



Improving Supply Chain Visibility, Data Quality,  
and Food Safety with GS1 Standards in

# GROCERY



THE GLOBAL LANGUAGE  
OF BUSINESS



**Together**, we're making it possible to achieve supply chain visibility, improve data quality, and enhance food safety.

## GS1 STANDARDS IN GROCERY

### Challenges Facing the Industry Today

The grocery industry, including consumer packaged goods, fresh foods, and retail, continues to find new ways to collaborate with the use of standards and technology to support operations. Faced with increasing demands for product data, efficiency, and supply chain visibility, as well as the requirements set by the 2011 Food Safety Modernization Act, companies are utilizing GS1 Standards to help ensure product traceability and food safety while also streamlining business processes.

***“Improvements in our inventory management from implementing GS1 Standards for traceability have been huge.”***

Meghan Klotzbach, Regulatory Manager  
Mother Earth Organic Mushrooms



## ENSURING REGULATORY COMPLIANCE

Recent government regulations have raised the bar for food safety and transparency. **The Food and Drug Administration's Food Safety Modernization Act (FSMA)** focuses on the creation of a new food safety system with broad preventative measures and accountability. It will lead to an increase in domestic food inspections and give the government more power to issue recalls.

By implementing GS1 Standards based on unique identification of products, companies are improving traceability processes to meet regulatory requirements while also enhancing their enterprise risk management capabilities.

## **GS1 STANDARDS IN GROCERY**

### **Moving Forward Together with the GS1 US Retail Grocery Initiative**

For more than 40 years, the grocery industry has been working to pioneer the adoption and use of GS1 Standards. By bringing together industry stakeholders, the initiative can drive broad industry-wide adoption of GS1 Standards faster, better, and more efficiently to improve supply chain visibility, data quality, and food safety. The GS1 US Retail Grocery Initiative is designed to identify the specific challenges and potential solutions that will lead to continued progress toward more efficiencies, enhanced risk management, and business growth.

**Get involved! Go to [www.gs1us.org/retailgrocery](http://www.gs1us.org/retailgrocery)**





## KEY FOCUS AREAS

- Supply Chain Visibility
- Data Quality
- Traceability and Food Safety

## WHY JOIN THE GS1 US RETAIL GROCERY INITIATIVE:

- Provide leadership and expertise to shape the future of the industry
- Engage with peers and trading partners in a collaborative working environment
- Share and learn best practices for operational improvements
- Gain insight into the challenges and opportunities at each link along the supply chain
- Help define solutions for regulatory compliance regarding traceability and food safety
- Benefit from GS1 US expertise, education, and support services





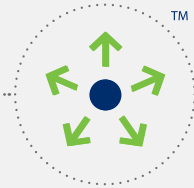
THE GLOBAL LANGUAGE  
OF BUSINESS



IDENTIFY



CAPTURE



SHARE



**GS1 Standards for  
identifying, capturing,  
and sharing information —**

*about products, business  
locations, and more —*

make it possible for  
companies to speak the  
same language, connect  
with each other, and move  
their business forward.

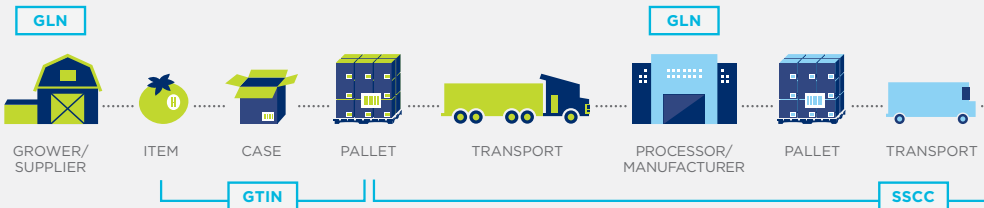


# IDENTIFY

## GS1 IDENTIFICATION NUMBERS

GS1 Standards begin with GS1 Identification Numbers used to uniquely distinguish all products (trade items), logistic units, locations, assets, and relationships across the supply chain from manufacturer to consumer.

These numbers provide the linkages between the product and the information pertaining to it.



# GS1 STANDARDS IN GROCERY

## COMPANY

**Global GS1 Company Prefix**

**GLN**

Global Location Number

## LOCATION

**GLN**

Global Location Number

## PRODUCT

**GTIN®**

Global Trade Item Number®

**EPC®/SGTIN**

Serialized Global Trade Item Number

## LOGISTICS

**SSCC**

Serial Shipping Container Code

**GSIN**

Global Shipment Identification Number

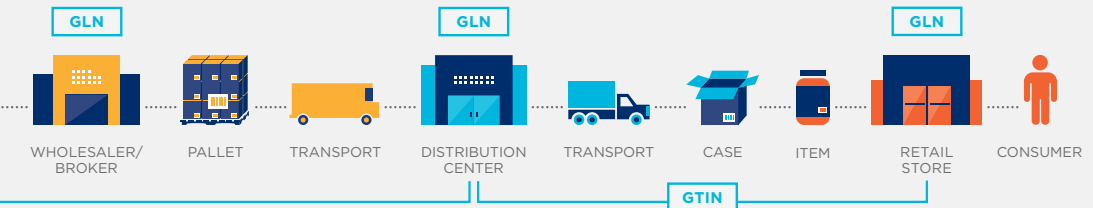
## ASSETS

**GIAI**

Global Individual Asset Identifier

**GRAI**

Global Returnable Asset Identifier





## **CAPTURE**

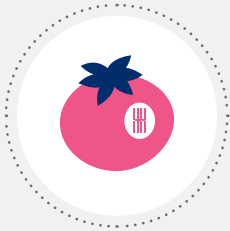
### **GS1 DATA CARRIERS**

GS1 Data Carriers are capable of holding varying amounts of data to accommodate different needs such as Batch/Lot information and expiration dates.

EAN/U.P.C. barcodes are examples of barcodes scanned at retail point of sale. ITF-14 and GS1-128 barcodes are used to uniquely identify units of product at the case and pallet level to help access product information and track movement of product in the supply chain. GS1 DataBar® barcodes can carry the same, and in some cases more, information in less space than U.P.C. barcodes. They were created to identify small and hard-to-mark products, like fresh produce.

The data encoded in the GS1 Data Carriers not only uniquely identifies products (and units of products), but also allows trading partners to share extended data, such as Batch/Lot Numbers, production date, packaging information, and more.

## GS1 STANDARDS IN GROCERY



### ITEM

#### EAN/UPC

Carries a Global Trade Item Number (GTIN)



#### GS1 DATABAR

**STACKED OMNIDIRECTIONAL**  
Carries a GTIN



### CASE

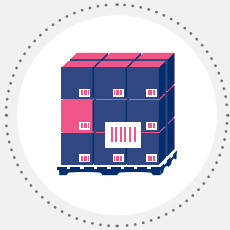
#### ITF-14

Carries a GTIN



#### GS1-128

Carries a GTIN with extended data, such as Batch/Lot Number



### PALLET

#### ITF-14

Carries a GTIN



#### GS1-128

Carries a GTIN or a Serial Shipping Container Code (SSCC)





TM

# SHARE

## GS1 DATA EXCHANGE

### PRODUCT MASTER DATA

#### GDSN

Global Data Synchronization Network

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The GDSN® connects trading partners to the GS1 Global Registry® via GS1-certified data pools, enabling the immediate electronic sharing of standardized, up-to-date, accurate information.

### WHAT GOES INTO IT

#### GTINs

- Brand Owner Identification
- Product Descriptions
- Product Classification

### ← INTEROPERABILITY →

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PRODUCT  
DATA

PRICE AND  
PROMOTION  
DATA

PURCHASE  
ORDER

PLANNING  
SCHEDULE

## GSI STANDARDS IN GROCERY

### TRANSACTIONAL DATA

#### EDI

Electronic Data Interchange

EDI enables the computer-to-computer exchange of business documents between companies using a standardized format.

#### WHAT GOES INTO IT

GTIN  
GLN  
SSCC

#### EDI DOCUMENT TYPES

Purchase Order  
Advance Ship Notice  
Invoice  
Payment

### PHYSICAL EVENT DATA

#### EPCIS

Electronic Product Code Information Services

EPCIS is the standard for sharing information about the movement and status of goods in the physical world.

#### WHAT GOES INTO IT

What	GTIN
Where	GLN
When	Date & Time Stamp
Why	Business Step & Product Disposition

ADVANCE  
SHIP NOTICE

INVOICE

PRODUCT  
VISIBILITY





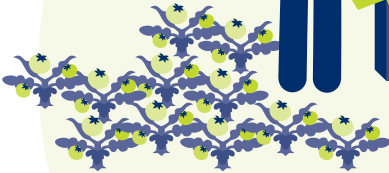
**Across the supply chain,** trading partners are connecting with each other and leveraging the power of information by using GS1 Standards as the foundation of their business processes.



**LOCATION IDENTIFICATION**

**GLN** Global Location Number

0614141004577



**CASE LEVEL IDENTIFICATION**

**GTIN** Global Trade Item Number  
and **Extended Data**

Batch/Lot Number



(01) 2 0614141 98765 2 (10) A1B2C3002

**ENTER YOUR  
PRODUCT DATA**

GTIN

Dimensions Weights

Nutritional Allergens

**SEND**



# Grower/Supplier

## IDENTIFY

- GTINs are created for each product and case
- SSCCs are created for each pallet
- Product data is defined, created, and managed
- GLNs are assigned, managed, and stored

## CAPTURE

- GTINs and production data (Batch/Lot Number, Date, etc.) are printed on cases (barcode and human readable)
- Pallet tags are created and printed using the SSCC

## SHARE

- Product data is entered and shared through the GDSN
- Advance Ship Notices (ASNs) containing SSCCs, GTINs and their corresponding Batch/Lot Numbers, and GLNs are sent to customers

## BENEFITS

*Enables consumer brand recognition*

*Establishes the foundation for product traceability and recall*

*Provides operational efficiencies in receiving, inventory management, and shipping processes*

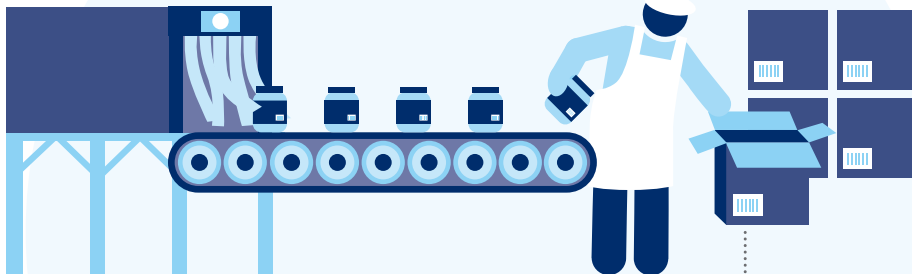
*Optimizes delivery logistics and reduces errors*

*Reduces order and billing errors*

*Speeds up new product introduction through the exchange of accurate product information*

## COMPANY & LOCATION IDENTIFICATION

**GLN** Global Location Number  
0123456700000

A computer monitor displaying a data entry form. The form has a title, a label, and several input fields. A mouse cursor is pointing at a 'SEND' button.

ENTER YOUR  
PRODUCT DATA

GTIN

Dimensions  Weights

Nutritional  Allergens

**SEND**

## CASE LEVEL IDENTIFICATION

**GTIN** Global Trade Item Number  
and Extended Data

Date & Batch/Lot/Serial Number  
(if applicable)



(01) 2 0614141 98765 2 (11) 120715 (10) ABC123

# Processor/Manufacturer

## IDENTIFY

- Validated customer GLNs are collected and stored
- GTINs and Batch/Lot Numbers are created for repacked, commingled, and processed products in cases
- SSCCs are created for pallets

## CAPTURE

- Barcodes are used to track product
- GTINs and SSCCs are used for receipt verification
- GTINs and Batch/Lot Numbers are used to create and track shipments
- GTINs and SSCCs are validated and used to track shipping units

## SHARE

- Master product data is synchronized through the GDSN
- ASNs containing SSCCs, GTINs and their corresponding Batch/Lot Numbers, and GLNs are sent to customers
- Inventory and delivery information is stored in the WMS (Warehouse Management System)
- GDSN data is used to feed WMS, sales, marketing, and other systems
- EDI processes are synchronized

## BENEFITS

*Reduces costs and time spent on manual processes*

*Improves order accuracy and reduces billing errors*

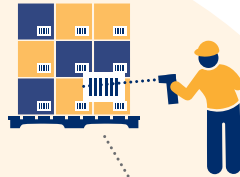
*Enhances traceability to support safe handling processes*

*Optimizes logistics and reduces delivery errors*

**LOCATION IDENTIFICATION**

**GLN** Global Location Number

0023456700003

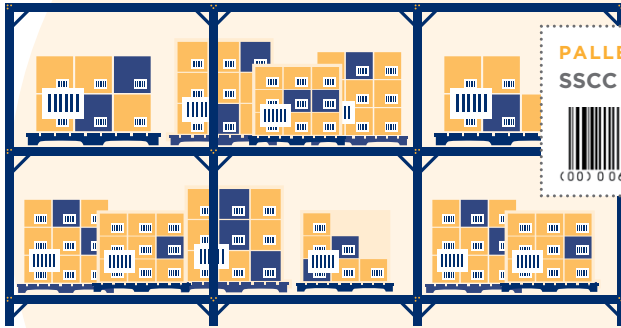


**PALLET LEVEL IDENTIFICATION**

**SSCC** Serial Shipping Container Code



(00) 0 0614141 000012345 2



# Wholesaler/Broker

## IDENTIFY

- Validated customer GLNs are collected and stored

## CAPTURE

- GTINs are collected and stored
- GTINs and SSCCs are used for receipt verification, to put products into inventory, and to pick products and create shipments
- GTINs and Batch/Lot Numbers are used to rotate inventory and for quality control processes

## SHARE

- Master product data is synchronized through the GDSN
- ASNs containing SSCCs, GTINs and their corresponding Batch/Lot Numbers, and GLNs are sent to customers
- Inventory and delivery information is stored in WMS system
- EDI processes are synchronized
- Orders are managed

## BENEFITS

*Optimizes receiving productivity*

*Improves inventory management*

*Increases pick rates*

*Reduces errors in mispicks and shorts*

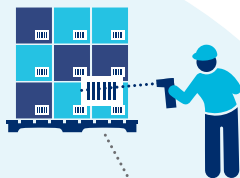
*Improves order accuracy and reduces billing errors*

*Enables better product and location identification throughout track and trace processes*

**LOCATION IDENTIFICATION**

**GLN** Global Location Number

0003456700005

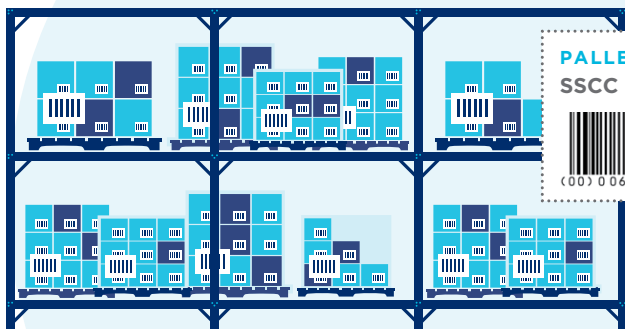


**PALLET LEVEL IDENTIFICATION**

**SSCC** Serial Shipping Container Code



(00) 0 0614141 000012345 2





# Distribution Center

## IDENTIFY

- Validated customer GLNs are captured and shared
- GTINs are collected and stored

## CAPTURE

- GTINs and SSCCs are used for receipt verification and to put products into inventory
- Scanned GS1 barcodes or voice pick solutions are used to pick products and create shipments
- GTINs and their corresponding Batch/Lot Numbers support scanning of GS1 barcodes and voice pick solutions to rotate inventory and for quality control processes
- Cases are identified during shipping process and tracked to validate delivery to correct location with GLN, completing transfer of ownership

## SHARE

- Master product data is synchronized through the GDSN
- Inventory and delivery information is stored in WMS system
- GDSN data is used to feed WMS and other business systems
- EDI processes are synchronized
- Orders are managed

## BENEFITS

*Optimizes receiving productivity*

*Improves inventory management*

*Increases pick rates*

*Reduces errors in mispicks and shorts*

*Enables better product and location identification throughout track and trace processes*

**LOCATION IDENTIFICATION**

**GLN** Global Location Number  
0000456700004



**CASE LEVEL IDENTIFICATION**

**GTIN** Global Trade Item Number  
and Extended Data  
Batch/Lot Number



# Retail Store

## IDENTIFY

- Validated customer GLNs are captured and stored

## CAPTURE

- GTINs and SSCCs are used for receipt verification
- GTINs and corresponding Batch/Lot Numbers are used to drive inventory replenishment
- Point of Sale scan ensures accuracy at checkout

## SHARE

- PO (purchase order) with GTINs and corresponding Batch/Lot Numbers for each case is sent by the distribution center
- EDI processes are synchronized
- Orders are managed
- Internal systems are updated and product data is synchronized through the GDSN

## BENEFITS

*Increases operational efficiencies across various business processes*

*Improves preparedness for fast and precise recalls*

*Enables consumer protection*

*Provides additional product information to enhance operations for traceability and for better product, allergen, and nutritional information*

## GS1 STANDARDS IN GROCERY

### Now is the time to get involved!

#### Join the GS1 US Retail Grocery Initiative to Drive Industry-Wide Adoption of GS1 Standards

As an industry leader in the consumer packaged goods, fresh foods, or grocery retail industry, your participation in the GS1 US Retail Grocery Initiative is what helps industry develop standards-based approaches to solving business challenges. Become a member of the initiative and join peers to create alignment on future opportunities for unlocking further value from the use of GS1 Standards, and develop guidelines, best practices, case studies, and thought leadership to drive industry-wide adoption of GS1 Standards.

Contact us at [retailgrocery@gs1us.org](mailto:retailgrocery@gs1us.org) to learn more.



## Sign Up for a Traceability Readiness Program

Whether your company is in the seafood, or dairy, deli, and bakery sector, GS1 US offers a traceability readiness program to help you establish or enhance your traceability processes with GS1 Standards. Subscribers to the readiness programs have access to live and pre-recorded webinars, an interactive web-based adoption roadmap, and an industry-driven user group for networking and sharing best practices.

**Contact us at [seafoodreadiness@gs1us.org](mailto:seafoodreadiness@gs1us.org) or [ddbreadiness@gs1us.org](mailto:ddbreadiness@gs1us.org) to learn more.**

## Learn more about GS1 Standards in Fresh Foods

Find out more about category-specific work underway to improve traceability and food safety in produce, meat and poultry, seafood, and dairy, deli, and bakery.

**Visit [www.gs1us.org/freshfoods](http://www.gs1us.org/freshfoods) for tools and resources, including:**

- Information on relevant GS1 Standards
- Implementation Guidelines
- “How To” Documents
- White Papers
- Case Studies
- Educational Opportunities and Events

**For more information about the Produce Traceability Initiative, visit [www.producetraceability.org](http://www.producetraceability.org).**







**CONTACT US TO FIND OUT HOW GS1 US  
CAN HELP MOVE YOUR BUSINESS FORWARD.**



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