



The Global Language of Business

An Introduction to the Global Individual Asset Identifier (GIAI)

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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 Individual Asset Identifier?

A Global Individual Asset Identifier (GIAI) is the GS1 Identification Key used to identify an individual asset. This unique identifier is comprised of a GS1 Company Prefix and an Individual Asset Reference.

2 What is a GIAI used for?

The GIAI is one of the two GS1® keys used for asset identification. GIAI is used to identify fixed assets within an enterprise, such as a computer, a desk, or a component part of an aircraft. The GIAI enables assets to be individually recorded as part of a fixed asset inventory control system. In simple terms, this means any individual asset of any value within a company that needs to be identified uniquely can be assigned a GIAI.

The GIAI can be used globally to identify the asset. Detailed information regarding the asset is recorded in a database, and the GIAI is the key that provides the link to that information. The GIAI may be produced as a GS1-128, or GS1 DataMatrix barcode, encoded in an Electronic Product Code (EPC®)-enabled Radio Frequency Identification (RFID) tag, or used in a database.

3 Key Attributes of the GIAI

The GIAI will identify each individual asset uniquely, thus assuring that assets are consistently identified correctly anywhere within a business or throughout the world. Each asset is allocated a unique serial number or Individual Asset Reference to assure that it can be identified separately. Because the GIAI itself has no meaning, the asset can be looked up in a database and its associated information retrieved at any point or location.

GIAIs will work in any business sector. Having a unique identifier for an asset allows businesses to identify, track, and manage their assets. Because GIAIs are based on the GS1 System, derived using a GS1 Company Prefix and an Individual Asset Reference, allocation of numbers is simple and uniqueness is guaranteed.

If your business needs to track its physical assets, GIAI is an efficient tool to enable this capability. Assets may have their GIAI in either a barcode or encoded in an EPC-enabled RFID tag.

4 Business Benefits of Using GIAIs

There are a number of benefits to using the GIAI to identify individual assets:

- The structure of the GIAI 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 GIAI can be used throughout world with no need for trading partner(s) to assign proprietary numbers to assure uniqueness.
- The GIAI offers a low-cost solution to the challenge of tracking assets.
- The GIAI employs the globally-accepted GS1 System, whose language is standardized, understood, and used by multiple industries.
- The GIAI uses existing printing, scanning, and database storage methods, making it a low-cost option for organizations searching for a solution to marking and tracking assets that need to be tracked either as capital equipment or for maintenance purposes.
- The GIAI provides a standard format for organizing, displaying, and communicating data, allowing all members of the industry or process to benefit from improved control, information, and efficiencies.

- The “open” approach of the GIAI promotes innovation and the development of systems and applications to identify, track, and manage these assets.
- Use of the GIAI helps to produce improved accuracy and completeness of a firm’s information.
- The GIAI eliminates redundant activities, reduces or eliminates paperwork, and provides a framework for asset traceability. It also deters counterfeit items and parts.
- The GIAI reduces labor and errors in inventorying assets for Sarbanes-Oxley compliance audits.

5 How is the GIAI formed?

GIAIs are composed of the following fields:

- **APPLICATION IDENTIFIER (AI):** AI (8004) to indicate GIAI
- **GS1 COMPANY PREFIX:** A globally unique number issued to a GS1 member company
- **INDIVIDUAL ASSET REFERENCE:** The unique alphanumeric or numeric value identifying a specific asset

Figure 5-1 GIAI Structure

Application Identifier	GS1 Company Prefix →	← Individual Asset Reference
(8004)	N ₁ - N _N	X ₁ ... Variable Length ...X ₃₀

The following steps are used to form GIAIs:

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 GIAI. 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 GIAIs.

Figure 5-2 Conversion of a U.P.C. Company Prefix to a GS1 Company Prefix for GIAI

U.P.C. Company Prefix	Converted to GS1 Company Prefix
801234	0801234
8412340	08412340
81123400	081123400

2. **CREATE THE INDIVIDUAL ASSET REFERENCE.** The Individual Asset Reference is assigned by you, the holder of the GS1 Company Prefix, to uniquely identify the asset within your company. The holder of the GS1 Company Prefix determines the structure and numbering of the Individual Asset Reference, which may be all numeric or alphanumeric.



Hint: Assign your Individual Asset References sequentially, and do not build any intelligence into the number. The scheme that defines a particular Asset 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 GIAI assignment duties.

6 Frequently Asked Questions About the GIAI

What are some examples of how GIAIs are used?

GIAIs can be used for any type of asset that needs to be tracked within your own company. The following examples illustrate how GIAIs can be used with different business processes:

- Within a company in a GS1 barcode or EPC-enabled RFID tag:
 - On all fixed assets at a head office (e.g., computers, printers, tables, chairs, etc.)
 - To identify an asset
 - To enable quick lookup in database
 - To record change of user or component upgrade such as latest software or service
 - To record new locations and assigned users of assets after an office re-organization
- At a warehouse in a GS1 barcode or EPC-enabled RFID tag:
 - On pallet trucks and loading equipment
 - To identify a specific asset
 - On any other fixed assets, such as computers and furniture

What is the difference between "inventory," "consumables," and "assets"?

Supply chain terminology can be a bit confusing, but here is a quick way to know which is which:

- **INVENTORY:** Items that exist in raw material format, in the "pipeline," or in storage. Inventory is ultimately intended for sale to consumers and to produce operating income.
- **CONSUMABLES:** Items that are used by an organization in the course of conducting operations. These items generally have a comparatively short life or are of relatively low cost and are charged to the cost of doing business in a particular fiscal year.
- **ASSETS:** Items used by an organization in the course of conducting operations. These are long-lived items and are charged to the cost of doing business over many fiscal periods.

What is the difference between fixed assets and returnable assets?

Fixed assets do not leave the immediate control of the asset owner. Returnable assets are delivered by the owner to the custody of another entity, sometimes for a fee.

Can the GIAI be used in place of a Global Trade Item Number® (GTIN®)?

No, GTINs and GIAIs serve two distinctly different purposes. The GTIN is used to uniquely identify trade items during the data align, order, deliver, and receiving processes (e.g., a brewer purchasing beer kegs from the keg manufacturer). The GIAI is used to identify different types of assets during their use (e.g., tracking IT equipment, office furniture, laptop computers, etc.).

Can you give some specific examples of how the GIAI is being used today?

Following are three real-world examples of how the GIAI is currently being used in government and in the healthcare and information technology (IT) fields:

- **GOVERNMENT:** The U.S. Department of Defense (DoD) has developed a policy that supports the identification and management of assets in an effort to effectively report inventory. The DoD has mandated that all items and assets that are mission critical or whose value exceeds \$5,000 must be identified with the manufacturer and serial number of the item. These items and assets will be identified using a two-dimensional data matrix marking. The Department of Homeland Security (DHS) has developed a similar policy for identifying assets. DHS has mandated that all weapons

(handguns) be identified using the GIAI. They have also identified the security equipment at airports with barcodes using the GIAI.

- **HEALTHCARE:** A hospital sleep center provides testing and treatment for sleep disorders. To determine a patient’s needs, the sleep center conducts “sleep studies” wherein the patient spends at least one night in the hospital lab. During the overnight stay, the patient’s sleep patterns are monitored and recorded. The following chart shows how the equipment used in the sleep study is identified:

Item Description	AI	Remarks
Video monitoring equipment, including cameras, monitors, and recorders	Global Individual Asset Identifier (GIAI) AI (8004)	All of these items have high value and long life.
Video tapes	Global Trade Item Number® (GTIN®) AI (01)	These are consumables since they are used only once and cost is low.
Heart rate monitor	Global Individual Asset Identifier (GIAI) AI (8004)	This item has a very high cost and long life.
Hospital bed	Global Individual Asset Identifier (GIAI) AI (8004)	This item has a high cost and long life.
C-PAP machine	Global Returnable Asset Identifier (GRAI) AI (8003)	A patient rents this machine to use as a sleep aid.

- **INFORMATION TECHNOLOGY:** Several financial institutions that have undergone mergers and acquisitions were faced with the daunting task of inventorying and managing hundreds of thousands of IT assets (e.g., computers, servers, racks, monitors, disk drives, etc.). Their solution was to standardize on the use of the GIAI for each asset and to mark those assets with both a GS1 DataMatrix barcode and an EPC-enabled RFID tag to make inventorying and tracking those assets a fast and error-free process.

Are there any differences between using a GIAI in a barcode and encoding a GIAI in an EPC?

Yes. Because there is limited encoding space in EPC-enabled RFID tags, there are limits to the length of the Individual Asset Identifier that can be encoded along with the GS1 Company Prefix in an EPC tag. Please refer to [GS1 EPC Tag Data Standard](#) for specific limitations and encoding instructions.

- ✔ **Note:** All GS1 identifiers use the same GS1 Company Prefix assigned to the company or organization.

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:

- [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, GIAIs, and other GS1 Standards:

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