term it replaces using initial capital letters:

- Rationale: Abbreviations and acronyms are not readily understood by people who are new to GS1.
- Examples:
  - Correct: The Global Data Synchronisation Network (GDSN) allows companies to share data
  - Incorrect: GDSN allows companies to share data
- Exceptions:
  - The abbreviation "ID" is the conventional acronym for the word "identification".
  - Avoid using confusing or easily mixed up acronyms in one document (e.g., GCP (Global Company Prefix) and GPC (Global Product Classification).
- Exceptions: Terms where GS1 places the abbreviation before its explanation:
  - UHF (Ultra High Frequency)
  - HF (High Frequency)
  - RFID (Radio Frequency Identification)
  - EPC (Electronic Product Code)
  - EPC-enabled RFID (in general) or EPC/RFID (when shortened version needed)

2.3.3 Capitalisation of GS1 keys

When referring to GS1 keys, the following list of terms shall be used if the intent is to be comprehensive:

  - Global Trade Item Number (GTIN)
  - Global Location Number (GLN)
  - Serial Shipping Container Code (SSCC)
  - Global Returnable Asset Identifier (GRAI)
  - Global Individual Asset Identifier (GIAI)
  - Global Service Relation Number (GSRN)
  - Global Document Type Identifier (GDTI)
  - Global Shipment Identification Number (GSIN)
  - Global Identification Number for Consignment (GINC)

- Global Coupon Number (GCN)
- Component/Part Identifier (CPID)
- Global Model Number (GMN)

2.4 Document title formatting in running text

Unlinked titles of documents should always be italicised in running text. However, do not italicise the words "section", "chapter", "appendix", "table" or "figure" and do not italicise the titles and numbers of a section, chapter, appendix, table or figure.

- Examples:
    - Correct: See the *Microsoft Style Guide*
    - Correct: See the [Microsoft Style Guide]
    - Incorrect: See the *[Microsoft Style Guide]*

Note: When referring to specific document titles in references or hyperlinks, avoid including the date the document was published, released, or approved, or include its issue number unless it is critical to the context.

2.5 Abbreviation and symbol rules

This section describes the rules for using abbreviations and symbols.

Note: For currency abbreviation rules, see section 2.14.9.

2.5.1 Use of symbols

Some key rules are:

- Do not abbreviate the word "and" as "&" unless the word appears in a figure or table that has limited space.
- Do not abbreviate the word "plus" as "+" unless the word appears in a figure or table that has limited space.
- Never abbreviate the word "degrees" as "°."
- Never abbreviate numbers, such as first, second, third, or fourteenth, using the conventions "st," "nd," "rd," or "th."

2.5.2 Dates

Some key rules are:

- If not spelled out in full, use the format DD MM YYYY for expressing dates. No punctuation is used between day, month or year.
- Examples (full format, month spelled out)
    - Correct: The new standard was released on 1 December 2024
    - Incorrect: The new standard was released on December 1, 2014
- Examples (abbreviated format)
    - Correct: 1 Dec 2024
    - Incorrect: 01 Dec 2024
    - Incorrect: 1-12-24, 12-1-24, Dec-1-24

2.6 Punctuation and grammar rules

> **Note:** See section 2.14.9 for punctuation of currency.

2.6.1 Hyphens in compound words

> **Note:** See section 2.2 for guidance on hyphen use in technical terminology.

In running text, always hyphenate compound words that are hyphenated in the www.gs1.org/glossary or the dictionary. If a term is not hyphenated in the www.gs1.org/glossary, do not add a hyphen.

- Examples:
  - ITF-14
  - X-dimension
  - self-evident
  - wall-to-wall

In running text, hyphenate compound words when they are common English expressions that might be confusing or ambiguous without the hyphens.

- Examples:
  - ship-to address
  - end-user manuals
  - in-store sale
  - point-of-sale

Note that in most cases compound words that are **NOT** used directly before a noun are not hyphenated.

- Examples:
  - Decision making is one of his responsibilities. (but) His decision-making skills were superb.
  - I'm good at problem solving. (but) Problem-solving activities are educational.

2.6.2 Prefixes and suffixes

A prefix or suffix usually combines with a word without a hyphen or space, as in *dehumidify* and *lifelike*, unless the meaning could be misconstrued.

- Examples:
  - Untie the knot.
  - He recovered in time to attend the meeting. (but) He re-covered the illegible label with a new one.

2.6.3 Spacing

After a full stop or a colon place a single space. Do not use a double-space.

2.6.4 Use of "may" versus "can"

Can means "**to be able**."

May means "**to have permission**."

2.6.5 Use of "that" versus "which"

Use "**that**" to introduce a dependent clause (sometimes called a limiting or defining clause). These are clauses that cannot be removed from the sentence without greatly affecting the sentence's meaning.

Use "**which**" to introduce an independent clause (sometimes called a non-defining or parenthetical clause). Independent clauses can be removed from the sentence without harming the basic sense of the sentence.

> **Note:** "**which**" is almost always preceded by a comma and introduces an independent clause.

■ Examples:

- The ID number, which is located on the label, should be clearly legible.
- The digit that is in position thirteen is the check digit.

2.6.6 Using "e.g."

To give the reader examples of something in running text, use the initials "e.g." This stands for the Latin phrase meaning "for example" or "such as". Do not confused with "i.e.," which means "that is."

> **Note**: A comma should always follow the second full stop in "e.g."

■ Example:

- Products modified for seasonal reasons (e.g., holiday packs) should carry a unique GTIN-12.

2.6.7 Using several examples in running text

When presenting several examples in running text following "e.g.," it is not necessary to include the word "and" or "or" prior to the last example unless the word helps to clarify the sentence's meaning.

■ Examples:

- Visually inspect the imaging tool for damage (e.g., nicks, plugs, tears).
- Barcodes require dark colours for bars (e.g., black, dark blue, dark brown or dark green).

2.6.8 Do not use comma before "and" (unless necessary)

Do not use a comma before "and" and "or" in a series.

■ Examples

- Correct: The new standard enables efficiency, sustainability and safety.
- Incorrect: The new standard enables efficiency, sustainability, and safety.

There are examples where a comma is necessary after the "and" or "or" for clarity. In such cases the Oxford comma should be used.

■ Examples

- Correct: Karen went to the meeting with her sisters, Paul, and John
- Incorrect: Karen went to the meeting with her sisters, Paul and John

2.6.9 Parentheses with GS1 Application Identifiers

Include parentheses around a GS1 Application Identifier except when it is used in a table or figure.

■ Example:

- Use the GS1 Application Identifier (8100) for coupons.

2.7 Figures, tables and flowcharts

Figures

Figures enhance a document's readability by illustrating key points, better communicating ideas and helping readers navigate through sometimes confusing interfaces.

When using figures, it is recommended to:

■ Avoid using figure titles and numbering at all, if the figure is well positioned and explained by the text (e.g., "as shown in the figure below:"), such that a title would be superfluous.

■ Position the figure number and title below the image, preferably with both image and title being centred.

Thumbnail of the GS1 Logo

The figure numbers should be in the format [Highest level section number] - [the sequential figure number within the highest level section number]

Note: Using the GS1 Word templates will automatically create the correct figure and table caption numbering in your documents.

Tables

Tables display lengthy and complex information in a simple format and enable readers to quickly find, compare, classify, etc.

Note: When publishing as HTML, large tables often look unwieldly and other presentation formats should be considered.

If tables are used, they should use the default format provided in the GS1 Word template:

Heading	Heading	Heading
Text	Text	Text

Or, for more complex tables where multiple headings are required, the GS1 blue filled title heading and 50% grey fill for secondary headings:

Heading[1]	Main heading (e.g., Retail)		
	Sub-heading (e.g., Apparel)	Sub-heading (e.g., Fast Moving Consumer Goods)	Sub-heading (e.g., Fresh Foods)
Text[2]	Text	Text	Text
Text[3]	Text	Text	Text
Notes: 1: so so so 2: la la la 3: ti ti ti			

Note: Any notes in the table should be included the last row of the table.

The table numbers should be in the format [Highest level section number] - [the sequential table number within the highest level section number] and should appear above the table flush left

Table 2-1: An example of a GS1 table heading
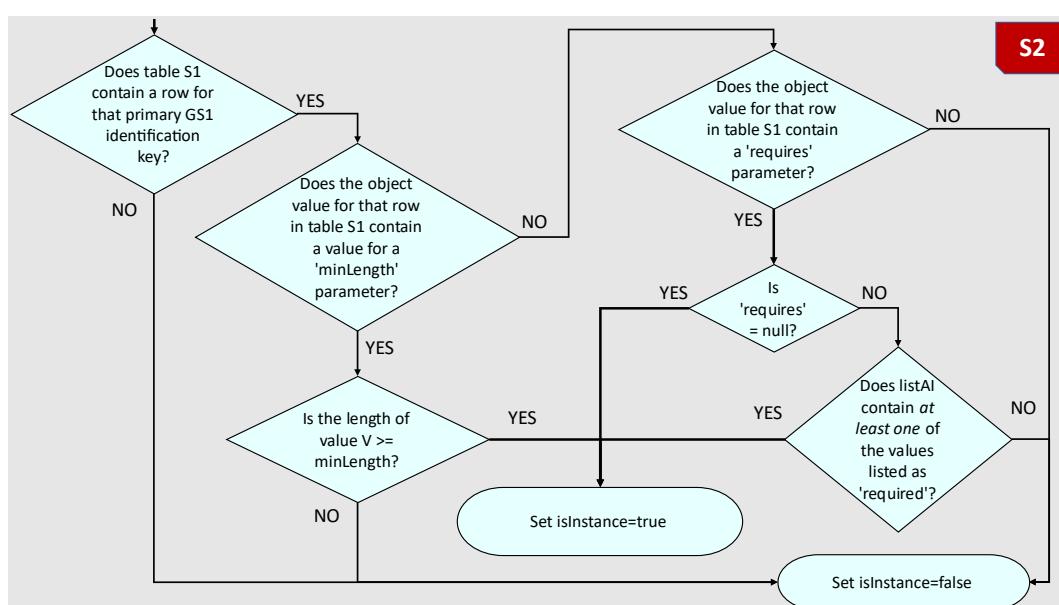
Title of column 1	Data	Data
First	Value 1	Value A

Title of column 1	Data	Data
Second	Value 2	Value B
Third	Value 3	Value C
Forth	Value 4	Value D

✓ **Note:** Using the GS1 Word templates will automatically create the correct figure and table caption numbering in your documents.

Flowcharts

Flowcharts are excellent for showing system logic or other flows. Ideally, they should be created as separate files – using an appropriate software like Adobe Illustrator – and imported into the document as an image. When inserted they should be labelled as figures.

Example of an SVG image

2.8 Images and flowcharts

At the time of writing (2025) there are several emerging challenges for GS1 in terms of images and flowcharts. For example:

1. Making the text held within images searchable (for any image posted as part of an HTML page)

2. Compatibility with ISO image standards (where GS1 standards are transposed to ISO standards either as a whole or in part)

3. Having published images scale to fit the screen (the same image can appear on a mobile device or a large PC screen)

4. Sharing, storing and reusing images across GS1 (services, standards, marketing, etc.)

To meet these challenges, there are some recent changes to this section and we can expect further changes as we learn and understand how best to meet the various requirements. A high-level summary of the new guide is:

■ Changes to existing images used in existing standards and guidelines are not required.

■ New images are ideally created in Adobe Illustrator:

   □ Saved as separate editable files in a folder associated with the text file (Word document).

     ☐   Inserted in the document in *.SVG format

- Images of barcodes require dark colours for bars and light colours for the spaces. 2D barcodes follow the same colour rules, however they can use reverse reflectance (white on black) see the 2D in Retail Colour and Quality Guideline for more details.

➢ Naming convention for the image files / folder?

➢ Location for saving image files associated with a standard or guideline?

➢ Consistency of images within a given standard or guideline and across GS1?

➢ Links to other sections: GS1 prefix 952 for examples, Figures, tables and flowcharts

2.8.1 Adobe Illustrator

GS1 recommend Adobe Illustrator for the creation of new images. To be compatible with the ISO image standards the following defaults are recommended for a new image:

- Width 170 mm, height 225 mm
- Portrait orientation
- 1 artboard
- Bleed 0, 0, 0, 0
- Color mode CMYK

2.8.2 Accessibility for all

Every effort should be made to ensure GS1 documentation is accessible to all. For extensive details, please see the EAA European Accessibility Act regulation, but some good working practices are:

2.8.2.1 Images should have a text description
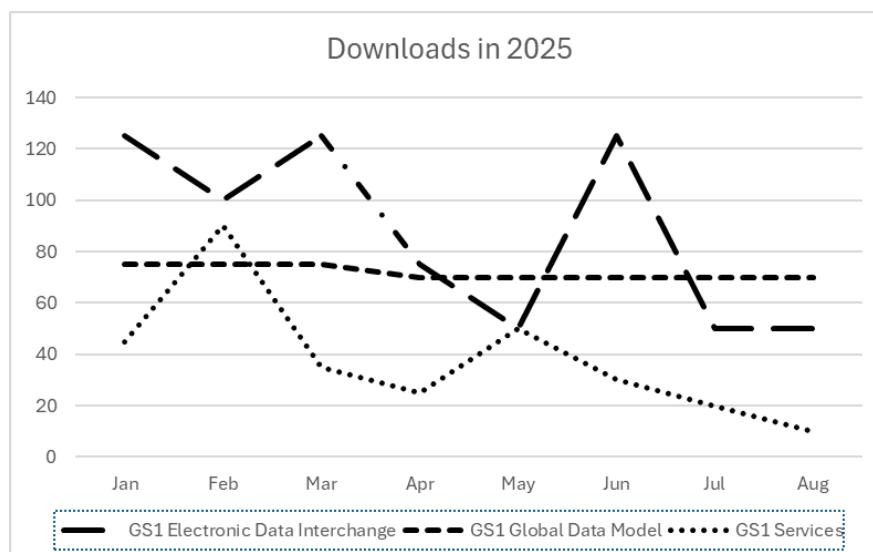
Images must have a text description ("alt text" for readers with visual disability). if a flow chart is an essential part of the text (especially if it's normative) then a full description can be provided in a separate document. This won't be necessary if the flowchart clarifies what is defined in the text.

2.8.2.2 Do not use ONLY colour to convey meaning
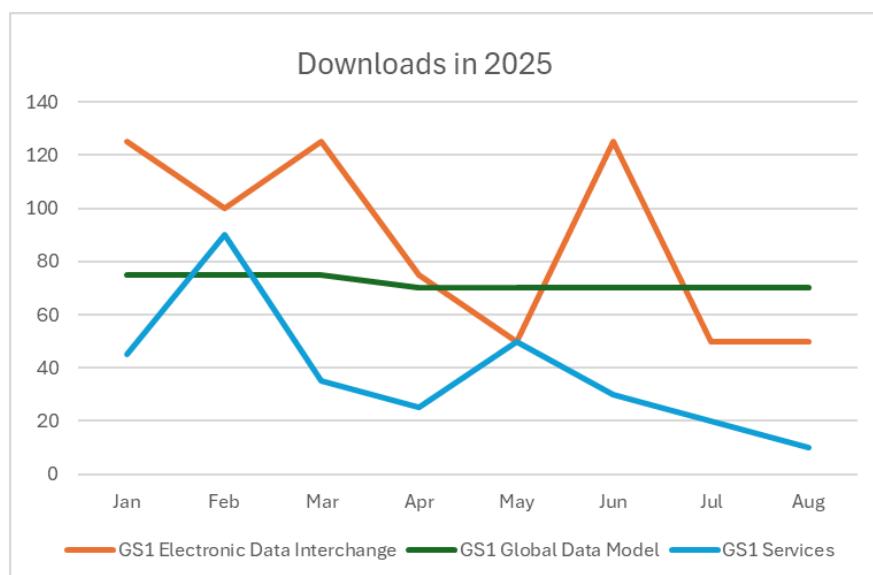
Do not use colour as the exclusive way to convey meaning. Not all readers can distinguish between colours and, if viewed in black and white, the meaning will be unclear. Patterned shading can be used or dots and dashes, rather than colours, to differentiate between lines on a graph.

■ Example:

    □ Correct:

    □ Incorrect:

2.8.3 Inserting images and flowcharts

Images on screen can appear identical to the naked eye but behave quite differently in terms of load time, visual quality, background-colours, editability, etc. depending on where the image is being used. It is therefore important to keep the intended usage in mind when developing or inserting images.

While other methods are acceptable the following guidance is intended to provide consistency and highlight the issues faced.

2.8.3.1 File types for print

SVG is preferred. EPS, TIFF and JPG image formats may be used for print materials such as brochures, posters, banners, postcards, etc. These formats should always be saved in a CMYK colour space.

2.8.3.2 File types for digital

SVG is preferred. PNG, JPG and GIF image formats may be used for digital pieces such as PowerPoints, Word documents, web pages, social media posts, emails, etc. These formats should always be saved in an RGB colour space.

2.8.3.2.1 HTML

Increasingly GS1 standards and guidelines, as well as other GS1 publications, are being published as webpages (e.g., using HTML) using images that:

- can scale with the screen
- are quick to load

The most appropriate format in this case is normally SVG (Scalable Vector Graphic). Readability, particularly of images or flow charts containing text, will be optimised even when viewed on small screens.

2.8.3.2.2 Images in Word

MS Word enables different ways for images appear in documents.

For material that will appear in HTML:

- See HTML section above
- Images should be formatted as *.svg

For material that will appear in print or PDF:

- Recommend format *.png (aligned with images available from GS1 marketing)

For all images inserted into MS Word:

- Insert images using the MS Word Command *Insert > Picture* then browse to the image file and ensure that the text wrapping option for the image is *In Line with Text*.
  - Do **NOT** use the option "link to file" when you insert or embed an image. This links the Word document to the image file stored on your computer. When the file is exchanged with others, this link may cause problems. Also avoid using copy-paste of images.
- Maintain all original artwork with Word (editable) version of documents. If you create your own, these should be part of the final files sent for posting to the website. Any graphic tool can be used to create *.png format images. PowerPoint is a simple and easy to use graphic editing tool and files can be saved using the *same-file-name.pptx* as the file to be posted.
- Avoid any text in images (not translatable).
- Avoid creating images in Word due to formatting (anchoring) issues and compatibility between the various versions of Word.
- Do not use Word to crop an image. If an image needs to be cropped, do this using image software and insert the entirety of the cropped image into the document.

2.9 Bulleted lists

Bulleted lists are used for cases where the order of information is not important.

Follow these rules when writing bulleted lists:

- A bulleted list should contain at least two bullets.
- Introduce the list with at least one lead-in sentence (or sentence fragment) ending with a colon, for example, see the lead-in sentence above.
- After the colon, capitalise the first word of each list item, even if it is a single word.

✅ **Note:** Do not capitalise programming code or case-sensitive words.

- Punctuation in bulleted lists:
  - Single words, phrases and sentence fragments do not get a full stop.
  - Items consisting of one or more sentences or two or more sentence fragments do receive full stops.
  - If one item in a list receives a full stop all other items in that list do as well, regardless of whether they are sentence fragments or full sentences.

✅ **Note**: Avoid using special characters as bullets. These rarely convert well into HTML.

2.10 Footnotes

Avoid footnotes or endnotes in any documents that will be converted into a webpage as these do not work well on webpages.

If supplemental information for the reader is necessary, include the information as a note (See section 3.6) following the applicable text. If several notes apply to a specific section, they may be numbered (e.g., Note 1, Note 2) or carry asterisks.

2.11 Hyperlink and cross-reference rules

Hyperlinks and cross-references point to items that appear in another location within a document or website. They can also be references to external documents or websites.

Cross-references can be typed manually. As you revise your document, however, there is a good chance that the pagination, section headings, figure numbers and so on will change, requiring you to update them all. To avoid this, all cross-references should be inserted as automated fields.

The information in this section describes the wording and formation to use when inserting hyperlinks and cross-references.

2.11.1 Cross-references to a section within document

When linking to a single location within a document, references to the location should contain the section's number. Typically the section number alone is sufficient for cross-references as it should have sufficient context in the surrounding text enabling it to be verified. Avoid using the unnecessary phrase "in this guideline" or "in this document." The link should be formatted as underlined blue font (Hex #008DBD) – GS1_Reference style in the Word template.

- Example:
  - See section 2.2, for an explanation of this process.

Cross-references to multiple locations

When linking to multiple locations reference all of the locations individually so they can be individually linked.

- Examples:
  - See Figure 3-1, Figure 3-2 and Figure 3-3, for more details.
  - For an illustration of this technique see sections 2-5 and 2-6.

✅ **Note**: When referring or linking to a table or figure, do not include the table's or figure's section number, as this information should be obvious from the table or figure number.

2.11.2 Cross-references to an external document

For all HTML publications, links to the www.gs1.org website should be a regular link, while links to non-GS1 websites should have a symbol to indicate the page will open in a new tab or page

When referencing an external document, the complete document title must be included in the text. If you know the document's location on the GS1 website it should be hyperlinked to its location.

When referencing a single location of an external document, the document title must precede the location.

Format the title and/or section as underlined with a blue font only if an actual hyperlink exists. If there is no hyperlink, then do not format with underline and blue font.

■ Examples:

   □ See GS1 General Specifications, for an explanation of this process.

   □ See *GS1 XML Technical User Guide, Release 2* for further information.

✅ **Note**: When referring to contact details, a web link is always preferable to including an email address:

■ Examples:

   □ Correct: For more information, contact your local GS1 Member Organisation

   □ Incorrect: For more information, contact JanetBarcode@gs1.org

2.11.3 Wording of hyperlinks and references

When referring the reader to a reference or a hyperlink, introduce the reference or hyperlink number with **see** 'section' or 'figure'.

■ Example:

   □ For an explanation, see section 6.4.11 Message Layer

Use the word **see** when introducing a cross-reference or hyperlink within parentheses.

■ Example:

   □ The Technical Terminology section includes a list of terms and how they should be punctuated (see section 2.2).

✅ **Note**: For long documents, such as the *GS1 General Specifications*, the use of DocTools is strongly recommended to manage the automated cross-references. Typically, the section number alone is sufficient for cross-references within a document as it should have sufficient context in the surrounding text enabling it to be verified.

2.12 Numbered lists

Numbered lists are used for cases where the order of information is important, such as multiple-step procedures.

2.12.1 Rules for writing multiple-step procedures

Follow these rules when writing multiple-step procedures:

1. Use clear, present-tense, imperative verbs (for example, click, select, or modify) to tell readers what to do in a step.

2. Write short and to-the-point sentences. If the text is too confusing or too long, readers will not be able to follow the instructions properly.

3. Give readers only one instruction per step. However, you can combine up to three short instructions into one step if they occur in the same location.

4. Have no more than 12 steps in a procedure. If there are more, you must review the procedure and determine if it can be split into smaller standalone procedures.

2.12.2 Using commands in multiple-step procedures

Follow these rules when presenting commands in procedures:

■ Place commands on a separate line, no matter how short they are.

■ Preface flags/switches in commands with a hyphen (-).

■ Do not add a full stop after commands.

■ Indicate user-defined parameters (variables) in commands with angle brackets.

■ If there is **one** user-defined parameter, write the lowercase word where (without a colon) on a separate line, state the parameter and then provide a brief description (see the example below). If there is **more than one**, write the lowercase word where: (with a colon) on a separate line and then provide a bulleted list of the parameters and a brief description of each one.

Correct:

The NSS of all URNs assigned by GS1 have the following hierarchical structure, reflecting the basic context categories and major version number:
urn:gs1:[BP]:[IC]:[GP]:[Major Version]
where:

■ **[BP]** is the Business Process

■ **[IC]** is the Industry Classification

■ **[GP]** is the Geopolitical Context

Incorrect:

The NSS of all URNs assigned by GS1 have the following hierarchical structure, reflecting the basic context categories and major version number:
urn:gs1:[BP]:[IC]:[GP]:[Major Version]
Where BP is the Business Process, IC is the Industry Classification and GP is the Geopolitical Context

2.13 Units of measure

Abbreviations or symbols for a unit of measure, when used, shall align to UN ECE Recommendation 20. They should be avoided in running text unless it is part of a calculation or an expressed relation between two or more measurements. Abbreviations or symbols for units of measure should be used in figures and tables.

Measurements should always be in metric with an imperial equivalent in brackets if required.

■ Examples:

  □ Correct: The case is 50 mm x 60 mm in length.

  □ Correct: X-dimensions below 0.635 mm (0.250 in) should not be used.

Abbreviation/Symbol Measure	Abbreviation Measure
troy oz	Troy ounce (apothecaries ounce)
in	Inch
ft	Foot (12 inches)
gal	Gallon (US)
g	Gram

Abbreviation/Symbol Measure	Abbreviation Measure
kg	Kilogram
lb	Pound
l	Litre
mg	Milligram
ml	Millilitre
mm	Millimetre
m	Metre
No.	Number
oz	Ounce
fl oz	Fluid ounce (US)
qt	Liquid quart (US)

Always include a single space between the number and the abbreviation or symbol for the measurement.

- Examples:
  - Correct: 6 g
  - Incorrect: 11 Fluid Ounce

2.13.1 Country codes

For running text, use the three-letter ISO 3166-1 alpha country code. For storage of country codes within a barcode symbol, refer to the GS1 General Specifications.

2.14 Number/digit rules

2.14.1 Number values

Always use numerals when describing specific numeric values.

- Example:
  - Correct: The digit 1 is in the GS1 logo.
  - Incorrect: The digit one is used in the GS1 logo.

2.14.2 Data structure numbering

Always spell out numbers when describing positions inside a data structure.

- Example:
  - The digit 2 is placed in position one of the GTIN-13.

2.14.3 Numbers under and above 10

Except in events governed by section 3.3, numbers under 10 should be spelled out; for numbers 10 and above, use numerals.

- Examples:
  - The three-digit number is used in positions two through five.
  - The 10-digit number 0123456789 should appear three times.

2.14.4 Group of related numbers

Except in events governed by section 3.3, if any number in a group of related numbers is 10 or above, use numerals to express all the numbers.

- Example:
  - A 14-digit number and 5-digit number follow the first and second AIs in the data structure respectively.
- Example of related GTINs:
  - GTIN-8, GTIN-12, GTIN-13 and GTIN-14
  - GTIN-12, GTIN-13 or GTIN-14
  - GTIN-12, GTIN-13 and GTIN-14

2.14.5 Numbers that begin a sentence

Spell out all numbers that begin a sentence and avoid writing sentences that begin with large numbers.

2.14.6 Specific number values

Use numerals for measurements, decimals, scores, votes, temperature and exact amounts of money, as well as for chapter, section and page references.

2.14.7 Unrelated numbers that appear side by side

Except in events governed by section 3.3 Issuing and dating technical documents, if two unrelated numbers appear side by side in a sentence, spell out the first number and use a numeral to represent the second number.

- Example:
  - The reference number includes two 3-digit numbers. (However, use a numeral for the first number if it is long when spelled out and spell out the second number.)

2.14.8 Rounding numbers

Editors and technical writers should never round numbers provided by technical staff. See section 3.11 for a detailed explanation of rounding rules for technical staff.

2.14.9 Numbers used in currency

When a number that represents money is spelled out, use the word for the type of currency along with the number. For example, use the word "euro", "dollars," "yen," or "pounds" with the number. When numerals are used for the amount, include the symbol for the currency type (such as "€" or "$"). If no cents are included in the numeral, omit the ".00".

Use euro as standard currency if needed to compare amounts as it makes figures in documents comparable.

Guidelines:

- If quoting other currencies, always put euro first and other currency in brackets
- If using full word keep lowercase (euro not Euro) and remember plural is euro (not euros)
- If using "€" put before figures (not after)
- Examples
  - Correct: Data synchronisation saves the industry 15 million euro per year
  - Correct: Data synchronisation saves the industry €15 million ($19 million)

- □ Correct: The catalogue is GBR £9.95
- □ Incorrect: Data synchronisation saves the industry 15 million euros per year
- □ Incorrect: Data synchronisation saves the industry 15 million € per year
- □ Incorrect: Data synchronisation saves the industry 15 million EUR per year

2.14.10 Numbers used to represent time

When using a 12-hour clock, use numerals for the time if including a.m. and p.m.

- ■ Examples:
  - □ 1 p.m.
  - □ 1 a.m.

When using a 24-hour clock, include the colon between hours and minutes.

- ■ Example:
  - □ 07:00

2.15 Terms to reference parenthetically

To help readers understand new terminology during a migration period, it is permissible to include the prior term in parentheses following the new term.

- ■ Examples:
  - □ Quiet Zone (Light Margin)

2.16 Use of the term U.P.C.

When the term "U.P.C." is used alone, it shall appear with the full stops in any written form, whether it is a presentation, a letter or a publication.

If the term "UPC" is used, we are infringing upon the certification mark of the International Association of Plumbing and Mechanical Officials (IAPMO). IAPMO allows the use of the term "U.P.C." and requires in publications a footnote to define the difference.

When the letters "UPC" are used in conjunction with other characters, then the full stops are not required

- ■ Examples:
  - □ EAN/UPC symbology
  - □ UPC-A barcode

2.17 Name used for example companies

Many GS1 standards and guidelines need to demonstrate examples referring to companies.

✅ **Note**: Images or text showing real world companies should be avoided. If used, the explicit consent of the company or organisation in question must be obtained.

The general guidance for fake companies used in examples is:

- ■ Avoid made-up examples that might exist (e.g., Buckley's Beer)
- ■ Make consistent use of examples within the document (e.g., Retailer A, Manufacturer B, Logistic Provider C, etc.)

2.18 GS1 prefix 952 for examples

Examples of GS1 identification keys are required in standards, training, marketing material, etc. To avoid confusion with 'real' GS1 identification keys, this "dummy" GS1 prefix has been issued for use by anyone who needs to use examples of GS1 identification keys in documents, working sessions, demonstrations, or presentations.

GS1 prefix 952 is made available for demos and examples of GS1 identification keys. It is available to everyone: GS1 Global Office, Member Organisations, User companies, Solution Providers, etc.

GS1 prefix 952 is an official GS1 prefix specifically allocated to demonstrations, examples, tests or any other usage. This prefix shall not be used to identify items in the "real world", even for internal applications within an organisation or by mutual agreement between different organisations.

The use of GS1 prefix 952 will not be subject to any central or decentralised governance. The usage is determined by the owner of the material where the prefix is used, be it a software application, a standard document, an e-learning asset, a marketing presentation or anything else. The owner of the artefact making use of GS1 prefix 952 is encouraged to use it consistently in the context of this artefact.

There is no need to change existing material making use of examples built on random numbers or genuine GS1 prefixes. When an update of existing material is planned, it is recommended to consider using systematically GS1 prefix 952 for the GS1 identification key examples. We expect that GS1 prefix 952 will be deployed progressively for demos and examples.

2.18.1 UPC prefix based example

When a UPC based example is required, GS1 US have made available the following, suppressible, GTIN-12: 012345000058

2.18.2 Barcode image examples which can be freely re-used

UPC-E example

0 123455 8

UPC-A example

0 12345 00005 8

EAN-8 example

< 9520 0002 >

EAN-13 example

9 520123 456788 >
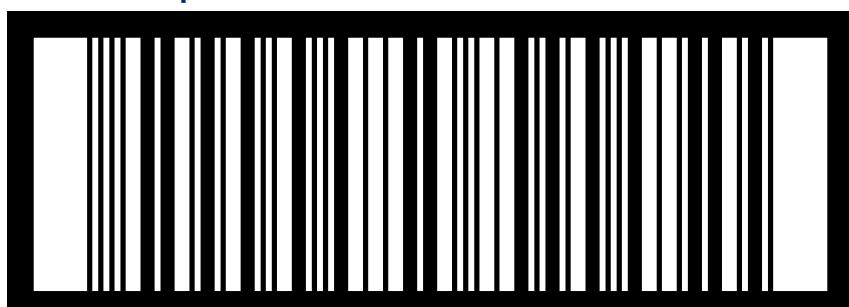
ITF-14 example

09528765432108

GS1 DataMatrix example -- GTIN & serial number

(01)09521234543213(21)4X7Y1Z1

> ✅ **Note**: When creating example barcodes, black and white is always best. For more details on the acceptable colour combinations, refer to the 2D in Retail Colour and Quality Guideline.

Depicted as an SGTIN URI, for use in EPCIS event data:

`urn:epc:id:sgtin:9521234.054321.4X7Y1Z1`

Example GS1 Company Prefix	Recommended length of Company Prefix component within an EPC URI
9520nn	6 digits
9521nnn	7 digits
9522nnnn	8 digits
9523nnnnn	9 digits
9524nnnnnn	10 digits
9525nnnnnnn	11 digits
9526nnnnnnnn	12 digits

Example GS1 Company Prefix	Recommended length of Company Prefix component within an EPC URI
Example GS1 Company Prefixes beginning with 9527, 9528, 9529	No specific recommended length, although the Company Prefix component within an EPC URI must be formatted as 6-12 digits.
'n' denotes any digit 0-9	

2.18.3 Convention for use in EPC URIs

Because of the special role of the length of the GS1 Company Prefix within EPC URIs, the following convention is proposed:

■ This convention is intended to ensure consistency across example values of the Company Prefix component within an EPC URI context, even when different authors prepare those examples independently.

■ This convention has been expressed within the GCP length lookup tables linked from https://www.gs1.org/standards/bc-epc-interop so that it can be used consistently within software concerned with translating from element strings or GS1 Digital Link URI to EPC URI format.

2.18.4 Convention for examples linking to the GS1 Registry Platform using prefix 950

As stated above, the use of GS1 prefix 952 is preferred for all example barcodes. However, GS1 Prefix 950 is used to construct identifiers that are uniquely assigned for demonstration purposes when there is a need to consistently and globally refer to a specific thing and its associated data. The GS1 identification keys assigned from prefix 950 are subject to all the rules pertaining to the GS1 identification key used (e.g., non-duplication, non-reuse, etc.).

GS1 QR Code example – resolving to the demonstration Dal Giardino brand
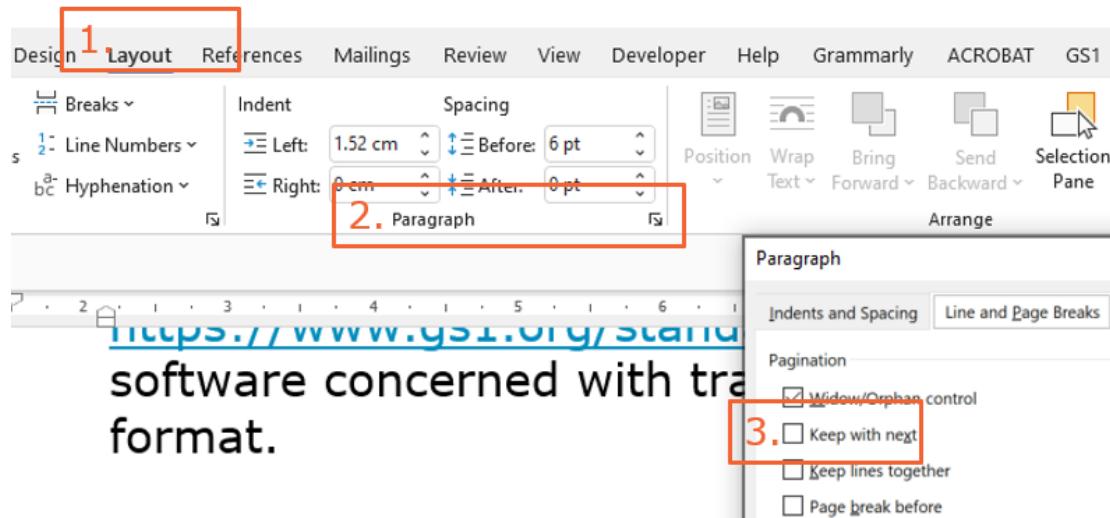
(01)09506000134352

2.19 Avoid using manual page breaks

When using MS Word documents, it is tempting to use manual page breaks or worse, multiple carriage-returns, to improve the layout of the document. This should be avoided as:

■ It only improves the look in MS Word and PDF (not other formats)

■ Such formatting makes future versions, and editing, problematic

■ It is not best practice within MS Word

A more appropriate technique\ is the 'Keep with next' option:

2.20 Citing external sources

GS1 works with, and leverages content, from many other external organisations. For example, the International Standards Organization (ISO), the World Health Organization (WHO), the United Nations rules for Electronic Data Interchange for Administration, Commerce and Transport (UN/EDIFACT), etc. When quoting from, or referencing, such sources the citation should be verbatim (e.g., do not correct for UK English or change in any other way).

- Example:
  - Correct: Please leverage the W3C color decimal codes
  - Incorrect: Please leverage the W3C colour decimal codes.

✅ **Note**: See also section 3.15, Referenced sources

2.21 Use of the terms 'barcode' and 'symbol'

With the move to 2D in retail, greater clarity on the use of these two terms is required. Moving forward, the guidance is:

For marketing use and broad communication

- Use mainly **Next generation barcode** in broad communication related to Ambition 2027 in retail and mention the most common type of 2D barcodes (QR Codes powered by GS1 and GS1 DataMatrix) depending on the main benefit or use case, e.g., QR Codes powered by GS1 for consumer/shopper engagement, GS1 DataMatrix or both for operational efficiencies, etc.
- **Specify retail context when using QR Codes powered by GS1**, e.g., QR Codes powered by GS1 in retail, QR Codes powered by GS1 on grocery products, QR Codes powered by GS1 at point of sale.
- Use **GS1 DataMatrix for healthcare** communication, the recommended 2D barcode for healthcare.
- **Use precise terminology:** 2D barcodes with GS1 standards, GS1 DataMatrix, Data Matrix, QR Code with GS1 Digital Link, etc.

For technical documents

- Ideally refer to the actual name(s) of the barcode type (e.g., GS1-128, GS1 DataMatrix, etc.) being referred to:
  - When a more generic term is required, "Linear barcode" and "2D barcode" MAY be used.

- The term "symbol" is generally restricted to either referring to an image or a characteristic of a barcode or family of barcodes (e.g., The GS1 symbol specification table 5):

  - The term "barcode symbol" can be confusing and SHOULD NOT be used.

- If the grouping of 2D barcodes approved for use within the GS1 system needs to be described, the term "GS1 compliant 2D barcodes" SHOULD be used.

  - If a sector or application specific grouping of 2D barcodes needs to be described, for example retail POS, the term "GS1 compliant POS 2D barcodes" MAY be used.

For all GS1 documents

- The terms GS1 barcodes, GS1 2D barcodes, and GS1 2D symbols are misleading and SHOULD NOT be used:

  - When a more generic term is required, GS1 compliant barcodes MAY be used.

3 Specifics for GS1 technical documentation

3.1 Fonts and styles defined by the templates

The fonts and styles of all GS1 technical documentation are automated by using the appropriate GS1 template.

3.2 Document and trademark disclaimer

Include the disclaimer statement at the beginning all GS1 documents

3.2.1 For all GS1 standards and guidelines (developed under IP)

GS1 seeks to minimise barriers to the adoption of its standards and guidelines by making the intellectual property required to implement them available, to the greatest extent possible, on a royalty-free basis, or when necessary, under a RAND licence. Such royalty-free and RAND licences are provided pursuant to the GS1 IP Policy (available here: https://www.gs1.org/standards/ip), which governs the work of work group participants who contribute to drafting standards and guidelines, including this document. In addition to licences, the GS1 IP Policy provides various benefits and obligations that apply to all implementers of GS1 standards and guidelines, and all implementations of GS1 standards are subject to those terms.

Nevertheless, please note the possibility that an implementation of one or more features of this standard or guideline may be the subject of a patent or other intellectual property right that is not covered by the licences granted pursuant to the IP Policy. In addition, the licences granted under the IP Policy do not include the IP rights or claims of third parties who were not participants in the corresponding standard development work group.

Accordingly, GS1 recommends that any person or organisation developing an implementation of this standard or guideline should determine whether any patents or other intellectual property may encompass such implementation, and whether a licence under a patent or other IP right is needed. The implementer should determine the potential need for licensing in view of the details of the specific implementation being designed in consultation with that party's patent counsel.

The official versions of all GS1 standards and guidelines are provided as PDF files on GS1's online reference directory (https://ref.gs1.org) (the "GS1 Reference"). Any other representations of standards or guidelines in any other format (e.g., web pages) are provided for convenience and descriptive purposes only, and in the event of a conflict, the GS1 Reference document shall govern.

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3.2.2 For GS1 documents NOT developed under IP (not GS1 standards or guidelines)

This document is not an official GS1 standard or guideline, and was not developed pursuant to GS1's IP Policy (https://www.gs1.org/standards/ip). Please note the possibility that an implementation of anything described in this document may be the subject of a patent or other intellectual property right.

Accordingly, GS1 recommends that any person or organisation developing an implementation of anything described in this document should determine whether any patents or other intellectual property may encompass such implementation, and whether a licence under a patent or other IP right is needed. The implementer should determine the potential need for licensing in view of the details of the specific implementation being designed in consultation with that party's patent counsel.

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3.3   Issuing and dating technical documents

All GS1's technical documents have a release number and this will appear on the title page. The release number has the structure N.N or N.N.N and the guidance for usage is.

■ The first number indicates a MAJOR release. 1 is the first release, while 2 indicates a new release that is incompatible with release 1.

■ The second digit is used for a MINOR release. This indicates backward-compatible additions or small changes to the wording or structure

■ The ERRATA field is left blank for the first Major or Minor release but is mandatory for any subsequent change to a published standard that does not necessitate a more significe release number change and is typically for releases and bug fixes. This is optional for guidelines

Only major and minor releases are usually significant to the users with errata release being used for changes that do not materially affect the standard or those who have implemented the standard.

The first release of a document will typically be release 1.0 and the digits for major and minor changes increase incrementally as required.

For a draft document, the filename includes the "to be" release number, plus a draft number and a date. It is essential that all draft documents are clearly marked Draft, and ratified standard and guidelines are clearly marked Ratified, on the cover page and in the document footers. Other document statuses, for example 'Community Review Draft', should appear when required.

Example of file names during drafting:

■ EPC-Tag-Data-Standard-v1.13-r-2022-02-17.docx

■ Leveraging GDSN for the FDA Global Unique Device Identifier Database Release1.3.1-d2-2023-02-27.docx

Example of file names when posted as ratified standard or guideline:

■ TDS-113-Standard.pdf

■ GS1-GDSN-GUDID-Implementation-Guideline.pdf

Published documents should be dated with the month and year of ratification. Do not add the **day** unless absolutely necessary. The month name should always be abbreviated and appear on the document's title page using the date format: **MMM YYYY** (e.g., **Aug 2026**)

Note: using the GS1_Advanced Word Template (see 3.1) and the GS1 Document Properties will help ensure compliance.

3.3.1   File naming conventions

This section describes the naming conventions for files. Files types can include:

■ DOC – MS Word

■ PDF – Adobe Portable Document Format

■ ZIP – Series of compressed files

File names should not contain white spaces.

During development the following naming convention should be used for all GS1 standards & guideline documents:

<<Document-Name>-<Type>-<To Be Release>-<Status>-<yyyy>-<mm>-<dd>

Where:

<Document-Name>	The name of the document as it is expected to appear when finalised
<Type>	**Standard** – Standards Document **TestMethod** – Test Methods **Guideline** – Guideline **Schema** - Schemas **ConfReq** – Conformance Requirements **WhitePaper** – White Paper **BMS** – Business Message Standard **Manual** –Manual **BRAD** – Business Requirement Analysis Document
<Status>	**r** – Ratified (by the Board Committee for Standards) **a** – Approved (a formal document, like this guide, which is not ratified) **d** – Draft
<To Be Release>	Published documents receive a release number (i.e., 1.0, 2.2.1, 4.0, etc) and the 'To Be' release number should be used
<yyyy>-<mm>-<dd>	Year-Month-Day

Once ratified, most GS1 standards and guidelines are published as pdf files. The date appearing on the cover is the date of ratification (month and year).

3.4 Conformance language in GS1 standards

The concept of "conformance" is central to GS1 standards. A GS1 standard exists to define certain characteristics of an implementation created by an end user or solution provider. An implementation is said to conform to a GS1 standard if it satisfies the conformance conditions laid out in the text of the standard. The standard is written such that when multiple implementations are in conformance to the standard, those implementations are capable of interoperating in the way envisioned by the authors of the standard. Conformance is the soul of what a GS1 standard is intended to convey. It is therefore essential that a GS1 standard be clear and unambiguous in what it says about conformance.

The text of GS1 standards should be drafted to address the following aspect of conformance:

- The standard should clearly identify what types of implementation artefacts are subject to conformance to the standard. In other words, what are the things that can be judged as in conformance or not in conformance to the standard?

- If there are different ways to comply with the standard, the standard should clearly identify each conformance level or conformance option, ideally giving each a name that can be used in conformance testing reports to precisely indicate to what levels or options a given implementation conforms.

- Normative statements in the body of the standard should use the verbal forms SHALL, SHOULD and MAY as defined in the ISO Directives. Moreover, such statements should be worded so that it is clear how it applies to an implementation. Generally, this means the subject of these verbal forms should be "a conforming implementation" or a similar phrase.

Each of these points is explained and illustrated in detail in the sections that follow.

3.4.1 Identifying what may conform

A GS1 standard should identify what types of things are subject to conformance to the standard. For a data standard, a conforming implementation might be a specific piece of data or an electronic document. For a barcode print quality standard, a conforming implementation might be a specific printed barcode. For a messaging standard, a conforming implementation might be the sender or receiver of a message, or the message content itself. For a software interface standard, a

conforming implementation might be a software implementation on one side of the interface or the other.

Many standards define conformance requirements for different implementation artefacts which interact according to the standard. In such cases, there are several types of implementations that conform to the standard, each conforming to different statements within the standard. For example, the Gen2 Air Interface Standard defines interactions between an RFID reader and an RFID tag. So there are two types of conforming artefacts, readers and tags and the standard includes some statements that define what it means for a reader to conform and other statements that define what it means for a tag to conform. Each normative statement in the standard should clearly indicate to which type of conforming artefact the statement applies (see section 3.4.3). The text of the standard that defines the conforming artefacts should be clearly identified and easily found in the standard document. A good way to do this is to have a section titled "Conformance."

Here are some examples of well-written statements of what artefacts conform to a standard.

From the *GS1 Core Business Vocabulary (CBV) 2.0* standard:

2.2.1 Interrogators

To conform to this protocol, an Interrogator shall:

- Meet the requirements of the Gen2 Air Interface Standard,

- Implement the mandatory commands defined in the Gen2 Air Interface Standard,

- Modulate/transmit and receive/demodulate a sufficient set of the electrical signals defined in the signalling layer of the Gen2 Air Interface Standard to communicate with conformant Tags, and

- Conform to all local radio regulations.

To conform to the Gen2 Air Interface Standard, an Interrogator may:

- Implement any subset of the optional commands defined in the Gen2 Air Interface Standard, and

- Implement any proprietary and/or custom commands in conformance with the Gen2 Air Interface Standard.

To conform to the Gen2 Air Interface Standard , an Interrogator shall not:

- Implement any command that conflicts with the Gen2 Air Interface Standard, or

- Require using an optional, proprietary, or custom command to meet the requirements of the Gen2 Air Interface Standard.

2.2.2 Tags

To conform to the Gen2 Air Interface Standard , a Tag shall:

- Meet the requirements of the Gen2 Air Interface Standard,

- Implement the mandatory commands defined in the Gen2 Air Interface Standard,

- Modulate a backscatter signal only after receiving the requisite command from an Interrogator, and

- Conform to all local radio regulations.

To conform to the Gen2 Air Interface Standard, a Tag may:

- Implement any subset of the optional commands defined in the Gen2 Air Interface Standard, and

- Implement any proprietary and/or custom commands as defined in 2.3.3 and 2.3.4, respectively.

To conform to the Gen2 Air Interface Standard, a Tag shall not:

- Implement any command that conflicts with the Gen2 Air Interface Standard,

- Require using an optional, proprietary, or custom command to meet the requirements of the Gen2 Air Interface Standard, or

- Modulate a backscatter signal unless commanded to do so by an Interrogator using the signalling layer defined in the Gen2 Air Interface Standard.

3.4.2 Conformance levels and options

Many standards, especially technical standards, are not monolithic, but instead define different modules of features that can be used for different applications. In this case, there may be implementation artefacts that do not conform to the entire standard, but which conform to selected parts of the standard. Of course, an implementation cannot pick and choose which parts it conforms to: the standard itself must define specific groups of features or options which must each be implemented in their entirety to claim conformance. When this is the case, a standard must clearly specify what are the available conformance levels and options, and what are the conformance requirements for each.

For example, the *GS1 Application Level Events (ALE) 1.1* standard defines five different Application Programming Interfaces (APIs). A given implementation of ALE may implement a subset of these APIs, but each API it implements must be implemented in its entirety to claim conformance.

Another example, the *GS1 EPC Information Services (EPCIS) 1.0.1* standard defines a software messaging interface to which an implementation may conform. A large number of normative statements pertain to all implementations that conform to this interface. But the EPCIS standard offers a choice of message transport, based on HTTP or AS2. A conforming implementation may implement one or both of these message transports. These constitute conformance options.

Another example, the Gen2 Air Interface Standard defines a base level of functionality that all tags and readers must implement. Many features are optional in this base level of conformance. Annex N defines additional conformance levels; to qualify for any of these conformance levels a tag or reader must conform to specified normative statements that are otherwise optional in the base conformance level. A tag or reader may be tested to be in conformance to the base level, or may additionally be tested to be in conformance to one of the higher levels.

All conformance levels should be identified clearly, and it should be absolutely apparent which normative statements apply to which level. Ideally, each level should be given a name, so that it is easy to refer to it in a conformance testing report for any particular implementation.

3.4.3 Wording of normative statements

At the heart of a GS1 standard are normative statements. A normative statement is a statement that defines the behaviour or otherwise places a constraint upon a conforming implementation. Collectively, the normative statements are what gives a standard force.

In GS1 standards, normative statements are written using the verbal forms described in section 7 of the ISO/IEC Directives, Part 2, 2021, 9th edition [ISODir2]. These include the words SHALL, SHALL NOT, SHOULD, SHOULD NOT and MAY. When these words are written in a normative statement, using the special meanings defined in [ISODir2], they are written in all capitals to distinguish them from ordinary English use of the same words.

For a precise definition of these verbal forms, see [ISODir2]. Briefly, their meanings are summarised as follows:

- SHALL means that all conforming implementations must do what the statement says, otherwise the implementation is not conforming. No deviation is permitted.

- SHOULD means that among several possibilities one is recommended as particularly suitable for a conforming implementation, without mentioning or excluding others. In other words, a conforming implementation is expected to do what the statement says, but might not if there is a good reason not to. It is similar to a MAY statement, but carries a stronger expectation that an implementation will usually do what the statement says.

- MAY means that a conformation implementation is allowed to do what the statement says, but it is not required to for conformance.

The most precise way to write a normative statement is to name a type of conforming artefact as the subject and one of the special words above as the verb; e.g., "A conforming implementation of this standard SHALL do …" This makes it very clear to what artefact a given normative statement applies, and offers a precise way to assess whether the artefact is in conformance or not.

It is less effective to make some concept internal to the standard be the subject of the verb. For example, imagine a hypothetical standard that defines an interface between an RFID Reader and an

RFID Tag, in which there is a Read command defined. The following sentence does not follow the above guideline:

The address field of a Read command SHALL be less than 400.

Here, the subject of the verb is "a Read command". It is not clear whether this conformance statement applies to a conforming RFID Reader, a conforming RFID Tag, or both. It is also not clear what happens if this statement is violated. The following wording is much clearer because it makes the conforming implementation the subject of the verb:

A conforming RFID Reader SHALL NOT issue a Read command whose address field is greater than or equal to 400. A conforming RFID Tag SHALL process a Read command whose address field is less than 400, and SHALL reject with error code 62 a Read command whose address field is greater than or equal to 400.

Repetition of this style of sentence can become very tedious. Tables are a good way to avoid repetition, and with the appropriate introductory sentence can be just as precise:

All commands issued by a conforming RFID reader SHALL be as specified in the following table:

[table goes here]

A SHOULD or MAY statement indicates something that is optional; an implementation does not have to do what the sentence says in order to be in conformance. Quite often, there are optional features of a standard such that an implementation does not have to implement the feature, but if it does it has to do it a certain way to achieve interoperability. The correct way to write this in normative language is in a style similar to the following:

A conforming implementation MAY implement the XXXX feature. If a conforming implementation implements the XXXX feature, it SHALL do YYYY.

This makes it very clear what is expected of an implementation if it implements the optional feature.

3.5 Section title numbering rules

Follow this numbering convention when labelling document sections:

- **2** Highest level – use for major section headers
- **2.1** Subsection (subhead) of the preceding section (2)
- **2.1.1** Subsection (subhead) of the preceding section (2.1)
- **2.1.1.1** Subsection (subhead) of the preceding section (2.1.1)

-- and so on.

3.6 Using notes

Notes draw the readers' attention to information of special importance or information that does not belong in the body text. There are two types of note icons available:

Note:

Important:

3.6.1 Using regular notes

Notes add supplemental but tangential information or emphasise a point within the text. They are not essential to the basic understanding of text. A note can also be used to provide information that applies only in certain cases.

3.6.2 Using "Important" notes

Important notes draw readers' attention to information that is crucial to the current topic. The major difference between a regular note and an important note is that, while a note provides ancillary

information, an important note provides readers with significant content to which they must pay attention. In other words, if readers cannot carry out a procedure or understand a concept without it, it must be presented as an important note; if they can, it is a regular note.

3.7 Migration rules for ancillary document names

When a "dead" term (a term that has been retired and replaced) is used in the proper title of an existing document or web page, the term in the title should not be revised until the new term is officially recognised by GS1 and the document or website is revised and/or reprinted in a subsequent edition.

3.8 Open issue text

"Open Issues" indicate blocks of text that are placeholders for work in progress. This style is only to be used on "work-in-progress" documents and it should not be used in published, ratified, documents.

➢ This is an example of an open issue. Basically using this distinctive bullet symbol.

3.9 Data structure positioning rules

3.9.1 Data structure labelling

When labelling a data structure, the numbered positions in the structure should be labelled incrementally from left to right. The leftmost position should be "position one" and positions to its right should increase by increments of one.

3.10 Appendix rules

3.10.1 Placement

Because readers expect appendices to be at the back of a document, appendices should appear following the last section. However, in unusual circumstances, an appendix may directly follow a section or subsection if what the appendix includes is essential to the understanding of the material contained in the section or subsection.

3.10.2 Appendix numbering

Appendices should be sequentially numbered, using the convention A, B, C, …. The numbering rules in section 3.5 also apply to the appendices with the only difference being the appendix letter takes the place of the top level section number.

- Examples:
  - Appendix A 1.2 = A.1.2
  - Appendix C 62.1.1 = C.62.1.1

3.11 Rounding rules for barcode measurements

To ensure a consistent set of metric and inch-based dimension equivalents, a consistent precision (significant digits), method of conversion (inches to millimetres and millimetres to inches), and method of rounding has been established.

3.11.1 Precision rule for X-dimensions (modules)

Because many barcode symbol widths are defined by a multiple of X-dimensions (modules), the X-dimension is to be rounded to the third decimal place (N.NNN) for X-dimensions stated in millimetres and to the fourth decimal place (N.NNNN) for X-dimension equivalents in inches.

3.11.2 Precision rule for symbol widths and heights

The overall widths (horizontal), heights (vertical) and other dimensions for barcode symbols are to be rounded to the second decimal place (N.NN) for dimensions stated in millimetres and to the third decimal place (N.NNN) for the dimension equivalents in inches.

3.11.3 Rounding rule

If the calculation of an equivalent dimension results in a value that is more digits than the precision required, and the digit following the digit to be rounded is a 5 or greater, the value is to be rounded up to the next higher value. If the digit following the digit to be rounded is less than 5, the digit to be rounded remains the same.

3.11.4 Conversion rule for inches to millimetres

The metric equivalent of the GS1 barcode inch dimensions are to be calculated using the dimensions multiplied by 25.4.

- Example:
  - The nominal X-dimension is 0.0130 in. x 25.4 = 0.330 mm and the total width of the barcode, including Quiet Zones, is 0.330 mm x 113 = 37.29 mm.

3.11.5 Conversion rule for millimetres to inches

The inch equivalent of the GS1 barcode metric dimensions are to be calculated using the dimensions divided by 25.4.

- Example:
  - The overall width would be 26.73 mm / 25.4 = 1.052 inch.
  - The overall height would be 21.31 mm / 25.4 = .839 inch.

✅ **Note:** Within GS1 standards & guidelines, decimal placement are indicated with a full stop.

3.12 Listing contributors

The GSMP manual states that each standard or guideline should include a list of the individuals who contributed to the creation of the latest version. This list should appear after the title page and the full criteria for including contributors can be found in the GSMP manual.

3.13 Change log

Each standard and guideline should include a 'Log of changes' after the title page. This should contain a very concise summary of changes made since the previous release. It is important to distinguish:

Log of changes during drafting:

- This can include detailed editing notes

Log of changes between published versions:

- Detailed editing notes should be deleted and replaced with a concise summary of approved changes since the last release.

3.14 Maintaining www.gs1.org/glossary

All GS1 standards and guidelines shall use the definitions found in www.gs1.org/glossary and have the following statement proceeding any glossary:

Please refer to the www.gs1.org/glossary for the latest version.

Prior to final vote of any standards or guidelines, any glossary terms that contain additions or changes to the www.gs1.org/glossary must be formally evaluated against the existing glossary. If any divergence is identified, it must be clearly be identified and communicated to the group by the Standard Development Lead:

- If the submitting group determines that the definition of an existing term needs to be adjusted, any other affected groups must be notified at latest prior to the community review to ensure that the definition changes are clear, and do not have a negative impact.

- The changes will be discussed in the requesting working group with invitation given to the members all affected groups to ensure that consensus is reached. If consensus cannot be reached guidance will be requested from the GS1 Architecture Group.

It should be noted that www.gs1.org/glossary is not published with a version number; rather it will always show the most recent snapshot of terms and definitions along with the source of each term included.

3.14.1 Best practice for developing a GS1 glossary definition

A definition is a concise and precise statement conveying the fundamental essence (properties and characteristics) of a concept/concepts (word or expression). The consistency and quality of all GS1 standards and guidelines is of critical importance and to help ensure this across all GS1 documentation clear definitions for specific GS1 terms are required and are developed using the best practice below.

✅ **Note**: GS1 glossary terms are provided as a URL. Therefore, URL unfriendly characters, like forward slash "/", should be avoided in GS1 glossary terms.

✅ **Important**: A GS1 glossary definition is only required when the term defined pertains to a GS1 specific concept used within a specific document. The GS1 glossary shall not contain common terms the meaning of which can be found in a dictionary.

Best practice	Example
Definition shall be unique within www.gs1.org/glossary. A new term utilising an existing definition is not acceptable. Only new terms with definitions that currently do not exist will be accepted for reusability reasons. Synonyms are acceptable as additional information, but cannot serve as the definition itself.	[poor] "Goods Dispatch Date" - Date on which goods are delivered. [correct] "Goods Dispatch Date" - Date on which goods are dispatched by a given party.
Definition shall state the essential meaning of the concept in the singular	[poor] Article Number – a reference number identifying articles [correct] Article Number: A reference number that identifies an article.
Definition shall state what the concept is. The definition may include what it is not, only if what it is clearly outlined.	[poor] Freight Cost Amount: Costs that are not related to packing, loading, unloading and insurance. [correct] Freight Cost Amount: Cost amount incurred by a shipper in moving goods from one place to another.
Definition shall be stated as a descriptive phrase including the essential characteristics of a concept. A phrase normally necessary to form a precise definition. Simply stating one or more synonym(s) is insufficient. Simply restating the words of the name in a different order is insufficient. If more than a descriptive phrase is needed, use complete, grammatically correct sentences.	[poor] Agent Name: Representative. [correct] Agent Name: Name of party authorised to act on behalf of another party.
Definition shall not be a list of synonyms	

Best practice	Example
Definition shall contain full words and not abbreviations to avoid ambiguity. Understanding the meaning of an abbreviation, including acronyms and initials, is usually confined to a certain environment. In other environments the same abbreviation can cause misinterpretation or confusion. Therefore, to avoid ambiguity, full words, not abbreviations, shall be used in the definition.	[poor] Tide Height: The vertical distance from MSL to a specific tide level. [correct] Tide Height: The vertical distance from mean sea level (MSL) to a specific tide level.
Definition shall not be circular	Two data elements with poor (circular) definitions: 1) Employee ID Number - Number assigned to an employee. 2) Employee - Person corresponding to the employee ID number.
Definition shall be different if the concept or objects they define are different. Two different concepts or objects cannot have the same definition.	
Definition shall be written in Collins dictionary English (see https://www.collinsdictionary.com/)	
Definition shall be able to stand alone. The meaning of the concept should be apparent from the definition. Additional explanations or references should not be necessary for understanding the meaning of the definition.	[poor] School Location City Name: See "school site". [correct] School Location City Name: Name of the city where a school is situated.

3.15 Referenced sources

GS1 standards and guidelines, particularly those of a technical nature, should include a citation reference to all external, non-GS1, source material used in the development.

Hyperlinks to the references should appear in the place in the document where they are cited. For example, the following text may appear in the introduction of a given GS1 standard or guideline:

Introduction

This GS1 standard should be read in conjunction with ISO/IEC 18004:2015, Information technology, Automatic identification and data capture techniques, QR Code bar code symbology specification as well as the GS1 General Specifications.

All such references should also appear as the *last section* of the GS1 standard or guideline with the suggested layout and wording below. Hyperlinks to online referenced sources should be used wherever possible. In line with section 2.11.2 links to www.gs1.org, or other GS1 domain like https://ref.gs1.org/, should default to open in the same browser window, links to non-GS1 websites should default to open in a new browser window.

Intuitive abbreviations or acronyms should be used for referenced documents. The abbreviation or acronym can be used in the main text with the full details appearing in the reference section. Abbreviation or acronym used should be consistent between all GS1 standards and guidelines and created using the following recommendations:

1. If an abbreviation or acronym exists in this GS1 Style Guide, see below, or an existing GS1 standard or guideline, use that.

2. Abbreviations used for referenced documents should be as short possible.

3. Abbreviations should avoid punctuation characters (e.g., period[.], hypen [-], space [ ], etc.) apart from when they appear in the name itself (e.g., ISO/IEC includes a forward slash [/]).

4. Abbreviations for documentation external to GS1 should start with the source organisation. Examples include:

   □ ISO/IEC 15418 would appear as [ISO/IEC15418] and NOT [ISO 15418] or [15418]

   □ European Union Regulation 2023/1234 would appear as [EU2023/1234]

5. Abbreviation for GS1 documents do not need to include the name "GS1" (e.g., the GS1 General Specifications appear as [GenSpecs] and NOT [GS1GenSpecs].

6. Abbreviations should use a leading capital (e.g., Arch for Architecture, WebVoc for Web Vocabulary).

7. Acronyms should be all CAPS (e.g., TDS for Tag Data Standard).

8. Abbreviations should be as intuitive to the audience as possible.

xx. References

xx.1 External references

Example of commonly referenced external documents with abbreviation and layout

Abbreviation (used in the body of the standard or guideline)

Title of referenced document   (mandatory),   Year of publication (optional) or latest version

Referenced document link (if known)

[ISO/IEC15418]

ISO/IEC 15418:2016 Information technology — Automatic identification and data capture techniques — GS1 Application Identifiers and ASC MH10 Data Identifiers and maintenance.

https://www.iso.org/standard/67405.html

[JSON]

RFC 8259 - The JavaScript Object Notation (JSON) Data Interchange Format, Internet Engineering Task Force (IETF)

https://www.rfc-editor.org/info/rfc8259

[SC31]

ISO/IEC JTC1/SC31: Automatic identification and data capture techniques

https://www.iso.org/committee/45332.html

[Schema]

Schema.org vocabulary

https://schema.org/

[WebArch]

Architecture of the World Wide Web, Volume One. Ian Jacobs, Norman Walsh. W3C Recommendation 15 December 2004

https://www.w3.org/TR/webarch/

xx.2 GS1 references

Note: Including references to GS1 documentation in the "References" section is optional.

List of commonly referenced GS1 documents with recommended abbreviation and layout

[Arch]

GS1 System Architecture, latest version

https://ref.gs1.org/architecture/system-architecture/

[DL-URI]

GS1 Digital Link Standard: URI Syntax

https://ref.gs1.org/standards/digital-link/uri-syntax/

[EPCIS]

EPC Information Services (EPCIS) Standard, latest version

https://ref.gs1.org/standards/epcis/

[GenSpecs]

GS1 General Specifications, latest version

https://ref.gs1.org/standards/genspecs/

[TDS]

EPC Tag Data Standard (TDS), latest version

https://ref.gs1.org/standards/tds/

[UHFG2]

EPC® Radio-Frequency Identity Generation-2 UHF RFID Standard, latest version

https://ref.gs1.org/standards/gen2/

[WebVoc]

GS1 Web Vocabulary, latest version

https://ref.gs1.org/voc/
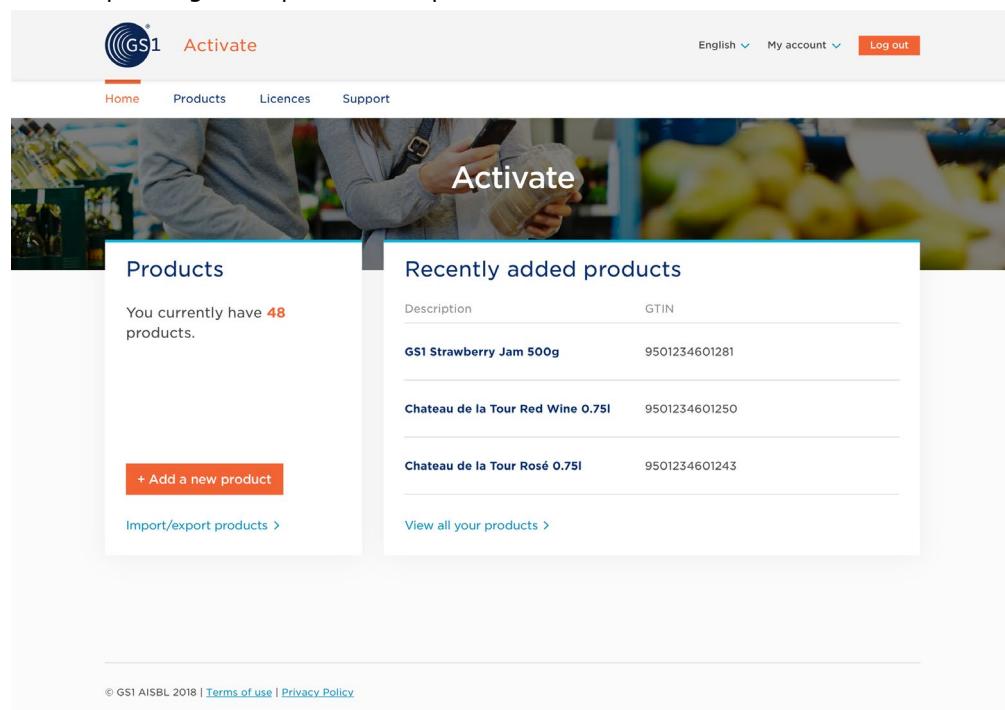
4　User interfaces for GS1 services & solutions

4.1　Writing user-interface messaging

User Experience (UX) text appears throughout the user interface of online GS1 services and solutions. The UX sentences or text you write should have:

- **Scannable**: Readability of the sentence on first glance

- **Front-loaded**: The point is conveyed at the start of the sentence

- **Low Cognitive loa**d: The reader does not use much of working memory

  - Examples:

    - Correct: Describes differentiating characteristics in terms of flavour, fragrance or taste of the same brand and size. For example, `still´ or `sparkling´ for drinks.

    - Incorrect: Covers the distinguishing characteristics that differentiate products with the same brand and size including such things as the flavour, fragrance or taste. 'Still or sparkling' is a specific example for drinks.

Example of a user interface for Activate

4.1.1　Screen element names and usage

All User interface element names must be formatted in bold, especially in procedural steps.

- From the **Order type** drop-down, select **Online**.

- From the **Orders** page, click **Confirm**.

- From the **Packaged orders** page, select the **Gift wrap** checkbox, and then click **Ok**.

5   GS1 content checklist

An essential part of GS1's publications process is quality assurance. This checklist aims to assist content creators in performing a quality review before submitting final drafts. Good documentation reduces rework, ensuring the consistency demanded by GS1 stakeholders.

Presentation: checks page layout is consistent with this GS1 Style Guide & GS1 Marketing Guide

No.	Artefact	Justification	Check
1	Template	Use the GS1 template.	
2	Spellcheck	If using the GS1 template, go to "GS1 ADVANCED-DOCUMENT" tab and select "Chg to UK Eng".	
3	Preliminary content	Verify that registered GS1 logo, copyright, contributors, and disclaimer are displayed and front cover shows current title, version with date expressed as MMM YYYY.	
4	Indentation	Verify appropriate indentation and numbering of sections, figures & tables.	
5	Headers/Footers	They must reflect correct release date/document title/correct copyright year.	

Table of Contents: check sections of the document with entries formatted properly.

No.	Artefact	Justification	Check
1	Table of Contents	Each 1st, 2nd & 3rd level section appears in TOC. Each section is numbered and linked correctly.	

Content: checks spelling, grammar, and consistent use of language and sentence structure.

No.	Artefact	Justification	Check
1	Document Title	Conforms to naming convention and style, clearly states whether standard (orange), guideline (blue) or other	
2	Grammar check	Maintain simple sentence structure (< 15 words) for readability	
3	Tense	Document maintains consistent use of tense (future, present or past)	
4	Language	Written for intended audience, no unnecessary words or symbols	
5	Acronyms	Abbreviation appears in parenthetic citation after first use	
6	Punctuation	Correct usage for easy readability	
7	Content	Satisfies defined goals and objectives, technically accurate	
8	Glossary	Reference the GS1 Glossary with link to www.gs1.org/glossary (if required)	