



The Global Language of Business

# An Introduction to the Global Document Type Identifier (GDTI)

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## About GS1

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 Document Type Identifier?

A Global Document Type Identifier (GDTI) is the GS1 Identification Key used to identify important documents by type. This unique identifier is comprised of a GS1 Company Prefix, a Document Type, a Check Digit, and an optional serial number.



**Note:** The term “document” is applied broadly to cover any paper or digital file.

## 2 What is a GDTI used for?

The GDTI is a simple tool used to identify documents. Where required, the GDTI can identify documents uniquely. The issuer of a document is normally responsible for all the information contained within the document, including both barcoded and Human Readable Interpretation (HRI) information. Such documents typically require storage of the appropriate information contained on the document. A company will issue a GDTI when it is important to maintain a record of the document. The GDTI will provide a link to the database that holds the “master” copy of the document. If your business issues documents that require tracking and control, GDTI can be used to enable this capability. A GDTI can be assigned by a company anywhere in the world and can be used anywhere in the world. Any important documents that has a need to be tracked can be identified and applications built to capture the information using GDTI as the key. Some examples of document types that may be identified using a GDTI include:

- Land registration papers identifying the property
- Tax demands identifying the claim
- Electronic messages
- Insurance policies identifying the holder and coverage
- Exam papers for schools
- Proof of shipment forms
- Passports
- Digital files
- Enhanced driver’s licenses
- Identification of television commercials
- Internal invoices

The GDTI may be produced as a GS1-128 and GS1 DataMatrix barcode, encoded in an Electronic Product Code (EPC®)–enabled Radio Frequency Identification (RFID) tag, and printed on the document as a method of identification or for detail or information retrieval.

## 3 Key Attributes of the GDTI

The use of GDTIs provides companies with a method of document identification that is both simple and unique. The GDTI will identify and enable identification of any document that requires document control, including identifying the class or type of document. When individual document identification is required, an optional serial number can be used to uniquely identify each document.

The allocation of numbers is always under the control of the issuing party. Because the GDTI itself has no meaning, the document number can be looked up in a secure database and its associated

information retrieved only by the document issuer. GDTIs are based on the GS1 System, derived using a GS1 Company Prefix, a Document Type, a Check Digit and, optionally, a serial number, so allocation of numbers is simple and uniqueness is guaranteed.

## 4 Business Benefits of Using GDTIs

There are a number of benefits to using the GDTI to identify important documents:

- The structure of the GDTI and its assignment rules are administered by GS1®, a not-for-profit standards organization that is supported by implementation guidance, business examples, and maintenance.
- GDTI is a simple coding system used to facilitate document numbering and identification with almost limitless capacity.
- Already an established standard for identifying important documentation, the GDTI uses the same GS1 Standards that are used in many other business applications. If you are already using GS1 Standards to identify products or locations, it's easy to extend your use to identify important documents as well.
- GDTIs are unique worldwide. A GDTI can be used throughout the world with no need for trading partner(s) to assign proprietary numbers to ensure uniqueness.
- The GDTI can identify a document uniquely if required.
- The GDTI enables companies to scan a document in order to retrieve or track the key data.
- The GDTI allows the issuer, rather than a third party, to allocate GDTIs.
- The GDTI guards against mis-identification and fraud.
- The GDTI is an easily defined data structure with integrity checking that facilitates processing and transmission of data.
- GDTIs can be encoded in GS1-128 or GS1 DataMatrix barcode symbols and/or EPC-enabled RFID tags and in human-readable text.

## 5 How is the GDTI formed?

A GDTI is formed with the following components:

- **APPLICATION IDENTIFIER (AI):** AI (253) to indicate GDTI
- **GS1 COMPANY PREFIX:** A globally unique number assigned to a GS1 member company
- **DOCUMENT TYPE:** The number allocated to identify the type of document
- **CHECK DIGIT:** A modulo 10 digit used to check for input errors
- **SERIAL NUMBER:** An optional alpha-numeric identification for individual document

**Figure 5-1** GDTI Structure

Application Identifier	GS1 Company Prefix						Document Type						Check Digit	Serial Number (optional)
(253)	N <sub>1</sub>	N <sub>2</sub>	N <sub>3</sub>	N <sub>4</sub>	N <sub>5</sub>	N <sub>6</sub>	N <sub>7</sub>	N <sub>8</sub>	N <sub>9</sub>	N <sub>10</sub>	N <sub>11</sub>	N <sub>12</sub>	N <sub>13</sub>	X <sub>1</sub> .....X <sub>17</sub>

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**Note:** GDTI is a 13-digit numerical number, including the Check Digit but without the optional Serial Number. The combined length of the GS1 Company Prefix and Document Type will always total 12 digits.

The following steps are used to form GDTIs:

- 1. START WITH YOUR GS1 COMPANY PREFIX.** Your GS1 Company Prefix is the globally unique number issued to your company by GS1 US<sup>®</sup> 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 GDTI. 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 GDTIs.

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

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

- 2. CREATE THE DOCUMENT TYPE.** The Document Type is a number assigned by you, the holder of the GS1 Company Prefix, to uniquely identify a type of document within your company. The Document Type varies in length as a function of the GS1 Company Prefix length. Note that the combined length of the GS1 Company Prefix and Document Type is always 12 digits.
  - 
**Hint:** Assign your Document Types sequentially, and do not build any intelligence into the number. The scheme that defines a particular document type 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 GDTI assignment duties.
- 3. CALCULATE THE CHECK DIGIT.** The Check Digit is a calculated one-digit number used to ensure data integrity. To understand how this digit is calculated, refer to [www.gs1us.org/checkdig](http://www.gs1us.org/checkdig).
- 4. (OPTIONAL) ASSIGN THE SERIAL NUMBER:** The serial number gives you the option of tracking not only specific document types, but also specific instances of each document type (i.e., not just a land registration document, but *this specific* land registration document). You can assign up to a 17-character alpha-numeric serial number for each GDTI. Again, we recommend assigning serial numbers sequentially, not building any type of intelligence into the serial number itself.

## 6 Frequently Asked Questions About the GDTI

### What is meant by “document”?

The term “document” is applied broadly to cover any paper or digital file. The issuer of the document is normally responsible for all the information contained within the document, both in a barcode and in Human Readable Interpretation (HRI) and/or an EPC-enabled RFID tag.

### What are the advantages of the GDTI?

The use of GDTIs provides organizations with a method for identifying documents both internal and external to the organization. Additionally, the GDTI is:

- Globally unique
- Simple
- Multi-sectorial

### Can the GDTI change?

If a document identified by a GDTI changes, a separate, unique GDTI is required whenever any of the characteristics of a document are different in any way that is relevant to the business process

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

Yes. The GDTI EPC corresponds directly to a serialized GDTI key defined in the *GS1 General Specifications*. Because an EPC-enabled RFID tag always identifies a *specific* physical object, only GDTI keys that include the optional serial number have a corresponding GDTI EPC.



**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:

- [Check Digit Calculator](#): Helps you ensure that the GDTI components have been entered correctly
- [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, GDTIs, and other GS1 Standards:

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

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## IAPMO

In this publication, the letters "U.P.C." are used solely as an abbreviation for the "Universal Product Code" which is a product identification system. They do not refer to the UPC, which is a federally registered certification mark of the International Association of Plumbing and Mechanical Officials (IAPMO) to certify compliance with a Uniform Plumbing Code as authorized by IAPMO.

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