Use of GS1 Identification Keys in GS1 EDI messages Guideline

explains what GS1 identification keys are, presents their benefits and provides guidelines for their use in GS1 EDI standards

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1 Introduction

GS1 identification keys are widely implemented in the supply chain and bring users multiple benefits. Those benefits can be leveraged further by using the GS1 ID keys in EDI standards whenever possible. This document explains how the keys should be used in GS1 EDI messages and lists their benefits.

2 Target Audience

The target audience of this document are existing and potential users of GS1 EDI standards, both in user companies and in GS1 Member Organisations.

3 Benefits of using GS1 ID keys in EDI

GS1 identification keys allow unique identification and labelling of products, documents, parties, physical locations, packages and more. GS1 ID keys give companies efficient ways to access information about items in their supply chains and share this information with trading partners. Because GS1 ID keys are globally unique, they can be shared between organisations, increasing supply chain visibility for trading partners.

In EDI, it is essential to unambiguously identify products, services and parties involved in the transaction. In GS1 EDI standard messages, each product, party and location is identified by a unique GS1 identification key.

3.1 Master data alignment

Using the GS1 ID keys enables master data alignment. The fixed or rarely changing data about products, parties and prices, such as product specifications, party addresses, etc., is exchanged between trading partners before any trading transaction takes place. In transactional messages, this set of information is referenced by using the applicable ID key.

Examples of party master data

- Company name
- Address
- Company registration number
- Contact person(s)
- Bank account number, etc.

In transactional messages, this set of information is referenced by the GLN (Global Location Number). In messages like Order, Despatch Advice or Invoice, all that needs to be stated is the respective GLNs of the Buyer, Seller, Ship-To Location, Carrier, Payer and Payee.

Examples of trade item master data:

- Brand name of the product
- Model, type
- Ingredients
- Physical properties, e.g. colour, size, net weight
- Product classification details
- Packaging details and much more

All this information is sent by the supplier to their customers and stored in the computer systems. When a customer orders certain goods, he or she needs to provide in the Order message only their GTINs (Global Trade Item Numbers). They will be used as a trigger to retrieve all the necessary information. The same GTIN can be then used to announce the delivery in Despatch Advice and request payment in Invoice message.

<u>Examples of price master data:</u>

- Payment terms
- Discounts
- Charges, etc.

The standard price elements are exchanged during master data alignment. In transactional messages they will be referred to using GTIN.

This approach ensures data quality, eliminates errors and removes the need to send redundant information in electronic messages.

Master data alignment enhances a multi partner trade environment, by allowing various parties to reference relevant sets of data using the GS1 ID key. What is also very important, the master data come directly from the source – the supplier of the product or the party itself.

> **Note**: Master data can be exchanged in various ways. GS1 offers the automated manner of sharing them in the *Global Data Synchronisation Network (GDSN)*. The GDSN users can subscribe to receive data about parties and products they are interested in. Whenever there is any change in the related information, they will be automatically notified. This method is particularly useful for the companies that have multiple business partners that they need to exchange data with.
> Master data can also be shared bilaterally with selected partners, e.g. by sending them data alignment EDI messages or by any other non-EDI communication means (e.g. spreadsheets).

3.2   GS1 keys vs. other ID keys

One of the very important advantages of the GS1 ID keys is that they provide a link between the flow of information, e.g. in the form of EDI messages, with the physical flow of goods. The same ID keys are encoded in bar codes (or RFID tags) and applied on product packages. When the barcodes are scanned, the same master data can be retrieved from the company IT system.

In some business contexts it is necessary to use in EDI messages other identifiers next to the GS1 keys. This is enabled by the structure of the GS1 message standards. However, it is not a good practice to use them as primary keys for the following reasons:

- **Reference to master data**. Only GS1 keys provide direct link to the structured master data aligned prior to the transaction. Using other primary keys would require sending redundant master data in transactional messages.

- **Link between physical and information flow**. Non-GS1 keys do not allow direct links to the trade item data provided by the bar code scanning and require complicated mapping.

- **Link between GS1 messages used in the same transaction**. GLN and GTIN allow linking between party and item data between subsequent transactional messages, e.g. Buyer in Order can be the same as Receiver in Despatch Advice and Payer in Invoice.

- **Unique and sufficiently granular identification**. Companies can be identified using e.g. tax registration number or national business register, but they do not allow for identification of sub locations. GLN provides ability to identify e.g. various physical delivery or pick-up locations, different functional entities within a company.

3.3   GS1 keys vs. free text

Company and trade item identification can also be represented in text format, e.g. brand name, company name and address, instead of using the GS1 ID keys. This approach may have some advantages, e.g. eliminate the need for data look-up, and leverage human readability, especially in case of XML standards. However, the text information is not suitable for automatic processing without human intervention. An address specified in one computer system may be very different from another one and mapping between the two can be difficult or impossible.

<u>Example:</u>

The same set of data can be represented differently in various computer systems, making mapping difficult, while a GLN allows referencing to any proprietary format of data in various computer systems.

Address data stored by Company 1	Address data stored by Company 2
Company name: Company XYZ Inc.	Name: XYZ Inc.
Street address: 51 Broad Street, PO Box 7	??
??	Street address 1: Broad Street 51
??	Street address 2: PO box 7
City: 3246-1 Green City	City: Green City
??	Postal code: 3246-1
Province: District 6	??
Country: Neverland	Country: Neverland
GLN: 1234567890128	GLN: 1234567890128

This practice contradicts the basic principle of EDI, which is direct data exchange between computer applications without human intervention.

3.4 GS1 keys data look-up

GS1 offers a set of the data services that allow look-up of basic data.

The GTIN and GLN can be used to look up its owner in the Global Electronic Party Information Registry (GEPIR).

This offers additional visibility and the possibility to validate the credibility and correctness of the data received.

3.5 Global support for GS1 keys and GS1 EDI

Implementation of standards in the companies' supply chain activities sometimes leads to questions that need to be answered and discovery of additional requirements that need to be incorporated in the messages. The availability of a global support network is crucial for the success of the project.

GS1 provides global support via the local *Member Organisations* that either answer the user's questions or pass them on to the GS1 community, leveraging the global knowledge and experience. This support is available both for allocation and management of the GS1 ID keys and for GS1 EDI standards.

4 GS1 ID keys used in GS1 EDI standards

GS1 has defined 11 identification keys and 7 of them are currently relevant in the context of GS1 EDI standards, thus they have been included in GS1 XML and GS1 EANCOM.

4.1 GS1 ID keys in GS1 XML standard

The GS1 keys that are used in the GS1 XML standard are defined in the SharedCommon.xsd schema.

4.1.1 Global Location Number – GLN in GS1 XML

Global Location Number **GLN** can be used by companies to identify their physical (physical address) or digital (electronic address) locations, legal entities or functions, giving them complete flexibility to identify any type or level of location required.

GLN is defined as the GLNType:

```
<xsd:simpleType name="GLNType">
   <xsd:restriction base="xsd:string">
      <xsd:pattern value="\d{13}"/>
   </xsd:restriction>
</xsd:simpleType>
```

GLN is used in the Ecom_PartyIdentificationType that next to the GLN key, offers the possibility of providing additional identifiers, if needed. The list of currently used additional non-GS1 identifiers can be found in the _Global Data Dictionary_ (GDD).
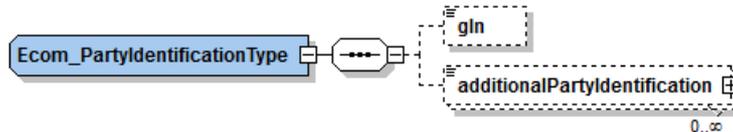

```
<xsd:complexType name=" Ecom_PartyIdentificationType">
   <xsd:sequence>
      <xsd:element name="gln" type="shared_common:GLNType" minOccurs="0"/>
      <xsd:element name="additionalPartyIdentification"
type="shared_common:AdditionalPartyIdentificationType" minOccurs="0"
maxOccurs="unbounded"/>
   </xsd:sequence>
</xsd:complexType>
```

The PartyIdentificationType is a common data structure, asigned to elements such as contentOwner in the EntityIdentificationType, used to provide unique identification of messages, e.g. orderIdentification or invoiceIdentification. The combination of the entity identification that needs to be unique just for one party and contentOwner components ensures absolute uniqueness of the message identification.

In transactional messages, the PartyIdentificationType is often used as a part of the TransactionalPartyType, providing additional optional information about the parties or locations. Below is the screenshot of the TransactionalPartyType release 3.3.
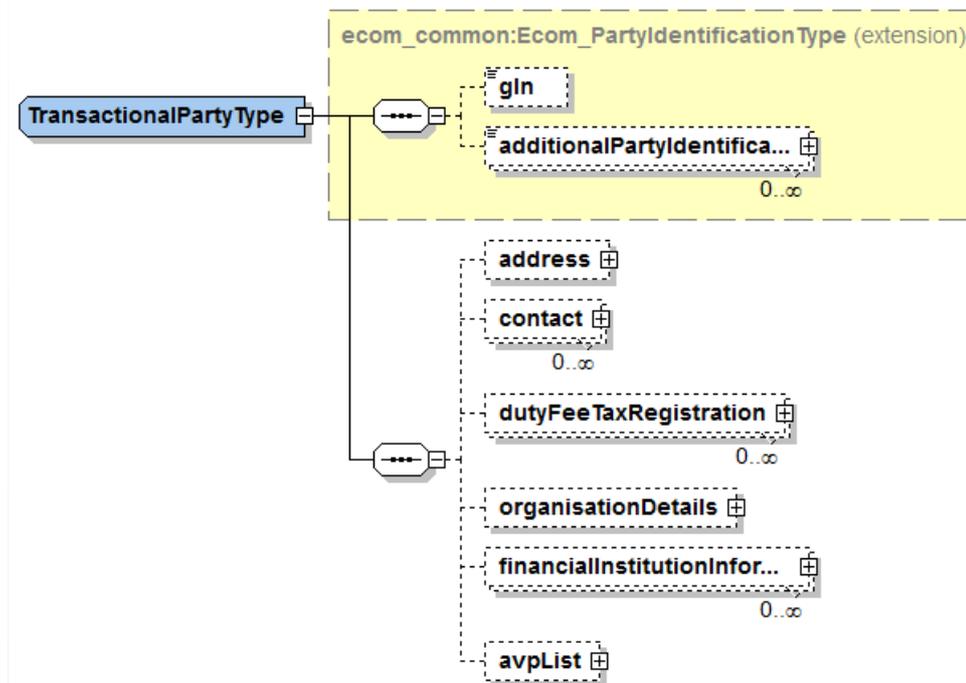
This additional information can be used in transactional messages when needed, e.g. the full master data alignment between trading partners was not possible or one of the transaction partners is, for example, an individual consumer, who has no access to the master data set. The preferred option,

however, is always the full data alignment, which helps avoid sending redundant information in transactional messages.

The TransactionalPartyType is a common data structure, assigned to elements representing transactional parties, e.g. buyer, seller, billTo party or locations, e.g. inventoryLocation or pickUpLocation.

4.1.2 Global Trade Item Number GTIN in GS1 XML

Global Trade Item Number **GTIN** can be used by a company to uniquely identify all of its trade items. GS1 defines trade items as products or services that are priced, ordered or invoiced at any point in the supply chain.

GTIN is defined as the GTINType:

```
<xsd:simpleType name="GTINType">
   <xsd:restriction base="xsd:string">
      <xsd:pattern value="\d{14}"/>
   </xsd:restriction>
</xsd:simpleType>
```

GTIN is used in the Ecom_TradeItemIdentificationType that next to the GTIN key, offers the possibility of providing additional identifiers, if needed. The list of currently used identifiers can be found in the *Global Data Dictionary* (GDD).
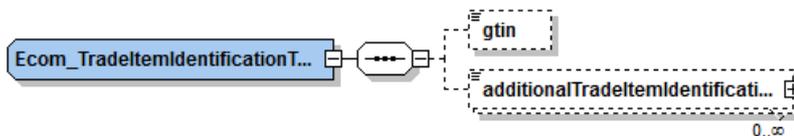

```
<xsd:complexType name=" Ecom_TradeItemIdentificationType">
   <xsd:sequence>
      <xsd:element name="gtin" type="shared_common:GTINType" minOccurs="0"/>
      <xsd:element name="additionalTradeItemIdentification"
      type="shared_common:AdditionalTradeItemIdentificationType" minOccurs="0"
      maxOccurs="unbounded"/>
   </xsd:sequence>
</xsd:complexType>
```

In transactional messages, the Ecom_TradeItemIdentificationType is often used as a part of the TransactionalItemDataType, providing additional optional information about the trade items. Below is the screenshot of the TransactionalPartyType release 3.3.
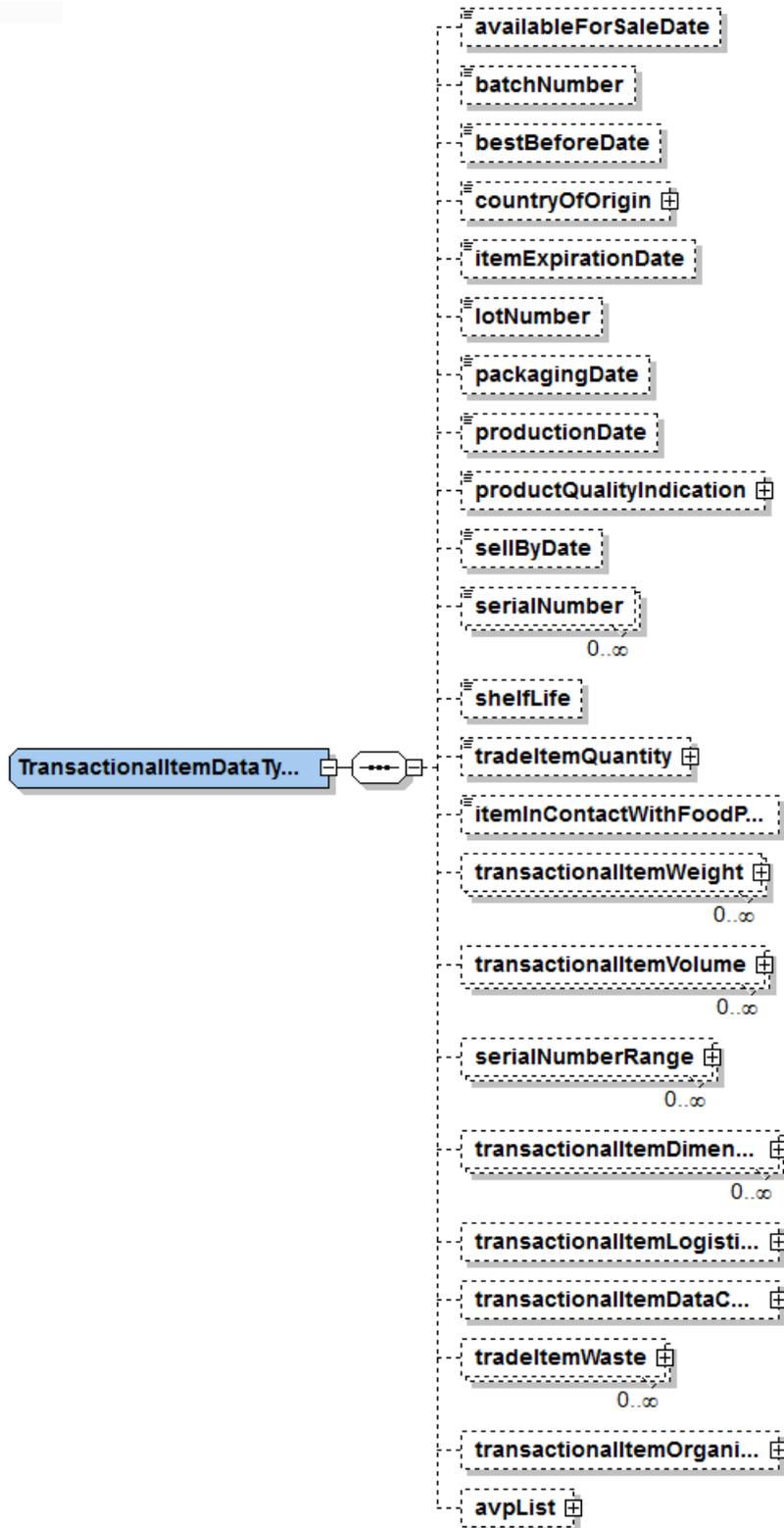
TransactionalItemDataTy...

- availableForSaleDate
- batchNumber
- bestBeforeDate
- countryOfOrigin ⊞
- itemExpirationDate
- lotNumber
- packagingDate
- productionDate
- productQualityIndication ⊞
- sellByDate
- serialNumber
  0..∞
- shelfLife
- tradeItemQuantity ⊞
- itemInContactWithFoodP...
- transactionalItemWeight ⊞
  0..∞
- transactionalItemVolume ⊞
  0..∞
- serialNumberRange ⊞
  0..∞
- transactionalItemDimen... ⊞
  0..∞
- transactionalItemLogisti... ⊞
- transactionalItemDataC... ⊞
- tradeItemWaste ⊞
  0..∞
- transactionalItemOrgani... ⊞
- avpList ⊞

This additional information can be used in transactional messages when needed, e.g. the full master data alignment between trading partners was not possible or one of the transaction partners is for example an individual consumer, who has no access to the master data set. The preferred option, however, is always the full data alignment, which helps avoid sending redundant information in transactional messages.

The TransactionalItemDataType is a common data structure, asigned to elements representing transactionalTradeItem in transactional messages such as Order, DespatchAdvice or Invoice.
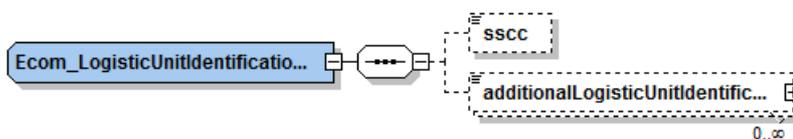
4.1.3 Serial Shipping Container Code SSCC in GS1 XML

Serial Shipping Container Code **SSCC** can be used by companies to identify a logistic unit, which can be any combination of trade items packaged together for storage and/ or transport purposes; for example a case, pallet or parcel.

SSCC is defined as the SSCCType:

```
<xsd:simpleType name="SSCCType">
   <xsd:restriction base="xsd:string">
      <xsd:pattern value="\d{18}"/>
   </xsd:restriction>
</xsd:simpleType>
```

SSCC is used in the Ecom_LogisticUnitIdentificationType that next to the SSCC key, offers the possibility of providing additional identifiers if needed. The list of currently used additional non-GS1 identifiers can be found in the *Global Data Dictionary* (GDD).


```
<xsd:complexType name=" Ecom_LogisticUnitIdentificationType">
   <xsd:sequence>
      <xsd:element name="sscc" type="shared_common:SSCCType" minOccurs="0"/>
      <xsd:element name="additionalLogisticUnitIdentification"
type="shared_common:AdditionalLogisticUnitIdentificationType" minOccurs="0"
maxOccurs="unbounded"/>
   </xsd:sequence>
</xsd:complexType>
```

4.1.4 Global Identification Number for Consignment GINC in GS1 XML

Global Identification Number for Consignment **GINC** can be used by companies to identify a consignment comprised of one or more logistic units that are intended to be transported together.

GINC is defined as the GINCType:

```
<xsd:simpleType name="GINCType">
   <xsd:restriction base="xsd:string">
      <xsd:pattern value="[-!&quot;%&amp;'()*+,./0-9:;&lt;=&gt;?A-Z_a-z]{4,30}"/>
   </xsd:restriction>
</xsd:simpleType>
```

GINC is used in the Ecom_ConsignmentIdentificationType that next to the GINC key, offers the possibility of providing additional identifiers, if needed. The list of currently used additional non-GS1 identifiers can be found in the *Global Data Dictionary* (GDD).


```
<xsd:complexType name="Ecom_ConsignmentIdentificationType">
   <xsd:sequence>
      <xsd:element name="ginc" type="shared_common:GINCType" minOccurs="0"/>
      <xsd:element name="additionalConsignmentIdentification"
type="shared_common:AdditionalConsignmentIdentificationType" minOccurs="0"
maxOccurs="unbounded"/>
   </xsd:sequence>
</xsd:complexType>
```
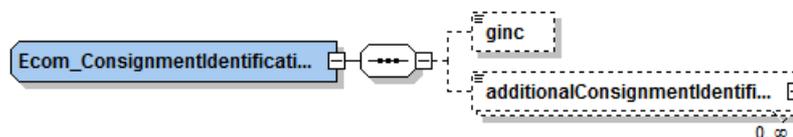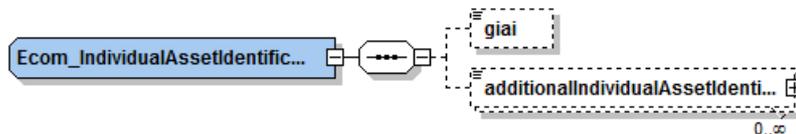
4.1.5 Global Individual Asset Identifier GIAI in GS1 XML

Global Individual Asset Identifier **GIAI** is one of the two GS1 keys for asset identification. Companies can apply a GIAI on any asset to uniquely identify and manage that asset. This could be a computer, desk, vehicle, piece of transport equipment, or spare part, as just a few examples.

GIAI is defined as the GIAIType:

```
<xsd:simpleType name="GIAIType">
   <xsd:restriction base="xsd:string">
      <xsd:pattern value="[-!&quot;%&amp;'()*+,./0-9:;&lt;=&gt;?A-Z_a-z]{4,30}"/>
   </xsd:restriction>
</xsd:simpleType>
```

GIAI is used in the Ecom_IndividualAssetIdentificationType that next to the GIAI key, offers the possibility of providing additional identifiers, if needed. The list of currently used additional non-GS1 identifiers can be found in the *Global Data Dictionary* (GDD).


```
<xsd:complexType name=" Ecom_IndividualAssetIdentificationType">
   <xsd:sequence>
      <xsd:element name="giai" type="shared_common:GIAIType" minOccurs="0"/>
      <xsd:element name="additionalIndividualAssetIdentification"
type="shared_common:AdditionalIndividualAssetIdentificationType" minOccurs="0"
maxOccurs="unbounded"/>
   </xsd:sequence>
</xsd:complexType>
```

4.1.6 Global Returnable Asset Identifier GRAI in GS1 XML

Global Returnable Asset Identifier **GRAI** is one of two GS1 keys for asset identification. This GS1 key is especially suitable for the management of reusable transport items, transport equipment, or tools and can identify these returnable assets by type and if needed also individually for tracking and sorting purposes.

GRAI is defined as the GRAIType:

```
<xsd:simpleType name="GRAIType">
   <xsd:restriction base="xsd:string">
      <xsd:pattern value="\d{14}[-!&quot;%&amp;'()*+,./0-9:;&lt;=&gt;?A-Z_a-z]{0,16}"/>
   </xsd:restriction>
</xsd:simpleType>
```

GRAI is used in the Ecom_ReturnableAssetIdentificationType that next to the GRAI key, offers the possibility of providing additional identifiers, if needed. The list of currently used additional non-GS1 identifiers can be found in the *Global Data Dictionary* (GDD).


```
<xsd:complexType name=" Ecom_ReturnableAssetIdentificationType">
   <xsd:sequence>
   <xsd:element name="grai" type="shared_common:GRAIType" minOccurs="0"/>
      <xsd:element name="additionalReturnableAssetIdentification"
type="shared_common:AdditionalReturnableAssetIdentificationType" minOccurs="0"
maxOccurs="unbounded"/>
   </xsd:sequence>
</xsd:complexType>
```

4.1.7 Global Shipment Identification Number GSIN in GS1 XML

Global Shipment Identification Number **GSIN** is a number assigned by a seller and shipper of goods to identify a shipment comprised of one or more logistic units that are intended to be delivered together.

GSIN is defined as the GSINType:

```
<xsd:simpleType name="GSINType">
    <xsd:restriction base="xsd:string">
          <xsd:pattern value="\d{17}"/>
    </xsd:restriction>
</xsd:simpleType>
```

GSIN is used in the Ecom_ShipmentIdentificationType that next to the GSIN key, offers the possibility of providing additional identifiers, if needed. The list of currently used additional non-GS1 identifiers can be found in the *Global Data Dictionary* (GDD).


```
<xsd:complexType name=" Ecom_ShipmentIdentificationType">
   <xsd:sequence>
      <xsd:element name="gsin" type="shared_common:GSINType" minOccurs="0"/>
      <xsd:element name="additionalShipmentIdentification"
type="shared_common:AdditionalShipmentIdentificationType" minOccurs="0"
maxOccurs="unbounded"/>
   </xsd:sequence>
</xsd:complexType>
```
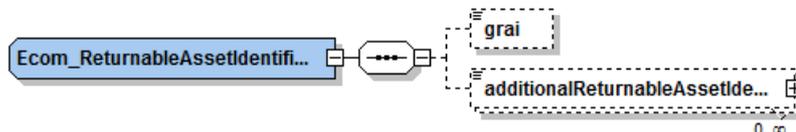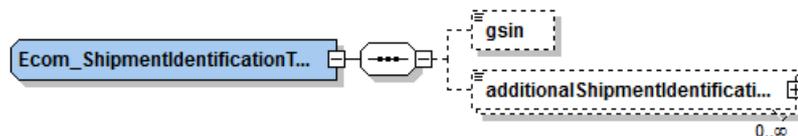
4.2 GS1 ID keys in GS1 EANCOM standard

The GS1 keys are defined in different data elements depending on the key and on its application.

4.2.1 Global Location Number – GLN in GS1 EANCOM

Global Location Number **GLN** can be used by companies to identify their physical (physical address) or digital (electronic address) locations, legal entities or functions, giving them complete flexibility to identify any type or level of location required.

If the GLN is used to identify a party, data element 3039 in the NAD segment should be used.

C082	PARTY IDENTIFICATION DETAILS	C		A		General explanations	
3039	Party identifier	M	an..35	M		GLN -Format n13	
1131	Code list identification code	C	an..17	N			
3055	Code list responsible agency code	C	an..3	R	*	General explanations	
						9	= GS1

Example:

```
NAD+BY+5412345000013::9'        Buyer
NAD+SU+4012345500004::9'        Supplier
NAD+DP+5412345000013::9'        Delivery party
```

If the GLN is used to identify a location, data element 3225 in the LOC segment should be used.

C517	LOCATION IDENTIFICATION	C		A		General explanations	
3225	Location name code	C	an..25	A		GLN - Format n13	
1131	Code list identification code	C	an..17	O			
3055	Code list responsible agency code	C	an..3	D		9	= GS1

Example:

```
LOC+7+5412345678908::9'        Place of delivery
```

✅ **Note**: GLN may appear either in the header and detail section, or both.

4.2.2 Global Trade Item Number GTIN in GS1 EANCOM

Global Trade Item Number **GTIN** can be used by a company to uniquely identify all of its trade items. GS1 defines trade items as products or services that are priced, ordered or invoiced at any point in the supply chain.

If GTIN is used as a primary key, the LIN segment is used. If it is used as an additional identifier, the PIA segment is used. The same structure is used in both segments.

C212	ITEM NUMBER IDENTIFICATION		C		D		the PIA segment. GS1 …
							General explanations
7140	Item identifier		C	an..35	R		Format n..14
							GTIN - this is the number of the article being ordered.
7143	Item type identification code		C	an..3	R	*	General explanations
							SRV = GS1 Global Trade Item Number

Example:

```
LIN+1++5412345111115:SRV'
```

4.2.3 Serial Shipping Container Code SSCC in GS1 EANCOM

Serial Shipping Container Code **SSCC** can be used by companies to identify a logistic unit, which can be any combination of trade items packaged together for storage and/ or transport purposes; for example a case, pallet or parcel.

SSCC is defined in the GIN segment. This can be done as a sequence (start/end numbers) or as individual numbers.

C208	IDENTITY NUMBER RANGE	M		M
7402	Object identifier	M	an..35	M
7402	Object identifier	C	an..35	O
C208	IDENTITY NUMBER RANGE	C		O
7402	Object identifier	M	an..35	M
7402	Object identifier	C	an..35	O
C208	IDENTITY NUMBER RANGE	C		O
7402	Object identifier	M	an..35	M
7402	Object identifier	C	an..35	O
C208	IDENTITY NUMBER RANGE	C		O
7402	Object identifier	M	an..35	M
7402	Object identifier	C	an..35	O
C208	IDENTITY NUMBER RANGE	C		O
7402	Object identifier	M	an..35	M
7402	Object identifier	C	an..35	O

Example:

```
GIN+BJ+354123450000000014:354123450000000106'
```

4.2.4 Global Identification Number for Consignment GINC in GS1 EANCOM

Global Identification Number for Consignment **GINC** can be used by companies to identify a consignment comprised of one or more logistic units that are intended to be transported together.

The same structure as for SSCC is used but with qualifier 'DC'.

4.2.5 Global Individual Asset Identifier GIAI in GS1 EANCOM

Global Individual Asset Identifier **GIAI** is one of the two GS1 keys for asset identification. Companies can apply a GIAI on any asset to uniquely identify and manage that asset. This could be a computer, desk, vehicle, piece of transport equipment, or spare part, as just a few examples.

The same structure as for SSCC is used but with qualifier 'CU'.

4.2.6 Global Returnable Asset Identifier GRAI in GS1 EANCOM

Global Returnable Asset Identifier **GRAI** is one of two GS1 keys for asset identification. This GS1 key is especially suitable for the management of reusable transport items, transport equipment, and tools and can identify these returnable assets by type and if needed also individually for tracking and sorting purposes.

The same structure as for SSCC is used but with qualifier 'DA' for numbers without serial number and qualifier 'DB' for numbers with serial number.

4.2.7 Global Shipment Identification Number GSIN in GS1 EANCOM

Global Shipment Identification Number **GSIN** is a number assigned by a seller and shipper of goods to identify a shipment comprised of one or more logistic units that are intended to be delivered together.

The same structure as for SSCC is used but with qualifier 'DD'.

5 GS1 keys used across EDI messages

GS1 identification keys can be used consistently across different GS1 EDI messages identifying the same parties playing different roles in the supply chain.

An example can be two parties engaged in trading process:

■ Company A identified with the GLN: 1111111111116

■ Company B identified with the GLN: 6666666666666

Company A wants to buy goods from Company B. The next two sections outline the use of GLNs in simple scenarios supported respectively by GS1 XML and GS1 EANCOM messages.

5.1 Use of GLN across GS1 XML messages

In the most classic Order to Cash scenario, the following messages need to be exchanged.

Objective	Message	Sender	Receiver
Send master data about trade item	Trade Item Notification	Company B 6666666666666	Company A 1111111111116
Order goods	Order	Company A 1111111111116	Company B 6666666666666
Confirm Order	Order Response	Company B 6666666666666	Company A 1111111111116
Announce shipment	Despatch Advice	Company B 6666666666666	Company A 1111111111116
Confirm shipment receipt	Receiving Advice	Company A 1111111111116	Company B 6666666666666
Request payment for delivered goods	Invoice	Company B 6666666666666	Company A 1111111111116

In GS1 XML messages, the message sender and receiver are specified at the header level, in this case it is Standard Business Document Header – SBDH. Among other information, it contains two addressing elements: Sender and Receiver. Each of them has one child element – Identifier, which in the GS1 standard should be the GLN and the Authority attribute – specifying the managing agency of the Identifier. In GS1 XML the value of this attribute should always be "GS1".

Item Data Notification - main parties

This message is sent by Company B, which is here the "Sender" to Company A, which is the message "Receiver".

```
<Sender>
    <Identifier Authority="GS1">6666666666666</Identifier>
</Sender>
<Receiver>
    <Identifier Authority="GS1">1111111111116</Identifier>
```

```
</Receiver>
```

In this exchange, Company B plays a role of the "Data Source" – defined as the party who sends the item information. Company A becomes the "Data Recipient" – defined as the party who receives the item information.

Thus, the XML sample will look like this:

```
<dataSource>
     <gln>6666666666666</gln>
</dataSource>
<dataRecipient>
     <gln>1111111111116</gln>
</dataRecipient>
```

Order - main parties

Having received all the information about the products, Company A can send an Order. Here, the Company A has a role of a "Buyer" and Company B becomes a "Seller". The message is sent from a Buyer to the Seller. Both parties are still identified by their GLN.

In SBDH:

```
<Sender>
     <Identifier Authority="GS1">1111111111116</Identifier>
</Sender>
<Receiver>
     <Identifier Authority="GS1">6666666666666</Identifier>
</Receiver>
```

In Order root:

```
<buyer>
     <gln>1111111111116</gln>
</buyer>
<seller>
     <gln>6666666666666</gln>
</seller>
```

Order Response - main parties

Company B may send an Order Response message, either to just confirm the readiness to deliver the ordered goods or to suggest changes in the order.

Thus Company B sends the message, which is received by Company A, but Company B still has the role of a Seller and Company A remains the Buyer.

In SBDH:

```
<Sender>
     <Identifier Authority="GS1">6666666666666</Identifier>
</Sender>
<Receiver>
     <Identifier Authority="GS1">1111111111116</Identifier>
</Receiver>
```

In Order Response root:

```
<buyer>
     <gln>1111111111116</gln>
</buyer>
<seller>
     <gln>6666666666666</gln>
</seller>
```

Despatch Advice - main parties

When the goods are packaged and ready to be shipped, Company B (message sender) sends the Despatch Advice message to Company A (message receiver). Here, the role names may change.

The message is sent from the "Shipper" – defined as a party who engages in shipping goods to "Receiver" – defined as a party who engages in receiving goods. They may be the same as Buyer and Seller, but in more complex scenarios it could be different parties to whom the Buyer and Seller outsource their logistic operations. Hence, there is a possibility to optionally specify the "Buyer" and "Seller". Let's assume that in our example these are the same parties.

In SBDH:

```
<Sender>
    <Identifier Authority="GS1">6666666666666</Identifier>
</Sender>
<Receiver>
    <Identifier Authority="GS1">1111111111116</Identifier>
</Receiver>
```

In Despatch Advice root:

```
<receiver>
    <gln>1111111111116</gln>
</receiver>
<shipper>
    <gln>6666666666666</gln>
</shipper>
```

Receiving Advice - main parties

After the goods are received and inspected, Company A can send a Receiving Advice message to Company B, either to confirm the receipt and acceptance of the goods – or to report problems.

This message is sent from Company A to Company B, but the Shipper and Receiver roles remain the same.

In SBDH:

```
<Sender>
    <Identifier Authority="GS1">1111111111116</Identifier>
</Sender>
<Receiver>
    <Identifier Authority="GS1">6666666666666</Identifier>
</Receiver>
```

In Receiving Advice root:

```
<receiver>
    <gln>1111111111116</gln>
</receiver>
<shipper>
    <gln>6666666666666</gln>
</shipper>
```

Invoice - main parties

At the end of the business transaction, Company B will send an Invoice to Company A. The main parties in this message are called again "Buyer" and "Seller", with a possibility of specifying "Payer" and "Payee" for more complex scenarios. In the simple example the parties will be identified as follows.

In SBDH:

```
<Sender>
    <Identifier Authority="GS1">6666666666666</Identifier>
</Sender>
<Receiver>
    <Identifier Authority="GS1">1111111111116</Identifier>
</Receiver>
```

In Invoice root:

```
<buyer>
```

```
    <gln>1111111111116</gln>
</buyer>
<seller>
    <gln>6666666666666</gln>
</seller>
```

5.2   Use of GLN across GS1 EANCOM messages

In the most classic Order to Cash scenario, the following messages need to be exchanged.

Objective	Message	Sender	Receiver
Send master data about trade item	PRICAT (Price/Sales Catalogue)	Company B 6666666666666	Company A 1111111111116
Order goods	ORDERS (Order)	Company A 1111111111116	Company B 6666666666666
Confirm Order	ORDRSP (Order Response)	Company B 6666666666666	Company A 1111111111116
Announce shipment	DESADV (Despatch Advice)	Company B 6666666666666	Company A 1111111111116
Confirm shipment receipt	RECADV (Receiving Advice)	Company A 1111111111116	Company B 6666666666666
Request payment for delivered goods	INVOIC (Invoice)	Company B 6666666666666	Company A 1111111111116

In GS1 EANCOM messages the message sender and receiver are specified in the UNB service segment, the Interchange Header. The Interchange Sender and Recipient are identified by the GLN, qualified with value 14, which means GS1 as identifier Managing Agency.

The identification and roles of the parties involved in the transaction are specified typically in the first occurrence of NAD segment– name and address. The GLN is used as Party Identifier (DE 3039) and qualified by a value from the Party Function Code Qualifier code list.

The code list responsible agency code specifies the organisation managing the identification code. In EANCOM the value is always 9 – GS1.

PRICAT - main parties

In this exchange, Company B is the provider of trade item information. In our scenario, its GLN can be qualified by the value SU – Supplier.

The message is received by Company A, whose GLN can be qualified with value BY – Buyer.

In the simple example, the parties will be identified as follows.

In UNB:

Interchange sender identification = 6666666666666

Identification code qualifier = 14 (GS1)

Interchange recipient identification = 1111111111116

Identification code qualifier = 14 (GS1)

```
UNB+UNOA:3+6666666666666:14+1111111111116:14+170102:1000+123+++++EANCOMREF 52'
```


In NAD, SG2, occurrence 1:

Party function code qualifier = SU (Supplier)

Party identifier = 6666666666666

Code list responsible agency code = 9 (GS1)

```
NAD+SU+6666666666666::9'
```

In NAD, SG2, occurrence 2:

Party function code qualifier = BY (Buyer)

Party identifier = 1111111111116

Code list responsible agency code = 9 (GS1)

```
NAD+BY+1111111111116::9'
```

ORDERS - main parties

In this exchange, Company A sends an order message to Company B.

In our scenario, the GLN of Company A can be qualified by the value BY – Buyer.

The GLN of Company B will be qualified with value SU – Supplier.

In the simple example, the parties will be identified as follows.

In UNB:

Interchange sender identification = 1111111111116

Identification code qualifier = 14 (GS1)

Interchange recipient identification = 6666666666666

Identification code qualifier = 14 (GS1)

```
UNB+UNOA:3+1111111111116:14+6666666666666:14+170102:1000+123+++++EANCOMREF 52'
```

In NAD, SG2, occurrence 1:

Party function code qualifier = BY (Buyer)

Party identifier = 1111111111116

Code list responsible agency code = 9 (GS1)

```
NAD+BY+1111111111116::9'
```

In NAD, SG2, occurrence 2:

Party function code qualifier = SU (Supplier)

Party identifier = 6666666666666

Code list responsible agency code = 9 (GS1)

```
NAD+SU+6666666666666::9'
```

ORDRSP - main parties

Company B can respond to the Order received from Company using the Order response message – ORDRSP.

Here again, the GLN of Company A can be qualified by the value BY – Buyer.

The GLN of Company B will be qualified with value SU – Supplier.

In the simple example the parties will be identified as follows.

In UNB:

Interchange sender identification = 6666666666666

Identification code qualifier = 14 (GS1)

Interchange recipient identification = 1111111111116

Identification code qualifier = 14 (GS1)

```
UNB+UNOA:3+6666666666666:14+1111111111116:14+170102:1000+123+++++EANCOMREF 52'
```

In NAD, SG3, occurrence 1:

Party function code qualifier = SU (Supplier)

Party identifier = 6666666666666

Code list responsible agency code = 9 (GS1)

```
NAD+SU+6666666666666::9'
```

In NAD, SG3, occurrence 2:

Party function code qualifier = BY (Buyer)

Party identifier = 1111111111116

Code list responsible agency code = 9 (GS1)

```
NAD+BY+1111111111116::9'
```

DESADV - main parties

When the goods are ready for despatch, Company B announces the shipment by sending a Despatch Advice – DESADV message to Company A.

Here, the GLN of Company A can be qualified by the value BY – Buyer.

The GLN of Company B will be qualified with value SU – Supplier.

In more complex scenarios, where the shipping and receiving parties are different from the Supplier and Buyer, their GLNs will be qualified respectively by value DEQ – Shipper and DP – Delivery Party.

In the simple example the parties will be identified as follows.

In UNB:

Interchange sender identification = 6666666666666

Identification code qualifier = 14 (GS1)

Interchange recipient identification = 1111111111116

Identification code qualifier = 14 (GS1)

```
UNB+UNOA:3+6666666666666:14+1111111111116:14+170102:1000+123+++++EANCOMREF 52'
```

In NAD, SG2, occurrence 1:

Party function code qualifier = SU (Supplier)

Party identifier = 6666666666666

Code list responsible agency code = 9 (GS1)

```
NAD+SU+6666666666666::9'
```

In NAD, SG2, occurrence 2:

Party function code qualifier = BY (Buyer)

Party identifier = 1111111111116

Code list responsible agency code = 9 (GS1)

```
NAD+BY+1111111111116::9'
```

RECADV - main parties

When Company A receives the goods, it can confirm the receipt by sending a Receiving Advice – RECADV message to Company B.

In the simple scenario, the GLN of Company A can be qualified by the value BY – Buyer.

The GLN of Company B will be qualified with value SU – Supplier.

In more complex scenarios, where the shipping and receiving parties are is different that the Supplier and Buyer, their GLNs will be qualified respectively by value DEQ – Shipper and DP – Delivery Party.

In the simple example the parties will be identified as follows.

In UNB:

Interchange sender identification = 1111111111116

Identification code qualifier = 14 (GS1)

Interchange recipient identification = 6666666666666

Identification code qualifier = 14 (GS1)

```
UNB+UNOA:3+1111111111116:14+6666666666666:14+170102:1000+123+++++EANCOMREF 52'
```

In NAD, SG4, occurrence 1:

Party function code qualifier = BY (Buyer)

Party identifier = 1111111111116

Code list responsible agency code = 9 (GS1)

```
NAD+BY+1111111111116::9'
```

In NAD, SG4, occurrence 2:

Party function code qualifier = SU (Supplier)

Party identifier = 6666666666666

Code list responsible agency code = 9 (GS1)

```
NAD+SU+6666666666666::9'
```

INVOIC - main parties

At the end of the transaction, Company B sends an Invoice - INVOIC message to Company A, requesting payments for the delivered goods.

In simple scenario, the GLN of Company A will be qualified by the value BY – Buyer.

The GLN of Company B will be qualified with value SU – Supplier.

In more complex scenarios, where the payment issuing and receiving parties are is different from the Supplier and Buyer, their GLNs will be qualified respectively by value IV – Invoicee and PE – Payee.

In the simple example the parties will be identified as follows.

In UNB:

Interchange sender identification = 6666666666666

Identification code qualifier = 14 (GS1)

Interchange recipient identification = 1111111111116

Identification code qualifier = 14 (GS1)

```
UNB+UNOA:3+6666666666666:14+1111111111116:14+170102:1000+123+++++EANCOMREF 52'
```

In NAD, SG2, occurrence 1:

Party function code qualifier = SU (Supplier)

Party identifier = 6666666666666

Code list responsible agency code = 9 (GS1)

```
NAD+SU+6666666666666::9'
```

In NAD, SG2, occurrence 2:

Party function code qualifier = BY (Buyer)

Party identifier = 1111111111116

Code list responsible agency code = 9 (GS1)

```
NAD+BY+1111111111116::9'
```

6 Exceptional situations where GS1 keys cannot be used in EDI messages

As explained in Section 2 of this document, GS1 identification keys are usually the best choice for identifying trade items, parties and other objects in the trade transactions. However, there are situations, where using the GS1 ID keys is either not practical or not possible. Some examples are listed below, along with the best option for identification in GS1 EDI standards.

6.1 Identification of ultimate customer in Business to Consumer scenario

In classic commercial transactions supported by GS1 EDI messages, parties are identified using the Global Location Number. However, the GLNs are assigned – and used by – commercial companies. They are not allocated to individual consumers. Thus, in the Business to Consumer scenario – where the individual purchases goods e.g. via a web shop – the final customer must be identified with their full name and address.

Please note that all the commercial companies involved in the transaction, such as: manufacturer, carrier, shipper, web shop operator, ultimate consignee (e.g. pick-up point where consumer can collect purchased goods) can still be identified with a GLN, the exception is just the consumer.

GS1 EDI messages allow for such exceptions, as illustrated in the examples below.

Identification of parties in GS1 XML Order message

Buyer is an individual customer and is identified by its name and address. All other parties are identified by a GLN.

```
…Order
<buyer>
   <address>
       <city>Brussels</city>
       <countryCode>BE</countryCode >
       <name>John Johnson</name>
       <postalCode>1050</postalCode >
       <streetAddressOne>Avenue Louise 999</streetAddressOne>
   </address>
</buyer>
<seller>
   <gln>6666666666666</gln>
</seller>
… Order Line Item Detail
<orderLogisticalInformation>
   <ultimateConsignee>
       <gln>3333333333338</gln>
   </ultimateConsignee>
</orderLogisticalInformation>
```

Identification of parties in GS1 EANCOM ORDERS message

Buyer is an individual customer and is identified by its name and address. All other parties are identified by a GLN.

First occurrence of the SG2 - NAD segment:

DE 3035 Party function code qualifier = **BY (Buyer)**

DE 3036 Party name = John Johnson

DE 3042 Street and number = Avenue Louise 999

DE 3164 City name = Brussels

DE 3251 Postal identification code = 1050

DE 3207 Country name code = BE

```
NAD+BY+++John Johnson+Avenue Louise 999+Brussels++1050+BE'
```

Second occurrence of the SG2 - NAD segment:

DE 3035 Party function code qualifier = **SU (Supplier)**

DE 3039 Party identifier = 6666666666666

DE 3055 Code list responsible agency code = GS1

```
NAD+SU+6666666666666::9'
```

Third occurrence of the SG2 - NAD segment:

DE 3035 Party function code qualifier = **UC (Ultimate Consignee)**

DE 3039 Party identifier = 3333333333338

DE 3055 Code list responsible agency code = GS1

```
NAD+SU+3333333333338::9'
```

6.2   GTIN codes not yet assigned after company merging or acquisitions

In business practice there are situations when a company who is a GS1 ID keys and EDI user, becomes the brand owner of the range of new trade items, e.g. as a result of merging with or acquisition of another company. The newly acquired items may not have been assigned GTINs by the previous owner. The best practice would be to assign the GTINs as soon as possible, however, it is recognised that this is a process that takes time in some cases and the business may not be suspended just for that reason. Thus, in the transition period, the alternative product identifiers can be used in the GS1 EDI messages.

Please note, however, that these alternative identifiers need to be communicated to all the business partners that will receive the affected messages. Since not all the alternative identification schemes ensure the same level of detail as GS1 GTINs, additional information about the product may be included in the GS1 EDI messages.

6.3   Non-GS1 Identification schemes are the only viable option

In some business areas there are commonly used identifiers other than GS1 keys. The business practice requires using the non-GS1 identifiers in EDI messages. An example can be the International Mobile Station Equipment Identity (IMEI) number, assigned to mobile phones. It is possible to use the IMEI for example in the Despatch Advice message, to specify which devices are being delivered.

Identification of mobile phones in GS1 EANCOM SLSRPT message

Retailers periodically send to their headquarter information about sales of services and mobiles phones using the SLSRPT (Sales Report) Message. The phone models are identified by GTINs, but the specific items are identified by IMEI and Mobile Telephone Number (equivalent to a serial number).

LIN segment – identification of trade item type

A specific model of mobile phone is identified by GTIN: 9506000124513, the GS1 Global Trade Item Number (GTIN) is specified using code value SRV

```
LIN+1++9506000124513:SRV'
```

First occurrence of PIA segment – additional identification of trade item

The first mobile phone of the type specified in the LIN segment is identified by IMEI number 013420001704233, the IMEI is specified using code value SUF

```
PIA+1+013420001704233:SUF'
```

6.4   Text information must be provided in addition to GS1 keys

In certain countries it is legally required that the sender and receiver name and address are provided in text form, e.g. on invoices. Even in this situation, it is strongly advised to provide the GLN and the company name and address as additional information.

7 Restricting the use of identification keys

It may be necessary to restrict the use of identification keys for specific business processes, sectors or geopolitical areas. In most cases this means changing a conditional or advised attribute to mandatory but this could also be restricting the number of repetitions and associations to other attributes. Changing a mandatory attribute to another status or changing the structure, as defined in the *GS1 General Specifications*, is not allowed.

This is done by using implementation guides containing subsets or profiles of the base GS1 standard. This should be applied only when critical for the correct functioning of the message as it adds complexity and likely will add cost for the users to modify the standard software modules that support the GS1 standards. It is hence recommended that these are developed and agreed on global or regional level whenever possible.