An Introduction to the Global Location Number (GLN)

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GS1® is a neutral, not-for-profit, global organization that develops and maintains the most widely-used supply chain standards system in the world. GS1 Standards improve the efficiency, safety, and visibility of supply chains across multiple sectors. With local Member Organizations in over 110 countries, GS1 engages with communities of trading partners, industry organizations, governments, and technology providers to understand and respond to their business needs through the adoption and implementation of global standards. GS1 is driven by over a million user companies, which execute more than six billion transactions daily in 150 countries using GS1 Standards.

About GS1 US

GS1 US®, a member of GS1 global, is a not-for-profit information standards organization that facilitates industry collaboration to help improve supply chain visibility and efficiency through the use of GS1 Standards, the most widely-used supply chain standards system in the world. Nearly 300,000 businesses in 25 industries rely on GS1 US for trading-partner collaboration that optimizes their supply chains, drives cost performance and revenue growth while also enabling regulatory compliance. They achieve these benefits through solutions based on GS1 global unique numbering and identification systems, barcodes, Electronic Product Code-based RFID, data synchronization, and electronic information exchange. GS1 US also manages the United Nations Standard Products and Services Code® (UNSPSC®).
1 What is a Global Location Number?

The Global Location Number (GLN) is used to identify locations and legal entities. This unique identifier is comprised of a GS1 Company Prefix, Location Reference, and Check Digit.

2 What is a GLN used for?

GLNs are used to identify parties to business transactions; functional groups within a company; or real, physical “places” that might ship, receive, process, or hold inventories. Examples include:

- **LEGAL ENTITIES**: whole companies; subsidiaries or divisions within a company; health system corporation; etc.
- **FUNCTIONAL ENTITIES**: specific department within a legal entity, such as an accounting department, purchasing department, hospital pharmacy, etc.
- **PHYSICAL LOCATIONS**: manufacturing facility, distribution center, warehouse, dock door, hospital wing, bin location, retail store, etc.
- **DIGITAL LOCATIONS**: an electronic or non-physical address such as an EDI gateway or ERP system

The GLN is a required component for using the Global Data Synchronization Network™ (GDSN®) and various types of e-commerce transactions. This global identification system of GS1® helps assure that the GLN placed in a barcode or Electronic Product Code (EPC®) is the same information contained in the corresponding electronic documents processed between trading partners.

3 Key Attribute of the GLN: Uniqueness

The GLN is used to uniquely identify any location or legal entity anywhere in the world. Some companies choose to allocate one GLN for their whole business, while others allocate an individual GLNs for every location they need to identify. This could be a warehouse receiving dock or a hospital bed location in a ward. The GLN supports flexibility for whatever level of location identification is needed.

As a GS1 Identification Key, the GLN is unique, thereby allowing trading parties to exchange GLNs for location identification with no danger of number duplication. A GLN can be assigned by a company anywhere in the world and can be used anywhere in the world.

4 Business Benefits of Using GLNs

There are a number of benefits of using the GLN to identify parties, functional groups, and physical locations:

- The structure of the GLN and its assignment rules are administered by GS1®, a not-for-profit standards organization, and is supported by implementation guidance, business examples, and maintenance.
- The GLN can be used throughout world without any need for trading partner(s) to assign proprietary numbers to assure uniqueness.
- Use of the GLN saves time and money as the number can be moved quickly and confidently through the supply chain.
- GLNs may be assigned to any location to meet the needs/requirements of businesses anywhere in the world—from loading docks to buildings on government bases to circuit boards in a router.
A GLN may be assigned to generic departments at the same location as well as to unstaffed operation points (e.g., automated teller machines, vending machines, etc.)

The use of GLNs provides companies with a method of identifying locations both within and outside their organization that is:

- **SIMPLE:** an easily defined data structure with integrity checking that facilitates processing and transmission of data
- **UNIQUE:** GLNs are unique worldwide
- **MULTI-SECTORAL:** the nonsignificant characteristic of the GLN allows any location to be identified for any company regardless of its activity anywhere in the world

GLNs can be encoded in GS1-128, and GS1 DataMatrix symbols and/or EPC-enabled Radio Frequency Identification (RFID) tags and physically marked onto:

- Trade Items (products), to identify the parties involved in the transaction (e.g., buyer and supplier)
- Logistics units, to identify the parties involved in the transaction (e.g., consignor/shipper and consignee)
- Physical locations (e.g., place of delivery, place of departure, point of storage, etc.)

GLNs provide a globally unique answer to the “where?” portion of EPC Information Services (EPCIS)-read events that are used as the basis for global visibility and traceability in the supply chain.

## 5 How is the GLN formed?

The GLN is a 13-digit number used to uniquely identify any legal entity, functional entity, or physical location. Its basic components are:

- GS1 Company Prefix
- Location Reference
- Check Digit

![Figure 5-1 Forming a GLN](image)

The following steps are used to form GLNs:

1. **START WITH YOUR GS1 COMPANY PREFIX.** Your GS1 Company Prefix is the globally unique number issued to your company by GS1 US® or another GS1 Member Organization. GS1 Company Prefixes are assigned to companies in varying lengths. Some GS1 US members may have a prefix certificate that shows only a U.P.C. Company Prefix (formerly a UCC Company Prefix). A U.P.C. Company Prefix must be converted to a GS1 Company Prefix for use in the GLN. This is accomplished by adding a zero to the front of the U.P.C. Company Prefix. The following table illustrates the conversion of a U.P.C. Company Prefix to a GS1 Company Prefix for use with GLNs.
Figure 5-2 Conversion of a U.P.C. Company Prefix to a GS1 Company Prefix for GLN

<table>
<thead>
<tr>
<th>U.P.C. Company Prefix</th>
<th>Converted to GS1 Company Prefix</th>
</tr>
</thead>
<tbody>
<tr>
<td>801234</td>
<td>0801234</td>
</tr>
<tr>
<td>8412340</td>
<td>08412340</td>
</tr>
<tr>
<td>81123400</td>
<td>081123400</td>
</tr>
</tbody>
</table>

2. CREATE THE LOCATION REFERENCE. The Location Reference number is assigned by you, the holder of the GS1 Company Prefix, to identify a location or a legal function within your company. The Location Reference varies in length as a function of the GS1 Company Prefix length. Note that the combined length of the GS1 Company Prefix and Location Reference is always 12 digits.

Hint: Assign your Location Reference Numbers sequentially, and do not build any intelligence into the number. The scheme that defines a particular Location Reference range as having a set meaning today will mean nothing a short time into the future when your company reorganizes, buys or merges with another firm, or another staff member takes over GLN assignment duties.

3. CALCULATE THE CHECK DIGIT. The Check Digit is a calculated one-digit number used to validate data integrity. To understand how this digit is calculated, refer to www.gs1us.org/checkdig.

6 Frequently Asked Questions About the GLN

What is meant by location?

The GLN is a unique data structure that identifies any legal, digital, functional, or physical location within a business or organizational entity. Examples of locations that can be assigned a GLN include:

- Physical locations
  - A warehouse
  - A specific warehouse gate, loading dock, or delivery location
  - A particular room in a building
  - A storage cabinet or cabinet shelf
  - A specific shelf in a store
  - A hospital wing
  - An operating theatre

- Digital locations
  - ERP system

- Legal entities
  - A whole company
  - A division or subsidiary of a company, such as a supplier
  - A bank
  - A customer
Functions within a legal entity
- A purchasing or returns department at a retailer
- An invoicing department at a hospital
- An accounting department within a company
- A customer number within a company
- A nurses station
- A hospital ward

What is the first step for manufacturers, distributors, and retailers to identify themselves with a GLN?
If your company does not have an authorized GS1 Company Prefix, contact GS1 US to obtain a Company Prefix. If your company already has a GS1 Company Prefix, you can begin assignment now!

Does a company need an assigned GS1 Company Prefix to create GLNs?
Yes. GLNs are created using the GS1 Company Prefix assigned to your company.

What is the relationship between a GLN and a GTIN (e.g., U.P.C.)?
There is no relationship other than the use of similar techniques to manage the uniqueness of the numbers. GLNs identify parties and locations, while GTINs (Global Trade Item Numbers) identify trade items (i.e., products and services). Within the GS1 System, the GLN and the GTIN are two distinct data identifiers. There is no conflict when a GTIN and a GLN have the same digits; the data carrier (i.e., electronic data interchange, machine-readable symbol, or RFID tag) will distinguish between the two identifiers. For example, when GLNs are used in Automatic Identification and Data Capture (AIDC) and electronic communications, the context (Application Identifiers and qualifiers) are used to support proper interpretation.

What are the advantages of using GLNs?
The use of GLNs provides a globally unique, standardized identifier for parties and locations within and outside your company that is:
- **SIMPLE**: An easily-defined data structure with integrity checking that facilitates processing and transmission of data.
- **UNIQUE**: GLNs are unique worldwide.
- **MULTI-SECTOR**: The non-significant characteristic of the GLN allows any location to be identified for any company regardless of its activity anywhere in the world.
- **GLOBAL**: Implemented around the world and supported by the international network of GS1 Member Organizations, covering more than 100 countries, in the local language.

Why use GLNs instead of an internal system?
Any company can design its own internal system and code structure to identify all the locations covering its operating requirements. Although an internal solution might seem to be the easiest and fastest way forward, this approach presents several problems when information is exchanged between trading partners, such as:
- **DUPLICATION**: Two or more trading partners may use the exact same location code to identify an internal location in their company. There is no guarantee of uniqueness.
- **COMPLEXITY**: Internal codes will have a variety of structures and formats, making application programming more complex and application changes costly.
SIGNIFICANCE: Location codes that contain information related to the location in the code structure itself will become difficult to handle as the coding structure evolves to incorporate new meanings.

Can a GLN change?
If a location identified by a GLN changes that impacts the point of access, the party responsible for the GLN should assign a new GLN and update their party/location database and/or in the GS1 US Data Hub® Location online tool. A GLN that has stopped being used should remain “quarantined” for at least 4 years before being reallocated. The delay allows time for all references of the GLN to be removed from trading partners’ files. If the GLN is subsequently re-used, the new GLN data must be retransmitted and also updated in GS1 US Data Hub | Location.

How do we assign GLN Location Reference segments?
For ease of administration, it is recommended that the Location Reference be allocated sequentially and not contain "classifying" elements. The scheme that defines a particular Location Reference range as having a set meaning today will mean nothing when your company reorganizes, buys or merges with another firm, or when another staff member takes over GLN assignment duties.

Who communicates GLNs?
It is the responsibility of the company assigning GLNs to keep business partners informed of all numbers issued and their associated information. Special care is needed if the ownership of the company changes.

What are the benefits of GLN?
- GLNs can be used throughout the world with no need for trading partner(s) to assign proprietary numbers to assure uniqueness.
- GLNs save time and money as the number can be moved quickly and confidently through the supply chain.
- GLNs may be assigned to any party/location, assuring flexibility of the GLN to meet the needs/requirements of businesses anywhere in the world (from loading docks to aircraft carriers to circuit boards in a router).
- GLNs enable users/customers to leverage the full functionality of the GS1 System.
- GLNs provide reliably unique identifiers for the “What?” element of an EPC Information Services (EPCIS) read event.
- GLNs can be encoded in GS1-128 barcodes and/or EPC-enabled RFID tags and physically marked onto:
  - Trade units to identify the parties involved in the transaction (buyer, supplier)
  - Transport units (consignor, consignee)
  - Physical locations (place of delivery, place of departure, point of storage)

What Application Identifiers are used for GLNs?
- AI (410) “Ship to – Deliver to” GLN
- AI (411) “Bill to – Invoice to” GLN
- AI (412) “Purchased from” GLN
- AI (413) “Ship for – Deliver for – Forward to” GLN
- AI (414) Physical Location GLN
- AI (415) Invoicing Party GLN
7 Tools and Resources

GS1 US offers a number of easily accessible online tools and resources that can help guide you through the GS1 Standards and processes:

- **GS1 US Get Started Guide**: Online guide to help you obtain a GS1 Company Prefix to create GLNs, and more.
- **Check Digit Calculator**: Helps you assure that the GLN components have been entered correctly.
- **GS1 US Data Hub | Location**: Online tool that helps companies quickly and accurately create, manage and share GLNs.
- **GLN Allocation Rules**: Helps to assure correct assignment of GLNs to your locations.
- **Resource Library**: Documents, videos, and other information to increase the value of standards for all trading partners in the value chain.
- **FAQs**: Frequently Asked Questions about GS1 Standards, implementation, and how to get started.

For more information about GS1 US, GLNs, and other GS1 Standards:

- **Email** info@gs1us.org
- **Call** 937.435.3870
- **Visit** www.gs1us.org
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