Analysis and Recommendations
Brand Owner Sub-Team

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1. Introduction

For some time, the term "brand owner" has been synonymous with a member of a GS1 Member Organisation to whom a GS1 Company Prefix has been allocated.

The official definition of "brand owner" may be found in section 8.1, GS1 Glossary Terms and Definitions, of the GS1 General Specifications (1):

■ The party that is responsible for allocating GS1 System Identification Keys. The administrator of a GS1 Company Prefix.

The GS1 Global Data Dictionary (GDD) (2) references additional documents that define the term:

■ GS1 Global Traceability Standard

    ☐ The Party that is responsible for allocating GS1 System Identification keys. The administrator of a GS1 Company Prefix.

        - And / or the Party that is the ultimate authority for the Trade Item.

        - And / or the owner of the product specifications.

        - And / or responsible for placing a Traceable Item into commerce.

■ GS1 Global Traceability Standard for Healthcare

    ☐ The Party that is responsible for allocating GS1 System numbering and bar code symbols on a given Trade Item. The administrator of a GS1 Company Prefix.

        - And / or the Party that is the ultimate authority for the Trade Item.

        - And / or the owner of the product specifications.

        - And / or responsible for placing a Traceable Item into commerce.

    ☐ A person or an entity whose activity involves the Broker entering into a Contract with a person or entity whereby the Broker receives a commission for any business he brings to the person or company calculated as a percentage of the transaction between that entity and a third Party. However, the Broker normally does not actually take physical control of the goods.

The term "brand owner" is very closely associated with a product as products are the only objects that have a brand. Other objects may be associated with a brand (e.g. a department location for the brand's managers) but their association is ultimately through the underlying products. Identification keys other than the GTIN have other terms associated with them. See Section 2.6 for a summary of terms.

1.1. Audience

This document is intended as a reference for standards development groups; it is not intended for public consumption. Initially, the document is to be given to the teams responsible for the GS1 General Specifications (1) and the GS1 Global Data Dictionary (2) so that their respective materials may be updated in accordance with the recommendations herein.

1.2. Assumptions

The reader is assumed to be generally familiar with GS1 identification standards. In particular, GS1 Identification Keys such as GTIN, GLN, GIAI, etc. will be used throughout this document without any expansion and with limited if any explanation of their use cases except where such explanation materially substantiates other text in this document.

1.3. Scope of work

The scope of work for this document is to review the use of the term "brand owner", to determine its utility in the current GS1 environment, and to propose one or more alternate terms (possibly including the original "brand owner" term itself) for future use.

While from a practical perspective it is highly likely that different identifiers are managed by different individuals within a single organization, the goal here is to create a high-level definition that can be applied to all individuals within all workflows.

1.4. Terminology

1.4.1. Issuance vs. allocation

Issuance and allocation are processes that apply to GS1 Company Prefixes and to GS1 Identification keys. Although they often occur at the same time, they are in fact separate processes.

1.4.1.1. GS1 Company Prefix

Issuance is the generation of a GS1 Company Prefix based on the GS1 format and on the issuance policy of the issuing GS1 Member Organization. **Allocation** is the association of the issued GS1 Company Prefix with a GS1 Member in accordance with the GS1 rules.

1.4.1.2. GS1 Identification Key

Issuance is the generation of a GS1 Identification Key based on the format and syntax for that key and on the issuance policy of the managing entity. **Allocation** is the association of the issued GS1 Identification Key with an object of the type supported by the GS1 Identification Key in accordance with the GS1 rules.

Different entities may be involved in each process. For example, a computer program could be used to do the issuance and a human could be used to do the allocation. A classic example of this is one where the IT department prepares a spreadsheet of available GTINs for use by the Product Development department. Each GTIN in the spreadsheet is issued, but until Product Development actually has a product for it, it is not considered to be allocated.

The term "brand owner" is an all-encompassing one that covers all parties within an organization that are responsible for the processes of issuance and allocation. This document will follow that convention but may specifically call out the processes of issuance and allocation where necessary.

1.4.2. GS1 Company Prefix Owner/Licensee/Subscriber vs. Brand Owner

In most cases, when a GTIN is issued by a brand owner, that brand owner is itself the company to which the GS1 Member Organization has allocated the GS1 Company Prefix. In some cases, this is not strictly true:

- Some large organizations have holding companies whose sole purpose is to manage certain digital assets and licenses, including GS1 Company Prefixes used by brands within the organization. They may do this as a way of logically organizing their assets or for other business purposes such as distribution of income. Regardless, they don't follow the traditional model of GS1 Company Prefix management.

- Due to the contract terms in place in the early days of GS1's predecessors, some GS1 Company Prefixes were sold outright rather than licensed annually and were sold with few encumbrances on their use. Accordingly, some businesses have been built around the concept of GS1 Identification Key issuance, most often GTIN issuance, and the keys are

82 issued to multiple unrelated parties; there is no single "brand owner". While modern GS1 rules
83 prohibit this practice, it is legal in certain jurisdictions and must therefore be properly
84 considered in the terminology.

85 ■ Many GS1 Member Organizations license what are referred to as one-off GS1 Identification
86 Keys. These are keys that are generated from a GS1 Company Prefix reserved by the GS1
87 Member Organization expressly for this purpose. Typical customers of one-off GS1
88 Identification Keys are small manufacturers with limited product lines who do not need more
89 than a few keys or small retailers with no own/private label products and only one location.

90 □ A special case of one-off GS1 Identification Key is the GTIN-8, available for items whose
91 packaging does not include enough available space to permit the use of an EAN-13 or
92 UPC-A Symbol. GTIN-8s are issued individually by GS1 Member Organizations on
93 request and are based on a one-, two-, or three-digit GS1-8 prefix allocated to the MOs by
94 GS1 Global Office; typically, these are three-digit numbers that match the MO's allocated
95 GS1 Prefixes.

1.4.3. General Manager Number (EPC)

97 From *Section 6.3.8 General Identifier (GID)* of GS1 EPC Tag Data Standard 1.6 (3):

98 The *General Manager Number* identifies an organizational entity (essentially a company,
99 manager or other organization) that is responsible for maintaining the numbers in subsequent
100 fields – Object Class and Serial Number. EPCglobal assigns the General Manager Number to
101 an entity, and ensures that each General Manager Number is unique. Note that a General
102 Manager Number is not a GS1 Company Prefix. A General Manager Number may only be used
103 in GID EPCs.

104 The General Manager Number is for the assignment of GID EPCs only and is therefore outside of the
105 scope of this document. Its definition is provided for completeness.

1.5. History

107 The GS1 System has its foundations with the first numbering systems developed in the 1960s and the
108 bar codes scanned at retail in the early 1970s. The numbering systems and the associated bar code
109 symbols eventually converged to what we know today as the Global Trade Item Number (GTIN)
110 encoded in U.P.C, EAN-8, and EAN-13 symbols. The GTIN was the only GS1 Identification Key until:

111 ■ SSCC (1988)

112 ■ GLN (fully harmonised globally in the 1990s)

113 ■ GIAI (1995)

114 ■ GSRN (1998)

115 ■ etc.

116 The issuance of article numbers was via the Company Number, digits allocated by an EAN Numbering
117 Organisation (now GS1 Member Organization) to the company responsible for numbering the articles.
118 The article number was a composition of the Company Number, an item reference, and a check digit.

119 The Company Number is known today as the GS1 Company Prefix.

1.5.1. Purpose of the numbering system

121 The purpose of the numbering system is to ensure that objects identified with GS1 Identification Keys
122 are identified uniquely within a global, open environment. In general, a GS1 Identification Key may be
123 broken down as follows:

124   `<GS1 Company Prefix><Object Reference (optional)><Serial Reference`
125   `(optional)>`

126   At least one of "Object Reference" or "Serial Reference" is required.

127   The GS1 Company Prefix is a unique number allocated to a GS1 Member (see Section 1.5.2). The
128   member is then responsible for the allocation of the Object Reference and the Serial Reference.

129   1.5.2.   Delegated administration

130   Unique product identification key allocation was first conceived in the 1960s, long before the
131   ubiquitous connectivity of today's Internet. It was therefore necessary to develop a system that would
132   allow for delegation of portions of the identification space to multiple parties that had no ability to
133   coordinate the allocation effort. While the concept has had minor tweaks applied over the years, the
134   top-down nature is essentially unchanged from the beginning:

135   ■   GS1 Global Office allocates a range of three-digit numbers (GS1 Prefixes) to each GS1
136   Member Organization (see http://www.gs1.org/barcodes/support/prefix_list for a complete list).
137   For example, GS1 Canada has been allocated the range 754-755.

138   ■   The GS1 Member Organization then issues numbers within its range and allocates unique
139   GS1 Company Prefixes of various lengths or individual GS1 Identification Keys to its
140   members, where the first three digits are within the range allocated by GS1 Global Office. For
141   example, GS1 Canada could allocate the GS1 Company Prefix 75412300.

142   ■   The GS1 Member then issues and allocates an Object Reference and/or a Serial Reference in
143   accordance with the rules laid out in the GS1 General Specifications (1). For example, a GS1
144   Member with the GS1 Company Prefix 75412300 could issue the GTIN 7541230066952 and
145   allocate it to one of its products.

146   As long as each party ensures unique issuance within its space, the number is guaranteed to be
147   unique worldwide.

148   It should be noted that uniqueness is within the GS1 Identification Key Type only. The number
149   allocated to a GTIN may also be used as a GLN to identify a location. There is absolutely no
150   connection between the two numbers even though they are identical.

151   1.6.   Problem Statement

152   1.6.1.   Dual meaning

153   There is a dual meaning of the term "brand owner":

154   ■   Concept 1: the party responsible for the GS1 Company Prefix used. This is to ensure
155   uniqueness as a concept.

156   ■   Concept 2: the organization that owns the trade item specifications.

157   This leads to the following concerns:

158   ■   The definition of "brand owner" is circular.

159   ■   Stating that the brand owner allocates the GS1 Identification Key may lead to
160   misinterpretation (i.e. it infers that that part of the GS1 Identification Key conveys information
161   about the product).

162   ■   Mixes the concepts of:

163   ☐   party responsible for issuing numbers; and

164   ☐   party responsible for the product.

165   1.6.2.   GTIN vs. all other GS1 Identification Keys

166 Where the brand owner is defined as the party responsible for the GS1 Company Prefix used, there
167 are the following concerns:

- 168 The concept of "brand owner" does not apply to the other GS1 Identification Keys. For
  169 example, who is the brand owner for:
  - 170   ▫   Global Shipment Identification Number (GSIN)
  - 171   ▫   Global Identification Number for Consignment (GINC)

- 172 The above two keys are allocated by two separate companies (the shipper and the carrier
  173 respectively).

- 174 Even for GTIN, the term "brand owner" is a CPG-oriented term that doesn't fit with a multi-
  175 sector approach (e.g. it doesn't always fit with GTINs used in upstream manufacturing,
  176 generic products in healthcare, or fresh produce).

2. Background Material

2.1. GS1 General Specifications

The term "Brand Owner" is mentioned in numerous locations in the document. The references below are to Version 12, January 2012. Where the section or subsection title is not sufficiently clear, clarifying text is added as a sub-bullet.

- 2.1.1.7. Marking Levels of Regulated Healthcare Trade Items (RHTI)
- 2.1.1.8. Small Medical / Surgical Instruments (Non-Retail Trade Items)
- 2.1.2.2. Loose Produce Trade Items Scanned at POS
- 2.1.2.4. Healthcare Primary Packaging (Non-Retail Trade Items)
- 2.1.2.5. Healthcare Secondary Packaging (Regulated Healthcare Retail Consumer Trade Items)
- 2.1.2.6.1. Identification of a Trade Item that is a Single Product
- 2.1.2.6.2. Identification of Uniform Groupings of Trade Items
- 2.1.4. Fixed Measure - Direct Part Marking
- 2.1.8. Trade Item Extended Packaging
- 2.2. Logistic Units
  - □ Mentions the GTIN as an additional identification key if "the item is regarded as a trade item by the brand owner".
- 3.1. Introduction
  - □ Refers to the generic "GS1 Key".
- 3.3.1. Identification of a Logistic Unit: AI (00)
- 3.5.1. Product Variant: AI (20)
- 3.9.13. Extended Packaging URL: AI (8200)
- 4.3.1.2.1. Allocation and Responsibility for Branded Items
- 4.3.1.2.2. Allocation and Responsibility Exceptions and Non-Branded Items
- 4.3.1.3.2. Pre-Defined Characteristics
  - □ Of a trade item.
- 4.3.1.3.5. Trade Item Changes
- 4.3.1.4. Lead Time in Re-Using a GTIN
- 4.3.1.5. Data Alignment
  - □ Of a trade item.
- 4.3.1.5.1. Data Alignment Best Practice
  - □ For a trade item.
- 4.4.1.2. Responsibility
  - □ For a logistics unit.
- 4.12. Human Readable Interpretation (HRI) Rules

213   □   Not key-specific.

214   ■   5.5.2.7. GS1 System Symbol Specification Tables

215   □   Not key-specific but text refers to trade items.

216   ■   5.5.2.8. GS1 Multiple Bar Code Rules for Healthcare

217   □   For trade items.

218   ■   5.5.3.5.2. Background

219   □   Of bar code verification.

220   ■   8.1. GS1 Glossary Terms and Definitions

221   □   Multiple key types.

2.2. GS1 System Architecture – Classes of GS1 Identification Keys

223 The GS1 Identification Keys are the foundation of the GS1 System. However, some GS1 Standards
224 make provision for the use of other systems of identification for which some organization other than
225 GS1 is the issuing authority. For this reason a classification of keys, drawn from a GS1 perspective, is
226 helpful in understanding the relationship between a key and the rest of the GS1 System.

227 The following classification of keys is used:

228 ■ Class 1: Keys administered by GS1 and fully under its control

229 ■ Class 2: Keys whose framework is controlled by GS1 by means of portion of the GS1
230 numbering capacity that is allocated for an identification scheme administered by an external
231 agency

232 ■ Class 3: Keys fully administered and controlled outside GS1 but which are supported in some
233 part or parts of the GS1 System

234 ■ Class 4: Keys that are entirely outside the GS1 System i.e. all identifiers that meet the
235 technical definition of "key" in Section 4.1.3 [of the GS1 System Architecture], but are not in
236 the first three classes.

237 This classification is described in more detail below.

2.2.1. Class 1 Keys

239 A Class 1 key has its structure and its allocation and lifecycle rules defined by GS1. Class 1 keys
240 always start with a GS1 Prefix[1]. They usually start with a GS1 Company Prefix licensed by a GS1
241 Member Organisation (MO) or by the GS1 Global Office to a user company. In some cases, they are
242 licensed one by one by MOs to user companies. They are subject to allocation rules defined in GS1
243 Standards, and their association with attributes is governed by validation rules also defined in GS1
244 Standards.

245 The allocation and lifecycle rules and the standardised structure guarantee full interoperability
246 between users of all layers of the GS1 System. This means that when a company uses Class 1 keys
247 for its intended purpose it can be confident that its GS1 compliant trading partners will be able to
248 accept and process them per GS1 Standards.

249 Currently the Class 1 keys are GTIN, SSCC, GLN, GRAI, GIAI, GSRN, GDTI, GSIN and GINC.

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[1] This is not quite literally true, because the syntax of the GTIN-14 and SSCC keys include an extra digit that precedes the GS1 Prefix. However, from the standpoint of the allocation process, the GS1 Prefix are the first digits to be chosen during the construction of a key, so in this sense the GTIN and SSCC also "start with" a GS1 Prefix. Note that in the EPC syntax, the first digits *are* always the GS1 Prefix.

2.2.2. Class 2 Keys

A Class 2 key starts with a GS1 Prefix, incorporates a key administered by an external organisation, and where its corresponding Class 1 key format has a check digit it must be used and calculated in the same way as for Class 1 keys. Class 2 keys are unique with respect to Class 1 keys of the same type, and their values are a subset of all possible values of the corresponding GS1 key. Their allocation and lifecycle rules, however, are defined by an organisation external to GS1. The degree to which these rules are compatible with those of the corresponding Class 1 keys is specific to each Class 2 key. In some cases they can easily be used alongside Class 1 keys, but sometimes legal restrictions or dominant business practices lead to acceptance of Class 2 keys whose rules vary significantly from their Class 1 equivalents.

It is important to understand that technical compatibility is not the same in practice as interoperability. Technical compatibility is achieved by having uniqueness of values within the namespace and a similar basic structure for the identifier (e.g., GS1 Prefix and check digit). It is still possible for business or legal restrictions to be imposed requiring use of a certain format or range of values, even if such restrictions are not technically justified. It might be argued that Class 2 keys are more susceptible to these geopolitical constraints than keys in Class 1.

Interoperability is the ability to use the key within the context of business processes supported by GS1 standards. However, the degree of interoperability with GS1 System depends on the extent to which a Class 2 key conforms to Class 1 key functionality and rules.

Class 2 keys are always based on a GS1 Prefix issued by GS1 and might be based on a GS1 company prefix allocated by a GS1 Member Organisation or the GS1 Global Office. Examples include:

- ISBNs may be used with GS1 prefixes 978 and 979 to form GTIN-13s.

- GS1 prefix 34 is used with Club Inter Pharmaceutique (CIP) codes for pharmaceuticals in France to accommodate national numbers inside the GTIN number range

- The Produce Electronic Identification Board uses the GS1 Company Prefix 033383 combined with a commodity code issued by the Produce Manufacturers Association to create "PEIB UPCs" inside the GTIN number range.

There must be a contractual agreement between the GS1 Global Office or a GS1 Member Organisation and the agency that administers the embedded key. This agreement specifies at minimum the following:

- GS1 System components that can be used with the key, e.g. ISBN can only be used with the EAN/UPC data carrier

- Restrictions that may apply, e.g. ISBN can only be used for books

- Financial considerations

- GS1 keys allocation and lifecycle rules

- Validation rules

- Compatibility with class 1 key function and syntax for example:

  □ Will this class 2 key work with physical data carriers and GDSN validation rules

  □ Will this class 2 key support ONS

  □ Etc…

- Restrictions on reciprocity (e.g. national or currency zones)

2.2.3. Class 3 Keys

291

292 A Class 3 key has its structure and its rules for use defined, administered and managed by an agency
293 external to GS1. However this agency enters into an agreement with GS1 that enables its keys to be
294 used in selected GS1 Standards; for example, within an EPC header.

295 It is intended that Class 3 keys are used in selected GS1 standards without disrupting users of Class 1
296 and Class 2 keys, but:

297 ■ GS1 gives no assurance that Class 3 keys will be recognised by users of Class 1 and Class 2
298 keys

299 ■ GS1 has no expectation that systems relying upon Class 3 keys should recognise keys from
300 Class 1 or Class 2

301 ■ Has no expectation that systems relying upon one type of Class 3 key should recognise other
302 types of Class 3 key.

303 Companies can take advantage of GS1 technology, network and communications standards for
304 Class 1, 2 and 3 keys, but should not expect full interoperability between keys in Classes 1 and 2 and
305 keys in Class 3.

306 Keys in Class 3 at the present time are the Auto-ID Center General Identifier (ID), and keys compliant
307 with US Department of Defence (USDoD) and Airline Transport Association (ATA) standards that are
308 based on CAGE and DoDAAC company identification. Such keys are supported in the GS1 EPC Tag
309 Data Standard and consequently have an EPC URI that can be used in EPCIS..

2.2.4. Class 4 Keys

310

311 A Class 4 key is administered and managed externally to GS1 and is not accommodated by any GS1
312 standard. Examples include DUNS, VIN, HIBC, BIC, DOI and many others.

2.2.5. Summary

313

314 The following table summarises the key classification discussed above.

Class	Managed	Contract	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

315 * Interoperability is the ability to use the key within the context of business processes supported by
316 GS1 standards.

317 ** One exception is GID GS1 Prefix 951. While the key itself does not contain a GS1 Prefix, the
318 portion of the key that semantically corresponds to the GS1 Prefix is 951, and this GS1 Prefix is
319 reserved for that use to avoid confusion with Class 1 and 2 keys.

2.3. GS1 Identification Keys

The focus of this document is on the class 1 and class 2 identification keys, those keys that are either defined and controlled by GS1 or that are defined and controlled by an external organization but are integrated into the GS1 System and appear to outside users as regular GS1 Identification Keys.

The term "brand owner" reflects the legacy of an identification system whose first, and still most-used, identification key is for trade items. However, there are many circumstances, some even involving trade items, where the term "brand owner" is not appropriate. For each GS1 Identification Key below, text that describes the entity responsible for the allocation of keys of that type has been extracted from the GS1 General Specifications Version 12 (1).

2.3.1. Global Trade Item Number (GTIN)

The GTIN is not always issued and allocated by the brand owner. There are some circumstances where a trade item is not identified at source and the GTIN is applied by an importer. In extreme cases, the same item may be identified by different GTINs defined by different importers, although identification at source is still the desired state.

From the GS1 General Specifications Version 12 (1):

4.3.1.2.1. Allocation and Responsibility for Branded Items

The brand owner, the organisation that owns the specifications of the trade item regardless of where and by whom it is manufactured, is normally responsible for the allocation of the Global Trade Item Number (GTIN). On joining a GS1 Member Organisation, the brand owner receives a GS1 Company Prefix, which is for the sole use of the company to which it is assigned.

The brand owner is the organisation that owns the trade item specifications and may be:

- The manufacturer or supplier: The company that manufactures the trade item or has it manufactured, in any country, and sells it under its own brand name

- The importer or wholesaler: The importer or wholesaler that has the trade item manufactured, in any country and sells it under its own brand name or the importer or wholesaler that changes the trade item (for example by modifying the packaging of the trade item)

- The retailer: The retailer that has the trade item manufactured, in any country, and sells it under its own brand

4.3.1.2.2. Allocation and Responsibility Exceptions and Non-Branded Items

There are some exceptions to the rules regarding responsibility described in

- Non-Branded Items: Items without a brand name and generic items (not private labels) are still assigned Global Trade Item Numbers (GTIN) by their manufacturer. As different manufacturers and/or suppliers may supply items that appear identical to the buyer (this could be a consumer as well as a retailer or manufacturer), it is possible that items that are apparently the same have different GTINs. Companies that trade in these items need to organise their computer applications (e.g., replenishment programs) to cope with this eventuality. Examples of items that sometimes have no brand are apples, plasterboard, candles, and drinking glasses. Examples for trade items that sometimes have no brand and are not intended for retail include salt, fragrances, and food cans.

- Customer Specific Items: If a trade item is made specifically for one trade customer (buyer) and is orderable only by this customer, then the buyer assigns the GTIN. In this case the GTIN should be formed from the customer's GS1 Company Prefix (see Section 1.5). If the supplier (seller) sells a trade item to more than one buyer or intends to sell to more than one buyer, then the seller assigns the GTIN.

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365   ■   Other Exceptions: If the brand owner does not assign a GTIN, the importer or another
366   intermediary can assign an item a temporary GTIN. This would imply that the importer
367   takes on the role of the brand owner and could, for example, register the product in a
368   data catalogue. This temporary GTIN may be used until a GTIN is assigned in the
369   normal way. Alternatively, a retail organisation can assign an internal number to an item
370   that does not yet have a GTIN assigned to it only if the item is used within its own
371   stores.

2.3.2.   Global Location Number (GLN)

373 The GLN has applications in multiple industries and may be used in environments that have nothing to
374 do with any traditional manufacturer or retailer. Examples include transport and logistics providers,
375 financial institutions, healthcare facilities, and many more.

376 From the GS1 General Specifications Version 12 (1):

377 **4.6.1.1. General Rule**

378 Global Location Numbers (GLNs) can be used to identify any physical location or party that has
379 meaning within a business scenario. The general rule is that a separate GLN is required to
380 identify each different location (e.g., each store of a retail group is required to have a separate
381 GLN to enable efficient delivery to the individual store).

382 The exact method used to allocate the GLN is at the discretion of the issuing organisation. In
383 line with best practice, GS1 recommends that the GLN be assigned at source, usually by the
384 party owning the location. When a new GLN is issued, it is recommended that:

385   ■   The GLN be associated with the master data for the identified location

386   ■   This master data be communicated to trading partners in a timely manner

387   ■   GLNs be allocated sequentially without classifying elements

388 Once assigned at the source, usually by the party owning the location, the GLN becomes a
389 global reference that can be used by all. See Section 4.6.1.6, for guidance on trading with
390 organisations that do not use GLNs.

391 The GLN allocated to an entity should be communicated from the owner of the location through
392 the supply chain in advance of a transaction/delivery so that all systems can be prepared for
393 interaction. GLNs are reference keys for retrieving the indicated information from databases.

394 From time to time, the details (associated data) related to a GLN might change. The following
395 subsections are general cases or examples on the allocation of GLNs due to a change in the
396 circumstances or business conditions in which the number was originally established. See
397 Section 4.6.3 or GLN allocation rules and scenarios regarding when GLNs should remain the
398 same or should be changed. These rules are based on business practices.

399 Note: National, federal or local regulations may take precedence over this guideline. Examples
400 include regulations affecting a company's registration, taxation, or fiscal obligations, as well as
401 its industry requirements.

2.3.3.   Serial Shipping Container Code (SSCC)

403 The SSCC may be used to identify a shipping container at any point in the supply chain, not just at
404 point of origin. Any party in the supply chain may allocate an SSCC when transferring goods from one
405 location to another.

406 From the GS1 General Specifications Version 12 (1):

407 **4.4.1.1. General Rule**

408   An individual Serial Shipping Container Code (SSCC) is a unique number, which remains the
409   same for the life of the logistic unit to which it is assigned. When assigning an SSCC, the rule is
410   that an individual SSCC number must not be reallocated within one year of the shipment date
411   from the SSCC assignor to a trading partner. However, prevailing regulatory or industry
412   organization specific requirements may extend this period.

4.4.1.2. Responsibility

414   The Serial Shipping Container Code (SSCC) provides functionality to support the management
415   (tracking, tracing, storage, etc.) of logistic units through the supply chain. To ensure global
416   uniqueness and traceability, the company creating the logistic unit or the brand owner of the
417   logistic unit is responsible for the allocation of the SSCC.

2.3.4.   Global Returnable Asset Identifier (GRAI)

419   While the GRAI is often used to identify assets in the supply chain (e.g. pallets), the assets are not
420   necessarily identified by the manufacturer. For example, a pallet provider could purchase pallets from
421   a pallet manufacturer (using a GTIN) and allocate the GRAI for distribution to its rental customers.

422   From the GS1 General Specifications Version 12 (1), with revisions approved in WR11-129 for the
423   next release:

4.5.1.3. Best Practice

425   Best practices may dictate that the trade item manufacturer apply the asset identifier during the
426   manufacturing process.

2.3.5.   Global Individual Asset Identifier (GIAI)

428   Similar to the GRAI, the GIAI is often used to identify assets in the supply chain (e.g. shipping
429   containers) but may also be used for internal purposes (e.g. aircraft parts). Again, the connection to
430   any "brand owner" is tenuous at best.

431   From the GS1 General Specifications Version 12 (1):

4.5.1.3. Best Practice

433   Best practices may dictate that the trade item manufacturer apply the asset identifier during the
434   manufacturing process. This number may then be used for ordering new assets of an identical
435   type.

2.3.6.   Global Service Relation Number (GSRN)

437   The GSRN is probably the closest to the GTIN in terms of its relationship to a brand owner: it is a
438   persistent identifier between a provider or manager of a service and an agent or consumer of it, and
439   it's allocated by the provider or manager.

440   From the GS1 General Specifications Version 12 (1):

4.7.2. General Rule

442   The Global Service Relation Number (GSRN) can be used to identify any service relationship. A
443   separate, unique number can be issued, normally by the service provider, to identify any given
444   service relationship. Once assigned, the GSRN becomes a unique and universal reference that
445   can be used by all parties involved in the service relationship.

2.3.7. Global Document Type Identifier (GDTI)

The GDTI may be used to identify any document of any kind with some applications far outside of the supply chain. For example, the GDTI is the identifier encoded into the RFID chip in the US Department of Homeland Security's Enhanced Driver's License.

From the GS1 General Specifications Version 12 (1):

4.8.1.3.2. Global Document Type Identifier (GDTI)

The Application Identifier to indicate the Global Document Type Identifier is AI (253).

The Global Document Type Identifier (GDTI) is assigned by the document issuer. The GDTI is used as a key to access database information that is required for document control purposes (normally held by issuing organisation). The same Document Type is used for all document classes that are issued with an identical purpose. This can then be used to reference the characteristics of the document, such as:

- The issuer of the document
- The exact right or obligation the document imposes
- The document type (e.g., insurance policy, governmental paper)

A different Document Type shall be used whenever characteristics of the document are different.

By their nature, each document needs to be individually tailored for the intended recipient and, therefore, requires a unique reference number in addition to the Document Type. Any duplicates of a document should use the same number as the original. The serial component is optional and assigned by the document issuer and is unique in a series of documents issued under the same Document Type. Ideally the serial component should be sequentially allocated for each new document generated.

The serial component is used to communicate exact details pertinent to the individual document such as:

- The name and address of the recipient
- The cross-reference to individual details

2.3.8. Global Shipment Identification Number (GSIN)

Similar to the SSCC, the GSIN is not restricted to brand owners. Any consignor (seller) in the supply chain may allocate a GSIN when creating shipments.

From the GS1 General Specifications Version 12 (1):

4.10.1.1.General Rule

An individual Global Shipment Identification Number (GSIN) is a unique number, which remains the same for the life of the grouping of logistics or transport units to which it is assigned. When assigning a GSIN, the rule is that an individual GSIN number must not be reallocated within ten years of the shipment date from the seller or third party logistics provider (sender) of the GSIN to a trading partner buyer (recipient) to comply with the regulations of the World Customs Organisation (WCO). For goods that circulate within one country (domestic transport), the period of re-use is based on either governmental, industry or the discretion of the seller (sender) of the goods.

From CR08-073 (approved but not yet published):

The Global Shipment Identification Number (GSIN) is a number assigned by a consignor (seller) of goods.

2.3.9. Global Identification Number for Consignment (GINC)

Similar to the SSCC, the GINC is not restricted to brand owners. Any consignor (seller), freight forwarder, or carrier in the supply chain may allocate a GINC when creating consignments.

From the GS1 General Specifications Version 12 (1):

4.9.1.1. General Rule

An individual Global Identification Number for Consignment is a unique number, which remains the same for the life of a grouping of logistics or transport units to which it is assigned. When assigning a GINC, the rule is that an individual GINC number must not be reallocated within one year of the shipment date from the freight forwarder assigning the GINC to a transport. However, prevailing regulatory or industry organisation specific requirements may extend this period.

From GSMP CR08-073 (approved but not yet published):

The Global Identification Number for Consignment is assigned by the freight forwarder or carrier of the transport units.

2.3.10. Global Coupon Number (GCN)

The GCN is not restricted to brand owners. Any party in the supply chain with an interest in offering a promotion (discount on an individual product, discount on unrelated products purchased together, discount on an entire purchase) may issue a coupon.

The definition of the GCN has been approved for the next issue of the GS1 General Specifications:

4.x.1 Allocating Global Coupon Numbers

The exact method used to allocate the Global Coupon Number (GCN) is left to the discretion of the issuing organisation. However, the GCN must remain unique for a period well beyond the lifetime of the records relevant to the coupon.

For ease of administration, GS1 recommends that GCNs be allocated sequentially and not contain classifying elements

2.4. Global Data Dictionary

The Global Data Dictionary (2) mentions the term "brand owner", but it does so in the context of GTINs, In particular, the definition of a brand owner is "Unique location number identifying the Party for which the rest of the message defines". Furthermore, a brand owner within this context is identified with a GLN.

For details, see:

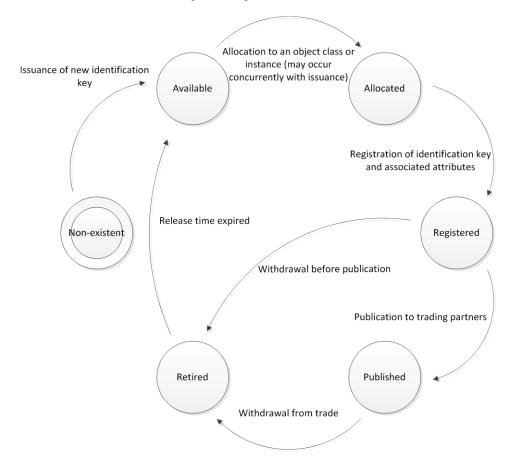http://www.gs1.org/1/productssolutions/ecom/xml/implementation/tmg_2_0_2/XML-Guidelines/CatalogueItemSynchronisation/CatalogueItemNotification/h31.htm?/1/productssolutions/ecom/xml/implementation/tmg_2_0_2/XML-Guidelines/CatalogueItemSynchronisation/CatalogueItemNotification/h33p.htm

524 ## 2.5. The GS1 Identification Key lifecycle

525

526 The state diagram above shows the basic GS1 Identification Key lifecycle; it applies to all GS1
527 Identification Keys regardless of type, though some of the state transition processes will be specific to
528 the GS1 Identification Key type. For example, publication of a GTIN may mean sharing its master data
529 with a buyer whereas publication of an SSCC may mean including it in an Advanced Shipment Notice
530 to a receiver.

531 It should also be noted that the diagram applies equally to a serialized GS1 Identification Key as it
532 does to a non-serialized GS1 Identification Key. A GDTI with a serial number follows the same
533 lifecycle as the same GDTI without a serial number though the rules moving it from one state to
534 another will be different.

535 The various states and their transitions are described below.

536 ### 2.5.1. Non-existent

537 A non-existent GS1 Identification Key is simply one that has never been created. When a GS1
538 Company Prefix is first issued, all GS1 Identification Keys based on that GS1 Company Prefix are, by
539 definition, non-existent: they appear nowhere in the supply chain and have no history associated with
540 them.

541 ### 2.5.2. Available

542 An available GS1 Identification Key is one that is available for allocation to an object. Depending on
543 how it becomes available, it may spend no time at all in the "available" state (if allocation occurs

544   concurrently with issuance) or a considerable amount of time (if retired and its release time has
545   passed but it is not needed).

546   The move from the retired state to the available state is highly dependent on business rules
547   associated with the object to which the GS1 Identification Key applies and the state it was in prior to
548   being retired. For example, according to the GTIN Allocation Rules (4), a GTIN that is withdrawn
549   before publication becomes available for reuse one year after withdrawal, whereas a GTIN that is
550   withdrawn after publication becomes available for reuse a minimum of four years after withdrawal
551   (three years for apparel).

2.5.3. Allocated

553   An allocated GS1 Identification Key is one that has been associated with an object appropriate to its
554   type.

555   In the case of a class-level GS1 Identification Key (e.g. a GTIN), the association is with a class of
556   entity, where each entity in the class is identical to any other entity in the same class. It should be
557   noted that "identical" is defined by rules for the GS1 Identification Key type. For example, two bottles
558   of ketchup are considered identical within the context of a GTIN if they have the same brand, size,
559   formulation, and packaging; they may be manufactured in different locations at different times and
560   therefore have different batch/lot numbers and expiry dates, but such attributes are not part of the
561   scope of identity within the GTIN.

562   In the case of an instance-level GS1 Identification Key (e.g. a GIAI), the association is with an instance
563   of an entity, where each entity is separate and distinct from every other. The entities may be identical
564   in the context of a class-level key that is applied to them but instance-level identification treats every
565   entity separately and associates different data with each instance.

2.5.4. Registered

567   A registered GS1 Identification Key is one whose attributes have been recorded in some way. For a
568   GTIN, registration typically involves entering the GTIN and the product attributes into a catalogue
569   service (e.g. GDSN).

570   Registration may occur concurrently with allocation in some applications; for example, a location
571   registry may allocate a GLN to an existing location as that location is entered into the registry.

2.5.5. Published

573   A published GS1 Identification Key is one that has been shared beyond the scope in which it was
574   allocated and registered. At this point, the GS1 Identification Key may be known by more than just the
575   member that allocated it and it at this point that most of the reuse restrictions apply.

2.5.6. Retired

577   A retired GS1 Identification Key is one that is no longer valid for the purpose for which it was allocated
578   and registered. For a GTIN, this may mean withdrawal of the product from the marketplace; for a
579   GDTI, this may mean an update to the document schema of such significance that a new GDTI is
580   required for the new schema.

581   In some cases, such as for regulated healthcare products, the allocation rules may specify that the
582   identification key never be reused, in which case it remains in the retired state forever, even after the
583   GS1 Member terminates its agreement with the GS1 Member Organization.

584   ## 2.6.   Summary

585   The following table is based on The GS1 System Architecture v1.0 (5). The allocating parties (derived
586   from text in the GS1 General Specifications (1) and extracted in Section 2.3) are the parties
587   responsible at the time of allocation.

588   At later points in an object's lifecycle, the allocating party's relationship to the object may change
589   without changing the identification of the object (e.g. the "Asset Owner" of a GRAI or GIAI may change
590   over time). Therefore, parsing the GS1 Identification Key cannot be guaranteed to reveal the current
591   Brand Owner, Asset Owner, etc. and can at most reveal only GS1 Company Prefix licensee.

Entity	Candidate Key	Typical Allocating Parties (Non-Normative)
Trade Item Class	GTIN	Brand Owner, Importer or Distributor
Trade Item Lot	GTIN + AI 10 (compound)	Brand Owner, Importer or Distributor, Manufacturer (for lot allocation)
Trade Item Instance	GTIN + AI 21 (compound)	Brand Owner, Importer or Distributor, Manufacturer (for serial allocation)
Logistics Unit	SSCC	Shipper, Brand Owner, Manufacturer, Logistics Provider
Party	GLN	Party, Managing Party
Physical Location	GLN GLN + AI 254 (compound)	Party, Parent Location
Returnable Asset Class	GRAI without optional serial number	Manufacturer, Asset Owner, Asset Manager
Returnable Asset Instance	GRAI with serial number	Manufacturer, Asset Owner, Asset Manager
Individual Asset	GIAI	Manufacturer, Asset Owner, Asset Manager
Document Type	GDTI without optional serial number	Document Issuer, Content Owner, Author
Document Instance	GDTI with serial number	Document Issuer, Content Owner, Author
Service Relation	GSRN	Service Provider
Consignment	GINC	Freight Forwarder, Carrier
Shipment	GSIN	Consignor
Coupon	GCN	Brand Owner, Distributor, Retailer, Promotional Agency

592

3. Roles and Responsibilities

3.1. GS1 Global Office

GS1 Global Office is responsible for the allocation of the GS1 Prefix (the first three digits of the GS1 Company Prefix) to the various GS1 Member Organizations as a way of partitioning the number space.

3.2. GS1 Member Organization

A GS1 Member Organization is responsible for managing the lifecycle of the GS1 Company Prefix and, in the case of the licensing of a one-off GS1 Identification Key, working with the GS1 Member to manage the lifecycle of the GS1 Identification Key.

Managing the lifecycle of a GS1 Company Prefix requires:

- issuance of the GS1 Company Prefix within the GS1 Prefix space allocated by GS1 Global Office;

- allocation of the GS1 Company Prefix to the GS1 Member;

- transfer of the GS1 Company Prefix to another GS1 Member in the event of a company merger or the acquisition of the first member's product portfolio identified using the GS1 Company Prefix;

- retirement of the GS1 Company Prefix when the GS1 Member surrenders the license;

- management of the GS1 Company Prefix during its non-reuse period (typically four years); and

- release of the GS1 Company Prefix back to the available pool for reallocation to another GS1 Member at the end of its non-reuse period.

Managing the lifecycle of a GS1 Identification Key requires:

- management of a GS1 Company Prefix for the purpose of one-off GS1 Identification Key issuance;

- issuance of the GS1 Identification Key within the space defined by the GS1 Company Prefix

- licensing of the GS1 Identification Key to the GS1 Member;

- informing the GS1 Member of the EPC URI corresponding to the GS1 Identification Key if so required;

- transfer of the GS1 Identification Key to another GS1 Member in the event of a company merger or the acquisition of the first member's product identified using the GS1 Identification Key;

- retirement of the GS1 Identification Key when the GS1 Member surrenders the license;

- management of the GS1 Identification Key during its non-reuse period (typically four years); and

- release of the GS1 Identification Key back to the available pool for reallocation to another GS1 Member at the end of its non-reuse period.

For a country that does not have a GS1 Member Organization, the above functions may be performed by a GS1 Member Organization outside the country or by GS1 Global Office.

3.3. GS1 Member

631

632 The term used to identify a company to which a GS1 Company Prefix or a one-off GS1 Identification
633 Key is licensed varies from one MO to another, depending on local regulations and the charter under
634 which the MO is incorporated. While the most general term for such a company is "GS1 (country)
635 Member" (e.g. "GS1 UK Member" or "GS1 Canada Member"), that is not always the case. Despite
636 that, the term "GS1 Member" is the most common and is used throughout this document to refer to
637 members, subscribers, or customers as defined by each local GS1 Member Organization.

638 A GS1 Member is responsible for managing the lifecycle of the GS1 Identification Keys, those within
639 the GS1 Company Prefix allocated to it or the one-off GS1 Identification Keys allocated to it.

640 Managing the lifecycle of a GS1 Identification Key within a GS1 Company Prefix requires:

641 ■ issuance of the GS1 Identification Key within the space defined by the GS1 Company Prefix;

642 ■ allocation of the GS1 Identification Key to an appropriate object in accordance with the
643 allocation rules;

644 ■ retirement of the GS1 Identification Key when required by the allocation rules;

645 ■ management of the GS1 Identification Key during its non-reuse period (typically four years);
646 and

647 ■ release of the GS1 Identification Key back to the available pool for reallocation to another
648 appropriate object at the end of its non-reuse period.

649 Managing the lifecycle of a one-off GS1 Identification Key requires:

650 ■ allocation of the GS1 Identification Key to an appropriate object in accordance with the
651 allocation rules;

652 ■ retirement of the GS1 Identification Key when required by the allocation rules;

653 ■ management of the GS1 Identification Key during its non-reuse period (typically four years);
654 and

655 ■ release of the GS1 Identification Key at the end of its non-reuse period back to the available
656 pool for reallocation to another appropriate object or back to the GS1 Member Organization if
657 required by the licensing terms.

4. Proposals

Proposed terms are broken down into major functional areas. GS1 standards are generally written from the perspective of one trading partner to another so while many of the functions have legitimate subcomponents internal to the party performing them, the coarse granularity is all that is required.

4.1. GS1 Company Prefix Management

The process of managing a GS1 Company Prefix may be subdivided into the following:

- binding of GS1 Member to any prerequisite agreement of the GS1 Member Organization;

- licensing of the GS1 Company Prefix from the GS1 Member Organization; and

- ensuring conformance with the prerequisite agreement.

While each of these functions may be performed by different individuals, from the outside perspective the responsibility is entirely within the GS1 Member.

Within this process, the task of licensing is the one of interest to external parties and therefore of interest to this document.

The proposed term for the entity to which a GS1 Company Prefix is licensed is "GS1 Company Prefix licensee".

This term applies to all holders of GS1 Company Prefixes including those who, in the early days of GS1's predecessors, were sold GS1 Company Prefixes unconditionally and may, in some jurisdictions, be legally considered owners. Though this model is no longer available, existing parties (not necessarily any longer GS1 Members) with these GS1 Company Prefixes continue to be supported by GS1 insofar as ensuring that their GS1 Company Prefixes are properly managed within GS1.

4.2. GS1 Identification Key Management

The process of managing a GS1 Identification Key may be subdivided into the following:

- issuance of the GS1 Identification Key;
  - □ generally performed by the GS1 Member as the GS1 Company Prefix licensee;
  - □ performed by the GS1 Member Organization in the case of a one-off GS1 Identification Key;

- allocation of the GS1 Identification Key to an object class or instance;

- registration of the GS1 Identification Key in some way (e.g. entry of a GTIN in a GDSN catalogue);

- publication of the GS1 Identification Key to trading partners or other entities outside of the GS1 Member;

- retirement of the GS1 Identification Key; and

- reuse of the GS1 Identification Key according to the allocation rules.

While each of these functions may be performed by different individuals, from the outside perspective the responsibility is either entirely within the GS1 Member or shared between the GS1 Member and the GS1 Member Organization in the case of a one-off GS1 Identification Key.

In the case of a one-off GS1 Identification Key, the proposed term for the entity to which a GS1 Identification Key is licensed is "GS1 Identification Key licensee".

697 Within the process of GS1 Identification Key management, the tasks of allocation and retirement are
698 those of interest to external parties and therefore of interest to this document. Note that although
699 external parties may not become aware of the allocation until publication of data associated with the
700 GS1 Identification Key, it is at the point of allocation that GS1 allocation rules start to apply even
701 though no external parties are aware it.

702 The proposed term for the role of the entity that allocates and retires a GS1 Identification Key is "GS1
703 Identification Key allocator". Note that under GS1 Company Prefix licensing terms, the GS1
704 Identification Key allocator must be within the GS1 Company Prefix licensee.

705 When associated with the normative term for the first time in a document, non-normative alternatives
706 appropriate to the identification key type may be used. For example:

707   "The GTIN allocator, normally the brand owner but also in restricted circumstances a
708   manufacturer, specification owner, importer or distributor, …"

709 Possible but not exclusive terms for each GS1 Identification Key type appear in the (non-normative)
710 table below:

Type	Term
GTIN	Brand owner
	Manufacturer
	Specification owner
	Importer
	Distributor
GLN	Legal entity
	Location owner
	Location manager
	Lessor
	Lessee
SSCC	Brand owner
	Manufacturer
	Logistics unit builder
	Logistics provider
GRAI	Asset owner
	Asset manager
GIAI	Asset owner
	Asset manager
	Manufacturer
GSRN	Service provider
	Service manager
GDTI	Document issuer
GSIN	Shipper/consignor

Type	Term
	Seller
GINC	Freight forwarder
	Consignor
	Carrier
GCN	Coupon issuer

4.3. Data Management

Data management is perhaps the most complex part of the lifecycle of an object associated with a GS1 Identification Key. Broadly speaking, there are three categories of information sources:

1. A Primary source is one that is under the control of the party responsible for the allocation of the GS1 Identification Key to the object class or instance or under the direct or indirect control of an agent of the party (e.g. a distributor).

2. An Authorized source is one that is authorized by the party responsible for the allocation of the GS1 Identification Key to the object class or instance. This authorization may be explicit (e.g. an external data certification program) or implicit (e.g. any party in the legitimate supply chain for a product).

3. An Unauthorized source is one that is not authorized by the party responsible for the allocation of the GS1 Identification Key to the object; essentially, anyone other than Primary and Authorized sources. This does not imply that the data is necessarily illegitimate; product reviews are legitimate data but are not in any way under the control of the party responsible for the creation of the object.

The types of data associated with an object are broken down into four categories:

1. Master data is data that describes all objects of a class (where the GS1 Identification Key is a class-level key) or a specific instance of an object (where the GS1 Identification Key is an instance-level key). Some variability of the master data may be permitted over time depending on the allocation rules for the GS1 Identification Key.

2. Supplementary data (also known as attribute data) is data that is associated with an instance of an object or a batch of objects. Supplementary data by its nature may be highly variable between object instances.

3. Transactional data is data that appears in business transactions associated with an object and may apply to either class-level or instance-level keys.

4. Event data is data that records events associated with an object instance at a point in time: the what, where, when, and why of an object's current state.

The following table shows examples of different sources providing different kinds of data associated with a GTIN. Equivalent tables are possible for other GS1 Identification Keys.

	Primary	Authorized	Unauthorized
Master data	Product attributes (e.g. description, size)	Certified product attributes (e.g. religious markings, health claims)	Crowd-sourced product attributes

	Primary	Authorized	Unauthorized
Supplementary data	Product instance attributes (e.g. batch/lot number, expiry date)		Counterfeit product instance attributes (e.g. batch/lot number, expiry date)
Transactional data	Catalogue publication Shipment Invoice	Order Receipt Payment	Any transaction outside authorized supply chain (e.g. product arbitrage, counterfeit)
Event data	Any event from point of manufacture to point of shipment	Any event associated with a legitimate transaction or period between legitimate transactions	Any event outside authorized supply chain

740   Data management is, however, out of scope for this document.

5.   Bibliography

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