



GS1 Identification Key Series - GRAI (Global Returnable Asset Identifier)

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1. Definition of a GRAI

'The GS1 Identification Key used to identify Returnable Assets. The key is comprised of a GS1 Company Prefix, Asset Type, Check Digit and optional serial number.'

Global Returnable Asset Identifier (GRAI) is one of the two GS1 keys for asset identification. GRAI is used to identify **returnable assets**. It is for re-usable packages or transport equipment, this could be a tray, pallet or a beer keg. The GRAI enables returnable assets to be identified by type or individually for tracking or sortation purposes.

In simple terms this means an asset that will be sent outside the company that contains, protects or transports physical items and will be used for multiple trips. Examples are crates, bread trays, pallets or kegs of beer. The GRAI identifies the asset being used for the purpose of tracking its location and return. It can be used for tracking purposes only or as part of a hiring or rental system where companies collaborate on the use of these assets.

The GRAI is an identification key that can be used globally to identify the asset. Detailed information regarding the asset will be recorded in a database and the GRAI is the key that provides the link to that information. It may be produced as a GS1-128 bar code, or held in a GS1 EPC tag or used in a database.

The function of a GRAI is to provide an identification point which can be used to retrieve information held in a database associated that particular asset. This information can show the asset type and optionally identify the particular asset uniquely if required.

1.1. Key GRAI attributes

The GRAI will identify each individual asset type **uniquely** thus ensuring that it is always identified correctly anywhere within a business or the world. Each asset type is allocated an Asset Type number to ensure that it can be identified correctly. There is an option to also include a serial number which will allow unique identification of each asset. The GRAI itself has no meaning and this allows the asset to be **looked-up** in a database and its associated information retrieved at any point or location. GRAIs will work in any business sector. Having an identifier for a returnable asset allows businesses to identify, track and manage their assets. As it is based on the GS1 system using Company Prefix, Asset identifier and optionally a serial number, allocation of numbers is simple and uniqueness guaranteed.

If you are a business that uses returnable assets and you want to track and manage your returnable assets GRAI is a simple tool to enable this. Assets may have their GRAI in either a bar code or GS1-EPC tag.



1.2. Benefits of using GRAI

- GRAI is already an established standard for identifying returnable assets
- It identifies the returnable asset ownership for the life of the asset wherever it goes
- It is a simple asset coding system to facilitate asset management systems with almost limitless capacity
- Utilises GS1 standards as used in many other business applications
- Allows other companies to scan your assets into and out of their businesses
- Facilitates cross company asset management tracking and systems

- Is a guard against loss and identifies your assets
- As part of an automated system can eliminate paperwork and manual counting and checking
- **PROVIDES ACCURACY, CONTROL AND EFFICIENCY FOR YOUR BUSINESS**

1.3. GRAI Structure

GRAIs are composed of an Application Identifier (8003), a GS1 Company Prefix an Asset Type, a Check Digit and optionally a serial number

Global Returnable Asset Identifier		
Application Identifier	GS1 Company Prefix & Asset Type plus Check Digit	Serial Number
8003	0 N ₁ N ₂ N ₃ N ₄ N ₅ N ₆ N ₇ N ₈ N ₉ N ₁₀ N ₁₁ N ₁₂ N ₁₃	an..16

- Application Identifier** AI 8003 to indicate GRAI
- GS1 Company Prefix** A globally unique number assigned to a GS1 member company
- Asset Type** The number allocated to identify the asset type
- Check Digit** A modulo 10 check digit
- Serial Number** Optional serial number if unique identification required (up to 16 characters)

 **Note:** GRAI is for **Returnable** Assets. For **Fixed** Assets see GS1 Key GIAI (Global Individual Asset Identifier)

For further information on GS1 Application Identifiers please contact your local GS1 Member Organisation.

2. GRAI Applications

GRAI can be used in many areas of business where returnable asset tracking and identification is important. They provide a quick way to identify a returnable asset which then can be looked up in a database and its use, location or state can recorded. The look-up may typically be for booking in or out of a company or to identify its location. The GRAI is the enabler for returnable asset tracking and reconciliation. Businesses that handle returnable assets from many companies will find it a vital tool in controlling returnable asset movements.

The following are some typical uses of GRAI in business applications. The list is not exhaustive but shows the most common use and how GRAI when combined with GS1 standards has become an integral part of modern business applications:

2.1. Within a company in a GS1 BarCode or EPC tag

- On all returnable assets to enable tracking within a warehouse or from a warehouse to a store
- To identify handling parameters for specific returnable asset types
- To identify cleaning regimes for specific returnable asset types
- As part of a manual or automated sortation system
 - GRAI is scanned to record a returnable asset loaded for dispatch at all Goods-out locations
 - GRAI is scanned at all Goods-in locations
 - GRAI may be scanned at Hubs for re-use or re-routing
 - Combined with asset tracking software complete control of movement of assets can easily be achieved

2.2. At a customer's warehouse in a GS1 BarCode or EPC tag

- GRAI can be scanned at all points to record movement of returnable assets
 - The data can be shared with the originating company to provide tracking visibility
 - GRAI may be used to facilitate rental or trip charges as part of a business application
- GRAI will also help identify returnable assets that are lost or in the wrong location

3. Useful further information

3.1. GS1 Member Organisations

Your local GS1 Member Organisation is the ideal contact for information on the benefits that GRAI can deliver to your business. In addition they will be able to provide you with further information on all of GS1 standards. Full details can be found on: <http://www.gs1.org/contact/worldwide.php>

3.1.1. GS1 Global Office

- Further information on all GS1 standards is available on the GS1 Global site: <http://www.gs1.org/>
- A step by step guide useful to users who wish to allocate GRAI and associated bar codes for the first time: <http://www.gs1.org/productssolutions/barcodes/implementation/>
- GS1 on line training is available via GS1 Learn is the area where you can learn on-line how GTIN and all other areas of the GS1 system work: <http://learn.gs1.org/portal3/index.asp>