WR #	GSCN Name	Effective Date
WR 24-181	The GS1 Identification Standard	Oct 2025

Associated Work Request (WR) Number:

Background:

This Work Request (WR) is being submitted to fulfil the agreement reached between the Architecture Group and Identification Standards Maintenance Group (ID SMG) in 2014 to have a single, easily referenced GS1 identification standard. Currently there is no single GS1 identification standard for the GS1 community, regulators or external standards organizations e.g., International Organization for Standardization/ International Electrotechnical Commission (ISO/IEC), to use as a normative reference. Current developments and emerging requirements are providing a pressure to act, with a need to provide:

- The GS1 community with a normative "home" for the GS1 identification standard, with integration of technical standards for GS1 syntaxes
- Alignment of GS1 General Specifications (standards), GS1 System Architecture and GS1 Architecture Principles (policy), including cross-references and common terminology
- Clarify for regulators the connection between the GS1 General Specifications and ISO/IEC JTC1 SC31* (AIDC) standards e.g., ISO/IEC 15418, ISO/IEC 15459, and how the GS1 identification standard conforms to ISO/IEC 15459-3
- A basis for knowledge transfer between generations of identification experts at GS1

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The Global Language of Business

GS1 General Specifications Standard

The foundational GS1 standard that defines how identification keys, data attributes and barcodes must be used in business applications.

Release 26.0, Draft, Jan 26

Who should read the General Specifications?

Technical experts working with the GS1 system should read these specifications. They provide a global reference document covering all technical aspects of the GS1 system. Their primary objective is to define the international standard upon which individual GS1 Member Organisations can develop user documentation.

Navigator

These specifications have been developed as a reference document aimed primarily at GS1 Member Organisations (who also produce local language user manuals) and system engineers developing software based upon GS1 system standards. All aspects of the GS1 system are summarised in section 1, which is recommended for those wishing to become familiar with the GS1 system logic and terminology.

Each application section mandates the use of system features defined elsewhere in this document, such as check digits, element strings, data carriers and barcode symbol placement. The sections of these *GS1 General Specifications* are:

- **The GS1 General Specifications**: Introduces the *GS1 General Specifications*, principles and architecture of the GS1 system, GS1's relation with external international standards and general information for using this document.
- **Section 1 ~~Basics and principles of the GS1 system:~~** ~~Provides an introduction to the core components of the GS1 system~~**The GS1 Identification Standard**: Provides a definition for each GS1 identification key that is the basis of the relevant GS1 identifier for entities across each area of GS1 system application. Includes details on associated international identification standards, identification concepts and requirements.
- **Section 2 Application standards**: Provides a definition for each GS1 application using a template format. Each application is uniquely identified and contains a description, the associated GS1 key, its definition and links to relevant data structures and attributes (section 3), rules (section 4), carrier specifications (section 5), placement (section 6) and unique processing requirements (section 7).
- **Section 3 GS1 Application Identifier definitions:** Describes the meaning, structure and function of the GS1 element strings so they can be correctly processed in users' application programs.
- **Section 4 Application rules:** Provides the rules for use of GS1 keys in their application environments. Differences in industries are included as well as the data relationship rules for GS1 Application Identifier use.
- **Section 5 Data carriers:** Provides a detailed description of the data carriers that are endorsed by GS1. It includes symbol specification tables for use in the supply chain operational environment as well as the related barcode production and quality assessment required to achieve excellent scan rates.
- **Section 6 Barcode placement:** Provides guidance on symbol placement as well as transport label standards and tag standards.
- **Section 7 AIDC validation rules:** Provides rules for validating and processing GS1 element strings without human intervention. Check digit and calendar date algorithms are also included.
- **Section 8 Application Standard Profiles** Provides a summary of current application and future state conformance requirements, organised in modular way to make it easier to find the relevant sections.
- **Section 9 GS1 Standards glossary of terms** A standard vocabulary used throughout the GS1 system.

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The GS1 General Specifications

Introduction

The GS1 system, as explained in section GS1 Architecture Principles and GS1 System Architecture, aims to raise the efficiency of business processes and to provide cost savings through automation based on globally unique identification and digital information.

The GS1 system provides for the use of unambiguous identification keys to identify goods, services, assets, locations, organisations etc. worldwide. These identifiers can be represented in data carriers, such as barcodes or tags, to enable automatic data capture. They may also be used in electronic communications, improving speed and accuracy when sharing master data, transactional data and visibility event data.

The GS1 system is designed to overcome the limitations of using company-, organisation-, or sector-specific interfaces. It enables large scale deployment, flexibility in the selection of the most suitable system components and innovation – ultimately making trade more efficient and responsive to customers.

The GS1 system is designed for use in any industry or trade sector, and changes to the system are introduced in a way that does not disrupt existing users.

This document defines:

- technical standards for identification and Automatic Identification and Data Capture (AIDC)
- application standards for the use of identification and AIDC within an intended environment (see the GS1 System Architecture section 3.1 for more information on GS1 standards).

It supersedes all previous AIDC technical documents provided and/or published by GS1 or its predecessor organisations. Every organisation that claims conformity with GS1 standards is expected to conform fully to the *GS1 General Specifications*, including any related technical specifications normatively referenced such as, but not limited to, the GS1 Digital Link standard: URI syntax and GS1 EPC Tag Data Standard.

The GS1 system originated in the United States and was established in 1973 by the Uniform Product Code Council, subsequently known as the Uniform Code Council, Inc. (UCC). Following the success of this U.P.C. system, the European Article Numbering Association, subsequently known as EAN International, was established in 1977 to develop a compatible system for use outside North America. In February 2005, GS1 was officially launched as the successor to the organisations previously known as EAN and UCC, and the system became known under its current name: The GS1 system.

GS1 Architecture Principles and GS1 System Architecture

The GS1 General Specifications combines technical and application standards, across all 4 layers of GS1 standards: *Identify*, *Capture*, *Share* and *Use*, as defined by the GS1 System Architecture. As such, the GS1 General Specifications is considered a foundational standard of GS1 as it supports the larger ecosystem of standards and services described within the GS1 System Architecture.

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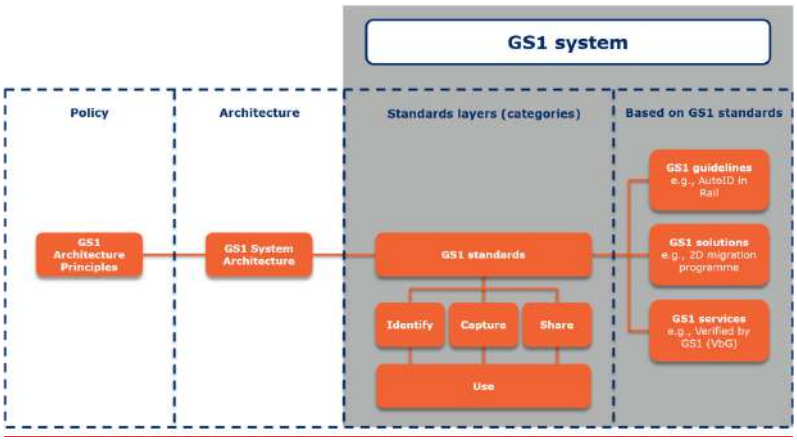

Figure: How the GS1 Architectural Principles, GS1 System Architecture and GS1 system fit together

The GS1 Architectural Principles and GS1 System Architecture defines the policy and structural aspects of the GS1 system respectively, as depicted in the figure above. The full benefits of the GS1 system, which include GS1 standards (e.g., technical and application standards), GS1 guidelines (e.g., technical or industry implementation guidance), GS1 solutions (e.g., initiatives to develop standards and support implementation such as GS1 Traceability) and GS1 data services (e.g., GS1 Registry Platform (GRP)) can only be obtained when they respect the architecture and principles.

GS1 and other external international standards

The core business of GS1 is the unique identification of value chain entities, for the purpose of exchanging information about those entities with trading partners and stakeholders. Organisations using GS1 standards to address their business requirements, especially for highly regulated sectors such as healthcare, also use standards from other standards development organisations (SDOs).

To ensure interoperability of GS1 standards with other external international standards systems, and across various sectors, GS1 participates in the standardisation processes of numerous international SDOs. As it pertains to the GS1 General Specifications, examples of international SDOs include ISO (International Organization for Standardization), ISO/IEC JTC1 (Joint Technical Committee 1 (information technology) of International Organization for Standardisation / International Electrotechnical Commission), ICCBBA (International Council for Commonality in Blood Banking Automation), W3C (World Wide Web Consortium), UN/CEFACT (United Nation Centre for Trade Facilitation and Electronic Business) and IETF (Internet Engineering Task Force). GS1 plays an important role by ensuring integration of GS1 standards within international standards portfolio, such as those referenced for identification in section 1.1.2 and for data carriers in section 5.1.2.

The mutual recognition between GS1 standards and other external international standards ensures greater understanding of the important role that industry standards play in the implementation of AIDC technologies. While GS1 standards may or may not be referenced directly by governmental regulations and laws, the reference to international standards such as those developed by ISO/IEC, guarantees the necessary references to GS1 standards are maintained. Therefore, it is important for the GS1 General Specifications to make reciprocal references to the international standards where GS1 standards are supported, and where appropriate, include direct references to the regulations and laws that are addressed by GS1 standards. This relationship between regulatory drivers, ISO/IEC standards and the GS1 General Specifications are shown in figure below.

The GS1 System Architecture and the Architectural Principle for *Third party standards,* encourages the propagation of GS1 standards and other GS1 system components, through other standards bodies, to increase "...the impact, effectiveness, adoption and acceptance of the GS1 system globally". GS1's active participation in the development and maintenance of standards developed by other external international SDOs also provides early visibility and valuable opportunities to gain

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deeper understanding of emerging technologies, and their impact on existing and future GS1 standards.

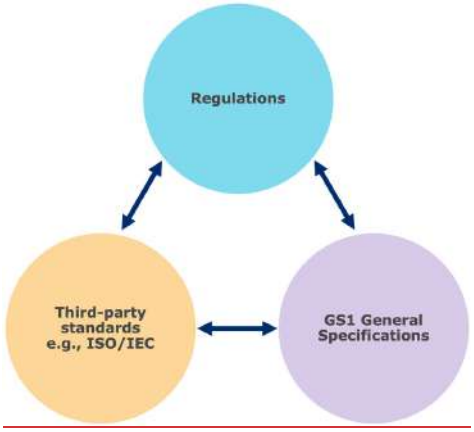

Figure: GS1 and external international standards

Maintenance responsibility and management

The GS1 Global Standards Management Process (GSMP) is the mechanism to approve the adoption of additions and changes to all GS1 standards and GS1 guidelines, including the *GS1 General Specifications*. The process is fully defined in the Global Standards Management Process Manual. The standard is maintained in English and may be translated into other languages by local GS1 Member Organisations.

Verbal forms used in normative statement

In GS1 standards, normative statements are written using the verbal forms defined per the GS1 Style Guide. These include SHALL, SHALL NOT, SHOULD and SHOULD NOT. When these words are written in a normative statement, using the special meanings defined, 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 the GS1 Style Guide. 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.

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1 The GS1 Identification Standard

1.1 Introduction

This GS1 Identification Standard is a technical standard which defines GS1 identification keys (see section 1.1.1 for an overview) for use as globally unique identifiers across the entire GS1 system.

GS1 identification keys form the GS1 identifiers that unambiguously identify entities within the open value chain, in various applications supported by GS1 standards such as trade, logistics, asset management etc. Information about an entity can be associated to its GS1 identifier, enabling multiple parties to use that GS1 identifier as a proxy for the entity, to store, access, share or use that information, for example via lookup of a local database or via a Web request online. As such, GS1 identifiers serve as a foundation for all GS1 standards across the *identify*, *capture*, *share* and *use* layers, as well as GS1 data services, independent of the technology used. See section GS1 Architecture Principles and GS1 System Architecture for information on the GS1 system, and the *identify*, *capture*, *share* and *use* layers of GS1 standards.

GS1 identifiers are integrated with international specifications for Automatic Identification and Data Capture (AIDC) technologies which are developed and maintained by ISO/IEC JTC 1/SC 31 (International Organization for Standardization / International Electrotechnical Commission Joint Technical Committee 1, Subcommittee 31), and are listed in section 1.1.2 International Identification Standards.

1.1.1 Overview of GS1 identification keys

GS1 identification keys, as shown below in Table 1-1, are groups of GS1 identifiers used in each area of GS1 system application—such as trade, logistics or asset management—to uniquely identify entities in those areas, at different levels of granularity, from class level through to instance level.

Each area of GS1 system application relates to one or more entities within that area, for example asset management relates to individual company assets and returnable assets. There can be more than one GS1 identification key defined for an area of GS1 system application e.g., Global Individual Asset Identifier (GIAI) and Global Returnable Asset Identifier (GRAI) are GS1 identification keys used in asset management applications. There can also be more than one GS1 identifier per GS1 identification key e.g., Made-to-Stock Global Trade Item Number (GTIN), Individual Trade Item Piece (ITIP) or Made-to-Order GTIN are GS1 identifiers based on the Global Trade Item Number (GTIN) GS1 identification key.

A GS1 identifier is represented as one or more data element qualifier-value pairs. With this structure, the defined data element qualifier conveys the meaning and the required structure of the data element value it is paired with. For example, in AIDC applications, the GS1 Application Identifier (8018) qualifies the Global Service Relationship Number of a service recipient (GSRN-recipient), while (8017) qualifies the Global Service Relationship Number of a service provider (GSRN-provider).

See section 1.2 for further information on important concepts such as identification granularity, identification data element qualifiers, and requirements for managing uniqueness with GS1 Prefixes and GS1 Company Prefixes. To see the specifications for all GS1 identifiers, see section 1.3.

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Table 1-11 1-11 1 GS1 identification keys and examples of GS1 identifiers for each area of GS1 system application

Areas of GS1 system application	GS1 identification key	Examples of GS1 identifiers (full list defined in section 1.3)
Trade	Global Trade Item Number (GTIN)	Made-to-Stock (MtS) Global Trade Item Number (GTIN) Made-to-Order (MtO) Global Trade Item Number (GTIN) and serial number Identification of an individual trade item piece (ITIP) …
Product models	Global Model Number (GMN)	Global Model Number (GMN) Highly Individualised Device Registration Identifier (HIDRI)
Locations	Global Location Number (GLN)	Global Location Number (GLN) for physical location Global Location Number (GLN) for physical location and GLN extension component
Parties	Global Location Number (GLN)	Global Location Number (GLN) for party …
Logistics	Serial Shipping Container Code (SSCC) Global Shipment Identification Number (GSIN) Global Identification Number for Consignments (GINC)	Serial Shipping Container Code (SSCC) Global Shipment Identification Number (GSIN) Global Identification Number for Consignments (GINC)
Asset management	Global Returnable Asset Identifier (GRAI) Global Individual Asset Identifier (GIAI)	Global Returnable Asset Identifier (GRAI) Global Individual Asset Identifier (GIAI)
Service relationships	Global Service Relation Number (GSRN)	Global Service Relation Number – service provider (GSRN-Provider) Global Service Relation Number – service recipient (GSRN-Recipient) …
Coupon management	Global Coupon Number (GCN)	Global Coupon Number (GCN)
Document control	Global Document Type Identifier (GDTI)	Global Document Type Identifier (GDTI)
Components and parts	Component/Part Identifier (CPID)	Component/Part Identifier (CPID) …

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Note: The GS1 identifiers CPID and Global Location Number (GLN) for physical location with GLN extension component are not available to use in open supply chain and are restricted to use by mutual agreement only. See section 1.2.2 for further information on restricted numbers.

1.1.2 International identification standards defined by ISO and ISO/IEC

ISO/IEC JTC 1/SC 31 has a number of published standards related to the use of GS1 identifiers. GS1 is actively involved in developing these standards. The objective is for GS1 standards to remain fully compatible with relevant published national, regional and international identification standards. The pertinent documents for section 1 include the latest published version of the following standards that achieve these objectives:

- ISO/IEC 15459: Automatic identification and data capture techniques – Unique identification
  - Part 1: Individual transport units
  - Part 2: Registration Procedures
  - Part 3: Common Rules
  - Part 4: Individual products and product packages
  - Part 5: Individual returnable transport items (RTIs)
  - Part 6: Groupings
  - See section 1.2.1 for more information on GS1 as an ISO/IEC 15459 Issuing Agency
- ISO 6523-1:2023 Information technology — Structure for the identification of organizations and organization parts
- ISO/IEC 15418: Information technology - Automatic identification and data capture techniques - GS1 Application Identifiers and ASC MH10 Data Identifiers and maintenance
- ISO/IEC 646: Information technology — ISO 7-bit coded character set for information interchange
- ISO/IEC 15962: Information technology — Radio frequency identification (RFID) for item management — Data protocol: data encoding rules and logical memory functions
- ISO/IEC 18975: Encoding and resolving identifiers over HTTP

Note: ISO/IEC 15434: Information technology — Automatic identification and data capture techniques — Syntax for high-capacity ADC media. While this standard defines a syntax that includes a mode using GS1 Application Identifiers, this standard is not utilised nor supported by any GS1 Application Standard.

To see a list of GS1 standards recognised by ISO and other standards bodies see: https://www.gs1.org/docs/GS1-and-ISO-06BD.pdf

To access the specifications listed above, please visit the ISO store: https://www.iso.org/store.html.

1.1.3 Core GS1 identification standard terminology

Terms used within this document are defined in section 9. Table 1-2 lists the normative terms used in the GS1 Identification Standard and Table 1-3 lists the related identification terms used by ISO/IEC.

While these terms and definitions may not be entirely aligned across all GS1 standards currently, they are intended to serve as a foundation for future standards harmonisation based upon the alignment established between the GS1 Identification Standard and GS1 System Architecture.

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Table 1-21 2 Normative terms used in the GS1 Identification Standard

Term	Definition
GS1 identification key	Numeric or alphanumeric strings that incorporate a GS1 Prefix, GS1 Company Prefix or GS1-8 Prefix and are the basis of the unique GS1 identifiers defined for use in an area of GS1 system application such as trade, logistics, or asset management. They may identify a class of entities (e.g., a trade item) or an instance of an entity (e.g., a logistic unit). The term GS1 identification key is for broad communications such as for marketing, licensing, policy etc.
GS1 identifier	Data element(s) that expresses a GS1 identification key with or without a GS1 identifier extension, to identify an entity and connect to information about that entity. The term GS1 identifier is for greater precision at the technical level, such as for GS1 standards, GS1 guidelines and end-user implementations.
GS1 identifier extension	Data element that can be used with a simple GS1 identifier to form a compound GS1 identifier.
compound GS1 identifier	Two or more data elements that combine a simple GS1 identifier and GS1 identifier extension(s), that identifies entities at sub-class level or instance level, where no subset of those data elements taken by themselves would do so.
simple GS1 identifier	A single data element that identifies entities at class level or instance level.
class level GS1 identifier	An identifier of entities which share common characteristics (e.g., all trade items allocated the same GTIN).
sub-class level GS1 identifier	An identifier of a subset of a class of entities that share class-level characteristics plus additional characteristics (e.g., all trade items, allocated the same GTIN but distinguished by batch/lot number).
instance level GS1 identifier	An identifier of an individual entity (e.g., one specific trade item, allocated the same GTIN as others within a class, but distinguished by serial number).
GS1 informative data	A data element that provides information about an entity identified with a GS1 identifier, such as a use by date, its weight, or country of origin code, for the purpose of informing or completing an action or decision.
data element qualifier	A set of characters that designate the meaning, character set, format and length of the data element value that it precedes or represents, as defined by the relevant technology e.g., GS1 Application Identifiers for implicit or explicit encoding in AIDC data carriers, data titles for physical labels or data base fields, GS1 Web Vocabulary properties for JSON/XML application etc.
data element value	The characters that comprise a data element (e.g., ABC123, 220708, 117 Hopkins Street).
data element field	The data container (e.g., within a document or message or dataset) where a data element value is encoded, stored, queried, or transmitted.
data element qualifier-value pair	Combination of a data element qualifier and data element value. Also known within technology specific standards as a name-value pair, key-value pair, property-value pair, attribute-value pair or a GS1 element string (which combines a GS1 application identifier and a GS1 application identifier data field).
data element	One piece of information (e.g., GS1 informative data) or one identification component (e.g., simple GS1 identifier or GS1 identifier extension).
GS1 data element segment	Mandatory or optional parts of a data element value e.g., ITIP has two mandatory segments, GTIN in the first segment, then a piece number and total number of pieces in the second segment; GRAI has one mandatory segment for the returnable asset reference number, then an optional segment for a serial number.
string	A series of alphanumeric characters, representing one or more pieces of data. Depending on the technology it may be inclusive of data element qualifiers e.g., GS1 element string, or may reference only the data element value e.g., GS1 identifier data element value or GS1 informative data element value. Strings may be historically referred to as numbers despite allowing non-numeric characters e.g., serial number, Global Model Number, purchase order number etc.

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Table 1-31 -31 -3 Identification terminology as defined by ISO/IEC 15459-3

Term	ISO/IEC definition	Equivalent GS1 term
identity	combination of qualifier and string which distinguishes an entity from other entities Note 1 to entry: Some parts of this standard allow for multiple qualifier/string combinations as an identity. Note 2 to entry: In other standards or documents the unique item identifier (UII) is referring to the identity.	GS1 identifier
qualifier	one or more characters referring to an entity, providing the meaning of the string data Note 1 to entry: Examples of qualifiers are data identifiers (DIs), GS1 Application Identifiers (AIs) and object identifiers (OIDs).	data element qualifier (for GS1 identifier only)
string	characters assigned to an entity constructed using the specific rules of the Issuing Agency to create an unambiguous number within the context of the specific parts of ISO/IEC 15459	data element value (for GS1 identifier only)

See section 1.2 for further information on ISO/IEC 15459-3 Automatic identification and data capture techniques – Unique identification – Common rules.

1.2 GS1 identification standard concepts and requirements

The concepts explained in the following sections are foundational for GS1 identifiers and their conformance requirements to be clearly understood and consistently implemented.

1.2.1 GS1 as an ISO/IEC 15459 Issuing Agency

ISO/IEC 15459 establishes the basis of unique, interoperable identification automated by AIDC data carriers in the domain of the open value chain. GS1 is an ISO/IEC 15459 conformant Issuing Agency for identifiers of entities, exchanged in the open value chain using AIDC technologies.

Uniqueness and interoperability

To ensure identifier uniqueness, ISO/IEC 15459-2 specifies "the procedural requirements to maintain identities and outlines the obligations of the Registration Authority". The Registration Authority, defined by ISO/IEC 15459-2 and designated by the ISO technical management board, approves and manages the appointment of Issuing Agencies for identification. Issuing Agency Codes (IAC) are registered and assigned to Issuing Agencies which ensures the identifiers issued by each Issuing Agency are unique, as each Issuing Agency's identifiers SHALL begin with their registered IAC. IACs issued to an Issuing Agency SHALL NOT be used by any other ISO/IEC 15459 conformant Issuing Agency. For more information, see section 1.2.3.

To ensure identifier interoperability, ISO/IEC 15459-3 specifies "the common rules applicable for unique identification that are required to ensure full compatibility across different identities". These rules, which form the basis of the concepts outlined throughout section 1.2 , provide a basic level of interoperability between conformant identifiers and AIDC data carrier encoding and decoding systems. Furthermore, compliance with 15459-3 ensures all Issuing Agencies establish rules to enable the uniqueness of allocated identifiers for the lifespan of the identified entity. For more information, see section 1.2.4.

Collaboration across sectors

GS1 identifiers, as well as those administered by other issuing agencies, are used across various sectors in the open value chain. Different sectors use GS1 identifiers to varying degrees: some rely solely on them, others combine GS1 identifiers with other identification systems, and some do not use GS1 identifiers at all. Sectors that primarily depend on non-GS1 identifiers today, could adopt GS1 identifiers in future when new requirements emerge and GS1 standards evolve, as exemplified by the healthcare sector.

Although GS1 identifiers are not used in every sector, there is no conflict with identifiers from other Issuing Agencies, when the ISO/IEC 15459 defined registration procedures and common rules are followed. This is because the ISO/IEC 15459 series of specifications is managed within the ISO/IEC

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JTC 1/SC 31, which enables collaboration between Issuing Agencies in areas of AIDC technology standards which help all organisations compete more efficiently in the open value chain. The scope of ISO/ISO JTC 1/ SC31 is defined as "*Standardization of data formats, data syntax, data structures, data encoding, and technologies for the process of automatic identification and data capture and of associated devices utilized in inter-industry applications and international business interchanges and for mobile applications*".

In accordance with ISO/IEC 15459-3 section 6.4, an organisation can claim compliance with ISO/IEC 15459 if it can allocate and process identifiers according to the rules defined in ISO/IEC 15459-3 Common rules, ISO/IEC 15459-2 Registration procedures and any other part(s) of the ISO/IEC 15459 series of standards. See section 1.1.2 for a list of all ISO/IEC 15459 parts and other specifications relevant for GS1 identifiers.

1.2.2 Global and open versus restricted

1.2.2.1 Global and open identifiers (unrestricted distribution)

A global, open identifier, such as a GS1 identifier, is a numeric or alphanumeric string used in unrestricted distribution, which may be applied to entities to be processed globally, without restraint, as to such things as country, company and industry.

In accordance with the GS1 Architecture Principles, *Interoperability* and *Open supply chains and value networks*, any GS1 identification key that has been correctly allocated in conformance with the respective Allocation and Management Rules defined in section 4, SHOULD be acceptable anywhere in the world using the GS1 system.

1.2.2.2 Restricted identifiers (restricted distribution)

A restricted number is a numeric or alphanumeric string used in restricted distribution, which may only be applied on entities to be processed in restricted environments (e.g., within a geographical region, company or industry). Restricted numbers are never unique if they leave the restricted environment. This GS1 Identification standard defines the following identifiers for use in restricted distribution:

1.2.2.2.1 Restricted Circulation Numbers (RCNs)

Restricted Circulation Numbers (RCNs) are identifiers that SHALL NOT be used globally or in open environments. RCNs are only used for special applications in restricted environments, defined by the local GS1 Member Organisation (e.g., restricted within a country, company, or industry). They are allocated by GS1 either for internal use by companies or to GS1 Member Organisations for assignment based on business needs in their country (e.g., variable measure trade item identification, coupons).

RCNs are reserved by GS1 within the same ranges also used for GTIN, and are therefore available in the following lengths, with GS1 Prefix assignment provided in Table 1-4 and GS1-8 Prefix assignment provided in Table 1-5. See section 2 for the intended purposes of each assignment as defined by the relevant Application Standards:

- RCN-12 is a 12-digit Restricted Circulation Number.
- RCN-13 is a 13-digit Restricted Circulation Number.
- RCN-8 is an 8-digit Restricted Circulation Number.

Restricted circulation numbers (RCNs) SHALL only be encoded in EAN-8, EAN-13, UPC-A, or UPC-E barcodes. RCNs SHALL NOT be encoded using any GS1 Application Identifiers.

Note: GS1 is supporting industry with an ambition to read 2D barcodes at retail points of sale around the world by the end of 2027. As RCNs cannot be encoded using GS1 Application Identifiers, they are not permitted for use in 2D barcodes. At the application level for fresh food products, the use of GTIN is strongly recommended for both fixed weight and variable measure products as GTIN can be encoded in 2D barcodes along with additional data. RCNs

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do not provide globally unique identification and interoperable data sharing of important information needed in today's operating environment for traceability, transparency and visibility – see section 2.1.12.1 for further details. For coupon management GS1's direction is towards Global Coupon Numbers (see section 2.6.2) which can also be encoded in 2D barcodes.

1.2.2.2.2 Component/part identifiers (CPID)

The Component/part identifier (CPID) is classified as a GS1 identification key that forms a GS1 identifier for components and parts of finished goods. However, unlike all other GS1 identification keys, CPID is not for use in open supply chain and is restricted to use by mutual agreement only. Components and parts that are themselves trade items are identified by the GTIN, the only GS1 identification key for trade items in open supply chains. See section 1.3.10 for further information about CPID and section 2.6 for the Application Standard.

1.2.2.2.3 Global Location Number (GLN) for physical location and GLN extension component

The Global Location Number (GLN) for physical location and GLN extension component is a GS1 identifier for internal physical locations within a location identified with a GLN, known as sub-locations. This GS1 identifier is restricted to use by mutual agreement only. If required for open supply chain use, sub-locations are identified with a GLN for physical locations. See section 1.3.3.2 for further information on the GS1 identifier and section 2.4.2 for the Application Standard.

1.2.3 Managing uniqueness with GS1 Prefixes and GS1 Company Prefixes (GCP)

A GS1 identification key (as shown in Table 1-1) SHALL be globally unique within its area of GS1 system application. Uniqueness of GS1 identification keys and their relevant GS1 identifiers is managed by the various stakeholders responsible for issuing identification, as shown in Figure 1-1. This begins with the approval of ISO/IEC 15459 conformant Issuing Agencies and the registration and assignment of Issuing Agency Codes (IAC). See section 1.2.1 GS1 as an Issuing Agency for further information.

- GS1's IACs are 0 (zero), 1, 2, 3, 4, 5, 6, 7, 8, and 9 and SHALL be the first character in all GS1 identifier data element values.
  - In conformance with ISO/IEC 15459, GS1 is obliged to ensure all identifiers it issues SHALL always begin with a numeric value in the first position. See section 1.2.4 GS1 identification key requirements for further information.
  - All other Issuing Agency Codes begin with an alpha character(s). The complete list of Issuing Agencies and Issuing Agency Codes can be found here.
- GS1 Global Office manages unique GS1 Prefixes, for allocation to GS1 Member Organisations (MO) to assign and license unique GS1 Company Prefixes (GCP) or individual GS1 identification keys to user companies. In some circumstances, GS1 Global Office allocates GS1 Prefixes or GCPs to third parties for direct or indirect licensing of GS1 identification keys to user companies, subject to the same conformance requirements to ensure uniqueness.
- MOs manage unique GCPs for allocation to user companies, based on the GS1 Prefix(es) allocated by GS1 Global Office.
  - All MOs SHALL have the ability to issue 9-digit GCPs at minimum. A GCP that is licensed to a user company SHALL entitle the user company to create any GS1 identification key.
  - MOs can also issue individual GS1 identification keys, including those with non-numeric characters, one by one (sometimes referred to as single-issue or one-off keys) to user companies as individual GS1 identification key licences. In these circumstances, a complete GS1 identification key, or any part thereof, SHALL NOT be considered as a GCP and SHALL NOT be used to create any other GS1 identification key.
- User companies licensing GCPs or individual GS1 identification keys, such as brand owners or service providers, manage the uniqueness of the GS1 identification keys they allocate from their licensed GCP.

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- User companies licensing individual GS1 identification keys, are responsible for ensuring the GS1 identification key is used only for the purpose defined by the licence e.g., using a GTIN as a GTIN-13 only, not as a GLN or GDTI or as a GCP to allocate other GS1 identification keys.
- To facilitate the effective and consistent allocation of GS1 identification keys across all sectors and regions, allocation and management rules for each GS1 identification key are defined in section 4.

- User companies also manage the uniqueness of GS1 identifier extensions when forming compound GS1 identifiers that are based on the GS1 identification keys allocated from their licensed GCP or individual GS1 identification key licence e.g., GTIN + serial number. Further details on data elements that are considered as GS1 identifier extensions to create compound GS1 identifiers can be found in section 1.3.

The GS1 Prefix and GS1 Company Prefix are used exclusively in GS1 identifiers that may be expressed in GS1 approved applications, for web connectivity via GS1 Digital Link URI and GS1 Link Types, in GS1 EDI messages, for global data synchronisation network registration and in EPC/RFID tags within the header values reserved for the GS1 system. See sections 1.2.3.1 through to 1.2.3.5 for the full details on GS1 Prefix and GS1 Company Prefix. For more information on GS1 identification licensing, see section 1.5.

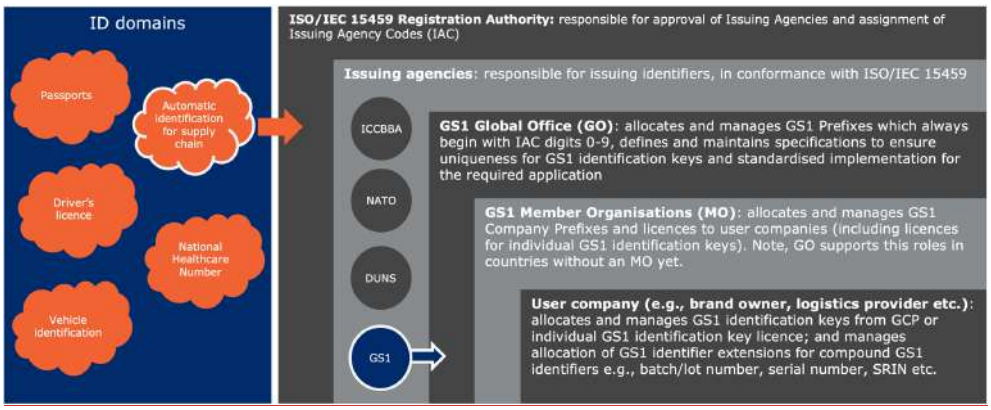

Figure 1-11 1-1 1 Identification stakeholders responsible for managing uniqueness

1.2.3.1 GS1 Prefix

The GS1 Prefix is a unique string of two or more digits, issued by the GS1 Global Office, and allocated to GS1 Member Organisations to issue GS1 Company Prefixes, individual GS1 identification keys or allocated to other specific areas listed in Table 1-4. The main purpose of the GS1 Prefix is to allow distribution of the administration of GS1 identification keys. GS1 Prefix ranges are shown in Table 1-4.

Note: Once a GS1 Prefix is issued, no other GS1 Prefix that begins with the same digits SHALL be issued e.g., If GS1 Prefix 950 has been issued, it is not possible to also issue GS1 Prefix 9501. This ensures each GS1 Company Prefix (GCP) derived from a single GS1 Prefix is unique and does not collide with GCPs issued from another GS1 Prefix.

Table 1-41 41 4 Synopsis of GS1 Prefix ranges

GS1 Prefix range	Significance
0000000	Used to issue Restricted Circulation Numbers within a company
0000001 – 0000099	Unused to avoid collision with GTIN-8

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GS1 Prefix range	Significance
00001 – 00009 0001 – 0009 001 – 019	Used to issue GS1 Company Prefixes from which U.P.C. Company Prefixes can be derived
02	Used to issue Restricted Circulation Numbers within a geographic region (MO defined)
03	Used to issue GS1 Company Prefixes from which U.P.C. Company Prefixes can be derived
04	Used to issue Restricted Circulation Numbers within a company (GS1 user company defined)
05	Used to issue GS1 Company Prefixes, from which U.P.C Company Prefixes can be derived
06 – 09	Used to issue GS1 Company Prefixes from which U.P.C. Company Prefixes can be derived
10 – 19	Used to issue GS1 Company Prefixes
20 – 29	Used to issue Restricted Circulation Numbers within a geographic region (MO defined)
300 – 950	Used to issue GS1 Company Prefixes
951	Previously used (2004-2012) to issue General Manager Numbers for the EPC General Identifier (GID) scheme, as defined by the *EPC Tag Data Standard* (TDS). *GS1 discontinued issuance of new General Manager Numbers in June 2023.*
952	Used for demonstrations and examples of the GS1 system
953 – 976	Used to issue GS1 Company Prefixes
977	Allocated to ISSN International Centre for serial publications
978 – 979	Allocated to International ISBN Agency for books, a portion of 979 sub-allocated to International ISMN Agency for music
980	Used to issue GS1 identification of refund receipts (MO defined)
981 – 983	Used to issue GS1 coupon identification for common currency areas (MO defined)
984 – 989	Reserved for future use
99	Used to issue GS1 coupon identification (MO defined)

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1.2.3.2 GS1-8 Prefix

The GS1-8 Prefix is a unique string of two or more digits issued by GS1 Global Office and allocated to GS1 Member Organisations to issue GTIN-8s or allocated to other specific areas. GS1-8 Prefixes are shown in Table 1-5.

Table 1-5~~1~~ ~~5~~1 ~~5~~ Synopsis of GS1-8 Prefixes

GS1-8 Prefixes	Significance
000 – 099	Used to issue Restricted Circulation Numbers within a company (company defined)
100 – 199	Used to issue GTIN-8s
200 – 299	Used to issue Restricted Circulation Numbers within a company (company defined)
300 – 951	Used to issue GTIN-8s
952	Used for demonstrations and examples of the GS1 system
953 – 976	Used to issue GTIN-8s
977 – 999	Reserved for future use

1.2.3.3 GS1 Company Prefix

A GS1 Company Prefix is a unique string of four to twelve digits used to issue GS1 identification keys. The first digits are a valid GS1 Prefix and the length of the GS1 Company Prefix SHALL be at least one digit longer than the length of the GS1 Prefix. The GS1 Company Prefix issued by a GS1 Member Organisation (MO) or by GS1 Global Office (GO), is based on a GS1 Prefix allocated to the issuer and is allocated either to a GS1 user company or to the issuer (MO or GO) itself (e.g., for issuing individual GS1 identification keys).

A GS1 Company Prefix starting with a zero ('0') SHALL be used to form U.P.C. Company Prefixes, see section 1.2.3.5 for further details.

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Note: Once a GS1 Company Prefix (GCP) is issued, no other GS1 Company Prefix that begins with the same digits SHALL be issued e.g., If 8-digit GCP 95010861 has been issued, it is not permitted to also issue the 9-digit GCP 950108611. Once a GCP is licensed to a user company, it SHALL NOT be used to license any single-issue GS1 identification keys e.g., if the 8-digit GCP 95010861 has been licensed, it is not permitted to issue 9501086100017 as an individual GS1 identification key licence. This ensures each GS1 identification key issued from a GS1 Company Prefix is unique and does not duplicate those issued from another GS1 Company Prefix.

Note: As explained in section 1.2.3, a GS1 identification key issued as an individual GS1 identification key licence, sometimes referred to as single-issue or one-off GS1 identification key, SHALL NOT be used as a GS1 Company Prefix to create any other GS1 identification keys e.g., A GTIN-13 that is composed of 12 digits and 1 check digit, cannot be used as a 12-digit GCP that has capacity for a single GTIN-13, as well as other GS1 identification keys.

1.2.3.4 U.P.C. Prefix

A U.P.C. Prefix is derived by removing the leading zero ('0') from a GS1 Prefix that starts with zero e.g., U.P.C. Prefix 61 is derived from GS1 Prefix 061.

A U.P.C. Prefix is:

- used to issue U.P.C. Company Prefixes;
- reserved for Restricted Circulation Numbers; or
- reserved for special functions.

U.P.C. Prefix ranges are shown in Table 1-6.

Table 1-6~~1~~ ~~6~~1 ~~6~~ Synopsis of U.P.C. Prefix ranges

GS1 Prefix range	U.P.C. Prefix range	Significance
0000000	000000	Used to issue Restricted Circulation Numbers within a company
0000001 – 0000099	N/A	Unused to avoid collision with GTIN-8
00001 – 01999	0001 – 1999	Used to issue U.P.C. Company Prefixes
02	2	Used to issue Restricted Circulation Numbers within a geographic region
03	3	Used to issue U.P.C. Company Prefixes, reserved for alignment with FDA Labeler Code
04	4	Used to issue Restricted Circulation Numbers within a company
05	5	Reserved for future use
06 – 09	6 – 9	Used to issue U.P.C. Company Prefixes

1.2.3.5 U.P.C. Company Prefix

A U.P.C. Company Prefix is derived by removing the leading zero ('0') from a GS1 Company Prefix that starts with zero. A U.P.C. Company Prefix SHALL only be used to construct 12-digit trade item identifiers e.g., GTIN-12 and RCN-12; see section 2 for details.

When a leading zero is added to a U.P.C. Company Prefix, it becomes a GS1 Company Prefix that may be used to issue all other GS1 identification keys, including GTIN-14.

Note: For example, the 6-digit U.P.C. Company Prefix 614141 is derived from the 7-digit GS1 Company Prefix 0614141. The U.P.C. Company Prefix 614141 is used to assign GTIN-12, whereas the GCP 0614141 is used to assign other GS1 identification keys such as GLN, SSCC etc, including GTIN-14.

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1.2.4 GS1 identification key requirements

A GS1 identification key is a globally unique and interoperable string that is the basis of the relevant GS1 identifier for:

- a class of entities (e.g., document type)
- a sub-class of entities (e.g., trade item production batch/lot)
- an instance of an entity (e.g., logistic unit)

See section 1.2.4.1 for more information on entities and identification granularity, including additional examples.

To ensure that GS1 identifiers can be consistently used and understood, data element qualifiers as defined by the required technology, SHALL be used with GS1 identifier data element values, to ensure that the meaning of such data is never altered by the choice of technology e.g., AIDC data carriers or information systems etc. See section 1.2.4.4 for further information on identification data element qualifiers.

At minimum, the GS1 identifier data element value SHALL contain one of the following:

- a GS1 Prefix (only for individually assigned GS1 identification key);
- a GS1-8 Prefix (only for GTIN-8);
- a GS1 Company Prefix;
- a U.P.C. Prefix (only for individually assigned GTIN-12); or
- a U.P.C. Company Prefix (only for GTIN-12).

The majority of GS1 identification keys begin with a GS1 Company Prefix (formed from a GS1 Prefix), with a minority beginning with an extension or indicator digit before the GS1 Company Prefix. See section 1.2.3 through to 1.2.3.5 for more information.

1.2.4.1 Entity and identification granularity

To ensure no ambiguity when sharing information about each class, sub-class or instance of an entity, often between unknown stakeholders, a unique GS1 identifier at each level of granularity SHALL be required, as defined in section 1.3.

The entities in each area of GS1 system application, are the subjects of information that are exchanged by various stakeholders in an open value chain. Entities may exist at one or more of the following granularity levels, as shown in Figure 1-2, with different sets or subsets of information associated with each level:

- **Class level:** the broadest collection of entities, with some (or all) shared fundamental data that are applicable to/inherited by all levels below it.
  - All entities in a class share the same class level GS1 identifier to identify an entity at a coarser granularity.
  - Examples of class level GS1 identifiers include the GTIN for Made-to-Stock trade items, GRAI without serial component for returnable assets, GDTI without serial component for documents etc.
- **Sub-class level**: a narrower collection of entities within a class, with a subset of some (or all) shared additional, distinguishing data that are applicable to/inherited by all levels below it, but not above it.
  - All entities within a sub-class share a common class level GS1 identifier but each has a unique sub-class level GS1 identifier, to identify an entity at a finer granularity than at class level but at a coarser granularity than instance level.
  - Examples of sub-class level GS1 identifiers include either the Made-to-Order or Made-to-Stock GTIN and batch/lot number for trade items from the same production batch/lot or a Made-to-Stock GTIN and Consumer Product Variant for trade item variants.
- **Instance level:** the most specific, individual occurrence of an entity, with a precise set of data that are not applicable to/inherited by any level above it.

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- Each instance of an entity has a unique instance level GS1 identifier, not shared with any other entities in the class or sub-class, to identify an entity at the finest granularity.
- Examples of instance level GS1 identifiers include GTIN and serial number for serialised Made-to-Stock trade items, the GRAI with serial component for serialised returnable assets, the GLN for locations, the SSCC for logistics units etc.

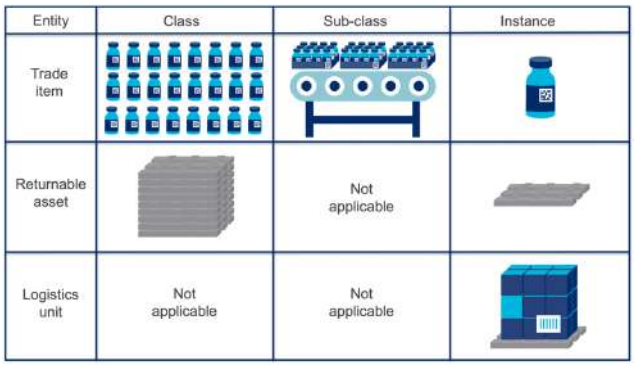

Figure 1-2~~1-2 2~~ Entity level examples

An entity at class level has many occurrences which need to be identified at a coarser level, to broadly group them and link to the data that applies identically to all occurrences of the entity in the class. In contrast, an entity at the instance level has a single occurrence which needs to be identified at a finer level, to specify the exact individual occurrence of the entity and to link to data that is unique/specific to it. This relation between identification granularity and entities is shown in Figure 1-3.

Each entity level has associated information for data exchange, that may be inherited by the levels below it, but not above it, as shown in Figure 1-3. For example, a returnable pallet at class level, may have dimensions, maximum load weight and material, but at instance level, data such as current warehouse location, last inspected date and defect/damage history may be associated to a specific pallet. The dimensions, maximum load weight and material are applicable to all instances of the returnable pallet, but the current warehouse location, last inspected date and defect/damage history are only applicable to that individual instance of the returnable pallet.

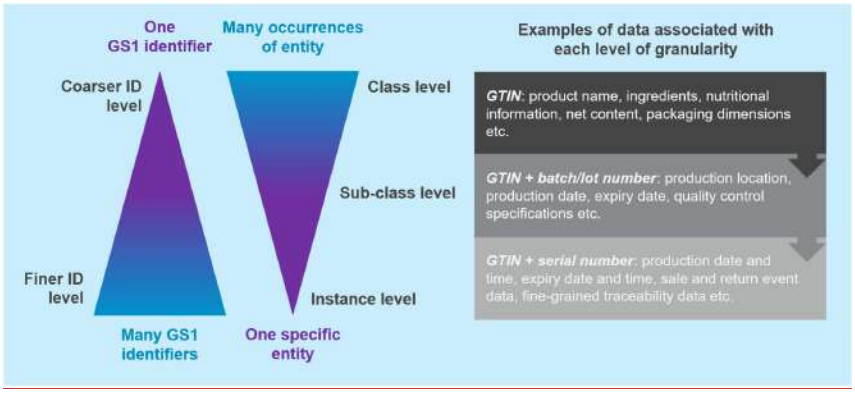

Figure 1-3~~1-3 1-3~~ Relation between identification granularity, entities and associated data

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See section 1.3 for a definition of each GS1 identifier, including the various levels of granularity where applicable. See section 4.1 of the GS1 System Architecture for further information about entities.

1.2.4.2 GS1 tiers of identifiers

To clarify the relationship between GS1 identifiers, and identifiers that are administered by other issuing agencies with various degrees of support or recognition within parts of the GS1 system, the GS1 System Architecture defines the following four tiers of identifiers, summarised in Table 1-7 :

- **Tier 1:** identifiers controlled and administered entirely by GS1 e.g., All GS1 identifiers based on the GS1 identification keys shown in section 1.1.1.
- **Tier 2:** identifiers whose framework is controlled by GS1 and for which a portion of the identification capacity is allocated to an identification scheme administered by an external agency e.g., ISBN, ISMN, ISSN.
- **Tier 3:** Keys fully administered and controlled outside GS1 and which are explicitly supported as primary identifiers in some parts of the GS1 system e.g., Aerospace and Defense Identifier (ADI), US Department of Defence Identifier (USDoD) etc.
- **Tier 4:** Keys fully administered and controlled outside of GS1, and which are not explicitly supported but may be implicitly supported as primary identifiers in some parts of the GS1 system.

This GS1 Identification Standard is applicable to tier 1 and 2 identifiers only. See section 4.3 of the GS1 System Architecture for further information about each tier.

Table 1-7~~1-7~~ ~~1-7~~ Summary of GS1 tiers of identifiers and characteristics

Tier	Managed	Agreement	GS1 Prefix	Interoperability*
1	By GS1	N/A	Yes	Full
2	Externally	Required	Yes	Variable
3	Externally	Required	No	Limited
4	Externally	No	No	None
* Interoperability is the ability to use the GS1 identifier within the context of business processes supported by GS1 standards.				

1.2.4.3 Simple or compound GS1 identifiers

GS1 identifiers can be either simple or compound GS1 identifiers.

Simple GS1 identifiers, such as GDTI or GLN of physical location, express GS1 identification keys as a single data element. Simple GS1 identifiers may identify entities:

- at class level e.g., GTIN identifies a collection or series of identical Made-to-Stock products or services.
- at instance level e.g., SSCC identifies one specific logistics unit.
- at both class or instance level, depending on whether a serial component is present or not, in the optional GS1 data element segment e.g., GRAI identifies a grouping of returnable assets or one specific returnable asset.

Compound GS1 identifiers, such as Made-to-Order GTIN with serial number, or GLN of invoicing party with payment slip reference number, combine a simple GS1 identifier with one or more GS1 identifier extensions. In many cases, compound GS1 identifiers identify entities at a finer granularity than using the simple GS1 identifier alone:

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- at sub-class level e.g., GTIN with batch/lot number identifies a grouping of Made-to-Stock products from the same production batch/lot.
- at instance level e.g., GTIN with serial identifies one specific Made-to-Stock product.
- See section 1.2.4.1 for information on entities and identification granularity.

However, when a simple GS1 identifier is an instance level identifier by default, the compound GS1 identifier will either:

- provide serialisation capacity e.g., GLN of a physical location with GLN extension identifies a sub-location within a larger physical location.
- or identify a related entity within the context of the entity identified by the simple GS1 identifier e.g., GSRN-Recipient or GSRN-Provider with SRIN identifies a service encounter or episode a service relationship, such as a medical procedure for a patient that is a service recipient or a maintenance visit carried out by a technician that is a service provider.

See section 4.2 of the GS1 System Architecture for a list of entities identified with simple and compound GS1 identifiers.

1.2.4.4 Identification data element qualifiers

GS1 identifiers, which are composed of one or more data elements, are fundamental for the entire GS1 system and are an essential technical component of every GS1 standard. However, as GS1 identifiers are defined independently of technology such as AIDC data carriers or information systems, it is the chosen technology that defines how GS1 identifiers are represented.

To ensure a GS1 identifier remains consistent across all technologies, irrespective of which technology is chosen, GS1 identifiers are expressed as data element qualifier-value pairs. A data element qualifier ensures the data element value it is paired with, can be interpreted unambiguously, used consistently, and enables systems or technologies to differentiate between:

- GS1 identifiers (simple or compound) that identify entities at various levels of granularity and serve as proxies for the entities to facilitate lookup or retrieval of further information
- GS1 informative data that provide information about the entity to inform or enable a decision or an action

Data element qualifiers are defined by the relevant GS1 technical standard and specify the allowed character set and structure of the data element value.

- When encoded using GS1 approved AIDC data carriers, GS1 identifiers SHALL use GS1 Application Identifiers (AI) as data element qualifiers, as defined in section 3, when expressed in a GS1 syntax. For example:
  - in GS1 element strings (e.g., used in barcodes such as GS1 DataMatrix or GS1-128), the GLN of a physical location is represented explicitly with AI (414).
  - in GS1 Digital Link URI syntax (e.g., used in regular QR Codes and Data Matrix symbols), GS1 Application Identifiers are expressed explicitly within the URI structure. GS1 identifiers are expressed within the structured URI path information e.g., /01/ appears as a data element qualifier before the 14-digit GTIN value and /21/ appears as a data element qualifier before the serial number value.
    - As no more than one GS1 identifier may be expressed in the structured URI path, any associated or additional GS1 identifiers are expressed within the URI query string as key=value pairs e.g., SSCC (00) with GTIN contained (02) is https://id.example.com /00/095212340005678903?02=09521234000020&37=50 and GTIN + serial number (01)+(21) with GIAI (8004) is https://id.example.com /01/09521234500001/21/ABC123?8004=09521234500XY098
  - in plain syntax (e.g., used within EAN/UPC and ITF-14 barcodes), the AI (01) is implied, as these symbologies only support Made-to-Stock GTIN.
  - when using EPC/RFID, each EPC scheme is associated with one or more GS1 Application Identifier(s) that form an instance-granularity GS1 identifier, with an 8-bit EPC header used to distinguish one EPC scheme from another e.g., the EPC schemes SGTIN-96, SGTIN-198

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and SGTIN+ each have distinct 8-bit EPC headers but all three of these schemes effectively encode a Made-to-Stock GTIN (01) and a serial number (21)

- Note that the 96-bit EPC schemes in general can only support all-numeric values and in some cases with limited capacity e.g. SGTIN-96 can only encode an all-numeric serial number in the range 0 to 274,877,906,943 as an integer, with no preservation of leading zeroes and significantly fewer than the 20 characters permitted by Serial Number (21).

- GS1 identifiers SHALL NOT be used with non-GS1 data element qualifiers e.g., Data Identifiers (DI), Object Identifiers (OID).
- See section 1.4 for further information on expressing GS1 identifiers in each of the syntaxes used for GS1 data elements described above.

- For data sharing applications, a constrained subset of GS1 Digital Link URIs (as normatively specified in CBV) may be used within EPCIS event data. More generally, GS1 Digital Link URIs may be used within any Linked Data (e.g. structured data in JSON-LD format), expressing GS1 Application Identifiers within the URI structure as described above.
  - EPCIS uses fields such as `epcList`, `inputEPCList`, `outputEPCList`, `parentID`, `childEPCs` etc. whose values are URIs that may be any instance-granularity identifier, rather than using dedicated data element qualifiers for expressing the SSCC, GTIN, Serial Number etc. as separate fields. This approach provides flexibility for EPCIS events and aligns with W3C Linked Data principles in which identifiable things are identified using Web URIs. For more information on EPCIS and CBV, see https://www.gs1.org/standards/epcis
  - The GS1 Web Vocabulary is a Linked Data ontology which defines properties such as gs1:gtin, gs1:partyGLN and gs1:locationGLN when there is a need to link to the GS1 identifier data element value, such as a 14-digit GTIN string or a 13-digit GLN string, from the corresponding GS1 Digital Link URI. For more information on the GS1 Web Vocabulary, see https://ref.gs1.org/voc/.
    - In Linked Data, best practice is to use Web URIs, as globally unique identifiers for entities that are described by factual claims, to make it easier to link sets of facts together when they relate to the same identified entity. GS1 Digital Link URIs are a Web URI format for GS1 identifiers and can be used as the Resource Description Framework (RDF) Subject (shown in bold in the JSON-LD example below) to represent the various entities across each area of GS1 system application, when providing details about those entities using Linked:

      ```
      {
       "@context": {"gs1": https://ref.gs1.org/voc/},
       "@id": "https://id.gs1.org/01/09506000134352",
       "gs1:gtin": "09506000134352",
       "@type": "gs1:FoodBeverageTobaccoProduct",
       "gs1:productName": {"@value":"Dal Giardino Risotto Rice with Mushrooms 411g","@language":"en"},
       "gs1:productDescription": {"@value":"A delicious mix of fragrant rice with Italian mushrooms","@language":"en"}
      }
      ```

    - For information on Linked Data, see the Semantic Data Modelling Technical Bulletin
  - Within EDI messages, <gtin> is a data element qualifier defined for GS1 XML and C212 is a data element qualifier defined for EANCOM. For more information and normative references, please see https://www.gs1.org/standards/edi.
  - Within GDSN XML messages, whose schemas are based on the conventions of the GS1 XML Standard, <gtin> and <gln> are the usual data element qualifiers for expressing a GTIN or a GLN. For more information and normative references, please see https://www.gs1.org/standards/gdsn.

See section 1.3 for examples of data element qualifiers for GS1 identifiers across AIDC and data sharing standards.

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1.2.4.5 Character set

The GS1 Identification Standard supports three different character sets, which are a GS1 subset of characters from the ISO/IEC 646 table 1, in conformance with ISO/IEC 15459-3. The specific character set(s) required for each GS1 identification key and their defined GS1 identifiers are detailed in section 1.3 . The three character sets and the conventions for their representation are shown below:

- digit characters ('0' to '9'): represented as "N"
- character set 82 which includes digit characters ('0' to '9'), alphabetic upper-case ('A' to 'Z') and lower-case ('a' to 'z') and twenty special characters, excluding "space" character – see Table 7-19~~Table 7-19~~: represented as "X"
- character set 39 which includes digit characters ('0' to '9'), upper case alphabetic characters ('A' to 'Z'), and three special characters ('#', '-' and '/') – see Table 7-20~~Table 7-20~~: represented as "Y"

As every GS1 identifier defined in this GS1 Identification Standard is a string, even when it is composed only of digit characters, all characters including leading zeroes are significant. Historically, strings may also be referred to as numbers despite including non-numeric characters e.g., serial number, Global Model Number etc.

1.3 GS1 identification keys and GS1 identifiers

This section defines the GS1 identification key required for each area of GS1 system application and the simple or compound GS1 identifier required to identify entities at every level of granularity or related entities for the application, as shown in Figure 1-4. Colours are to distinguish between the various entities and common GS1 identifier.

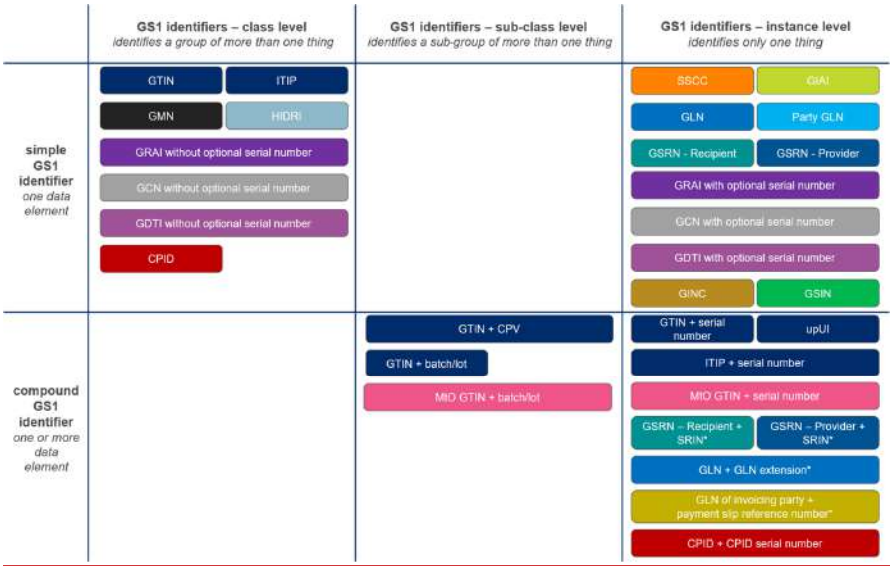

Figure 1-4~~1-41-41-4~~ GS1 identifiers at each available level of granularity or related entities

Note: GS1 identifiers shown with * indicate compound GS1 identifiers for related entities or additional capacity, rather than entities at finer granularity. See section 1.2.4.3 for information on simple and compound GS1 identifiers.

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Each GS1 identification key section contains:

- Reference to the relevant application standard(s) in section 2.
- Overview of the required format and structure, including the character sets as explained in section 1.2.4.5.
- All GS1 identifiers based on the GS1 identification key

Each GS1 identifier section contains:

- Short description of the entity, as defined for each area of GS1 system application in section 2
- Simple or compound GS1 identifier, as explained in section 1.2.4.3.
- Class, sub-class or instance level, as explained in section 1.2.4.1.
- Tier 1 or 2, as explained in section 1.2.4.2.
- Required format and structure, including the character sets as explained in section 1.2.4.5.
- Data element qualifiers defined by technologies in common use (not an exhaustive list), as explained in section 1.2.4.4. Data element qualifiers are listed in tables for each GS1 identifier to provide visibility of which levels of GS1 identifier granularity or related entities are supported or not currently supported. Please note the following:
  - For EPC related technologies, these are not literal data element qualifiers that prefix the literal values of a GS1 identifier, in the same manner as a typical data element qualifier-value pair. Instead, they are data structures defined by the GS1 EPC Tag Data Standard (TDS) that are associated with one or more GS1 Application Identifiers, to encode a representation of the GS1 identifier data element value e.g., the EPC binary encoding (in hexadecimal form) 3066C4409047E140075BCD15, encodes the GS1 element string (01)09506000134352(21)123456789 as an SGTIN-96 EPC, where the EPC binary header 30h indicates that an SGTIN-96 EPC is encoded in on the EPC/RFID tag. Please see section 1.4.3 for further information on EPC URI and EPC binary syntax. Please refer to the GS1 EPC Tag Data Standard (TDS) Appendix E.3 for further examples of each EPC scheme.
  - For the GS1 Web Vocabulary, although GS1 identifiers are expressed using data element qualifier-value pairs e.g., `"gs1:gtin": "09506000134352"`, it is best practice to use the corresponding GS1 Digital Link URI as the unique identifier, acting as the Resource Description Framework (RDF) Subject in Linked Data, to link to information about an entity such as a GS1 identifier (as shown above), entity type/category, description etc. Please see section 1.2.4.4 for further information about the GS1 Web Vocabulary including a Linked Data JSON-LD example.

1.3.1 Trade items – Global Trade Item Number (GTIN)

The GS1 identification key that forms the basis of all GS1 identifiers for trade items is the **Global Trade Item Number (GTIN)**. The following sub-sections define the GS1 identifiers available for every level of granularity, that are required for the specific type of trade item, as defined for trade item applications in section 2.1 and special applications in section 2.6.

GTINs are numeric strings that are available in four formats GTIN-8, GTIN-12, GTIN-13, or GTIN-14, as shown below in table 1-8, with the required format defined by the relevant application in section 2.2 or 2.6.

Table 1-8~~1-8~~ ~~1-8~~ 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}

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When any of these GTINs is encoded in a data carrier or other application that requires a fixed-length data string of 14-digits, the GTINs with fewer than 14-digits in length must be prefixed by leading zeroes that simply act as filler digits, as shown in bold below in table 1-9. The presence or lack of these leading zeroes does not change the GTIN data element value.

Table 1-9 14-digit representation for the four GTIN formats

	Global Trade Item Number													
	GS1-8 Prefix or GS1 Company Prefix →									← Item reference				Check digit
(GTIN-8)	**0**	**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}

These fixed length strings are unique as they incorporate a GS1 Company Prefix, U.P.C. Prefix or GS1-8 Prefix from position N_1 for GTIN-13, GTIN-12 and GTIN-8, or from position N_2 for GTIN-14, with an item reference, and as they are always treated as a data string of digits plus a final check digit, as shown above in table 1-9. The check digit helps to detect and reject incorrectly composed values e.g., when entering data manually, and is explained in section 7.9.

Note: Within a database field and depending on the application requirements, GTINs may be stored with or without these leading zeroes (see emboldened zeroes in table 1-9), but there SHALL be consistency within the database field about whether these leading zeroes are present or not. However, a GTIN-12 may start with one, two or three leading zeroes in position N_1, N_2 and N_3 as shown in table 1-9. These zeroes are meaningful since they are part of the U.P.C. Company Prefix e.g., U.P.C Prefix 000510. Therefore these zeroes must be preserved when storing the GTIN-12 in a database field. For the list of U.P.C. Prefix ranges see section 1.2.3.4.

1.3.1.1 Made-to-Stock Global Trade Item Number (GTIN)

The Global Trade Item Number (GTIN) is the GS1 identifier for any Made-to-Stock product or service, and is used to support trade (i.e., pricing, ordering, invoicing).

Simple or compound:

Simple

Class, sub-class or instance level:

Class

Tier 1 or 2:

Tier 1

Structure:

GTIN as explained in section 1.3:

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	Global Trade Item Number													
	GS1-8 Prefix or GS1 Company Prefix										Item reference			Check digit
(GTIN-8)	**0**	**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}

Data element qualifiers defined by technologies in common use:

Technology	Data element qualifier
AIDC: plain syntax	symbology identifiers for EAN/UPC and ITF-14 symbologies
AIDC: GS1 element string syntax	01
AIDC: GS1 Digital Link URI syntax	/01/
EPC scheme	EPC SGTIN **Pattern** (for expressing GTIN with wildcard in place of serial number)
EPC binary encoding header	Not supported
Pure Identity EPC URI (URN) stem	`urn:epc:idpat:sgtin:`
EPC Tag URI (URN) stem(s)	Not supported
GS1 Web Vocabulary	gs1:gtin (https://ref.gs1.org/voc/gtin)
EANCOM	C212:7140 with C212:7143=SRV and C212:3055=9 (GS1)
GS1 XML	<gtin> attribute
...	...

1.3.1.2 GTIN and batch/lot number

The Global Trade Item Number (GTIN) with a batch/lot number is the GS1 identifier for a Made-to-Stock product grouped by production batch/lot.

Simple or compound:

Compound

Class, sub-class or instance level:

Sub-class

Tier 1 or 2:

Tier 1

Structure:

GTIN (simple GS1 identifier) as explained in section 1.3:

	Global Trade Item Number													
	GS1-8 Prefix or GS1 Company Prefix										Item reference			Check digit
(GTIN-8)	**0**	**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}

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With batch/lot number (GS1 identifier extension):

Batch or lot number
X_1 ——————→ variable length ——————→X_{20}

Data element qualifiers defined by technologies in common use:

Technology	Data element qualifier
AIDC: plain syntax	Not supported
AIDC: GS1 element string syntax	01 and 10
AIDC: GS1 Digital Link URI syntax	/01/ and /10/
EPC scheme	EPC LGTIN **Class**
EPC binary encoding header	Not supported
Pure Identity EPC URI (URN) stem	`urn:epc:class:lgtin:`
EPC Tag URI (URN) stem(s)	Not supported
GS1 Web Vocabulary	gs1:gtin (https://ref.gs1.org/voc/gtin) and gs1:hasBatchLotNumber (https://ref.gs1.org/voc/hasBatchLotNumber)
EANCOM	C212:7140 + C208:7402 with 7405=BX. In EDI the concept of GTIN + batch/lot number as an identifier is not supported. GTIN and LOT number are well distinguished data (although in a one-to-many relationship)
GS1 XML	<gtin> and <lotNumber>, <kitLotNumber>
...	...

1.3.1.3 GTIN and Consumer Product Variant (CPV)

The Global Trade Item Number (GTIN) with a Consumer Product Variant (CPV) number is the GS1 identifier for a Made-to-Stock product variant.

Simple or compound:

Compound

Class, sub-class or instance level:

Sub-class

Tier 1 or 2:

Tier 1

Structure:

GTIN (simple GS1 identifier) as explained in section 1.3:

	Global Trade Item Number													
	GS1-8 Prefix or GS1 Company Prefix ——→									←—— Item reference				Check digit
(GTIN-8)	**0**	**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}

With CPV (GS1 identifier extension):

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Consumer product variant
X_1 ——— variable length ———> X_{20}

Data element qualifiers defined by technologies in common use:

Technology	Data element qualifier
AIDC: plain syntax	Not supported
AIDC: GS1 element string syntax	01 and 22
AIDC: GS1 Digital Link URI syntax	/01/ and /22/
EPC scheme	Not supported
EPC binary encoding header	Not supported
Pure Identity EPC URI (URN) stem	Not supported
EPC Tag URI (URN) stem(s)	Not supported
GS1 Web Vocabulary	gs1:gtin (https://ref.gs1.org/voc/gtin) and gs1:consumerProductVariant (https://ref.gs1.org/voc/consumerProductVariant)
EANCOM	Not well supported. In theory the use of a PIA segment after the LIN allows the indication of additional identifiers leveraging the code list 7143 but there isn't a qualifier mapping exactly to the CPV
GS1 XML	<gtin> and <productVariantIdentifier>
...	...

1.3.1.4 GTIN and serial number

The Global Trade Item Number (GTIN) with a serial number is the GS1 identifier for a serialised Made-to-Stock product.

Simple or compound:

Compound

Class, sub-class or instance level:

Instance

Tier 1 or 2:

Tier 1

Structure:

GTIN (simple GS1 identifier) as explained in section 1.3:

	Global Trade Item Number													
	GS1-8 Prefix or GS1 Company Prefix ——>									<—— Item reference				Check digit
(GTIN-8)	**0**	**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}

With serial number (GS1 identifier extension):

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Serial number
X_1 ——————— variable length ———————> X_{20}

Data element qualifiers defined by technologies in common use:

Technology	Data element qualifier
AIDC: plain syntax	Not supported
AIDC: GS1 element string syntax	01 and 21
AIDC: GS1 Digital Link URI syntax	/01/ and /21/
EPC scheme	SGTIN EPC
EPC binary encoding header	SGTIN-96 (30_h) SGTIN-198 (36_h) SGTIN+ ($F7_h$) DSGTIN+ (FB_h) - see note
Pure Identity EPC URI (URN) stem	urn:epc:id:sgtin:
EPC Tag URI (URN) stem(s)	urn:epc:tag:sgtin-96: urn:epc:tag:sgtin-198:
GS1 Web Vocabulary	gs1:gtin (https://ref.gs1.org/voc/gtin) and gs1:hasSerialNumber (https://ref.gs1.org/voc/hasSerialNumber)
EANCOM	C212:7140 + C208:7402 with 7405=BN. In EDI the concept of GTIN + serial number as an identifier is not supported. GTIN and Serial number are well distinguished data (although in a one-to-many relationship)
GS1 XML	<gtin> and <serialNumber>, <kitSerialNumber>
...	...

Note: The DSGTIN+ EPC Binary header represents a date-prioritised serialised GTIN. See the GS1 EPC Tag Data Standard for further information.

1.3.1.5 Unit pack Unique Identifier (upUI): GTIN and Third Party Controlled, Serialised Extension of GTIN (TPX)

The Global Trade Item Number (GTIN) with a Third Party Controlled, Serialised Extension of GTIN (TPX) is the GS1 identifier that serves as a unit pack Unique Identifier (upUI) for tobacco products subject to European Regulation 2018/574.

Simple or compound:

Compound

Class, sub-class or instance level:

Instance

Tier 1 or 2:

Tier 1

Structure:

GTIN (simple GS1 identifier) as explained in section 1.3:

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	Global Trade Item Number													
	GS1-8 Prefix or GS1 Company Prefix →									← Item reference				Check digit
(GTIN-8)	**0**	**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}

With TPX (GS1 identifier extension):

Third Party Controlled, Serialised Extension of GTIN
X_1 ——— variable length ———→ X_{28}

Data element qualifiers defined by technologies in common use:

Technology	Data element qualifier
AIDC: plain syntax	Not supported
AIDC: GS1 element string syntax	01 and 235
AIDC: GS1 Digital Link URI syntax	/01/ and /235/
EPC scheme	UPUI EPC
EPC binary encoding header	Not supported
Pure Identity EPC URI (URN) stem	`urn:epc:id:upui:`
EPC Tag URI (URN) stem(s)	Not supported
GS1 Web Vocabulary	gs1:gtin (https://ref.gs1.org/voc/gtin) and gs1:hasThirdPartyControlledSerialNumber (https://ref.gs1.org/voc/hasThirdPartyControlledSerialNumber)
EANCOM	Not supported. In theory the use of a PIA segment after the LIN allows the indication of additional identifiers leveraging the code list 7143 but there isn't a qualifier mapping exactly the TPX
GS1 XML	Not supported. In theory it could be supported adding a value for TXP in the AdditionalTradeItemIdentificationTypeCode code list
...	...

1.3.1.6 Made-to-Order (MtO) GTIN and batch/lot

The Made-to-Order (MtO) Global Trade Item Number (GTIN) and batch/lot number is the GS1 identifier for a bespoke product based on application standard specific rules, grouped by production batch/lot.

Simple or compound:

Compound

Class, sub-class or instance level:

Sub-class

Tier 1 or 2:

Tier 1

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Structure:

GTIN (simple GS1 identifier) as explained in section 1.3:

	Global Trade Item Number													
	GS1-8 Prefix or GS1 Company Prefix ——>									<—— Item reference				Check digit
(GTIN-8)	**0**	**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}

With batch/lot number (GS1 identifier extension):

Batch or lot number
X_1——————> variable length ——————>X_{20}

Data element qualifiers defined by technologies in common use:

Technology	Data element qualifier
AIDC: plain syntax	Not supported
AIDC: GS1 element string syntax	03 and 10
AIDC: GS1 Digital Link URI syntax	Not supported
EPC scheme	Not supported
EPC binary encoding header	Not supported
Pure Identity EPC URI (URN) stem	Not supported
EPC Tag URI (URN) stem(s)	Not supported
GS1 Web Vocabulary	Not supported
EANCOM	Not supported
GS1 XML	Not supported
...	...

1.3.1.7 Made-to-Order (MtO) GTIN and made-to order variant

Placeholder until sections 2.6.7 and 2.6.8 are replaced by a new Made-to-Order application standard

1.3.1.8 Made-to-Order (MtO) GTIN and serial number

The Made-to-Order (MtO) Global Trade Item Number (GTIN) and serial number is the GS1 identifier for a serialised bespoke product or service based on application standard specific rules.

Simple or compound:

Compound

Class, sub-class or instance level:

Instance

Tier 1 or 2:

Tier 1

Structure:

GTIN (simple GS1 identifier) as explained in section 1.3:

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	Global Trade Item Number													
	GS1-8 Prefix or GS1 Company Prefix →									← Item reference				Check digit
(GTIN-8)	**0**	**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}

With serial number (GS1 identifier extension):

Serial number
X_1 ——— variable length ———→ X_{20}

Data element qualifiers defined by technologies in common use:

Technology	Data element qualifier
AIDC: plain syntax	Not supported
AIDC: GS1 element string syntax	03 and 21
AIDC: GS1 Digital Link URI syntax	Not supported
EPC scheme	Not supported
EPC binary encoding header	Not supported
Pure Identity EPC URI (URN) stem	Not supported
EPC Tag URI (URN) stem(s)	Not supported
GS1 Web Vocabulary	Not supported
EANCOM	Not supported
GS1 XML	Not supported
...	...

1.3.1.9 International Standard Book Number (ISBN) compatible with GTIN-13

The International Standard Book Number (ISBN) is the GS1 identifier for any hardcover book and paperback.

Simple or compound:

Simple

Class, sub-class or instance level:

Class

Tier 1 or 2:

Tier 2

Structure:

13-digit structure defined by ISBN, beginning with GS1 Prefix 978 or 979

Data element qualifiers defined by technologies in common use:

Technology	Data element qualifier
AIDC: plain syntax	symbology identifiers for EAN/UPC and ITF-14 symbologies
AIDC: GS1 element string syntax	Not supported

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Technology	Data element qualifier
AIDC: GS1 Digital Link URI syntax	Not supported
EPC scheme	EPC SGTIN **Pattern**
EPC binary encoding header	Not supported
Pure Identity EPC URI (URN) stem	urn:epc:id:sgtin:
EPC Tag URI (URN) stem(s)	Not supported
GS1 Web Vocabulary	gs1:gtin (https://ref.gs1.org/voc/gtin)
EANCOM	C212:7140 and C212:7143=IB
GS1 XML	<additionalTradeItemIdentification>
...	...

1.3.1.10 International Standard Music Number (ISMN) compatible with GTIN-13

The International Standard Music Number (ISMN) is the GS1 identifier for notated music.

Simple or compound:

Simple

Class, sub-class or instance level:

Class

Tier 1 or 2:

Tier 2

Structure:

13-digit structure defined by ISBN, beginning with GS1 Prefix 9790 (as assigned by ISBN, based on the GS1 Prefix 979 assigned to ISBN).

Data element qualifiers defined by technologies in common use:

Technology	Data element qualifier
AIDC: plain syntax	symbology identifiers for EAN/UPC and ITF-14 symbologies
AIDC: GS1 element string syntax	Not supported
AIDC: GS1 Digital Link URI syntax	Not supported
EPC scheme	EPC SGTIN **Pattern**
EPC binary encoding header header	Not supported
Pure Identity EPC URI (URN) stem	urn:epc:id:sgtin:
EPC Tag URI (URN) stem(s)	Not supported
GS1 Web Vocabulary	gs1:gtin (https://ref.gs1.org/voc/gtin)
EANCOM	Not supported. A specific new code in 7143 code list would be needed to support it
GS1 XML	Not supported. A specific new code in additionalTradeItemIdentificationTypeCode would be needed to support it
...	...

1.3.1.11 International Standard Serial Number (ISSN) compatible with GTIN-13

The International Standard Serial Number (ISSN) is the GS1 identifier for any serial publication.

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Simple or compound:

Simple

Class, sub-class or instance level:

Class

Tier 1 or 2:

Tier 2

Structure:

13-digit structure defined by ISSN, beginning with GS1 Prefix 977.

GS1 Prefix	ISSN (without its check digit)	Variant	Check digit
9 7 7	N_4 N_5 N_6 N_7 N_8 N_9 N_{10}	N_{11} N_{12}	N_{13}

Data element qualifiers defined by technologies in common use:

Technology	Data element qualifier
AIDC: plain syntax	symbology identifiers for EAN/UPC and ITF-14 symbologies
AIDC: GS1 element string syntax	Not supported
AIDC: GS1 Digital Link URI syntax	Not supported
EPC scheme	Not supported
EPC binary encoding header	Not supported
Pure Identity EPC URI (URN) stem	Not supported
EPC Tag URI (URN) stem(s)	Not supported
GS1 Web Vocabulary	gs1:gtin (https://ref.gs1.org/voc/gtin)
EANCOM	C212:7140 and C212:7143=IS
GS1 XML	<additionalTradeItemIdentification>
...	...

1.3.1.12 Individual trade item piece (ITIP)

The Individual Trade Item Piece (ITIP) is the GS1 identifier for an individual piece of a trade item, that is not traded independently.

Simple or compound:

Simple

Class, sub-class or instance level:

Class

Tier 1 or 2:

Tier 1

Structure:

Composed of two mandatory GS1 data element segments, as shown below:

- GTIN of the complete trade item, represented as 14-digits as shown in table 1-9
- Piece number and total count of pieces

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Global Trade Item Number (GTIN)	Piece number	Total count
N_1 N_2 N_3 ..... N_{12} N_{13} N_{14}	N_{15} N_{16}	N_{17} N_{18}

Data element qualifiers defined by technologies in common use:

Technology	Data element qualifier
AIDC: plain syntax	Not supported
AIDC: GS1 element string syntax	8006
AIDC: GS1 Digital Link URI syntax	/8006/
EPC scheme	Not supported
EPC binary encoding header	Not supported
Pure Identity EPC URI (URN) stem	Not supported
EPC Tag URI (URN) stem(s)	Not supported
GS1 Web Vocabulary	Not supported
EANCOM	Not supported. A specific new code in 7143 code list would be needed to support it
GS1 XML	Not supported. A specific new code in additionalTradeItemIdentificationTypeCode would be needed to support it
...	...

1.3.1.13 ITIP and batch/lot number

The Individual Trade Item Piece (ITIP) and batch/lot number is the GS1 identifier for an individual piece of a trade item grouped by production batch/lot, that is not traded independently.

Simple or compound:

Compound

Class, sub-class or instance level:

Sub-class

Tier 1 or 2:

Tier 1

Structure:

ITIP (simple GS1 identifier) as explained in section 1.3.1.12:

Global Trade Item Number (GTIN)	Piece number	Total count
N_1 N_2 N_3 ..... N_{12} N_{13} N_{14}	N_{15} N_{16}	N_{17} N_{18}

With batch/lot number (GS1 identifier extension)

Batch or lot number
X_1——————› variable length ——————›X_{20}

Data element qualifiers defined by technologies in common use:

Technology	Data element qualifier
AIDC: plain syntax	Not supported
AIDC: GS1 element string syntax	8006 and 10
AIDC: GS1 Digital Link URI syntax	/8006/ and /10/

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Technology	Data element qualifier
EPC scheme	Not supported
EPC binary encoding header	Not supported
Pure Identity EPC URI (URN) stem	Not supported
EPC Tag URI (URN) stem(s)	Not supported
GS1 Web Vocabulary	Not supported
EANCOM	Not supported. A specific new code in 7143 code list would be needed to support it
GS1 XML	Not supported. A specific new code in additionalTradeItemIdentificationTypeCode would be needed to support it
...	...

1.3.1.14 ITIP and serial number

The Individual Trade Item Piece (ITIP) and serial number is the GS1 identifier for a serialised individual piece of a trade item, that is not traded independently.

Simple or compound:

Compound

Class, sub-class or instance level:

Instance

Tier 1 or 2:

Tier 1

Structure:

ITIP (simple GS1 identifier) as explained in section 1.3.1.12:

Global Trade Item Number (GTIN)	Piece number	Total count
N_1 N_2 N_3 ..... N_{12} N_{13} N_{14}	N_{15} N_{16}	N_{17} N_{18}

With serial number (GS1 identifier extension)

Serial number
X_1 ——— variable length ———> X_{20}

Data element qualifiers defined by technologies in common use:

Technology	Data element qualifier
AIDC: plain syntax	Not supported
AIDC: GS1 element string syntax	8006 and 21
AIDC: GS1 Digital Link URI syntax	/8006/ and /21/
EPC scheme	ITIP EPC
EPC binary encoding header	ITIP-110 (40_h) ITIP-212 (31_h) ITIP+ ($F3_h$)
Pure Identity EPC URI (URN) stem	urn:epc:id:itip:

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Technology	Data element qualifier
EPC Tag URI (URN) stem(s)	urn:epc:tag:itip-110: urn:epc:tag:itip-212:
GS1 Web Vocabulary	Not supported
EANCOM	Not supported. A specific new code in 7143 code list would be needed to support it
GS1 XML	Not supported. A specific new code in additionalTradeItemIdentificationTypeCode would be needed to support it
...	...

1.3.2 Product model - Global Model Number (GMN)

The GS1 identification key that forms the basis of all GS1 identifiers for product models is the **Global Model Number (GMN)**. The following sub-sections define the GS1 identifiers available for every level of granularity, that are required for the specific type of product model, as defined for special applications in section 2.6.

GMNs are unique variable length strings up to 25 alphanumeric characters, as they incorporate a GS1 Company Prefix with a model reference number, and as they are always treated as a data string of alphanumeric characters plus a final check character pair, as shown below. The check character pair helps to detect and reject incorrectly composed values e.g., when entering data manually, and is explained in section 7.9.

Table 1-10~~1-10~~~~1-10~~ Format of the GMN

Global Model Number (GMN)				
GS1 Company Prefix ⟶		Model reference ⟶		Check characters
N_1 ... N_l	X_{l+1} ...	variable length	$X_{j\ (j<=23)}$	X_{j+1} X_{j+2}

1.3.2.1 Global Model Number (GMN)

The Global Model Number is the GS1 identifier for a product model.

Simple or compound:

Simple

Class, sub-class or instance level:

Class

Tier 1 or 2:

Tier 1

Structure:

GMN as explained in section 1.3.2:

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Global Model Number (GMN)					
GS1 Company Prefix ——————>			Model reference ——————————>		Check characters
N_1 ...	N_i	X_{i+1} ...	variable length	$X_{j\ (j<=23)}$	X_{j+1} X_{j+2}

Data element qualifiers defined by technologies in common use:

Technology	Data element qualifier
AIDC: plain syntax	Not supported
AIDC: GS1 element string syntax	8013
AIDC: GS1 Digital Link URI syntax	/8013/
EPC scheme	Not supported
EPC binary encoding header	Not supported
Pure Identity EPC URI (URN) stem	Not supported
EPC Tag URI (URN) stem(s)	Not supported
GS1 Web Vocabulary	Not supported
EANCOM	C212:7140 and C212:7143=GMN
GS1 XML	Not supported. A specific new code in additionalTradeItemIdentificationTypeCode would be needed to support it
...	...

1.3.2.2 Highly Individualised Device Registration Identifier (HIDRI)

The Highly Individualised Device Registration Identifier (HIDRI) is the GS1 identifier for a family of standard (Made-to-Stock) medical devices for registration in EUDAMED (European database on medical devices).

Simple or compound:

Simple

Class, sub-class or instance level:

Class

Tier 1 or 2:

Tier 1

Structure:

Highly Individualised Device Registration Identifier (HIDRI)					
GS1 Company Prefix ——————>			Grouping reference ——————————>		Check characters
N_1 ...	N_i	X_{i+1} ...	variable length	$X_{j\ (j<=23)}$	X_{j+1} X_{j+2}

Data element qualifiers defined by technologies in common use:

Technology	Data element qualifier
AIDC: plain syntax	Not supported
AIDC: GS1 element string syntax	8014
AIDC: GS1 Digital Link URI syntax	Not supported
EPC scheme	Not supported

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Technology	Data element qualifier
EPC binary encoding header	Not supported
Pure Identity EPC URI (URN) stem	Not supported
EPC Tag URI (URN) stem(s)	Not supported
GS1 Web Vocabulary	Not supported
EANCOM	Not supported. A specific new code in 7143 code list would be needed to support it
GS1 XML	Not supported. A specific new code in additionalTradeItemIdentificationTypeCode would be needed to support it
...	...

1.3.3 Locations – Global Location Number (GLN)

The GS1 identification key that forms the basis of all GS1 identifiers for locations is the **Global Location Number (GLN)**. The following sub-sections define the GS1 identifiers that are required for the specific type of location, as defined for location applications in section 2.4.

GLNs are unique fixed length 13-digit strings as they incorporate a GS1 Company Prefix with a location reference, and as they are always treated as a data string of digits plus a final check digit, as shown below. The check digit helps to detect and reject incorrectly composed values e.g., when entering data manually, and is explained in section 7.9.

Table 1-11~~1 11 11~~ Format of the GLN for locations

Global Location Number (GLN)												
GS1 Company Prefix ⟶								⟵ Location reference				Check digit
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}

1.3.3.1 Global Location Number (GLN) for a physical location

The Global Location Number (GLN) is the GS1 identifier for a physical location that may be fixed or mobile.

Simple or compound:

Simple

Class, sub-class or instance level:

Instance

Tier 1 or 2:

Tier 1

Structure:

GLN as explained in section 1.3.3:

Global Location Number (GLN)												
GS1 Company Prefix ⟶								⟵ Location reference				Check digit
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}

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Data element qualifiers defined by technologies in common use:

Technology	Data element qualifier
AIDC: plain syntax	Not supported
AIDC: GS1 element string syntax	414
AIDC: GS1 Digital Link URI syntax	/414/
EPC scheme	SGLN EPC *Note that an SGLN corresponds to the combination of AI (414) and AI (254), the GLN Extension component (please see section 1.3.3.2). If input GS1 element string did not include a GLN extension component (AI) 254, the Extension component of the SGLN EPC comprises a single zero digit ('0')*
EPC binary encoding header	SGLN-96 (32_h) SGLN-195 (39_h) SGLN+ ($F2_h$)
Pure Identity EPC URI (URN) stem	`urn:epc:id:sgln:`
EPC Tag URI (URN) stem(s)	`urn:epc:tag:sgln-96:` `urn:epc:tag:sgln-195:`
GS1 Web Vocabulary	gs1:locationGLN (https://ref.gs1.org/voc/locationGLN) and gs1:GLN_TypeCode-FIXED_PHYSICAL_LOCATION (https://ref.gs1.org/voc/GLN_TypeCode-FIXED_PHYSICAL_LOCATION) or gs1:GLN_TypeCode-MOBILE_PHYSICAL_LOCATION (https://ref.gs1.org/voc/GLN_TypeCode-MOBILE_PHYSICAL_LOCATION)
EANCOM	C082:3039, C517:3225
GS1 XML	<gln>
...	...

1.3.3.2 GLN for a physical location and GLN extension component

The Global Location Number (GLN) and GLN extension component is the GS1 identifier for a sub-location contained within a physical location identified with a GLN and is intended to increase the capacity of a GLN.

Important: Global Location Number (GLN) for physical location and GLN extension component is not available to use in open supply chain and is restricted to use by mutual agreement only. For open supply chain use, sub-locations are identified with a GLN for physical locations. See section 1.2.2 for further information on restricted numbers.

Simple or compound:

Compound

Class, sub-class or instance level:

Instance

Tier 1 or 2:

Tier 1

Structure:

GLN (simple GS1 identifier) as explained in section 1.3.3:

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Global Location Number (GLN)												
GS1 Company Prefix ——————→							←—————— Location reference					Check digit
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}

With GLN extension component (GS1 identifier extension):

GLN extension component
X_1 ———— variable length ————→ X_{20}

Data element qualifiers defined by technologies in common use:

Technology	Data element qualifier
AIDC: plain syntax	Not supported
AIDC: GS1 element string syntax	414 and 254
AIDC: GS1 Digital Link URI syntax	/414/ and /254/
EPC scheme	SGLN EPC *Note that an SGLN corresponds to the combination of AI (414) and AI (254), the GLN Extension component. If input GS1 element string did not include a GLN extension component (AI 254), the Extension component of the SGLN EPC comprises a single zero digit ('0')*
EPC binary encoding header	SGLN-96 (32_h) SGLN-195 (39_h) SGLN+ ($F2_h$)
Pure Identity EPC URI (URN) stem	`urn:epc:id:sgln:`
EPC Tag URI (URN) stem(s)	`urn:epc:tag:sgln-96:` `urn:epc:tag:sgln-195:`
GS1 Web Vocabulary	Not supported. Sub-locations are identified with GLNs e.g., gs1:containsPlace (https://ref.gs1.org/voc/containsPlace) / gs1:Place (https://ref.gs1.org/voc/Place) / gs1:locationGLN (https://ref.gs1.org/voc/locationGLN)
EANCOM	Limited support. In the LOC segment there is the chance to indicate additional identifiers for related (sub)locations, that can be GLNs or other type of identification
GS1 XML	<gln> + <subLocationIdentification> or <gln> + <glnExtension)
...	...

1.3.3.3 Global Location Number (GLN) for a digital location

The Global Location Number (GLN) the GS1 identifier for a digital location.

Simple or compound:

Simple

Class, sub-class or instance level:

Instance

Tier 1 or 2:

Tier 1

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Structure:

GLN as explained in section 1.3.3:

Global Location Number (GLN)		
GS1 Company Prefix →	← Location reference	Check digit
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}

Data element qualifiers defined by technologies in common use:

Technology	Data element qualifier
AIDC: plain syntax	Not supported
AIDC: GS1 element string syntax	Not supported
AIDC: GS1 Digital Link URI syntax	Not supported
EPC scheme	Not supported
EPC binary encoding header	Not supported
Pure Identity EPC URI (URN) stem	Not supported
EPC Tag URI (URN) stem(s)	Not supported
GS1 Web Vocabulary	gs1:locationGLN (https://ref.gs1.org/voc/locationGLN) and gs1:GLN_TypeCode-DIGITAL_LOCATION (https://ref.gs1.org/voc/GLN_TypeCode-DIGITAL_LOCATION)
EANCOM	The GLN can be indicated but there isn't a qualifier to distinguish if it is a digital or physical location
GS1 XML	The GLN can be indicated but there isn't an attribute to distinguish if it is a digital or physical location
...	...

1.3.4 Parties – Global Location Number (GLN)

The GS1 identification key that forms the basis of all GS1 identifiers for parties is the **Global Location Number (GLN)**. The following sub-sections define the GS1 identifiers that are required for the specific type of party, as defined for party applications in section 2.4.

GLNs are unique fixed length 13-digit strings as they incorporate a GS1 Company Prefix with a party reference and as they are always treated as a data string of digits plus a final check digit, as shown below. The check digit helps to detect and reject incorrectly composed values e.g., when entering data manually, and is explained in section 7.9.

Table 1-12~~1-12~~~~1-12~~ Format of the GLN for parties

Global Location Number (GLN)		
GS1 Company Prefix →	← Party reference	Check digit
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}

1.3.4.1 Global Location Number (GLN) for a party

The Global Location Number (GLN) for a party, is the GS1 identifier for a legal entity or department/function.

Simple or compound:

Simple

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Class, sub-class or instance level:

Instance

Tier 1 or 2:

Tier 1

Structure:

GLN as explained in section 1.3.4:

Global Location Number (GLN)												
GS1 Company Prefix →							← Party reference					Check digit
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}

Data element qualifiers defined by technologies in common use:

Technology	Data element qualifier
AIDC: plain syntax	Not supported
AIDC: GS1 element string syntax	417
AIDC: GS1 Digital Link URI syntax	/417/
EPC scheme	PGLN EPC
EPC binary encoding header	Not supported
Pure Identity EPC URI (URN) stem	`urn:epc:id:pgln:`
EPC Tag URI (URN) stem(s)	Not supported
GS1 Web Vocabulary	gs1:partyGLN (https://ref.gs1.org/voc/partyGLN) and gs1:GLN_TypeCode-LEGAL_ENTITY (https://ref.gs1.org/voc/GLN_TypeCode-LEGAL_ENTITY) or gs1:GLN_TypeCode-FUNCTION (https://ref.gs1.org/voc/GLN_TypeCode-FUNCTION)
EANCOM	C082:3039 and 3035 specifying the party role
GS1 XML	<gln>, the party role is mapped by a specific class
...	...

1.3.4.2 GLN of invoicing party and payment slip reference number

The Global Location Number (GLN) of invoicing party and payment slip reference number is the GS1 identifier for a payment slip (part of a paper invoice used to facilitate payment).

Simple or compound:

Compound

Class, sub-class or instance level:

Instance

Tier 1 or 2:

Tier 1

Structure:

GLN (simple GS1 identifier) as explained in section 1.3.4:

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Global Location Number (GLN)												
GS1 Company Prefix ——————>							<—— Party reference					Check digit
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}

With payment slip reference number (GS1 identifier extension):

Payment slip reference number
X_1———variable length———> X_{25}

Data element qualifiers defined by technologies in common use:

Technology	Data element qualifier
AIDC: plain syntax	Not supported
AIDC: GS1 element string syntax	415 and 8020
AIDC: GS1 Digital Link URI syntax	/415/ and /8020/
EPC scheme	Not supported
EPC binary encoding header	Not supported
Pure Identity EPC URI (URN) stem	Not supported
EPC Tag URI (URN) stem(s)	Not supported
GS1 Web Vocabulary	Not supported
EANCOM	Not supported
GS1 XML	Not supported
...	...

1.3.5 Logistics – SSCC, GSIN, GINC

The three GS1 identification keys that are used as GS1 identifiers for logistics and transport are listed below. The following sub-sections define the GS1 identifiers that are required for the specific type of logistics or transport unit, as defined for logistics applications in section 2.2.

- **Serial Shipping Container Code (SSCC):** SSCCs are unique fixed length 18-digit strings as they incorporate an extension digit, a GS1 Company Prefix with a serial reference and as they are always treated as a data string of digits plus a final check digit, as shown below. The check digit helps to detect and reject incorrectly composed values e.g., when entering data manually, and is explained in section 7.9.

Table 1-13~~1-13~~ Format of the SSCC

SSCC (Serial Shipping Container Code)																	
Extension digit	GS1 Company Prefix ——————>								<—— Serial reference								Check digit
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}	N_{15}	N_{16}	N_{17}	N_{18}

- **Global Identifier Number for Consignment (GINC)**: GINCs are unique variable length strings up to 30 alphanumeric characters, as they incorporate a GS1 Company Prefix with a consignment reference and as they are always treated as a data string of alphanumeric characters, as shown below.

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Table 1-14~~1-14~~ Format of the GINC

Global Identification Number for Consignment (GINC)				
GS1 Company Prefix ⟶		Consignment reference ⟶		
N_1 ...	N_j	X_{i+1} ...	variable length	$X_{j\ (j<=30)}$

- **Global Shipment Identifier Number (GSIN)**: GSINs are unique fixed length 17-digit strings, as they incorporate a GS1 Company Prefix with a shipper reference and as they are always treated as a data string of digits plus a final check digit, as shown below. The check digit helps to detect and reject incorrectly composed values e.g., when entering data manually, and is explained in section 7.9.

Table 1-15~~1-15~~ Format of the GSIN

Global Shipment Identification Number (GSIN)																
GS1 Company Prefix ⟶							⟵ Shipper reference									Check digit
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}	N_{15}	N_{16}	N_{17}

1.3.5.1 Serial Shipping Container Code (SSCC)

The Serial Shipping Container Code (SSCC) is the GS1 identifier for an individual logistics unit, established for transport and/or storage that needs to be managed through the supply chain.

Simple or compound:

Simple

Class, sub-class or instance level:

Instance

Tier 1 or 2:

Tier 1

Structure:

SSCC as explained in section 1.3.5:

SSCC (Serial Shipping Container Code)																	
Extension digit	GS1 Company Prefix ⟶								⟵ Serial reference								Check digit
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}	N_{15}	N_{16}	N_{17}	N_{18}

Data element qualifiers defined by technologies in common use:

Technology	Data element qualifier
AIDC: plain syntax	Not supported
AIDC: GS1 element string syntax	00
AIDC: GS1 Digital Link URI syntax	/00/
EPC scheme	SSCC EPC
EPC binary encoding header	SSCC-96 (31_h) SSCC+ ($F9_h$)
Pure Identity EPC URI (URN) stem	urn:epc:id:sscc:
EPC Tag URI (URN) stem(s)	urn:epc:tag:sscc-96:

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Technology	Data element qualifier
GS1 Web Vocabulary	Not supported
EANCOM	C208:7402 + 7405=AW
GS1 XML	<sscc>
...	...

1.3.5.2 Global Identification Number for Consignment (GINC)

The Global Identification Number for Consignment (GINC) is the GS1 identifier for a consignment that comprises a logical grouping of one or more logistics units assigned by the freight forwarder or carrier.

Note: GINC is an instance level GS1 identifier for an individual grouping of logistics or transport units, which may not be physically bound together. Each individual logistics unit is identified at the instance level by an SSCC (see section 1.3.5.1). The SSCCs are grouped under a shared GINC, enabling identification of the logistics units contained in the consignment.

Simple or compound:

Simple

Class, sub-class or instance level:

Instance

Tier 1 or 2:

Tier 1

Structure:

GINC as explained in section 1.3.5:

Global Identification Number for Consignment (GINC)					
GS1 Company Prefix ⟶		Consignment reference ⟶			
N_1 ...	N_j	X_{j+1} ...	variable length		$X_{j\ (j<=30)}$

Data element qualifiers defined by technologies in common use:

Technology	Data element qualifier
AIDC: plain syntax	Not supported
AIDC: GS1 element string syntax	401
AIDC: GS1 Digital Link URI syntax	/401/
EPC scheme	GINC EPC
EPC binary encoding header	Not supported
Pure Identity EPC URI (URN) stem	urn:epc:id:ginc:
EPC Tag URI (URN) stem(s)	Not supported
GS1 Web Vocabulary	Not supported
EANCOM	C208:7402 + 7405=DC
GS1 XML	<ginc>
...	...

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1.3.5.3 Global Shipment Identification Number (GSIN)

The Global Shipment Identification Number (GSIN) is the GS1 identifier for a shipment that comprises a logical grouping of one or more logistics units assigned by a seller (sender).

Note: GSIN is an instance level GS1 identifier for an individual grouping of logistics or transport units, which may not be physically bound together. Each individual logistics unit is identified at the instance level by an SSCC (see section 1.3.5.1). The SSCCs are grouped under a shared GSIN, enabling identification of the logistics units contained in the grouping.

Simple or compound:

Simple

Class, sub-class or instance level:

Instance

Tier 1 or 2:

Tier 1

Structure:

GSIN as explained in section 1.3.5:

Global Shipment Identification Number (GSIN)		
GS1 Company Prefix →	← Shipper reference	Check digit
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} N_{15} N_{16}		N_{17}

Data element qualifiers defined by technologies in common use:

Technology	Data element qualifier
AIDC: plain syntax	Not supported
AIDC: GS1 element string syntax	402
AIDC: GS1 Digital Link URI syntax	/402/
EPC scheme	GSIN EPC
EPC binary encoding header	Not supported
Pure Identity EPC URI (URN) stem	`urn:epc:id:gsin:`
EPC Tag URI (URN) stem(s)	Not supported
GS1 Web Vocabulary	Not supported
EANCOM	C208:7402 + 7405=DD
GS1 XML	<gsin>
...	...

1.3.6 Asset - GRAI, GIAI

The two GS1 identification keys that are used as GS1 identifiers for assets are listed below. The following sub-sections define the GS1 identifiers that are required for the specific type of asset, as defined for asset management applications in section 2.3.

- **Global Returnable Asset identifier (GRAI):** GRAIs are unique variable length strings up to 30 alphanumeric characters, as they are always treated as a data string composed of one or two of the GS1 data element segments described below:

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- *Mandatory GS1 data element segment for asset type*: fixed length 13-digit strings that incorporate a GS1 Company Prefix, asset type, and a final check digit. The check digit helps to detect and reject incorrectly composed values e.g., when entering data manually, and is explained in section 7.9.
- *Optional GS1 data element segment for serial component*: variable length 16 alphanumeric character strings that expresses a serial number associated with the asset type.
- When a GRAI is encoded in an AIDC data carrier using GS1 Application Identifier (8003), a leading zero "0" is required before the GRAI data element value, as defined by the relevant GS1 syntax. This leading zero "0" is not part of the GRAI data element value.

Table 1-161~~1 16~~ Format of the GRAI

Global Returnable Asset Identifier (GRAI)			
GS1 Company Prefix →	Asset type ←	Check digit	Serial component (optional)
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}	X_1 variable X_{16}

- **Global Individual Asset Identifier (GIAI)**: GIAIs are unique variable length strings up to 30 alphanumeric characters, as they incorporate a GS1 Company Prefix with an individual asset reference and as they are always treated as a data string of alphanumeric characters, as shown below.

Table 1-171~~1 17~~ Format of the GIAI

Global Individual Asset Identifier (GIAI)	
GS1 Company Prefix →	Individual asset reference →
N_1 ... N_i	X_{i+1} ... variable length $X_{j\ (j<=30)}$

1.3.6.1 Global Returnable Asset Identifier (GRAI)

The Global Returnable Asset Identifier (GRAI) is the GS1 identifier for a returnable asset type (i.e., a series of identical returnable assets) and optionally, an individual returnable asset.

Simple or compound:

Simple

Class, sub-class or instance level:

Class or Instance

Tier 1 or 2:

Tier 1

Structure:

GRAI as explained in section 1.3.6:

Global Returnable Asset Identifier (GRAI)			
GS1 Company Prefix →	Asset type ←	Check digit	Serial component (optional)
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}	X_1 variable X_{16}

Data element qualifiers defined by technologies in common use:

Technology	Data element qualifier
AIDC: plain syntax	Not supported
AIDC: GS1 element string syntax	8003

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Technology	Data element qualifier
AIDC: GS1 Digital Link URI syntax	/8003/
EPC scheme	GRAI EPC
EPC binary encoding header	GRAI-96 (33_h) GRAI-170 (37_h) GRAI+ ($F1_h$)
Pure Identity EPC URI (URN) stem	urn:epc:id:grai:
EPC Tag URI (URN) stem(s)	urn:epc:tag:grai-96: urn:epc:tag:grai-170:
GS1 Web Vocabulary	Not supported
EANCOM	C208:7402 + 7405=DB (serialised) or C208:7402 + 7405=DA (not serialised)
GS1 XML	<grai>
...	...

1.3.6.2 Global Individual Asset Identifier (GIAI)

The Global Individual Asset Identifier (GIAI) is the GS1 identifier for an individual asset.

Simple or compound:

Simple

Class, sub-class or instance level:

Instance

Tier 1 or 2:

Tier 1

Structure:

GIAI as explained in section 1.3.6:

Global Individual Asset Identifier (GIAI)					
GS1 Company Prefix →			Individual asset reference →		
N_1 ...	N_l	X_{l+1} ...	variable length		$X_{l\ (l<=30)}$

Data element qualifiers defined by technologies in common use:

Technology	Data element qualifier
AIDC: plain syntax	Not supported
AIDC: GS1 element string syntax	8004
AIDC: GS1 Digital Link URI syntax	/8004/
EPC scheme	GIAI EPC
EPC binary encoding header	GIAI-96 (34_h) GIAI-202 (38_h) GIAI+ (FA_h)
Pure Identity EPC URI (URN) stem	urn:epc:id:giai:
EPC Tag URI (URN) stem(s)	urn:epc:tag:giai-96: urn:epc:tag:giai-202:

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Technology	Data element qualifier
GS1 Web Vocabulary	Not supported
EANCOM	C208:7402 + 7405=CU
GS1 XML	<giai>
...	...

1.3.7 Service relationships – Global Service Relation Number (GSRN)

The GS1 identification key that forms the basis of all GS1 identifiers for service relationships is the **Global Service Relation Number (GSRN)**. The following sub-sections define the GS1 identifiers that are required for the specific type of service relationships, as defined for service relationship applications in section 2.5.

GSRNs are unique fixed length 18-digit strings as they incorporate a GS1 Company Prefix with a service reference and as they are always treated as a data string of digits plus a final check digit, as shown below. The check digit helps to detect and reject incorrectly composed values e.g., when entering data manually, and is explained in section 7.9.

Table 1-18~~1-18~~ Format of the GSRN

Global Service Relation Number (GSRN)		
GS1 Company Prefix →	← Service reference	Check digit
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} N_{15} N_{16} N_{17}		N_{18}

1.3.7.1 Global Service Relation Number (GSRN) - Provider

The Global Service Relation Number (GSRN) – Provider is the GS1 identifier for a relationship between an organisation offering services and the individual entity providing services.

Simple or compound:

Simple

Class, sub-class or instance level:

Instance

Tier 1 or 2:

Tier 1

Structure:

GSRN as explained in section 1.3.7:

Global Service Relation Number (GSRN)		
GS1 Company Prefix →	← Service reference	Check digit
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} N_{15} N_{16} N_{17}		N_{18}

Data element qualifiers defined by technologies in common use:

Technology	Data element qualifier
AIDC: plain syntax	Not supported
AIDC: GS1 element string syntax	8017
AIDC: GS1 Digital Link URI syntax	/8017/
EPC scheme	GSRNP EPC

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Technology	Data element qualifier
EPC binary encoding header	GSRNP-96 ($2E_h$) GSRNP+ ($F5_h$)
Pure Identity EPC URI (URN) stem	urn:epc:id:gsrnp:
EPC Tag URI (URN) stem(s)	urn:epc:tag:gsrnp-96:
GS1 Web Vocabulary	Not supported
EANCOM	Not supported
GS1 XML	<gsrn> the role is defined by the context
...	...

1.3.7.2 Global Service Relation Number (GSRN) - Recipient

The Global Service Relation Number (GSRN) – Recipient is the GS1 identifier for a relationship between an organisation offering services and the individual entity receiving services.

Simple or compound:

Simple

Class, sub-class or instance level:

Instance

Tier 1 or 2:

Tier 1

Structure:

GSRN as explained in section 1.3.7:

Global Service Relation Number (GSRN)		
GS1 Company Prefix →	← Service reference	Check digit
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} N_{15} N_{16} N_{17}		N_{18}

Data element qualifiers defined by technologies in common use:

Technology	Data element qualifier
AIDC: plain syntax	Not supported
AIDC: GS1 element string syntax	8018
AIDC: GS1 Digital Link URI syntax	/8018/
EPC scheme	GSRN EPC
EPC binary encoding header	GSRN-96 ($2D_h$) GSRN+ ($F4_h$)
Pure Identity EPC URI (URN) stem	urn:epc:id:gsrn:
EPC Tag URI (URN) stem(s)	urn:epc:tag:gsrn-96:
GS1 Web Vocabulary	Not supported
EANCOM	Not supported
GS1 XML	<gsrn> the role is defined by the context
...	...

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1.3.7.3 GSRN - Provider and Service Relation Instance Number (SRIN)

The Global Service Relation Number (GSRN) – Provider with Service Relation Instance Number (SRIN) is the GS1 identifier for a service encounter or episode within the service relationship between an organisation offering services and the individual service provider.

Simple or compound:

Compound

Class, sub-class or instance level:

Instance

Tier 1 or 2:

Tier 1

Structure:

GSRN (simple GS1 identifier) as explained in section 1.3.7:

Global Service Relation Number (GSRN)																	
GS1 Company Prefix ⟶								⟵ Service reference									Check digit
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}	N_{15}	N_{16}	N_{17}	N_{18}

With SRIN (GS1 identifier extension):

Service Relation Instance Number
N_1 ——variable length——⟶ N_{10}

Data element qualifiers defined by technologies in common use:

Technology	Data element qualifier
AIDC: plain syntax	Not supported
AIDC: GS1 element string syntax	8017 and 8019
AIDC: GS1 Digital Link URI syntax	/8017/ and /8019/
EPC scheme	Not supported
EPC binary encoding header	Not supported
Pure Identity EPC URI (URN) stem	Not supported
EPC Tag URI (URN) stem(s)	Not supported
GS1 Web Vocabulary	Not supported
EANCOM	Not supported
GS1 XML	Not supported
...	...

1.3.7.4 GSRN – Recipient and Service Relation Instance Number (SRIN)

The Global Service Relation Number (GSRN) – Recipient with Service Relation Instance Number (SRIN) is the GS1 identifier for a service encounter or episode within the service relationship between an organisation offering services and the individual service recipient.

Simple or compound:

Compound

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Class, sub-class or instance level:

Instance

Tier 1 or 2:

Tier 1

Structure:

GSRN (simple GS1 identifier) as explained in section 1.3.7:

Global Service Relation Number (GSRN)		
GS1 Company Prefix ——→	←—— Service reference	Check digit
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} N_{15} N_{16} N_{17}		N_{18}

With SRIN (GS1 identifier extension):

Service Relation Instance Number
N_1 ——variable length——→ N_{10}

Data element qualifiers defined by technologies in common use:

Technology	Data element qualifier
AIDC: plain syntax	Not supported
AIDC: GS1 element string syntax	8018 and 8019
AIDC: GS1 Digital Link URI syntax	/8018/ and /8019/
EPC scheme	Not supported
EPC binary encoding header	Not supported
Pure Identity EPC URI (URN) stem	Not supported
EPC Tag URI (URN) stem(s)	Not supported
GS1 Web Vocabulary	Not supported
EANCOM	Not supported
GS1 XML	Not supported
...	...

1.3.8 Coupons – Global Coupon Number (GCN)

The GS1 identification key that forms the basis of all GS1 identifiers for coupons is the **Global Coupon Number (GCN)**. The following sub-sections define the GS1 identifiers that are required for the specific type of coupon, as defined for special applications in section 2.6.

GCNs are unique variable length strings up to 25 digits, as they are always treated as a data string composed of one or two of the GS1 data element segments described below:

- *Mandatory GS1 data element segment for coupon reference*: fixed length 13-digit strings that incorporate a GS1 Company Prefix, coupon reference number, and a final check digit. The check digit helps to detect and reject incorrectly composed values e.g., when entering data manually, and is explained in section 7.9.
- *Optional GS1 data element segment for serial component*: variable length 12-digit strings that express a serial number associated with the coupon reference.

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Table 1-191~~-191-19~~ Format of the GCN

Global Coupon Number (GCN)			
GS1 Company Prefix ——————>	Coupon reference <——————	Check digit	Serial component (optional)
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_1 —variable —> N_{12}

1.3.8.1 Global Coupon Number (GCN)

The Global Coupon Number (GCN) is the GS1 identifier for a physical paper coupon or digital coupon type (i.e., a series of identical coupons) and optionally, an individual coupon.

Simple or compound:

Simple

Class, sub-class or instance level:

Class or Instance

Tier 1 or 2:

Tier 1

Structure:

GCN as explained in section 1.3.8:

Global Coupon Number (GCN)			
GS1 Company Prefix ——————>	Coupon reference <——————	Check digit	Serial component (optional)
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_1 —variable —> N_{12}

Data element qualifiers defined by technologies in common use:

Technology	Data element qualifier
AIDC: plain syntax	Not supported
AIDC: GS1 element string syntax	255
AIDC: GS1 Digital Link URI syntax	/255/
EPC scheme	SGCN EPC *Note that the Serial component is required.*
EPC binary encoding header	SGCN-96 ($3F_h$) SGCN+ ($F8_h$)
Pure Identity EPC URI (URN) stem	`urn:epc:id:sgcn:`
EPC Tag URI (URN) stem(s)	`urn:epc:tag:sgln-96:`
GS1 Web Vocabulary	Not supported
EANCOM	Not supported. A specific new code in 7143 code list would be needed to support it
GS1 XML	Supported as additionalTradeItemIdentificationTypeCode
...	...

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1.3.9 Documents – Global Document Type Identifier (GDTI)

The GS1 identification key that forms the basis of all GS1 identifiers for documents is the **Global Document Type Number (GDTI)**. The following sub-sections define the GS1 identifiers that are required for the specific type of document, as defined for special applications in section 2.6.

GDTIs are unique variable length strings up to 30 alphanumeric characters, as they are always treated as a data string composed of one or two of the GS1 data element segments described below:

- *Mandatory GS1 data element segment for document type*: fixed length 13-digit strings that incorporate a GS1 Company Prefix, document type number, and a final check digit. The check digit helps to detect and reject incorrectly composed values e.g., when entering data manually, and is explained in section 7.9.
- *Optional GS1 data element segment for serial component*: variable length 17 alphanumeric character strings that express a serial number associated with the document type.

Table 1-201~~1 201~~ Format of the GDTI

Global Document Type Identifier (GDTI)		
GS1 Company Prefix ——————>	Document type <——————	Check digit	Serial component (optional)
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}	X_1 —–variable —–> X_{17}

1.3.9.1 Global Document Type Identifier (GDTI)

The Global Document Type Identifier (GDTI) is the GS1 identifier for a document type (including electronic messages and digital files) and optionally, an individual document.

Simple or compound:

Simple

Class, sub-class or instance level:

Class or Instance

Tier 1 or 2:

Tier 1

Structure:

GDTI as explained in section 1.3.9:

Global Document Type Identifier (GDTI)		
GS1 Company Prefix ——————>	Document type <——————	Check digit	Serial component (optional)
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}	X_1 —–variable —–> X_{17}

Data element qualifiers defined by technologies in common use:

Technology	Data element qualifier
AIDC: plain syntax	Not supported
AIDC: GS1 element string syntax	253
AIDC: GS1 Digital Link URI syntax	/253/
EPC scheme	GDTI EPC *Note that the Serial component is required.*

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Technology	Data element qualifier
EPC binary encoding header	GDTI-96 ($2C_h$) GDTI-174 ($3E_h$) GDTI+ ($F6_h$)
Pure Identity EPC URI (URN) stem	urn:epc:id:gdti:
EPC Tag URI (URN) stem(s)	urn:epc:tag:gdti-96: urn:epc:tag:gdti-174:
GS1 Web Vocabulary	Not supported
EANCOM	C106:1004 (GDTI can be used but the data element doesn't require an identification schema)
GS1 XML	GDTI data type. All document or reference identifiers can use GDTI but the attributes don't have an identification schema specified
...	...

1.3.10 Components or parts – Component/Part Identifier (CPID)

The GS1 identification key that forms the basis of restricted use GS1 identifiers for components or parts is the **Component/Part Identifier (CPID)**. The following sub-sections define the GS1 identifiers available for every level of granularity, that are required for the specific type of component or part, as defined for special applications in section 2.6.

CPIDs are variable length strings up to 30 alphanumeric characters, that incorporate a GS1 Company Prefix with component/part reference number.

Table 1-211~~1-211-21~~ Format of the CPID

Component/Part Identifier			
GS1 Company Prefix ——————>		C/P reference number ——————>	
N_1 ...	N_j	X_{j+1} ...variable length	$X_{k\ (k<=30)}$

Important: CPID is not available to use in open supply chain and is restricted to use by mutual agreement only. The GTIN is the only GS1 identifier for trade items in open supply chains. See section 1.2.2 Global, open use versus restricted for further information on restricted numbers.

1.3.10.1 Component/Part Identifier (CPID)

The Component/Part Identifier (CPID) is the GS1 identifier for a component or part that is intended to undergo at least one further transformation process to create finished goods for the purpose of downstream consumption.

Simple or compound:

Simple

Class, sub-class or instance level:

Class

Tier 1 or 2:

Tier 1

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Structure:

CPID as explained in section 1.3.10:

Component/Part Identifier	
GS1 Company Prefix ⟶	C/P reference number ⟶
N_1 ... N_j	X_{j+1} ...variable length $X_{k\ (k<=30)}$

Data element qualifiers defined by technologies in common use:

Technology	Data element qualifier
AIDC: plain syntax	Not supported
AIDC: GS1 element string syntax	8010
AIDC: GS1 Digital Link URI syntax	/8010/
EPC scheme	Not supported
EPC binary encoding header	Not supported
Pure Identity EPC URI (URN) stem	Not supported
EPC Tag URI (URN) stem(s)	Not supported
GS1 Web Vocabulary	Not supported
EANCOM	Not supported
GS1 XML	Not supported
...	...

1.3.10.2 CPID and CPID serial number

The Component/Part Identifier (CPID) and CPID serial number is the GS1 identifier for a serialised component or part that is intended to undergo at least one further transformation process to create finished goods for the purpose of downstream consumption.

Simple or compound:

Compound

Class, sub-class or instance level:

Instance

Tier 1 or 2:

Tier 1

Structure:

CPID (simple GS1 identifier) as explained in section 1.3.10:

Component/Part Identifier	
GS1 Company Prefix ⟶	C/P reference number ⟶
N_1 ... N_j	X_{j+1} ...variable length $X_{k\ (k<=30)}$

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With CPID serial number (GS1 identifier extension):

Component/Part Identifier serial number
N_1 ——variable length——› N_{12}

Data element qualifiers defined by technologies in common use:

Technology	Data element qualifier
AIDC: plain syntax	Not supported
AIDC: GS1 element string syntax	8010 and 8011
AIDC: GS1 Digital Link URI syntax	/8010/ and /8011/
EPC scheme	CPI EPC
EPC binary encoding header	CPI-96 ($3C_h$) CPI-var ($3D_h$) CPI+ ($F0_h$)
Pure Identity EPC URI (URN) stem	`urn:epc:id:cpi:`
EPC Tag URI (URN) stem(s)	`urn:epc:tag:cpi-96:` `urn:epc:tag:cpi-var:`
GS1 Web Vocabulary	Not supported
EANCOM	Not supported
GS1 XML	Not supported
...	...

1.4 GS1 syntax

A syntax is a set of rules that defines permissible sequences of characters and connections between them so that a recognisable structure results. Knowledge of the syntax rules enables strings of characters to be separated and interpreted as intended for the represented data element. There are many and various types of syntax.

To take a very simple example, the characters 121212 need something more to provide context:

- $ 121,212
- Tel: 121212
- Best before 12-12-12

The conventions for representing the data in this example are a simple form of syntax. There is a character or characters to denote the type of data and conventions for organising and understanding the data.

When a GS1 identifier is used in an information system, it is necessarily represented using a specific syntax. The syntax that is used may depend on the medium in which the identifier exists; for example, when GS1 identifiers are exchanged via information systems, text-oriented representations are used, even though the identifier may have been encoded in a binary representation within the data carrier (e.g. EPC/RFID tag, 2D barcode).

The syntaxes defined by GS1 standards to represent GS1 identifiers are explained in the following sections, with Table 1-22 illustrating a Global Returnable Asset Identifier (GRAI) in each of the four syntaxes:

- Section 1.4.1: Plain syntax
- Section 1.4.2: GS1 element string
- Section 1.4.3: EPC URI syntax and EPC binary syntax
- Section 1.4.4: GS1 Digital Link URI

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Table 1-221 -221 -22 Example of GS1 identifier representation in each GS1 syntax

Syntax	Example	Remarks
Plain	9524141234564789	A GRAI composed from GS1 Company Prefix 9524141, asset type 23456, check digit 4, and serial component 789.
GS1 element string	(8003)09524141234564789	The GS1 Application Identifier (AI) 8003 indicates the following GS1 identifier is a GRAI. The GS1 element string for GRAI also includes an extra "0" padding digit immediately following the GS1 Application Identifier. The remainder of the element string is the same as the plain syntax. Note that GS1 AIs are surrounded by parentheses to aid readability but are not part of the syntax.
EPC URI	urn:epc:id:grai:9524141.23456.789	The "urn:epc:id:grai:" header specifies that this EPC URI corresponds to a GRAI. The GS1 Company Prefix, asset type, and serial component are separated by dot (".") characters. The check digit is not included in this syntax.
	urn:epc:tag:grai-96:0.9524141.23456.789	Corresponding EPC Tag URI, which includes filter value and the indication of the number of bits. This corresponds one to one with the hexadecimal representation of the EPC binary encoding below.
EPC Binary	3316454EB416E80000000315	Hexadecimal representation of the EPC binary encoding 00110011000101100100010101001110101101000001011011101000000000000000000000000000000001100010101
GS1 Digital Link URI	https://id.gs1.org/8003/095241412345647 89	GS1 Digital Link URI on the id.gs1.org domain
	https://example.com/some/path/8003/095241412345647 89	GS1 Digital Link URI using a custom domain name and permitting additional URI path information
	http://id.gs1.org/gAMRUwYcMwgHio	Compressed GS1 Digital Link URI on the id.gs1.org domain

While any given GS1 identifier may be represented in more than one of the five syntaxes described above and in the following sections, its *meaning* is always the same regardless of syntax, with Figure 1-5 providing an example of the mapping between each representation of the Global Trade Item Number and serial number.

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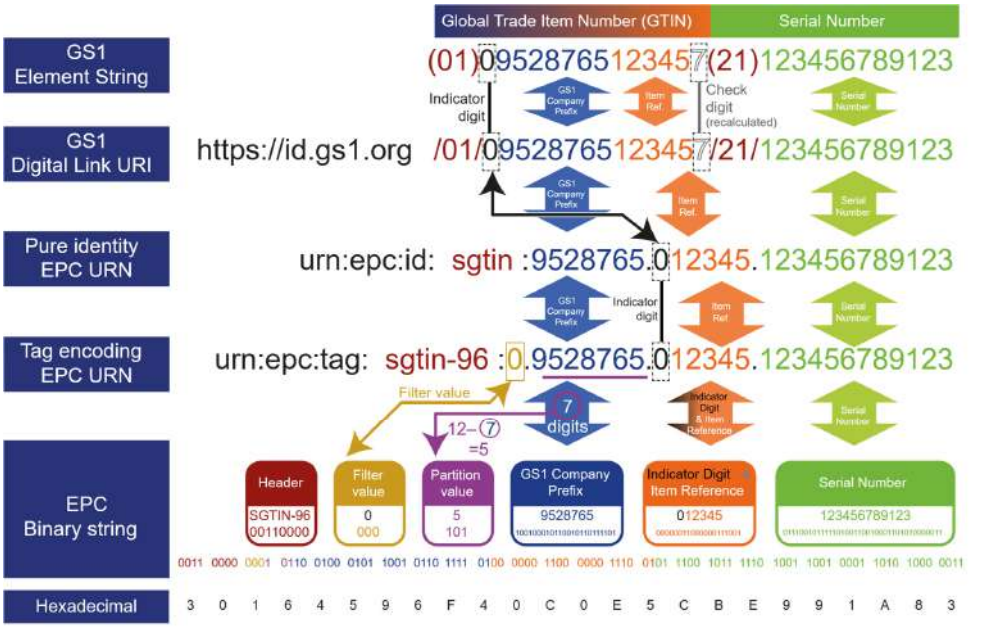

Figure 1-5~~1-5~~ ~~1-5~~ Example of equivalence between different identifier representations

1.4.1 Plain syntax

This syntax is the GS1 identifier data element value with no additional characters or syntactic features. For example, a Global Location Number (GLN) is represented as a 13-character string, each character being a digit. The plain syntax is usable in a context where only a single key or simple GS1 identifier is expected. Examples of such single-key contexts include: a barcode symbology that is defined to only hold one type of GS1 identifier (e.g., ITF-14 which can only hold a GTIN), or a column in a database table that is intended to hold only a simple GS1 identifier data element value.

1.4.2 GS1 element string

This syntax consists of a GS1 Application Identifier that is a string of two or more digits, followed by a GS1 Application Identifier data field. The GS1 Application Identifier serves as a data element qualifier for the data element value that follows in the GS1 Application Identifier data field, to form a data element qualifier-value pair.

When two or more data element qualifier-value pairs are combined as a "concatenated element string", delimiters such as the Function 1 Symbol Character (FNC1) or control character <GS>, are required for data elements which are not of predefined length (see note below about predefined and non-predefined length data elements) e.g., (01)09521234500001(10)ABC123<GS>(11)250504 contains a GTIN + batch/lot number + expiry date. The delimiter indicates the end of the predefined length data element value and beginning of the next data element qualifier, therefore it is not required at the end of the concatenated element string e.g., (414)9521234500018(254)543LF contains a GLN for a physical location + extension component. For more information, see section 3.

Note: When GS1 element strings are displayed as Human Readable Interpretation (HRI) or for descriptive and illustrative purposes, the delimiters are not shown and GS1 AIs are

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surrounded by parentheses e.g., (01)09521234500001(10)ABC123(11)250504. Parentheses are not a part of the GS1 Application Identifier and are only used to aid readability.

Note: Predefined length data elements are defined by Table 7-6 and consist of only fixed length data element values. Non-predefined length data elements however include both fixed length and variable length data element values. E.g., AI (402) for GSIN has a fixed length data format of N17 but still requires the use of FNC1 if followed by another element string.

1.4.3 EPC URI and EPC binary syntax

The GS1 EPC Tag Data Standard (TDS) defines Electronic Product Code™ (EPC) schemes to represent GS1 identifiers at instance granularity across three different syntaxes, when using RFID technologies. EPC/RFID is a subset of RFID technologies that are used within the GS1 system. There is a well-defined correspondence between EPCs and instance granularity GS1 identifiers, as detailed in section 4.3 of TDS.

Each EPC scheme allows for the construction of an EPC that corresponds to the value of a specific GS1 identifier at instance granularity. EPC schemes are expressed using the following syntaxes:

- **Pure Identity EPC URI:** This syntax is a representation of an EPC as an Internet Uniform Resource Identifier (URI), specifically a Uniform Resource Name (URN) beginning with the URN stem `urn:epc:id:` for GS1 identifiers identifying entities at instance-level.
  - Entities that are not identified at the instance-level are either expressed as an EPC Class URI with URN stem `urn:epc:class:` or an EPC Pattern URI with URN stem `urn:epc:idpat:`.
  - Pure Identity EPC URIs may be used as the value of various standardised fields within EPCIS event data, such as `epcList`.
- **Tag Encoding EPC URI:** This syntax is a URI string that denotes a specific EPC together with specific details of control information found in the EPC memory bank, such as the filter value.
  - The EPC Tag URI is typically used at the data capture level when reading from an EPC/RFID tag in a situation where the control information is of interest to the capturing application.
  - It is also used when writing the EPC memory bank of an EPC/RFID tag, in order to fully specify the contents to be written.
- **EPC binary encoding**: This syntax is a compact binary format that is used to encode an EPC and additional "control information" in the memory bank of an EPC/RFID tag.
  - For the EPC schemes defined before TDS 2.0, there is a 1-to-1 translation between EPC Tag URIs and the binary contents of an EPC/RFID Tag.
  - For the new EPC schemes and binary encodings introduced in TDS 2.0, no new EPC Tag URI syntax is defined.
  - Encoding/decoding is between the binary representation and the corresponding GS1 element strings or GS1 Digital Link URIs, although the binary encoding for the new EPC schemes still supports filter values as control information. The EPC binary encoding header is an extensible eight-bit field which denotes the GS1 identifier being represented and the length of the data.

Please refer to the GS1 EPC Tag Data Standards for the full technical specification and all normative references: https://ref.gs1.org/standards/tds/

1.4.4 GS1 Digital Link URI

The GS1 Digital Link URI is a syntax for expressing GS1 identifiers (simple or compound) and GS1 informative data in a Web URI format that can be used on the Web in an intuitive manner (via a straightforward Web request) to enable direct access to relevant information and services about the entities identified by the expressed GS1 identifier. The GS1 Digital Link URI syntax can serve the same business functions served by other GS1 syntaxes (as defined by the relevant AIDC application standard), and a constrained subset is also used as an alternative to the Pure Identity EPC URI

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within EPCIS event data. Additionally, GS1 Digital Link URIs work seamlessly with the GS1 Web Vocabulary and our other Linked Data ontologies (EPCIS, CBV) for expressing factual claims (e.g. master data) and relationships – and is the recommended way of expressing GS1 identifiers within Linked Data, to ensure that the various pieces of data asserted potentially by multiple organisations can all be easily integrated together, using the GS1 Digital Link URI to join the data.

Please refer to the GS1 Digital Link Standard: URI syntax for the full specifications: https://ref.gs1.org/standards/digital-link/uri-syntax/

1.5 GS1 identification licensing

A GS1 identification licence, GS1 Company Prefix, or individual GS1 identification key SHALL NOT be sold, leased, or given, in whole or in part, for use by any other company. This applies to:

- GS1 Company Prefix licences, including any GS1 identification keys issued from the GS1 Company Prefix
- Individual GS1 identification key licences

See section 1.1 for additional guidelines that apply when a company changes legal status as a result of an acquisition, merger, partial purchase, split, or spin-off.

A GS1 Company Prefix licensed from a GS1 Member Organisation entitles the GS1 identification licensee to allocate any of the GS1 identification keys:

- 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)

An individual GS1 identification key licence SHALL only be used as defined by the licensing GS1 Member Organisation.

Note: If a company holds licences for multiple GS1 Company Prefixes, it may have GS1 identification keys of any type issued from all of them.

1.5.1 Licence management

GS1 Member Organisations license GS1 Company Prefixes and in some cases also license individual GS1 identification keys (e.g., GTINs and GLNs) to companies.

Regardless of whether a GS1 Company Prefix or individual GS1 identification key has been issued by the GS1 Member Organisation, the standards on the use and reuse of GS1 identification keys apply at all times. See section 4 for the reuse rules that apply to GS1 identification keys.

Additional guidelines in the following sections apply when an organisation changes legal status due to an acquisition, merger, partial purchase, split, or spin-off.

GS1 Member Organisations may adapt the following guidelines if local laws require modifications.

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GS1 identification licensees SHOULD notify their GS1 Member Organisation of any legal status change within one year of that change.

Important: When the company responsible for a GS1 Company Prefix or individual GS1 identification key changes, all parties involved in the transaction SHOULD maintain records of all GS1 identification keys used to identify objects and ensure all GS1 allocation and non-reuse rules are followed.

1.5.2 Acquisitions and mergers

During an acquisition or merger, a company may assume responsibility for the acquired company's GS1 Company Prefix and/or individual GS1 identification key licences. In the situations where the licences transfer, the acquiring company can:

- Use the acquired company's GS1 Company Prefix(es) and GS1 identification key(s)
- Issue GS1 identification keys using the newly acquired GS1 Company Prefix(es)

For example, products that the acquired company identified using its GS1 Company Prefix or individual GS1 identification key licences can still be produced using the same GTINs after the merger. Additionally, parties, locations, assets, and other objects identified with GS1 identification keys can continue to use those keys after the merger.

If a partial purchase occurs, where only a segment of a larger entity is acquired, the involved companies must determine whether GS1 identification licences are transferred based on their specific business requirements.

1.5.3 Split or spin-off

When a company splits into two or more separate companies, it is necessary for each GS1 Company Prefix or individual GS1 identification key licence of the original company to be transferred to only one of the new companies. If a company is left without a GS1 identification licence and has a requirement to identify products, locations, assets, etc., it will need to follow GS1 Member Organisation processes to apply for new GS1 Company Prefixes or individual GS1 identification key licences.

The decision on whether the new companies will take the original licences SHOULD minimise the impact on existing GS1 identification keys. The decision SHOULD be part of the legal arrangements of the new companies.

1.5.4 GS1 identification keys transferred to an acquiring, partial purchase, or spin-off company

If a company is being acquired by, merged or split from another company and has stock on hand, the stock's existing Global Trade Item Numbers (GTINs) SHOULD be kept. Products that are produced after the acquisition or merger may keep the GTIN allocated before the acquisition if the acquiring company maintains the licence with the GS1 Member Organisation to use the applicable GS1 Company Prefix or GS1 identification key.

Important: See section 4 for the reuse rules that apply to GS1 identification keys.

1.5.5 GS1 identification keys not transferred to an acquiring, partial purchase or spin-off company

If a company acquires a portion of another company or splits, but the GS1 Company Prefixes are not transferred, then the receiving company SHOULD change the GS1 identification keys associated with the acquired objects within one year.

It is not necessary for existing stocks of trade items or assets to be re-identified, unless legally required or agreed upon by the companies. However, when any of the acquired, partial purchase, split, or spin-off companies have items that are identified using GS1 identification keys allocated from a GS1 Company Prefix that it no longer holds, the company SHOULD re-identify those items

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using its own GS1 Company Prefix or GS1 identification key licences when new labelling or packaging is produced. Stakeholders SHOULD be notified well in advance of the changes.

At the earliest opportunity, the acquiring company SHOULD transition to new GS1 identification keys for all identified objects.

Note: The rules concerning the use of the seller's GS1 identification keys SHOULD be taken into consideration when drawing up the purchase contract.

Important: See section 4 for the reuse rules that apply to GS1 identification keys.

The GS1 General Specifications

Introduction

The GS1 system originated in the United States and was established in 1973 by the Uniform Product Code Council, subsequently known as the Uniform Code Council, Inc. (UCC). Following the success of this U.P.C. system, the European Article Numbering Association, subsequently known as EAN International, was established in 1977 to develop a compatible system for use outside North America. In February 2005, GS1 was officially launched as the successor to the organisations previously known as EAN and UCC, and the system became known under its current name: The GS1 system.

The GS1 system of standards aims to raise the efficiency of business processes and to provide cost savings through automation based on globally unique identification and digital information.

The GS1 system provides for the use of unambiguous identification keys to identify goods, services, assets, locations, etc. worldwide. These keys can be represented in data carriers, such as barcodes or EPC/RFID tags, to enable automatic data capture. They may also be used in electronic communications, improving speed and accuracy when sharing master data, transactional data and visibility event data.

The GS1 system is designed to overcome the limitations of using company-, organisation-, or sector-specific interfaces. It enables large scale deployment, flexibility in the selection of the most suitable system components and innovation – ultimately making trade much more efficient and responsive to customers.

The GS1 system is designed for use in any industry or trade sector, and changes to the system are introduced in a way that does not disrupt existing users.

This document defines the rules for the use of the GS1 system within Automatic Identification and Data Capture (AIDC) applications and technologies. It supersedes all previous AIDC technical documents provided and/or published by GS1 or its predecessor organisations. Every organisation using the GS1 standards is expected to conform fully to the *GS1 General Specifications*.

Who should read these specifications

The *GS1 General Specifications* are the foundational GS1 standard that defines how identification keys, data attributes and barcodes must be used in business applications.

The primary audience are technically oriented staff members of companies, solution providers and GS1 Member Organisations.

The standard is maintained in English and may be translated into other languages by local GS1 Member Organisations.

Foundational standard

These *GS1 General Specifications* are used as a foundation for other GS1 standards and services such as:

- GS1 Registry Platform
- GDSN

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9 GS1 Standards glossary of terms

9.1 GS1 glossary of terms and definitions

The glossary lists the terms and definitions that are applied in this document. Please refer to the www.gs1.org/glossary for the online version.

Term	Definition
acceptance criteria	An allowance for a small measurement variation between commercial verifiers or operators during barcode verification testing.
add-on symbol	A barcode used to encode information supplementary to that in the main EAN/UPC barcode.
aggregated packaging (per EU 2018/574)	Any packaging containing more than one unit packet of tobacco products. For GS1, this may be either a trade item grouping or logistics unit.
AIDC media	The specific form of object/entity where a GS1 AIDC data carrier is displayed.
AIDC media type	The code list for objects/entities (e.g., patient wristband or staff ID card) that displays or carries a GS1 AIDC data carrier.
AIDC media type value	A predefined two-digit numeric code list value used to signify the AIDC media type (e.g., ID = 10, patient wristband = 01).
AIM DotCode	A two-dimensional barcode symbology rendered by printing dots per the AIM DotCode Specification.
allocation	The association of an issued GS1 Prefix, GS1 Company Prefix, or GS1 identification key to its corresponding entity or object in accordance with the GS1 rules and policies.
alphanumeric	A character set that contains alphabetic characters (letters), numeric digits (numbers) and other characters, such as punctuation marks.
aperture	A physical opening that is part of the optical path in a device such as a scanner, photometer, or camera. Most apertures are circular, but they may be rectangular or elliptical.
Application Standard Profile	A template that records conformance requirements of existing and any future AIDC application standards, the normative decisions (MSWG, ISO, Regulation, …), maintains centralisation of cross-application rules and related technical specifications.
asset type	A component of the Global Returnable Asset Identifier (GRAI), assigned by the asset owner or manager, in order to create a unique GRAI.
attribute	Additional information about an entity identified with a GS1 identification key.
autodiscrimination	The capability of a reader to automatically recognise and decode multiple barcode symbologies.
automatic identification and data capture (AIDC)	A technology used to automatically capture data. AIDC technologies include barcodes, smart cards, biometrics and RFID.
auxiliary patterns	Components of the EAN/UPC symbology. The centre guard bar pattern, the left guard bar pattern and the right guard bar pattern are examples of these.
bar gain/loss	The increase/decrease in bar width due to effects of the reproduction and printing processes.
barcode	A symbol that encodes data into a machine readable pattern of adjacent, varying width, parallel, rectangular or square dark and light spaces. The term barcode is inclusive of all linear and two-dimensional (2D) versions.
barcode verification	The assessment of the printed quality of a barcode based on ISO/IEC standards using ISO/IEC compliant barcode verifiers.
base unit	In a hierarchy of trade item groupings, the consumer trade item level or unit of use.
Basic Unique Device Identifier – Device Identifier (Basic UDI-DI)	The Basic UDI - DI is a unique identifier specific to a medical device family. It is represented by GS1's Global Model Number (GMN).
batch/lot	Associates an item with information the manufacturer considers relevant for traceability of the trade item.
bearer bars	Bar abutting the tops and bottoms of the bars in a barcode or a frame surrounding the entire symbol, intended to equalise the pressure exerted by the printing plate over the entire surface of the symbol and/or to prevent a partial scan by the barcode reader.
brand owner	The organisation that owns the specifications of a trade item, regardless of where and by whom it is manufactured. The brand owner is normally responsible for the management of the Global Trade Item Number (GTIN).

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Term	Definition
Character Set 39	A subset of characters found in *ISO 646*: Unique Graphic Character Allocations which includes numeric, alphabetic upper-case, plus the characters "#", "-" and "/".
Character Set 64 (file-safe / URI-safe base64)	A subset of characters found in ISO 646: Unique Graphic Character Allocations and defined by section 5 of RFC4648 as a URI and filename safe base64 alphabet, which includes numeric, alphabetic upper-case and lower-case, plus the characters "-", "_". The "=" character is used as a special pad character and has no assigned value. The file-safe URI-safe base64 alphabet is used to represent binary data as compact alphanumeric strings, each character corresponding to a 6-bit value in the range 0-63.
Character Set 82	A subset of characters found in *ISO 646*: Unique Graphic Character Allocations which includes numeric, alphabetic upper-case and lower-case, plus twenty special characters but excluding "space".
check character pair	A final character pair calculated from the other characters of the Global Model Number. These characters are used to check that the data has been correctly composed and transmitted.
check digit	Numeric character calculated from data and appended as part of the data string to ensure that the data is correctly composed and transmitted.
class level GS1 identifier	An identifier of entities which share common characteristics (e.g., all trade items allocated the same GTIN).
codeword	A symbol character value. An intermediate level of coding between source data and the graphical encodation in the symbol.
component/part	An item that is intended to undergo at least one further transformation process to create finished goods for the purpose of downstream consumption.
Component/Part Identifier (CPID)	The unique identifier for a component/part, comprising a GS1 Company Prefix and a component/part reference.
Composite Component	The stacked linear barcode component of a GS1 composite symbol.
compound ~~key~~ GS1 identifier	Two or more data elements that combine a simple GS1 identifier and GS1 identifier extension(s), that identifies entities at sub-class level or instance level, where no subset of those data elements taken by themselves would do so.~~Two or more data elements which together serve as a key, where no subset of those data elements taken by themselves would do so (also see simple key).~~
concatenation	The representation of several element strings in one barcode.
Conformant	The state in which a system meets a specified standard.
consignment	A grouping of logistic or transport units assembled by a freight forwarder or carrier to be transported under one transport document (e.g., waybill).
consumer product variant (CPV)	An alphanumeric attribute of a GTIN assigned to a retail consumer trade item variant for its lifetime.
country subdivision	Principle administrative divisions, or similar areas, of a country included in *ISO 3166-1*. Examples are a state in the US, a region in France, a canton in Swiss.
coupon	A voucher that can be redeemed at the point-of-sale for a cash value or free item.
coupon issuer	Party issuing the coupons, bearing the commercial and financial responsibility for the coupons.
customer	The party that receives, buys, or consumes an item or service.
data character	A single numeric digit, alphabetic character or punctuation mark, or control character, which represents meaningful information.
data element	One piece of information (e.g., GS1 informative data) or one identification component (e.g., simple GS1 identifier or GS1 identifier extension).
data element field	The data container (e.g., within a document or message or dataset) where a data element value is encoded, stored, queried, or transmitted.
data element qualifier	A set of characters that designate the meaning, character set, format and length of the data element value that it precedes or represents, as defined by the relevant technology e.g., GS1 Application Identifiers for implicit or explicit encoding in AIDC data carriers, data titles for physical labels or data base fields, GS1 Web Vocabulary properties for JSON/XML application etc. Within the context of ISO/IEC 15459, the term "qualifier" is defined as equivalent to a data element qualifier for a simple or compound GS1 identifier value.
data element qualifier-value pair	Combination of a data element qualifier and data element value. Also known within technology specific standards as a name-value pair, key-value pair, property-value pair, attribute-value pair or a GS1 element string (which combines a GS1 Application Identifier and a GS1 Application Identifier data field).

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Term	Definition
Data element value	The characters that comprise a data element (e.g., ABC123, 220708, 117 Hopkins Street).
data field	A field that contains a GS1 identification key, an RCN, or attribute information.
Data Matrix (GS1 Digital Link URI)	Data Matrix encoding data using the uncompressed form of GS1 Digital Link URI syntax.
Data Matrix symbology	A standalone, two-dimensional barcode symbology that is made up of square modules arranged within a perimeter finder pattern. Data Matrix using ECC 200 error correction is the only version that supports GS1 system identification keys, including the Function 1 Symbol Character (FNC1). Data Matrix symbols are read by two-dimensional imaging scanners or vision systems.
data titles	Data titles are the abbreviated descriptions of element strings which are used to support manual interpretation of barcodes.
digital coupon	A digital coupon is an electronic presentation, that is distributed and presented without manifesting as "paper" or in other hard-copy form, and that can be exchanged for a financial saving or for loyalty points when making a purchase.
Digital Signature (DigSig)	ISO/IEC 20248 defines a data construct for encoding a digital signature within a data carrier, providing a method to authenticate barcode and RFID data. It also provides a method to link the barcode and RFID data to the labelled/tagged object. The ISO/IEC 20248 data construct which contains a X.509 digital signature is known as a DigSig. "digital signature" in lower case refers to digital signatures in general, whilst "Digital Signature" with capitals, is a named thing with the specific meaning of "DigSig".
digital signature	A digital signature is a compact fingerprint of data that supports tamper-detection and non-repudiation by the party who digitally signed the data. A digital signature is constructed by hashing the data then encrypting the hash using the private key. This enables independent verification by anyone, using the public key.
direct mode	Mobile device information retrieval function when the barcode contains either the address (URL) of the content or service, or the content itself, in-line.
direct part marking (DPM)	Direct part marking refers to the process of marking a symbol on an item using an intrusive or non-intrusive method.
direct print	A process in which the printing apparatus prints the symbol by making physical contact with a substrate (e.g., flexography, ink jet, dot peening).
document type	A component of a Global Document Type Identifier (GDTI) assigned by the document issuer to create a unique GDTI.
dynamic assortment	A trade item that comprises a variable composition of a fixed total count of two or more different trade items, each identified with a GTIN.
EAN/UPC symbology	A family of barcodes including EAN-8, EAN-13, UPC-A and UPC-E barcodes as well as the 2- and 5-digit add-ons. See also EAN-8 barcode, EAN-13 barcode, UPC-A barcode and UPC-E barcode.
EAN-13 barcode	A barcode of the EAN/UPC symbology that encodes GTIN-13 or RCN-13.
EAN-8 barcode	A barcode of the EAN/UPC symbology that encodes GTIN-8 or RCN-8.
economic operator (per EU 2018/574)	An economic operator is a business or other organisation which supplies goods, works or services within the context of market operations. Related to requirement for EOID for each country in which a party operates a facility.
Electronic Health Record (EHR)	Information relevant to the wellness, health and healthcare of an individual, in computer-processable form and represented according to a standardized information model. ISO 18308:2011 Health informatics — Requirements for an electronic health record architecture - https://www.iso.org/standard/52823.html
Electronic Medical Record (EMR)	A computerised system containing a collection of data and information related to the care rendered to an individual within a single healthcare organisation. EMR is often used interchangeably with EPR. Data contained within an EMR may be shared into an Electronic Health Record (EHR) as part of maintaining a complete record of care provided to an individual.
Electronic Patient Record (EPR)	A computerised system containing a collection of data and information related to the care rendered to an individual within a single healthcare organisation. EPR is often used interchangeably with EMR. Data contained within an EPR may be shared into an Electronic Health Record (EHR) as part of maintaining a complete record of care provided to an individual.

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Term	Definition
Electronic Product Code (EPC)	An identification scheme for universally identifying physical objects (e.g., trade items, assets and locations) via RFID tags and other means. The standardised EPC data consists of an EPC (or EPC Identifier) that uniquely identifies an individual object, as well as an optional filter value when judged to be necessary to enable effective and efficient reading of the EPC tags.
element	A single bar or space of a linear barcode symbol.
EU 2018/574	A European Union Regulation on the traceability of tobacco products.
EUDAMED	European database on medical devices (EUDAMED) https://ec.europa.eu/health/medical-devices-eudamed/overview_en
even parity	A characteristic of the encodation of a symbol character whereby the symbol character contains an even number of dark modules.
extended packaging	An approach to giving consumers access to additional information or services about trade items through their mobile device. It is the ability to retrieve additional information about the trade item through mobile devices or, in general, to link a trade item with trusted virtual information or services.
extension digit	The first digit within the Serial Shipping Container Code (SSCC) which is assigned by the company that constructs the logistic unit.
facility (per EU 2018/574)	Any location, building or vending machine where tobacco products are manufactured, stored or placed on the market.
fixed length	Term used to describe a data field in an element string with an established number of characters.
fixed measure trade item	An item always produced in the same predefined version (e.g., type, size, weight, contents, design) that may be sold at any point in the supply chain.
freight forwarder	The party that arranges the carriage of goods including connected services and/or associated formalities on behalf of the shipper (consignor) or consignee.
fresh foods	Trade items in the following product categories: fruits, vegetables, meats, seafood, bakery and ready to serve food such as cheeses, cold cooked or cured meats and salad, etc. Fresh foods are defined as food that is not preserved by canning, dehydration, freezing or smoking.
full string	The data transmitted by the barcode reader from reading a data carrier, including the symbology identifier as well as the encoded data.
Function 1 Symbol Character (FNC1)	A symbology character used in some GS1 data carriers for specific purposes.
general distribution scanning	Scanning environments that process barcoded trade items packaged for transport, logistic units, assets and location tags.
general retail consumer trade item	A trade item intended to be sold at retail point-of-sale identified with a GTIN-13, GTIN-12 or GTIN-8 utilising omnidirectional linear barcodes.
general retail products	All trade items that cross point-of-sale.
GLN extension component	The GLN extension component is used to identify internal physical sub-locations within a location (such as a selling floor area, a specific area on a shelf, etc.) which is identified with a GLN (such as stores, factories, buildings, etc.).
Global Coupon Number (GCN)	The GS1 identification key used to identify a coupon. The key comprises a GS1 Company Prefix, coupon reference, check digit and an optional serial number.
Global Document Type Identifier (GDTI)	The GS1 identification key used to identify a document type. The key comprises a GS1 Company Prefix, document type, check digit and optional serial number.
Global Identification Number for Consignment (GINC)	The GS1 identification key used to identify a logical grouping of logistic or transport units that are assembled to be transported under one transport document (e.g., waybill). The key comprises a GS1 Company Prefix and the freight forwarder's or carrier's transport reference.
Global Individual Asset Identifier (GIAI)	The GS1 identification key used to identify an individual asset. The key comprises a GS1 Company Prefix and individual asset reference.
Global Location Number (GLN)	The GS1 identification key used to identify locations or parties. The key comprises a GS1 Company Prefix, location reference and check digit.
Global Model Number (GMN)	The GS1 identification key used to identify a product model or product family. The key comprises a GS1 Company Prefix, model reference and a check character pair.
Global Returnable Asset Identifier (GRAI)	The GS1 identification key used to identify returnable assets. The key comprises a GS1 Company Prefix, asset type, check digit and optional serial number.

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Term	Definition
Global Service Relation Number (GSRN)	The GS1 identification key used to identify the relationship between an organisation offering services and the recipient or provider of services. The key comprises a GS1 Company Prefix, service reference and check digit.
Global Shipment Identification Number (GSIN)	The GS1 identification key used to identify a logical grouping of logistic or transport units that are assembled by the consignor (seller) for a transport shipment from that consignor to one consignee (buyer) referencing a despatch advice and/or BOL. The key comprises a GS1 Company Prefix, shipper reference and check digit.
Global Trade Item Number® (GTIN®)	The GS1 identification key used to identify trade items. The key comprises a GS1 Company Prefix, an item reference and check digit.
GS1 Application Identifier (AI)	The field of two or more digits at the beginning of an element string that uniquely defines its format and meaning.
GS1 Application Identifier data field	The data used in a business application defined by one GS1 Application Identifier.
GS1 check character calculation	An algorithm used by the GS1 system for the calculation of the check characters to verify accuracy of data.
GS1 check digit calculation	An algorithm used by the GS1 system for the calculation of a check digit to verify accuracy of data. (e.g., modulo 10 check digit, price check digit).
GS1 Common Currency Coupon Code	An identification number for coupons issued in a common currency area (e.g., the euro currency) that uses the GS1 Prefixes 981-983.
GS1 Company Prefix (GCP)	A unique string of four to twelve digits used to issue GS1 identification keys. The first digits are a valid GS1 Prefix. the length of the GS1 Company Prefix must be at least one longer than the length of the GS1 Prefix. The GS1 Company Prefix is issued by a GS1 Member Organisation. As the GS1 Company Prefix varies in length, the issuance of a GS1 Company Prefix excludes all longer strings that start with the same digits from being issued as GS1 Company Prefixes. See also U.P.C Company Prefix.
GS1 Composite symbology	A GS1 system composite symbol consists of a linear component (encoding the item's primary identification) associated with an adjacent Composite Component (encoding attribute data, such as a batch number or expiration date). The composite symbol always includes a linear component so that the primary identification is readable by all scanning technologies, and so that imager scanners can use the linear component as a finder pattern for the adjacent 2D Composite Component. The composite symbol always includes one of three multi-row 2D Composite Component versions (e.g., CC-A, CC-B, CC-C) for compatibility with linear- and area-CCD scanners and with linear and rastering laser scanners.
GS1 conformant barcode	A family of symbols comprising all barcodes in accordance with an application standard, the data carrier specifications and relevant GS1 symbol specification table.
GS1 DataBar Composite symbology family	A family of symbols comprising all the GS1 DataBar barcodes when an accompanying Composite Component is printed directly above the linear component.
GS1 DataBar Expanded barcode	A barcode that encodes any GS1 identification key plus attribute data, such as weight and "best before" date, in a linear symbol that can be scanned omnidirectionally by suitably programmed point-of-sale scanners.
GS1 DataBar Expanded Stacked barcode	A barcode that is a variation of the GS1 DataBar Expanded barcode that is stacked in multiple rows and is used when the normal symbol would be too wide for the application.
GS1 DataBar Limited barcode	A barcode that encodes a GTIN with a leading digit of zero or indicator digit of one in a linear symbol; for use on small items that will not be scanned at the point-of-sale.
GS1 DataBar Omnidirectional barcode	A barcode that encodes a GTIN. It is designed to be read by omnidirectional scanners.
GS1 DataBar Retail POS family	The members of the GS1 DataBar symbology family designed to be read in segments by omnidirectional scanners at retail POS: GS1 DataBar Omnidirectional; GS1 DataBar Stacked Omnidirectional; GS1 DataBar Expanded; GS1 DataBar Expanded Stacked.
GS1 DataBar Stacked barcode	A barcode that is a variation of the GS1 DataBar Truncated barcode that is stacked in two rows and is used when the GS1 DataBar Truncated barcode would be too wide for the application.
GS1 DataBar Stacked Omnidirectional barcode	A barcode that is a variation of the GS1 DataBar symbology that is stacked in two rows and is used when the GS1 DataBar Omnidirectional symbol would be too wide for the application. It is designed to be read by omnidirectional checkout scanners.
GS1 DataBar Truncated barcode	A barcode that is a truncated version of the GS1 DataBar Omnidirectional barcode. It is used when the GS1 DataBar Omnidirectional barcode would be too tall for small item marking applications. It is not intended for omnidirectional checkout scanning.

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Term	Definition
GS1 DataBar®	A family of barcodes, including GS1 DataBar Omnidirectional; GS1 DataBar Stacked Omnidirectional; GS1 DataBar Expanded; GS1 DataBar Expanded Stacked GS1 DataBar Truncated, GS1 DataBar Limited and GS1 DataBar Stacked symbols.
GS1 DataMatrix	A subset of Data Matrix which uses the function that allows the encoding of element strings.
GS1 data element segment	Mandatory or optional parts of a data element value e.g., ITIP has two mandatory segments, GTIN in the first segment, then a piece number and total number of pieces in the second segment; GRAI has one mandatory segment for the returnable asset reference number, then an optional segment for a serial number.
GS1 Digital Link URI	A Web URI syntax for expressing GS1 identifier keys and attributes in a format using GS1 Application Identifiers and GS1 Application Identifier data fields as specified in the GS1 Digital Link standard.
GS1 DotCode	A subset of AIM DotCode which uses the function that allows the encoding of element strings.
GS1 EANCOM®	The GS1 standard for Electronic Data Interchange (EDI) that is a detailed implementation guideline of the UN/EDIFACT standard messages using the GS1 identification keys.
GS1 element string	A syntax for expressing GS1 identifier keys and attributes in a format using GS1 Application Identifiers and GS1 Application Identifier data fields.
GS1 Global Office (GS1 GO)	GS1 is a neutral, not-for-profit organisation that provides global standards for efficient business communication. The Global Office, located in Brussels (Belgium) and Ewing, NJ (USA) is the guardian, and provides an open, user-driven, forum for ongoing maintenance and development, of the GS1 standards, guidelines and statues.
GS1 Global Standards Management Process (GSMP)	GS1 created the Global Standards Management Process (GSMP) to support standards development activity for the GS1 system. The GSMP uses a global consensus process to develop supply chain standards that are based on business needs and user-input.
GS1 identification key	Numeric or alphanumeric strings that incorporate a GS1 Prefix, GS1 Company Prefix or GS1-8 Prefix and are the basis of the unique GS1 identifiers defined for use in an area of GS1 system application such as trade, logistics, or asset management. They may identify a class of entities (e.g., a trade item) or an instance of an entity (e.g., a logistic unit). The term GS1 identification key is for broad communications such as for marketing, licensing, policy etc~~A unique identifier for a class of objects (e.g., a trade item) or an instance of an object (e.g., a logistic unit).~~
GS1 identification licensee	The person (natural or legal) to which the right to use a GS1 Company Prefix or a GS1 identification key has been granted through an agreement with a GS1 Member Organisation or GS1 Global Office, acting as licensor. GS1 identification licensees may use the licensed GS1 Company Prefix or GS1 identification key, subject to any terms and conditions in place when the licence was granted or set by the licensor from time to time, until such time as the agreement under which the licence was granted expires or in perpetuity if the agreement has no expiration date.
GS1 identifier	Data element(s) that expresses a GS1 identification key with or without a GS1 identifier extension, to identify an entity and connect to information about that entity. The term GS1 identifier is for greater precision at the technical level, such as for GS1 standards, GS1 guidelines and end-user implementations.
GS1 identifier extension	Data element that can be used with a simple GS1 identifier to form a compound GS1 identifier.
GS1 informative data	A data element that provides information about an entity identified with a GS1 identifier, such as a use by date, its weight, or country of origin code, for the purpose of informing or completing an action or decision.
GS1 Member Organisation (GS1 MO)	A member of GS1 that is responsible for administering the GS1 system in its country (or assigned area). This task includes, but is not restricted to, ensuring user companies make correct use of the GS1 system, have access to education, training, promotion and implementation support and have access to play an active role in GSMP.
GS1 Prefix	A unique string of two or more digits issued by GS1 Global Office and allocated to GS1 Member Organisations to issue GS1 Company Prefixes or allocated to other specific areas.
GS1 QR Code	A subset of QR Code which uses the function that allows the encoding of element strings.
GS1 symbologies using GS1 Application Identifiers	All GS1 endorsed barcode symbologies that can encode more than a GTIN namely GS1-128, GS1 DataMatrix, GS1 DataBar, GS1 QR Code, GS1 DotCode and GS1Composite.

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Term	Definition
GS1 syntax	A data structure used within the GS1 system of standards for representing data elements. GS1 syntax includes plain syntax, GS1 element string, GS1 Digital Link URI, and Electronic Product Code (EPC) URI and binary.
GS1 system	The sum of all the artefacts created by the GS1 community through GS1's community development processes, including GS1 standards, GS1 guidelines, GS1 solutions, and GS1 data services. ~~The specifications, standards and guidelines administered by GS1.~~
GS1 UIC Extension 1	Character that follows and extends the EU 2018/574 UIC to identify a country of ID Issuer's appointment and operation.
GS1 UIC Extension 2	Character that follows GS1 UIC Extension 1 and extends the EU 2018/574 UIC to identify whether a GS1 or non-GS1 based algorithm is used.
GS1 XML	The GS1 standard for extensible markup language (XML) schemas providing users with a global business messaging language of e-business to conduct efficient internet-based commerce.
GS1®	Based in Brussels, Belgium and Princeton, USA, it is the organisation that manages the GS1 system. Its members are GS1 Member Organisations.
GS1-128 symbology	A subset of Code 128 which uses the function that allows the encoding of element strings.
GS1-8 Prefix	A unique string of two or more digits issued by GS1 Global Office and allocated to GS1 Member Organisations to issue GTIN-8s or allocated to issue RCN-8s (see RCN-8).
GTIN allocator	The party that warrants the trade item declarations about a trade item to which they allocate a GTIN. This is the party who is the licensee of the GTIN applied to a specific trade item.
GTIN plus attribute(s) flag	A trigger in systems to determine if additional processing is required by a barcode user for a given GTIN.
GTIN-12	The 12-digit GS1 identification key composed of a U.P.C. Company Prefix, item reference and check digit used to identify trade items.
GTIN-13	The 13-digit GS1 identification key composed of a GS1 Company Prefix, item reference and check digit used to identify trade items.
GTIN-14	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.
GTIN-8	The 8-digit GS1 identification key composed of a GS1-8 Prefix, item reference and check digit used to identify trade items.
guard bar pattern	An auxiliary pattern of bars and spaces corresponding to start or stop patterns in barcode symbologies, and serving to separate the two halves of EAN-8, EAN-13 and UPC-A symbols.
healthcare primary packaging	The first level of packaging for the product marked with an AIDC data carrier either on the packaging or on a label affixed to the packaging. For non-sterile packaging, the first level of packaging can be the packaging in direct contact with the product. For sterile packaging, the first level of packaging can be any combination of the sterile packaging system, May consist of a single item or group of items for a single therapy such as a kit. For packaging configurations that include a retail consumer trade item, primary packaging is a packaging level below the retail consumer trade item.
healthcare provider	An organisation or facility that delivers healthcare to a subject of care. Corresponds to "care delivery organisation", "healthcare organisation", etc.
healthcare secondary packaging	A level of packaging marked with an AIDC carrier that may contain one or more primary packages each of which may contain a single item or multiple items.
Highly Individualised Device (per EU MDR)	Device subject to EUDAMED registration via MUDI-DI as UDI-DI
Highly Individualised Device Registration Identifier (HIDRI)	A special version of the Global Model Number that identifies a group of highly individualised medical devices within EUDAMED.
House Waybill Number	A freight forwarder's document used mainly as a control for the goods within the freight forwarder's own service system.
human readable interpretation (HRI)	Characters, such as letters and numbers, which can be read by persons and are encoded in GS1 AIDC data carriers confined to a GS1 standard structure and format. The human readable interpretation is the encoded data. Start, stop, shift and function characters, as well as the symbol check character, are not shown in the human readable interpretation.
human readable text	Refers to HRI and/or non-HRI text collectively, when referencing data that is encoded into a data carrier.

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Term	Definition
Importer index (per EU 2018/574)	Character to identify the presence or absence of an importer within the EU 2018/574 EOID, FID and MID. This means either the absence of an importer (null) or presence of one importer out of up to 63 importer possibilities per country, per GTIN.
indicator	A digit from 1 to 9 in the leftmost position of the GTIN-14.
indirect mode	Mobile device information retrieval function when the code contains an identifier, which needs to be resolved to obtain the content or service. Resolving an identifier means looking it up, typically at a network service, to determine the corresponding content or service.
individual asset	An object that is part of the inventory of assets for a given company. (See also returnable asset.)
individual asset reference	A component of the Global Individual Asset Identifier (GIAI) assigned by the asset owner or manager to create a unique GIAI.
individual provider	Any person who provides or is a potential provider of a health care service to a subject of care.
instance level GS1 identifier	An identifier of an individual entity (e.g., one specific trade item, allocated the same GTIN as others within a class, but distinguished by serial number).
Interleaved 2-of-5 symbology	Barcode symbology used for the ITF-14 barcode.
inverse exponent	The GS1 Application Identifier digit that denotes the implied decimal point position in an element string.
issuance	The generation of a GS1 Prefix, GS1 Company Prefix, or GS1 identification key in accordance with GS1 rules and policies by GS1 or a GS1 Member Organisation.
item reference	A component of the Global Trade Item Number (GTIN) assigned by the brand owner to create a unique GTIN.
ITF-14 barcode	ITF-14 (a subset of Interleaved 2-of-5) barcodes carry GTINs only on trade items that are not expected to pass through the point-of-sale.
kit	A collection of different regulated healthcare items assembled for use in a single therapy.
leading zero(es)	Adding zeroes in the leftmost position(s) of a data string when GTIN-8, GTIN-12, or GTIN-13 are encoded in an GS1 AIDC data carrier, message, or database that requires 14-digits or when used for the same intent in other data structures such as GRAI.
levels of AIDC marking	A graduated system of AIDC marking. The graduated system is defined as minimum, enhanced and highest levels of AIDC marking.
linear barcode	Barcode symbology using bars and spaces in one dimension.
local assigned code (LAC)	A particular use of the UPC-E barcode for restricted distribution.
location reference	A component of a Global Location Number (GLN) that allows the party defining the party or location to create a unique GLN.
logistic measures	Measures indicating the outside dimensions, total weight, or volume inclusive of packing material of a logistic unit. Also known as gross measures.
logistic unit	An item of any composition established for transport and/or storage that needs to be managed through the supply chain. It is identified with a Serial Shipping Container Code (SSCC).
Made-to-Order (MtO) trade item	A bespoke (e.g., customised, personalised, configurable) product or service where the GTIN, allocated per application specific rules rather than the GTIN Management Standard, plus a compound key data element (Made-to-Order variant, lot number, serial number) is required to distinguish whenever any of the trade item declarations are different in any way that is relevant to the trading process.
Made-to-Stock (MtS) trade item	A product or service where a separate, unique GTIN, allocated per the GTIN Management Standard, is required to distinguish whenever any of the trade item declarations are different in any way that is relevant to the trading process.
main symbol	The barcode containing the identification number of the item (e.g., GTIN, SSCC). Used to determine the placement of any additional barcode information.
Master Unique Device Identifier – Device Identifier (MUDI-DI)	The Master UDI-DI is a unique identifier specific to a family of highly individualised medical devices for the restricted use of EUDAMED registration.
measure verifier digit	A digit calculated from the measure field in a Restricted Circulation Number (RCN) that is used to check that the data has been correctly composed.

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Term	Definition
Medical device family	A group of medical devices manufactured by or for the same organization and have the same basic design and performance characteristics related to safety, intended use and function.* *__SOURCE__: ISO 13485- Medical devices - Quality management systems – Requirements for regulatory purposes.
merchant	The party that makes a trade item available for sale. A retailer is one type of merchant. An online seller is another type of merchant.
model reference	A component of the Global Model Number (GMN) assigned by the brand owner to create a unique GMN.
module	The narrowest nominal width unit of measure in a barcode. In certain symbologies, element widths may be specified as multiples of one module. The nominal width (& height for 2D barcodes) of a single module is equivalent to the X-dimension.
modulo 10	The name of the algorithm – a simple checksum formula in the public domain – used to create a check digit for those GS1 identification keys that require one.
multiple unit blister/package	Immediate package for a medicine with more than one single unit. Package which fully encloses the pill/caplet/capsule. Each dosage form may be individually packaged. The individually blistered dosage forms are attached to each other in one strip.
National Healthcare Reimbursement Number (NHRN)	National and/or regional identification numbers used on pharmaceutical and/or medical devices where required by national or regional regulatory organisations for product registration purposes and/or for the management of healthcare provider reimbursement.
National Trade Item Number (NTIN)	A coding scheme, administered in the healthcare sector by a national organisation for which a GS1 Prefix has been issued to permit its uniqueness within the GTIN pool but without assurance of full compatibility with GTIN functionality. The result is a product identification number assigned by a third party (not the brand owner or manufacturer). Example: the CIP (Club Inter Pharmaceutique) in France administered by the French Health Products Safety Agency (AFSSAPS).
non-human readable interpretation text (non-HRI)	Characters such as letters and numbers that can be read by persons and may or may not be encoded in GS1 AIDC data carriers and are not confined to a structure and format based on GS1 standards (e.g., a date code expressed in a national format that could be used to encode a date field in a GS1 AIDC data carrier, brand owner name, consumer declarations).
odd parity	A characteristic of the encodation of a symbol character whereby the symbol character contains an odd number of dark modules.
offer declarations	The set of all information declared (or agreed to) by the seller about the trade item (inclusive of price, availability, terms of sale, claims, condition, shipping information, returns information, etc).
omnidirectional linear barcode	A linear barcode symbology designed to be read in segments by suitably programmed laser point-of-sale (POS) scanners.
packaging component	Objects such as bottles, caps and labels to package a consumer trade item.
packaging component number	Global Trade Item Number (GTIN) attribute used to establish a relationship between a finished consumer trade item and packaging components.
payment slip	The end customer's notification of a demand for payment for a billable service (e.g., utility bill) comprising an amount payable and payment conditions.
physical trade item assortment/bundle	A combination of different trade items that are physically combined into a single trade item, thus creating a new trade item.
plain syntax	GS1 data structure containing GS1 identification key with no additional characters or syntactic features.
point-of-care (POC)	Location where dispensing or use of a non-retail, regulated healthcare pharmaceutical or medical device to or for a patient occurs.
point-of-sale (POS)	Refers to the retail checkout where omnidirectional linear barcodes must be used to support high-volume laser-based scanning or low volume checkout where linear barcodes (or for regulated healthcare trade items, GS1 DataMatrix) are used with image-based scanners.
predefined assortments	A trade item that comprises a fixed composition of two or more different trade items, each identified with a GTIN.
price verifier digit	A digit calculated from the price element in a Restricted Circulation Number (RCN) that is used to check that the data has been correctly composed.
product model	A base product design or specification from which a trade item is derived.

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Term	Definition
QR Code (GS1 Digital Link URI)	QR Code encoding data using the uncompressed form of GS1 Digital Link URI syntax.
QR Code symbology	A two-dimensional barcode symbology consisting of square modules arranged in a square pattern. The symbology is characterised by a unique finder pattern located at three corners of the symbol. QR Code symbols are read by two-dimensional imaging scanners or vision systems.
Quiet Zone	A clear space which precedes the start character and follows the stop character of a linear barcode or surrounds a 2D barcode.
Quiet Zone Indicator	A greater than (>) or less than (<) character, printed in the human readable field of the barcode, with the tip aligned with the outer edge of the Quiet Zone.
radio frequency	Any frequency within the electromagnetic spectrum associated with radio wave propagation. When radio frequency power is supplied to an antenna, an electromagnetic field is created that then is able to propagate through space. A radio frequency signal that can be processed by a radio frequency receiver. Many wireless technologies are based on radio frequency field propagation.
radio frequency identification (RFID)	A technology that uses radio frequency electromagnetic fields or waves to automatically identify and track tags attached to objects. An RFID system consists of RFID tags and readers. When triggered by a radio frequency electromagnetic interrogation signal from a nearby RFID reader, the RFID tag transmits digital data, usually a unique identifier like an EPC, back to the reader.
RCN-12	A 12-digit Restricted Circulation Number (see Restricted Circulation Number).
RCN-13	A 13-digit Restricted Circulation Number (see Restricted Circulation Number).
RCN-8	An 8-digit Restricted Circulation Number (see Restricted Circulation Number)
refund receipt	A voucher produced by equipment handling empty containers (i.e., bottles and crates).
regular expression	A sequence of characters that specifies a search pattern that is usually used by string-searching algorithms for search / find-and-replace operations on strings or for validation of string input.
regulated healthcare non-retail consumer trade item	A regulated healthcare trade item not intended for scanning at POS and identified with a GTIN-14, GTIN-13, GTIN-12 or GTIN-8 utilising linear or 2D barcodes that can be scanned by image-based scanners.
regulated healthcare retail consumer trade item	A regulated healthcare trade item to be sold to the end consumers at a regulated healthcare retail point-of-sale (i.e., pharmacies). They are identified with a GTIN-13, GTIN-12 or GTIN-8 utilising linear or GS1 DataMatrix barcodes that can be scanned by image-based scanners.
regulated healthcare trade item	Pharmaceuticals or medical devices that are sold or dispensed in a controlled environment (e.g., retail pharmacy, hospital pharmacy).
responsible entity	The party responsible for the safety and effectiveness of the medical product at a moment in time in its life cycle, according to the approved regulatory file (including labelling) and regulatory/legal/professional obligations associated with the medical product. (e.g., brand owner, repackager, hospital pharmacy, etc.)
Restricted Circulation Number (RCN)	Signifies an identification number used for special applications in restricted environments, either defined by local GS1 Member Organisations (for regional applications such as variable measure product identification and, couponing) or by a company (for internal applications).
retail consumer trade item variant	A variation of change to a retail consumer trade item (which may itself be a homogeneous or predefined assortment of other retail consumer trade items) which does not require a new GTIN, but where identification of the variation may be required.
returnable asset	A reusable entity owned by a company that is used for transport and storage of goods. It is identified with a GRAI.
separator character	Special character(s) that are defined as part of GS1 symbologies and used to separate concatenated element strings, based on their positioning in the GS1 barcodes.
serial number	A code, numeric or alphanumeric, assigned to an individual instance of an entity for its lifetime. Example: a unique individual item may be identified with the combined Global Trade Item Number (GTIN) and serial number.
serial reference	A component of the Serial Shipping Container Code (SSCC) assigned by the physical builder or brand owner of the logistic unit to create a unique SSCC.
Serial Shipping Container Code (SSCC)	The GS1 identification key used to identify logistics units. The key comprises an extension digit, GS1 Company Prefix, serial reference and check digit.

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Term	Definition
service reference	A component of the Global Service Relation Number (GSRN) assigned by the issuing organisation to create a unique GSRN.
service relation instance number (SRIN)	An attribute to the GSRN which allows to distinguish different encounters during a service relationship.
shipment	A grouping of logistic and transport units assembled and identified by the seller (sender) of the goods travelling under one despatch advice and/or Bill of Lading to one customer (recipient).
short life items	An item, preparation or reconstituted product with limited use/shelf life.
simple GS1 identifier~~key~~	A single data element that identifies entities at class level or instance level.~~A single data element that serves as a key (also see compound key).~~
single unit package/blister	A healthcare primary package that contains one discrete pharmaceutical dosage form, i.e. a tablet, a certain volume of a liquid or that is the immediate package for a medical device like a syringe. A number of single units attached to each other, but are easily separated through a perforation would be included.
standard contact lenses (per EU MDR)	A type of highly individualised device, (typically made-to-stock and identified by GTIN for trade purposes), registered in EUDAMED per European Medical Device Regulations (MDR)
sterile packaging system	A combination of the sterile barrier system (the minimum package that prevents ingress of microorganisms and allows aseptic presentation of the product at the point of use) and the protective packaging (configuration of materials designed to prevent damage to the sterile barrier system and its contents until the point of use).
string	A series of alphanumeric characters, representing one or more pieces of data. Depending on the technology it may be inclusive of data element qualifiers e.g., GS1 element string, or may reference only the data element value e.g., GS1 identifier data element value or GS1 informative data element value. Strings may be historically referred to as numbers despite allowing non-numeric characters e.g., serial number, Global Model Number, purchase order number etc.
sub-class level GS1 identifier	An identifier of a subset of a class of entities that share class-level characteristics plus additional characteristics (e.g., all trade items, allocated the same GTIN but distinguished by batch/lot number).
subject of care	Any person who uses or is a potential user of a healthcare service, subjects of care may also be referred to as patients or healthcare consumers.
substrate	The material on which a barcode is printed or otherwise applied.
Supplemental symbol	A GS1-128 barcode used in combination with EAN/UPC, ITF-14 or GS1-128 where additional information is required beyond the barcode that carries the GS1 key (main symbol).
supplier	The party that produces, provides, or furnishes an item or service.
symbol character	A group of bars and spaces in a symbol that is decoded as a single unit. It may represent an individual digit, letter, punctuation mark, control indicator, or multiple data characters (see also codeword).
symbol check character	A symbol character or set of bar/space patterns included within a GS1-128 or GS1 DataBar symbol, the value of which is used by the barcode reader for the purpose of performing a mathematical check to ensure the accuracy of the scanned data. It is not shown in human readable interpretation. It is not input to the barcode printer and is not transmitted by the barcode reader.
symbol contrast	An *ISO/IEC 15416* parameter that measures the difference between the largest and smallest reflectance values in a Scan Reflectance Profile (SRP).
symbology	A defined method of representing numeric or alphabetic characters in a barcode; a type of barcode.
symbology identifier	A sequence of characters generated by the decoder (and prefixed to the decoded data transmitted by the decoder) that identifies the symbology from which the data has been decoded.
trade item	Any item (product or service) upon which there is a need to retrieve predefined information and that may be priced, or ordered, or invoiced at any point in any supply chain.
trade item declarations	The set of all information about a trade item (e.g., manufacturer warranty, ingredients, instructions for use, specifications, contents, certifications, predefined characteristics, and other information). For a trade item, this is all of the information that is on the label and in the original packaging. It also includes relevant aspects of the extended packaging.
trade item grouping	A predefined composition of trade item(s) that is not intended for point-of-sale scanning. It is identified with a GTIN-14, GTIN-13, or GTIN-12.

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