AN INTRODUCTION TO THE GLOBAL LOCATION NUMBER (GLN)
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What Is a Global Location Number?

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

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.

The GLN is a required component of the Global Data Synchronization Network™ (GDSN®) and various types of e-commerce transactions. This global identification system of GS1® ensures 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.

Key Attribute of the GLN: Uniqueness

The GLN will uniquely identify any location or legal entity, thus ensuring that it is always identified correctly anywhere in the world. Some companies choose to allocate one GLN for their whole business, while others allocate an individual GLN for every location they need to identify. This could be a warehouse goods-in door or a hospital bed location in a ward. The GLN allows complete flexibility for whatever level of location identification is required.

As a GS1 Identification Key, the GLN will always be unique, thereby allowing trading parties to exchange GLN data for location identification with no danger of number duplication. A GLN can be assigned by a GS1 Company Prefix licensee anywhere in the world and can be used throughout the world.

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 that is supported by implementation guidance, business examples, and maintenance.
- The GLN can be used throughout world with no need for trading partner(s) to assign proprietary numbers to ensure uniqueness.
- Use of the GLN saves time and money as the number can be moved quickly and confidently through the supply chain.
- Numbers may be assigned to any location to meet the needs/requirements of all businesses anywhere in the world—from loading docks to all 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 (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:
  o **SIMPLE**: An easily defined data structure with integrity checking that facilitates processing and transmission of data
  o **UNIQUE**: GLNs are unique worldwide
  o **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 barcodes and/or EPC-enabled Radio Frequency Identification (RFID) tags and physically marked onto:
  o Trade items (products), to identify the parties involved in the transaction (e.g., buyer and supplier)
  o Logistics units, to identify the parties involved in the transaction (e.g., consignor/shipper and consignee)
  o Physical locations (e.g., place of delivery, place of departure, point of storage)
• 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.

**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

<table>
<thead>
<tr>
<th>GS1 Company Prefix</th>
<th>Location Reference</th>
<th>Check Digit</th>
</tr>
</thead>
<tbody>
<tr>
<td>N₁ N₂ N₃ N₄ N₅ N₆</td>
<td>N₇ N₈ N₉ N₁₀ N₁₁</td>
<td>N₁₂ N₁₃</td>
</tr>
</tbody>
</table>

The following steps are used to form GLNs:

1. **START WITH YOUR GS1 COMPANY PREFIX.** Your GS1 Company Prefix is the globally unique number assigned 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 license 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.

<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>
</tbody>
</table>
2. **CREATE THE LOCATION REFERENCE.** The Location Reference number is assigned by you, the holder of the GS1 Company Prefix, to uniquely 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 mod-10 algorithm digit used to check for input errors. To understand how this digit is calculated, refer to [www.gs1us.org/checkdig](http://www.gs1us.org/checkdig).

**Frequently Asked Questions About the GLN**

*What is meant by location?*

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

**Physical locations**

- A company’s specific 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

**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 legal entity
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 assigned GS1 Company Prefix, contact GS1 US to license 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 locations, while GTINs (Global Trade Item Numbers) identify trade items (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 (electronic data interchange, machine-readable symbol, or radio frequency) 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) will prevent any misinterpretation.

**What are the advantages of using GLNs?**

The use of GLNs provides you with a method of identifying 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

**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, when information is exchanged between computers of distinct companies this may present several problems, 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, the party responsible for the GLN should change the details associated with the GLN on the related computer file record or in the GS1 US GLN Registry. A GLN that has stopped being used should remain “quarantined” for at least 3 years before being reallocated. The delay must allow time for all references of the old location number to be removed from trading partners’ files. When the location number is reused, the details relating to the location must be retransmitted and updated in the GS1 US GLN Registry.

How do we assign GLNs?

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 GLNs?

- GLNs can be used throughout the world with no need for trading partner(s) to assign proprietary numbers to ensure 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 location, ensuring ultimate flexibility of the GLN to meet the needs/requirements of all 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 “Where?” 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 when encoded in GS1-128 barcodes?

- “Ship to – Deliver to” Global Location Number (AI 410)
- “Bill to – Invoice to” Global Location Number (AI 411)
- “Purchased from” Global Location Number (AI 412)
- “Ship for – Deliver for – Forward to” Global Location Number (AI 413)
- Global Location Number to identify a physical location (AI 414)
- Global Location Number of the invoicing party (AI 415)
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:

- **CHECK DIGIT CALCULATOR**: Helps you correctly calculate the check digit when forming GLNs.
- **DATA DRIVER®**: Online tool that helps companies quickly and accurately create, download, manage, and print authentic barcodes, including GLNs.
- **GS1 US GLN REGISTRY**: Optional registry service for associating standardized location “attributes” with particular GLNs. The GLN Registry also supports structuring GLN hierarchies for managing multiple GLNs for your company.
- **GS1 US GLOSSARY**: Provides the terminology and language of the GS1 System Standards to help you better understand what you are seeing and learning.
- **GS1 US PRODUCT CATALOG**: Includes an order form for printed publications, calibration kits, and more. Partner Connections members receive a premium discount.
- **GLN ALLOCATION RULES**: Helps to ensure correct assignment of GLNs to your locations and business entities.
- **PARTNER CONNECTIONS SOLUTIONS CENTER**: Provides a ready reference to education and online materials to speed your barcode and e-commerce processes.
- **RESOURCE LIBRARY**: Documents, videos, and other information to increase the value of standards for all trading partners in the supply 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

**GS1 US: Bringing the Global Trading Community Together**

For a supply chain to generate maximum value, it must move products from supplier to distributor to customer in a way that minimizes costs, redundancies, and waste and maximizes coordination and collaboration among trading partners. GS1 US makes that process possible by enabling companies to uniquely and globally identify, capture, and share information about products, locations, and more using GS1 Standards.

- **IDENTIFY**: GS1 Identification Numbers uniquely distinguish all companies, products, trade items, logistic units, locations, assets, and service relations in the supply chain—from manufacturer to consumer.
- **CAPTURE**: GS1 System Data Carriers—in the form of barcodes and Electronic Product Codes that are programmed into Radio Frequency Identification tags (known as EPC-enabled RFID tags)—can hold various amounts of data to accommodate different needs, such as batch/lot numbers and expiration dates. This additional data can be very helpful in numerous business processes in the healthcare and fresh foods industries, to name a few examples.
- **SHARE**: GS1-enabled interoperability allows electronic commerce information, including master data, transactional data, and physical event data, to flow through the supply chain between trading partners and to the consumer.
Moving Your Business Forward with GS1 Standards

Every industry has its own needs and challenges. GS1 takes a leadership role by working with industry communities to articulate, identify, resolve, and share industry issues and best practices and by enabling standards-based solutions that help companies run their businesses more successfully. Today, more than 300,000 member companies throughout the United States employ GS1 Standards to make their supply chain more visible, efficient, secure, and sustainable.

- **VISIBILITY**: GS1 Standards enable the reciprocal sharing of product information both internally and with trading partners throughout each step in the supply chain. Having ready access to such comprehensive data helps companies to ensure product availability, enable recalls quickly, and provide convenience, satisfaction, and safety for customers.
- **EFFICIENCY**: GS1 Standards dramatically increase the amount of data available for decision making, enabling companies to automate processes and optimize forecasting and inventory planning to reduce duplication and waste.
- **SECURITY**: GS1 Standards provide an accurate and standardized way to validate, access, send, and receive information with trading partners through the use of unique identification numbers. GS1 Standards protect your brand, promote safety for your customers, and help to combat counterfeiting.
- **SUSTAINABILITY**: GS1 Standards help companies build processes that are flexible, enduring, and adaptable. Electronic exchange of information is efficient and eco-friendly.