Serialized Shipping Container Code (SSCC) Implementation Guide

Executive Summary

There are many reasons to use the Serialized Shipping Container Code (SSCC) but the most compelling would be the primary benefit of speeding your products through the process of shipping and receiving.

With the prevalence of e-business, there is an increasing need to exchange information electronically as well as track the movement and location of logistics units. A logistic unit is defined as any composition established for transport and/or storage, which needs to be tracked through the supply chain (cartons or pallets). Data exchange and tracking of logistics units is an application of the EAN.UCC System. This can be accomplished through the use of the Serialized Shipping Container Code (SSCC).

When used as the "license plate" to identify specific information about cartons, pallets or even trailer loads of products, the SSCC will help accomplish the task of moving products from one trading partner to another quickly and efficiently. More importantly, the costs associated with moving and receiving products will be greatly reduced.

Key Benefits

The benefits of the SSCC are:

- Logistics Units are identified with a number that is unique worldwide.
- Provides a link with bar coded information on a logistics unit and the information that is communicated between trading partners via electronic business transactions.
- Voluntary standards are established for the EAN.UCC logistics label of which the SSCC is mandatory.
- Standards are global.
- Standards apply through the entire supply chain, from raw materials supplier to manufacturer to distributor/wholesaler to end user/retailer.
- The SSCC can be used for both inter and intra-company transactions.
- The SSCC encompasses a common vendor numbering scheme that uses the EAN.UCC Company Prefix so that the number cannot be duplicated.
- All numeric structure leads to faster data processing.

These guidelines are provided to help you understand what the SSCC can provide, when you should use it, and how it should be used.

Why Standards

Open, global standards:
- Allow system-to-system interaction
- Speed processes by enabling end-to-end automation
- Lower costs, reduce errors
- Reduces the risk of system incompatibility
- Protects technology investments
- Enables the optimization of supply chain management practices
- Eliminate supply chain roadblocks and bottlenecks

In today's competitive global marketplace, speed and efficiency is critical to success and survival. Producing a good product is no longer enough to keep a company competitive. Managing the physical flow of product with the electronic flow of business data is a major challenge in today's intensely competitive environment. The same time, attention, and detail that go into designing and producing a quality product must also be evident in the transmission of that product's business data through the supply chain. A system, built with standardized processes and a common business language, is needed to monitor and manage the movement of product and information through every component along the supply chain.

Definition

The unique identification of logistics units is achieved in the EAN.UCC System by the use of the SSCC (Serialized Shipping Container Code). The SSCC is an 18-digit numeric data structure. The uniqueness of the data structure is ensured through the use of the EAN.UCC Company Prefix that is supplied by the UCC or EAN. This Company Prefix, when combined with the serial number that is assigned by the member company, acts as an identifier or "license plate" and provides access to information stored in computer files, which are transferred through electronic business transactions.

Business Use

The SSCC is used in electronic messages such as the Advanced Ship Notice (ASN). When used in conjunction with electronic business transactions, information about the products that are contained in a particular carton, pallet or

truck are linked to the SSCC and then scanned by the receiving party to speed trade items through the supply chain.

Examples of logistics units that need to be tracked through the supply chain with a unique number are pallets, cases, or cartons that may be assigned to a specific customer, delivery, or purchase order. Logistics units that are marked with an SSCC often include multiples of the same trade item or a mixture of different trade items. In addition, the SSCC can be used to identify and track an entire trailer or truckload of products through the supply chain.

How the SSCC Works

A typical example using the SSCC in conjunction with an electronic transaction is described in the following steps:

1. A Buyer sends a Purchase Order to a Supplier.

2. The supplier begins to pick the order. As the order is picked, the supplier maintains a record of which products are picked and placed into a particular carton or pallet. GTINs™ (Global Trade Item Numbers™) identifying the picked products and the quantity of each is information that would be collected during the picking process.

3. When the carton is closed, the supplier assigns an SSCC to that carton/pallet. The SSCC is cross-referenced in the database of the supplier with the contents of that particular carton/pallet.

4. The SSCC (or license plate) is encoded in a UCC/EAN-128 bar code on the shipping label and placed on the carton/pallet.

5. The supplier creates and transmits an electronic message known as the Advanced Ship Notice (the ASN or 856) to the buyer or receiving party. The ASN contains all the information concerning the order and each carton/pallet within the order that the buyer needs to know (quantity of GTINs, P.O. #, etc.) It is the responsibility of the supplier to ensure that the buyer receives the electronic transmission prior to the physical receipt of the product.

6. The buyer receives and processes the ASN and stores the information in their system.

7. The buyer, upon receipt of the electronic message (ASN) containing the serial number, can choose to use the information to schedule appointments for carriers to deliver the products and to schedule labor and equipment needed to unload and process the shipments.

8. The shipment is delivered to the receiving location.

9. The receiver scans the SSCC located on the carton/pallet.

10. The receiver's application retrieves the information that relates to the SSCC that was just scanned.

11. Using the SSCC as the search key, the system finds all the details for that carton/pallet.

12. The receiver is now able to process the carton/pallet without having to open the carton and manually account for the contents. It should be noted that this assumes that sufficient audits of prior shipments have been conducted to ensure the accuracy of the shipper. This process can account for significant cost savings while reducing the time to get the product to the destination (a specific department, reseller, customer, etc.)

13. The carton/pallet may now move directly to location in the receiving/distribution facility to be stocked for future orders, or cross-docked for shipment to a distribution center or customer.

Special Note

The SSCC can be used in a non-electronic environment as well. One application would be to have the SSCC that is affixed to the pallet act as a license plate for the supplier to internally track inventory while the pallet is still in the supplier's warehouse. Since the SSCC is only serving as an internal tracking number, the receiver of the marked pallet would not be able match it to an ASN to determine its contents. However, the receiver could use the SSCC to manage the carton/pallet from the receiving dock to the put-away location if it is not disassembled.
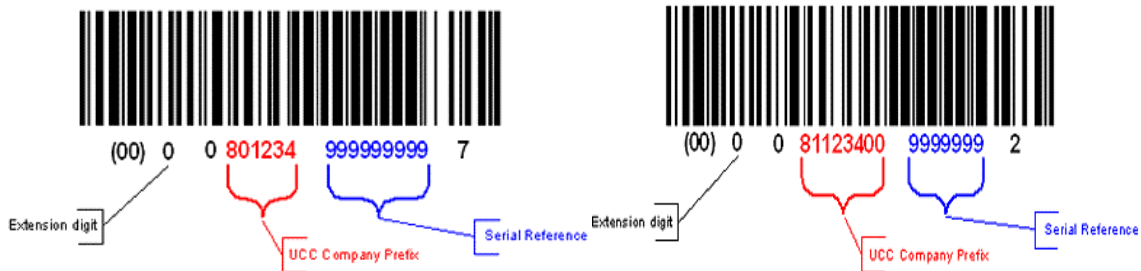
SSCC Data Structure

□

Extension digit	EAN.UCC Company Prefix $\longrightarrow$ $\longleftarrow$ Serial Reference	Check Digit
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} N_{14} N_{15} N_{16} N_{17}	N_{18}

Extension digit, has no defined logic, and is available to the member company to increase the capacity of the Serial Reference.

EAN.UCC Company Prefix – the number assigned to your company by either an EAN Member Organization or by the UCC. The inclusion of the EAN.UCC Company Prefix ensures uniqueness throughout the world. The EAN.UCC Company Prefix is assigned to companies in varying lengths. Note: A UCC Company Prefix is converted to an EAN.UCC Company Prefix by adding a leading zero. Examples: the UCC Company Prefix 614141 will be 0614141 and the UCC Company Prefix 81123456 will be 081123456.

Serial Reference – the number assigned by the holder of the EAN.UCC Company Prefix to uniquely identify the logistic unit. The Serial Reference varies in length as a function of the EAN.UCC Company Prefix length. Note: The combined length of the EAN.UCC Company Prefix and Serial Reference is always 16 digits.

Check Digit – a calculated one-digit number used to ensure data integrity. To understand how this digit is calculated; visit the UCC at http://www.uc-council.org/checkdig.htm.
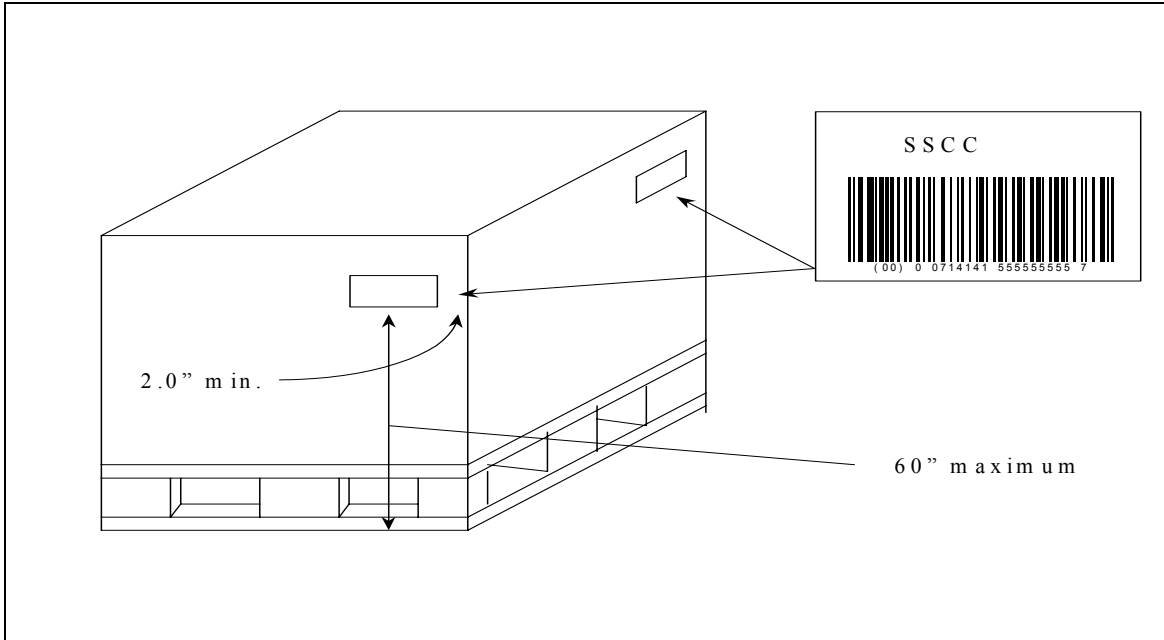

**Example of an SSCC with a
6-digit UCC Company Prefix**

**Example of an SSCC with an
8-digit UCC Company Prefix**

Example of an SSCC on a pallet

Each pallet should have at least one bar code. It is recommended, however, that a pallet should contain an additional bar code on the adjacent side. This is especially helpful when the pallet is turned sideways in the truck or on the rack in the warehouse.

The SSCC should appear on the upper right half side of the pallet. Labels with bar codes should appear on the side of the pallet, from 14" to 28" above the surface on which the pallet stands.

Buyer and Receiver Issues for Scanning

As with all scanning applications, it is important to refer to the following best practices:

1. **Scanners and related firmware and software**
    It is important to note that scanning products at the warehouse level or back door of a retail store is different than scanning at the point of sale. For this reason, be sure that the equipment that you choose can read EAN/UPC, ITF-14 and UCC/EAN-128 symbols. Your equipment provider can supply you with the necessary information.

2. **Tracking Issues**
    Allow for some type of quality control process that will allow you to quickly identify a trading partner whose cartons or items are not scanning correctly.

All EAN.UCC Keys

EAN.UCC keys identify:

*   **Trade items:** Products and services upon which there is a need to retrieve pre-defined information at any point in the supply chain (Global Trade Item Number/**GTIN**).
*   **Logistic units:** Physical units established for transport and storage of goods of any kind that need to be tracked and traced individually in a supply chain (Serialized Shipping Container Code/**SSCC**).

- **Assets:** Fixed or returnable assets (Global Individual Asset Identifier/**GIAI**, Global Returnable Asset Identifier/**GRAI**).
- **Locations:** Physical, functional or legal entities requiring a permanent identification, such as a company, department, or warehouse (Global Location Number/**GLN**).
- **Service Relations:** Public or private service provider to track any entity's service requirements and needs over a continuing relationship (Global Service Relation Number/**GSRN**).

Frequently Asked Questions

1. *Does my company need another UCC Company Prefix to use SSCCs?*

   No. The UCC Company Prefix that you already have been assigned is used in the SSCC.

2. *What are some examples of when I should apply an SSCC?*

   A shipping container can be a case or carton, a pallet or even a truckload of trade items.

3. *Should the GTIN be included in the SSCC?*

   No. GTIN information is included in the ASN (Advanced Ship Notice) that is sent to the receiver of the product prior to shipment. The SSCC acts as a license plate number. That number is linked to the ASN and provides access to the GTIN information.

4. *How is an SSCC different than a GTIN?*

   An SSCC acts as a license plate that is used to track a shipment of trade items through the supply chain. It is not part of the GTIN family of data structures.

5. *Can the SSCC be used at the point of sale?*

   No. The SSCC is only used at the distribution or warehouse environment and is not a GTIN.

6. *What is an Extension digit?*

   The Extension digit is available to the member company to increase the capacity of the number. It has no defined logic.

7. *Do I need to purchase special equipment to scan an SSCC?*

The equipment that you choose should have software that is compatible with the type of scanner that you have selected and should be able to read the UCC/EAN-128 symbol.

8. *How many SSCCs can I create?*

With a 6-digit UCC Company Prefix, one can assign 10 billion SSCCs (1 digit Extension digit times a 9 digit Serial Reference). With an 8-digit UCC Company Prefix, one can assigned 100 million SSCCs (1 digit Extension digit times a 7 digit Serial Reference).

9. *Do I need to put more than one SSCC label on a carton or pallet?*

Each logistics unit should have at least one bar code. It is recommended that a pallet should contain an additional bar code on the adjacent side.

Standard Reference

The UCC's *Solutions Center™* - your one-stop source for EAN.UCC System tools to help you **improve supply chain management and conduct business more productively**. You will find the essential education and implementation resources you need to:

- Integrate and utilize the standards of the EAN.UCC System in your business

- Guide you through the bar coding process

- Improve the efficiency of your electronic commerce activities

- Uniquely identify your company's products, assets, locations, and logistics units throughout the global supply chain

Specifically, *The Art of Producing Bar Codes* will guide you through the implementation process, giving you specific solutions and guidelines to properly mark products and logistics units for use within the EAN.UCC System. This easy-to-follow system will guide you through the essentials of the bar coding process to help you:

- Assess where you will use the bar code

- Determine the specific information to include in the bar code

- Prepare bar code specifications for those responsible for printing your bar codes

 A preview can be seen at http://www.uc-council.org/solutionscenter.

Further Help

- E-mail: mailto:info@uc-council.org
- Phone: 937.435.3870
- Web site: http://www.uc-council.org/

UCC Glossary

Term	UCC Glossary Definition
Advance Ship Notice (ASN)	Notification of product due prior to receipt (see Ship Notice Manifest (856).
AI	Abbreviation for Application Identifier.
Application Identifier (AI)	A two-, three-, or four-digit prefix used within UCC/EAN-128 Symbols to define the meaning of information that follows.
Asset Type	A number assigned by the owner of an asset to uniquely identify a type of asset.
Attribute	A piece of information reflecting a characteristic related to an identification number (i.e., GTIN, GRAI).
Bar code	A precise arrangement of parallel lines (bars) and spaces that vary in width to represent data.
Brand owner	The party that is responsible for allocating EAN.UCC numbering and bar coding on a given trade item. The administrator of an EAN.UCC Company Prefix.
Check Digit	A digit calculated from the other digits of an Element String, used to check that the data has been correctly composed (see EAN.UCC Check Digit Calculation).
Company Number	A number allocated by the UCC or an EAN International Numbering Organization that follows the EAN.UCC Prefix within the EAN.UCC Company Prefix. When combined with the EAN.UCC Prefix, the Company Number uniquely identifies a company.
Data carrier	A means to represent data in a machine readable form, used to enable automatic reading of the Element Strings.
Data Standard	The entirety of all EAN.UCC System data standardized in meaning and structure.
Data structure	The UCC and EAN numbering structures defined in the various lengths required for the different identification purposes which all share a hierarchical composition. Their composition blends the needs of international control with the needs of the users.
EAN	See EAN International.
EAN International	EAN International, based in Brussels, Belgium, is an organization of EAN Numbering Organizations that jointly manages the EAN.UCC System with the UCC.
EAN Member Organization	A member of EAN International that is responsible for administering the EAN.UCC System in its country (or assigned area) and for managing the correct use of the EAN.UCC System by its member companies.
EAN.UCC Company Prefix	Part of the international EAN.UCC Data Structures consisting of an EAN.UCC Prefix and a Company Number, both of which are allocated by either the UCC or an EAN International Numbering Organization.
EAN.UCC Prefix	An index number with two or more digits, co-administered by the UCC and EAN International, denoting the format and meaning of a particular Element String.
EAN.UCC System	The specifications, standards, and guidelines co-administered by the UCC and EAN International.
EDI	Electronic Data Interchange.

Electronic Commerce	The conduct of business communications and management through electronic methods, such as electronic data interchange and automated data collection systems.
Electronic Data Interchange (EDI)	The computer to computer transmission of business information using a public standard format.
Electronic Message	A composition of Element Strings from scanned data and transaction information assembled for data validation and unambiguous processing in a user application.
Extension digit	A digit, allocated by the user, used to increase the capacity of the Serial Reference within the SSCC. *When used within the term "Extension digit," the word "digit" is never capitalized.*
GIAI	Shorthand term for the EAN.UCC Global Individual Asset Identifier.
GLN	Shorthand term for the EAN.UCC Global Location Number using the EAN/UCC-13 Data Structure to identify physical, functional, or legal entities.
GRAI	Shorthand term for the EAN.UCC Global Returnable Asset Identifier.
GSRN	Shorthand term for the EAN.UCC Global Service Relation Number.
GTIN	Shorthand term for the EAN.UCC Global Trade Item Number. A GTIN may use the EAN/UCC-8, UCC-12, EAN/UCC-13, or EAN/UCC-14 Data Structure.
GTIN Format	The format in which GTINs must be represented in a 14-digit reference field (key) in computer files to ensure uniqueness of the identification numbers.
Identification Number (ID)	A numerical name for something in the supply chain to provide unique identification for it. ID numbers are used to retrieve information previously exchanged between trading partners and stored in their computer database files.
Individual Asset	An entity which is part of the inventory of given company *(see Returnable Asset).*
Individual Asset Reference	A number within a GIAI assigned by the holder of an EAN.UCC Company Prefix to an Individual Asset.
Item Number	See Item Reference.
Item Reference	The part of the data structures allocated by the user to identify a trade item for a given EAN.UCC Company Prefix.
Location Number	See GLN.
Location Reference	A number within a GLN assigned by various parties to identify a different entity.
Logistic Unit	Any "container" that permits the physical grouping and identification of goods for shipping. It could be a carton, a plastic wrap, a pallet, or a trailer, depending upon the industry or goods.
Logistic Unit Identifier	Identification of an item of any composition established for transport and/or storage that needs to be managed through the supply chain.
Manufacturer's Number	See EAN.UCC Company Prefix.
Manufacturer's ID	See EAN.UCC Company Prefix.
Point-of-Sale	The point where a customer purchases a product(s) within a retail store. This purchase is typically facilitated by a "check-out" lane or counter where bar code scanning equipment is located.
POS (Point-of-Sale)	Point-of-Sale. Refers to the retail type checkout where EAN/UPC Bar Code Symbols are normally scanned.
Returnable Asset	A reusable entity owned by a company, used for transport and storage of goods.

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RSS Composite Symbology Family	A family of symbols comprised of the RSS-14 Composite Symbology, RSS-14 Stacked Composite Symbology, RSS Limited Composite Symbology, and RSS Expanded Composite Symbology.
Serial Reference	The part of the data structure allocated by the user in conjunction with the Extension digit that establishes a unique SSCC for a given EAN.UCC Company Prefix.
Serial Shipping Container Code	See SSCC.
Service Reference	A number assigned by the service provider to identify the recipient of services in the context of a service relationship.
SSCC	The unique identification of a Logistic Unit using an 18-digit data structure. Formerly known as the Serial Shipping Container Code.
SSCC Serial Number	See Serial Reference.
Symbol	The combination of symbol characters and features required by a particular symbology, including Quiet Zone, start and stop characters, data characters, and other auxiliary patterns, which together form a complete scannable entity; an instance of a symbology and a data structure.
Symbol character	A group of bars and spaces in a symbol which is decoded as a single unit. It may represent an individual digit, letter, punctuation mark, control indicator, or even multiple data characters.
Trade item	Any item (product or service) upon which there is a need to retrieve pre-defined information and that may be priced or ordered or invoiced at any point in any supply chain.
Trading partner	A party to transactions in the supply chain, such as a supplier (seller) or a customer (buyer).
UCC Company Prefix	Part of the UCC-12 Data Structure consisting of a UCC Prefix and a Company Number allocated by the UCC.
UCC/EAN-128 Bar Code Symbol	A subset of the Code 128 Bar Code Symbol that is utilized exclusively for UCC.EAN defined data structures. UCC/EAN-128 Symbols can be printed as stand-alone linear symbols or as a composite symbol with an accompanying 2D Composite Component printed directly above the UCC/EAN-128 linear component.
Uniform Code Council, Inc. (UCC)	The Uniform Code Council, Inc. based in the United States, is a membership organization that jointly manages the EAN.UCC System with EAN International. The UCC also administers the EAN.UCC System in the United States and Canada.
Universal Product Code (U.P.C.)	See UCC-12 Identification Number.
U.P.C. Symbol	A bar code symbol that encodes the twelve-digit UCC-12 (U.P.C.)
Variable Measure Trade Item	An item always produced in the same pre-defined version (type, design, packaging, etc.) that may be sold at any point in the supply chain, which either may vary in weight/size by its nature or which may be traded without a pre-defined weight/size/length.