



GS1 XML Transport Instruction and Response Implementation Guide

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Table of Contents

Introduction	6
References	6
1. Terms and definitions	7
1.1. Transport management roles	7
1.2. Transport management terms	7
1.3. GS1 Keys	9
2. Transport Instruction	10
2.1. Pre-requisites	10
2.2. When would I use this?	10
2.3. How to specify the transport instruction header details	11
2.4. How to specify the Consignment header	12
2.5. How to specify the Shipment header	12
2.6. How to describe amendments to a Transport Instruction	13
3. Transport Instruction Response	14
3.1. Pre-requisites	14
3.2. When would I use this?	14
3.3. How to describe amendments in response to a Transport Instruction	14
3.4. How to describe a booking on waiting list	14
4. Consignments and Shipments	16
4.1. When would I use only Consignments?	16
4.2. When would I use only Shipments?	16
4.3. When would I use Shipments and Consignments combined?	17
4.4. How to refer to related documents such as purchase orders	17
5. Transport Terms	18
5.1. How to specify the transport service terms	18
5.2. How to specify the delivery terms	18
5.3. How to define a route code	18
6. Transport Cargo Characteristics	19
6.1. When would I use this?	19
6.2. How to specify the cargo type	19
6.3. How to specify the cargo size	20
6.4. How to handle multiple cargo types	20
7. Collecting and delivering the goods	22
7.1. When would I use this?	22
7.2. How to include slot booking information for a shipment	22
7.3. How to include slot booking information for a consignment	22

7.4.	How to provide transport means details.....	22
7.5.	How to provide driver information	23
8.	Transport equipment.....	24
8.1.	When would I use this?	24
8.2.	How to provide the transport equipment asset identifier.....	24
8.3.	How to provide the transport equipment details.....	24
8.4.	How to specify the collection and return of transport equipment.....	25
9.	Handling Instructions.....	26
9.1.	When would I use this?	26
9.2.	How to specify handling instruction codes and text	26
9.3.	How to specify temperature constraints	26
10.	Dangerous Goods	27
10.1.	How to describe Net Explosive Weight	27
10.2.	How to describe dangerous goods sub class	27
10.3.	How to describe dangerous goods limited quantity	28
10.4.	How to describe dangerous goods excepted quantity	28
10.5.	How to include dangerous goods information for multiple modes	29
11.	Advanced Consignment Scenarios.....	30
11.1.	How to specify Consolidation and Break Bulk operations	30
11.2.	How to specify Cross-docking operations.....	31
12.	Multi modal transport.....	34
12.1.	How to include the Release ID.....	34
12.2.	How to describe a boarded transport means	34
12.3.	How to indicate power supply requirements for transport equipment.....	36
12.4.	How to describe passenger information.....	36
13.	About this Guide.....	37

List of Examples

Example 1 – Transport Instruction Header.....	11
Example 2 – Consignment key data	12
Example 3 – Shipment key data	12
Example 4 – Shipment modification	13
Example 5 – Change by Refresh of Transport Instruction	13
Example 6 – Specifying amendments in a Transport Instruction Response	14
Example 7 – Booking on a waiting list.....	15
Example 8 – Order reference	17
Example 9 – Transport service terms	18
Example 10 – Delivery terms	18
Example 11 – Defining a route code for a ferry transport.....	18
Example 12 – Defining General Cargo Transports	19
Example 13 – Defining livestock transports.....	19
Example 14 – Multiple cargo types	21
Example 15 – Planned despatch and delivery (shipment).....	22
Example 16 – Planned pick-up and drop-off (consignment).....	22
Example 17 – Transport Means Details.....	23
Example 18 – Driver information.....	23
Example 19 – Transport Equipment GRAI	24
Example 20 – Transport Equipment GIAI.....	24
Example 21 – Transport Equipment Type Code	25
Example 22 – Transport Equipment Provider	25
Example 23 – Collect and Return a Container	25
Example 24 – Handle with care.....	26
Example 25 – Temperature Constraints	26
Example 26 – Specifying net explosive weight.....	27
Example 27 – Specifying the dangerous goods sub class.....	27
Example 28 – Specifying the dangerous goods limited quantity	28
Example 29 – Specifying the dangerous goods excepted quantity.....	29
Example 30 – Specifying dangerous goods for multiple modes	29
Example 31 – Consolidation and Break-bulk.....	31
Example 32 – Instruction to cross-dock to next hub	32
Example 33 – Instruction to reconstruct order for final destination.....	33
Example 34 – Release ID	34
Example 35 – Boarded transport means	35
Example 36 – Power supply requirements	36
Example 37 – Passenger information	36

Introduction

The intention of this implementation guide is to provide guidance on the way to apply the transport instruction and transport instruction response messages.

These messages support a wide range of scenarios and can be used in a variety of different context. Therefore, the content has been organized in a in a number of “How To”-sections, which are intended to be used independently rather than being read in sequence. Each section includes examples that illustrate the way the messages are to be applied.

The guide is a living document and will regularly be updated.

References

Document	Author / Year
BMS Transport Instruction & Response version 3.0	GS1 2011
BMS Shared Common Library 3.0	GS1 2011
BMS eCom Common Library 3.0	GS1 2012
Logistics Interoperability Model version 1.0	GS1 2007

1. Terms and definitions

1.1. Transport management roles

Logistic Service Client (LSC)

An umbrella term for entities that purchase logistics services from another entity. Can be a retailer, manufacturer, material supplier, freight forwarder, distribution centre.

Logistic Service Provider (LSP)

An umbrella term for entities that provide logistics services for another entity. Can be a carrier, freight forwarder or distribution centre.

Logistic Service Buyer (LSB)

An entity, which purchases a combination of many different logistics services from another entity.

Logistic Service Seller (LSS)

An entity, which provides a combination of many different logistics services for another entity.

Carrier

A company, which physically transports goods from one place to another.

Consignee

In a consignment view / scenario, the entity who will receive the physical shipment.

Consignor

In a consignment view / scenario, the entity who will ship the physical shipment.

Shipper

In a shipment scenario, a party who engages in shipping goods.

Receiver

In a shipment scenario, a party who engages in receiving goods.

1.2. Transport management terms

Consignment

A consignment is a logical grouping of goods (one or more physical entities) that is intended to be transported as a whole from a consignor to a consignee by a carrier or freight forwarder via one or more modes of transport, subject to one single transport contract.

- *A consignment can contain several consignment items, which can be contained in several pieces of transport equipment.*
- *During transport a consignment can make several transport movements. A consignment may refer to another (parent) consignment of which it is part during (part of) the transport.*
- *A consignment may refer to one or more shipments that are contained within.*

Transport Movement

The transport movement information specifies details of the movement of goods such as mode and means of transport, locations, departure, and arrival date(s) and time(s).

- *A transport movement may have one associated transport means.*
- *For transport status reporting purposes the transport movement may also specify the associated pieces of transport equipment.*

Consignment Item

A consignment item is a (collection of) Load Units that can be identified (uniquely) within the consignment and may be treated/handled in the same way during transportation (and associated administrative processes).

- *A consignment item may relate to several logistic units.*
- *Also multiple different consignment items may relate to the same logistic unit.*

Shipment

A shipment is an identifiable collection of one or more Trade Items available to be transported together from the shipper (Original Consignor/Shipper), to the receiver (Final/Ultimate Consignee). Typically the shipment is the entity communicated between trading partners in the Despatch and Receiving Advice.

- *A shipment may contain several shipment items.*
- *A shipment may have one defined transport movement. Transport movement is used here to bring in the carrier and mode of transport for the shipment.*
- *A shipment may refer to another (parent) shipment of which it is part during (part of) the transport.*

Shipment Item

A shipment item is a (collection of) Trade Items and/or Logistic Units that can each be identified (uniquely) within a shipment.

- *A shipment item must relate to one trade item,*
- *A shipment item may relate to several logistic units containing the trade item.*

Logistic Unit

A logistic unit is a unit of any composition made up for transport and or storage which has to be managed throughout the supply chain.

- *A logistic unit may refer to the transport equipment that contains it.*
- *A logistic unit may refer to another logistic unit (parent) that contains it.*

Trade Item

A trade item is 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.

- *A trade item may contain several individual items.*

Individual Item

An individual item is an individual trade product or batch of similar trade products produced by human or mechanical effort or by a natural process.

Transport Means

A transport means is a particular device (with its own engine/power) used to convey goods or other objects from place to place during logistics cargo movements.

- *A transport means may have several transport tracking log events.*

Transport Equipment

Transport equipment is a piece of equipment used to hold, protect or secure cargo for logistics purposes. Transport Equipment is to be moved using Transport Means.

1.3. GS1 Keys

GS1 manages a global system that allows companies all around the world to globally and uniquely identify objects such as trade items (products & services), assets, logistic units, shipments, physical locations and parties.

The following GS1 keys are applied in the Transport Instruction and Response.

Serial Shipping Container Code (SSCC)

The GS1 Identification Key used to identify logistics units. The key comprises an Extension digit, GS1 Company Prefix, Serial Reference, and Check Digit.

The Global Identification Number for Consignment (GINC)

The GS1 Identification Key used to identify a logical grouping of logistic or transport units that are assembled to be transported under one transport document (e.g. waybill). The key comprises a GS1 Company Prefix and the Freight Forwarder's or Carrier's transport reference.

The Global Shipment Identification Number (GSIN)

The GS1 Identification Key used to identify a logical grouping of logistic or transport units that are assembled by the consignor (seller) for a transport shipment from that consignor to one consignee (buyer) referencing a despatch advice and/or BOL. The key comprises a GS1 Company Prefix, Shipper Reference and Check Digit.

Global Location Number (GLN)

The GS1 Identification Key used to identify physical locations or parties. The key comprises a GS1 Company Prefix, Location Reference, and Check Digit.

Global Trade Item Number (GTIN)

The GS1 Identification Key used to identify trade items. The key comprises a GS1 Company Prefix, an Item Reference and Check Digit.

Global Individual Asset Identifier (GIAI)

The GS1 Identification Key used to identify an Individual Asset. The key comprises a GS1 Company Prefix and Individual Asset Reference.

Global Returnable Asset Identifier (GRAI)

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

2. Transport Instruction

The transport instruction is a comprehensive message used to convey relevant information regarding cargo that needs to be transported using one or more modes of transport.

The main objective of the Transport Instruction is to communicate the arrangements of the movement of the goods (including collection and delivery) and providing the information necessary to perform the handling of the goods between all parties involved.

The Transport Instruction can include a request for either executing a consignment or executing a shipment. The trading partners need the ability to differentiate between less detailed transport instructions (shipments) and more detailed instructions (consignments).

The Transport Instruction will be sent by the Logistic Services Buyer (supplier, retailer, 3rd party warehouse or freight forwarder) to a Logistic Services Seller (freight forwarder or carrier).

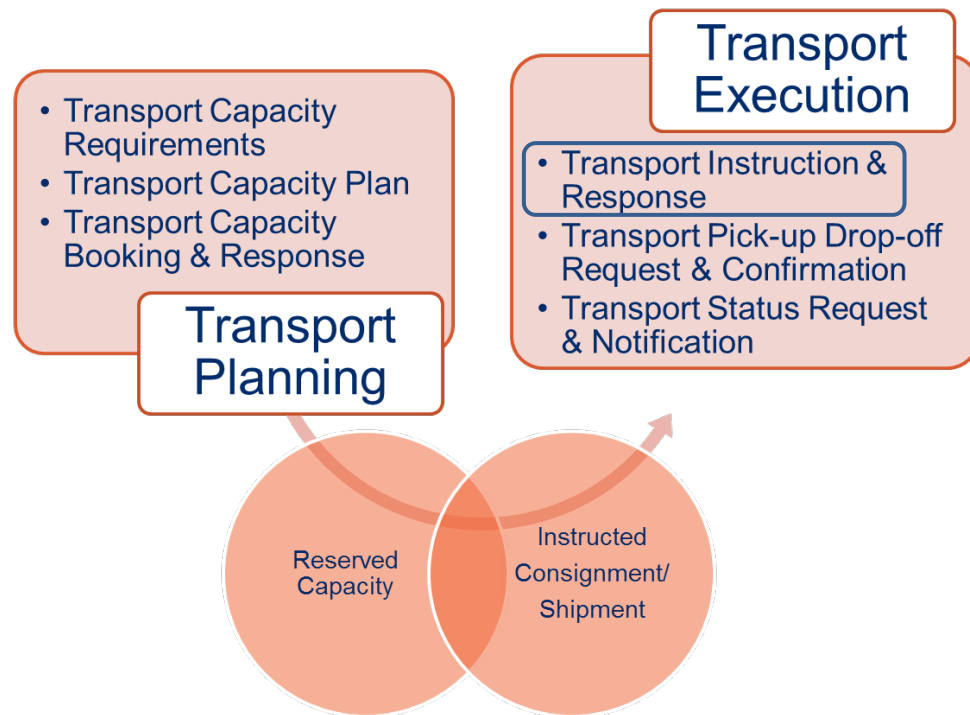
2.1. Pre-requisites

- Agreements on the transport service conditions should be in place. It is technically possible to use the transport instruction message without having prior agreements in place. However in that case the execution of the logistics collaboration will likely be far more complicated, much less efficient and require significantly more time to complete.
- For certain types of transport a capacity booking should have been made. In transportation areas where capacity is constrained all or part of the time (e.g. Ferry, Air-freight lanes) it may prove to be very difficult, very expensive or even impossible to execute the requirements included in a transport instruction unless an appropriate reservation for the required Transport Capacity has been made in advance.

2.2. When would I use this?

The transport instruction message represents the beginning of the transport **execution** process. The transport instruction represents the formal ordering of a transport service by a logistic services buyer. By sending the transport instruction message the logistic services buyer fully commits to the acquisition and payment of the specified services.

The figure below further illustrates how GS1 has defined the relation between the transport **planning** process and the transport **execution** process. In the planning phase transport capacity requirements are communicated. Subsequently in the execution phase Consignments / Shipments are created, consuming the reserved capacity.

Figure 1 – Transport Planning and Execution


2.3. How to specify the transport instruction header details

The logistic services buyer (LSB) and logistic services seller (LSS) are the primary parties involved in the transport service transaction. They are defined in the header of the transport instruction message and are the same for all consignments and shipments included in the transport instruction.

The creation date time and the transport instruction identification are the primary elements that help ensure a unique identification and correct processing of the transport instruction.

Example 1 – Transport Instruction Header

Transport Instruction **TRINS0001** was created on **January 12, 2011** by Logistic Services Buyer **7365566156190**, and sent to Logistic Services Seller **4048623000003**.

```

<transportInstruction>
  <creationDateTime>2011-01-12T12:00:00.000-05:00</creationDateTime>
  <documentStatusCode>ORIGINAL</documentStatusCode>
  <transportInstructionIdentification>
    <entityIdentification>TRINS00001</entityIdentification>
  </transportInstructionIdentification>
  <transportInstructionFunction>CONSIGNMENT</transportInstructionFunction>
  <logisticServicesSeller>
    <gln>4048623000003</gln>
  </logisticServicesSeller>
  <logisticServicesBuyer>
    <gln>7365566156190</gln>
  </logisticServicesBuyer>

```

2.4. How to specify the Consignment header

Each consignment contained in a transport instruction message (and any related messages) must be uniquely identified so there can be no confusion among the partners exchanging information regarding this consignment and the related data in the transport instruction.

Although it may be possible in some logistics collaboration scenarios to use mutually agreed identifiers, for the consignment identification it is strongly recommended to use independent identifiers (like the GS1 GINC). An independently managed identification system guarantees uniqueness of the key even when the community of partners with whom to exchange information expands.

Furthermore regulatory compliance (e.g. Customs related) may necessitate the use of a globally managed identification system.

Example 2 – Consignment key data

Consignment **7565566156191234567** has been created by the Consignor with GLN (Global Location Number) **7365566156190**. This consignment is intended for Consignee with GLN **7300011234566**

```
<transportInstructionConsignment>
  <ginc>7365566156191234567</ginc>
  <consignor>
    <gln>7365566156190</gln>
  </consignor>
  <consignee>
    <gln>7300011234566</gln>
  </consignee>
```

2.5. How to specify the Shipment header

Each shipment contained in a transport instruction message (and any related messages) must be uniquely identified so there can be no confusion amongst the partners exchanging information regarding this shipment and the related data in the transport instruction.

Although it may be possible in some logistics scenarios to use mutually agreed identifiers, for the shipment identification it is strongly recommended to use independent identifiers (like the GS1 GSIN). An independently managed identification system guarantees uniqueness of the key even when the community of partners with whom to exchange information expands.

Furthermore regulatory compliance (e.g. Customs related) may necessitate the use of a globally managed identification system.

Example 3 – Shipment key data

Shipment **75655661561912345** has been created by the Shipper with GLN (Global Location Number) **7365566156190**. This shipment is intended for Receiver with GLN **7300011234566**

```
<transportInstructionShipment>
  <gsin>75655661561912345</gsin>
  <receiver>
    <gln>7365566156190</gln>
  </receiver>
  <shipper>
    <gln>7300011234566</gln>
  </shipper>
```

2.6. How to describe amendments to a Transport Instruction

Normally the Transport Instruction will be sent only once for a given Shipment or Consignment.

In case the information regarding a Shipment or Consignment communicated in a prior message needs to be changed, the recommended procedure is to send a new Transport Instruction for the Shipments and / or Consignments (with `transportInstructionStatusCode = MODIFIED`) containing the amended information.

Example 4 – Shipment modification

Shipment 75655661561912345 has been modified.

```
<transportInstructionShipment>
  <gsin>75655661561912345</gsin>
  <transportInstructionStatusCode>MODIFIED</transportInstructionStatusCode>
```

Similarly, if a Shipment or Consignment needs to be cancelled an additional Transport Instruction may be sent for the cancelled Shipment / Consignment (with `transportInstructionStatusCode = CANCELLED`).

In this case, in the header of the Transport Instruction as `documentActionCode` the value `CHANGE_BY_REFRESH` should be specified.

Example 5 – Change by Refresh of Transport Instruction

The transport instruction TI1234 has been modified, and the contents need to be fully replaced with the new message.

```
<transportInstruction>
  <creationDateTime>2012-12-13T00:00:00</creationDateTime>
  <documentStatusCode>ORIGINAL</documentStatusCode>
  <documentActionCode>CHANGE_BY_REFRESH</documentActionCode>
  <transportInstructionIdentification>
    <entityIdentification>TI1234</entityIdentification>
  </transportInstructionIdentification>
```

3. Transport Instruction Response

The main objective of the Transport Instruction Response is to give confirmation or modification of the arrangements of the movement of the goods as communicated by the transport instruction.

A Transport Instruction Response may be sent from Logistic Services Seller to Logistic Services Buyer, but exchanging this message is optional. In many cases there exist standing agreements that the Logistic Services Seller will accept all Transport Instructions from the Logistic Services Buyer 'as sent'. In that case sending the Transport Instruction Response adds no value to the process and partners can agree NOT to exchange this message-type.

3.1. Pre-requisites

- A Transport Instruction must have been received by the Logistic Services Seller.

3.2. When would I use this?

A Transport Instruction Response may be sent by the Logistic Services Seller to the Logistic Services Buyer:

1. in order to confirm the instruction and provide further detail
2. in order to propose amendments.
3. in order to reject the instruction

Exchanging this message is optional. In many cases standing agreements exist that the Logistic Services Seller will accept all Transport Instructions from the Logistic Services Buyer 'as sent' within agreed constraints.

3.3. How to describe amendments in response to a Transport Instruction

Amendments must be described in the transport instruction status codes associated with the consignment section. The `transportInstructionStatusCode` specifies that the received transport instruction has been modified; the `transportInstructionStatusDescription` specifies in text that an amendment has been done; and the `transportInstructionStatusReasonDescription` describes in text the reason for the amendment.

Example 6 – Specifying amendments in a Transport Instruction Response

The original transport instruction for consignment **73444675** was amended because the planned departure changed.

```
▲ ● transportInstructionConsignment 7365566156191234567
  ● ginc 7365566156191234567
  ● transportInstructionStatusCode MODIFIED
  ● transportInstructionStatusDescription "EN" Amendment in Transport Instruction
  ● transportInstructionStatusReasonDescription "EN" Changed departure time from Gothenburg
```

3.4. How to describe a booking on waiting list

When there is a need to put a booking on a waiting list the suggested practice is to include the `FULLY_ACCEPTED_WITH_AMENDMENTS` in the `responseType` and to include the value 178

(Waiting, to enter or leave) in the `transportInstructionStatusReasonCodeType`. As additional clarification one can use the `transportInstructionStatusReasonDescription`.

Example 7 – Booking on a waiting list

The illustration suggests how one can specify that a Transport Instruction is put on a waiting list. Unless the code list associated with the `transportInstructionStatusReasonCodeType` is amended to hold a code value specifically suited for such a purpose the value 178 along with a textual description is recommended.

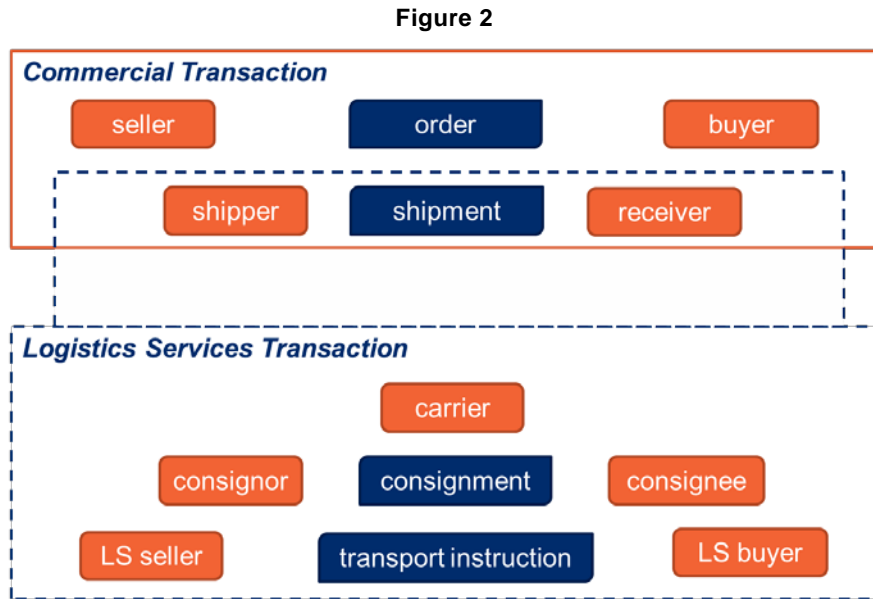
- ▲ ● `transportInstructionConsignment` 7365566156191234567
 - `ginc` 7365566156191234567
 - `transportInstructionStatusReasonCode` 178
 - `transportInstructionStatusReasonDescription` "EN" Booking on a waiting list

4. Consignments and Shipments

The transport Instruction has been specifically designed to cater for a wide variety of logistics collaboration scenarios. To enable this flexibility the structure of transport instruction messages exchanged between partners is always composed of:

- A. one or more consignments, or
- B. one or more shipments, or
- C. a combination of consignments and shipments.

The diagram below shows that the transport instruction can contain information on both the commercial and the logistics transaction depending on the logistics collaboration scenario.



4.1. When would I use only Consignments?

When the transport execution details (transport movements, equipment, means, etc.) are determined by the LSB the Consignment structure should be applied.

You would use Consignments in all cases where the detailed information regarding the contents of the Consignment are **not** relevant for the transportation execution. In this context detailed means the need to know information by individual Product Code (SKU). Aggregate information regarding the materials in the consignment (e.g. Cargo Type, Dangerous Goods etcetera) are catered for within the Consignment structure.

The LSB would in this approach be very much in control of the details of Transport Execution. The LSS would in this approach be very much restricted to executing the detailed instructions received from the LSB. The LSS acts as/like a Carrier in this case.

Many common 3PL logistics collaboration models will fall into this area.

4.2. When would I use only Shipments?

When the LSB does not want to (or cannot) specify the transport execution details then the LSB should use **only** the Shipment structures in the transport instruction. This enables the buyer to only

include information on the shippers, receivers (customers), trade items, logistic units etc. and leave the transport execution plan to the LSS.

In this scenario the LSS will have to take care of all the execution details that are related to the execution of the transportation of the Shipments on their way from Shipper to Receiver.

In effect the LSS will route the Shipments through his network any way he sees fit as long as the LSS meets the agreed requirements (e.g. collection and delivery due date) for each individual Shipment. This approach is very common in various 3PL services scenarios.

4.3. When would I use Shipments and Consignments combined?

In several common logistics scenarios (.e.g. consolidation, deconsolidation, break-bulk, cross-dock) it will be necessary to include **both** consignments **and** shipments structures within a single transport instruction. In those scenarios it is required to send information that is available only in the Consignment structure (e.g. movements) as well as information that is available only within the Shipment structure (e.g. Product Code level details).

These scenarios typically occur when the LSS act as freight forwarder to the LSB but they also occur within other logistics collaboration models.

4.4. How to refer to related documents such as purchase orders

For both consignments and shipments, on header as well as line level references to commercial and other types of related documents can be included.

Example 8 – Order reference

Reference to purchase order **9000565892**.

```
<transportReference>  
  <entityIdentification>9000565892</entityIdentification>  
  <transportReferenceTypeCode>ON</transportReferenceTypeCode>  
</transportReference>
```

5. Transport Terms

Transport terms are used to specify service conditions for the transport service and applicable additional services. They are specified at the header level of a consignment or shipment.

5.1. How to specify the transport service terms

The Transport service category is a code specifying a type of category for the transport service.

Example 9 – Transport service terms

'Road transport' is specified with code 30. AVC conditions are specified using service condition 1.

```
<transportInstructionTerms>
  <transportServiceCategoryType>30</transportServiceCategoryType>
  <transportServiceConditionType>1</transportServiceConditionType>
</transportInstructionTerms>
```

5.2. How to specify the delivery terms

A transport Instruction may include delivery terms and delivery terms location. Delivery terms must be defined by a code from an established external codelist.

Delivery terms depict the applicable legal, customs, financial and insurance terms that have been agreed for the delivery of the shipment.

Example 10 – Delivery terms

Delivery terms Free on Board, port of shipment Vancouver.

```
<deliveryTerms>
  <incotermsCode>FOB</incotermsCode>
  <deliveryTermsLocation>
    <unLocationCode>CAVAN</unLocationCode>
  </deliveryTermsLocation>
</deliveryTerms>
```

5.3. How to define a route code

Example 11 – Defining a route code for a ferry transport

The route code for a ferry transport can be defined in the transportInstructionTransportMovement element by including the route code in the routeID element. Attributes associated with the routeID element can be used to specify the identification scheme or agency (e.g. Stena Line) defining the route code.

- ▲ ● transportInstructionTransportMovement
 - sequenceNumber 1
 - transportModeTypeCode 1
 - routeID "Ferry Operator Routes" GOFR
 - ▶ ● carrier
 - ▶ ● transportStatusResponsibleParty
 - ▶ ● transportMeans
 - ▶ ● plannedDeparture
 - ▶ ● plannedArrival

6. Transport Cargo Characteristics

Cargo characteristics can be specified for consignments as well as for shipments, and at header level as well as at item level.

Transport cargo characteristics contain information on the type and volume of the goods being transported and many other data-elements relevant for transportation execution.

6.1. When would I use this?

Cargo characteristics are essential in planning the transport (e.g. Temperature controlled cargo will be handled differently from cargo transported without any temperature control requirements). Often the cargo characteristics are also used as a basis to determine the transport fee (e.g. Dangerous Goods are rated differently from general cargo).

The above are just a few scenarios where it is essential to exchange accurate Cargo Characteristics information between LSB and LSS.

6.2. How to specify the cargo type

The type of cargo is defined using classification codes and text.

In most cases the LSB will have to include information regarding the nature of the materials included in a Consignment or Shipment. The TransportCargoCharacteristics segment should be used for such information.

Example 12 – Defining General Cargo Transports

Below segment is an example was taken from a TI and was included at the Consignment level. Therefore that Consignment consisted of materials that were classified as **General Cargo** with Type Code **21** (according to UN/CEFACT Recommendation on codes number 21)

```
<transportCargoCharacteristics>
  <cargoTypeCode>21</cargoTypeCode>
  <cargoTypeDescription languageCode="en">General cargo</cargoTypeDescription>
  <totalGrossVolume measurementUnitCode="CBM">3.5</totalGrossVolume>
  <totalGrossWeight measurementUnitCode="KGM">1500</totalGrossWeight>
  <totalPackageQuantity>5</totalPackageQuantity>
</transportCargoCharacteristics>
```

Example 13 – Defining livestock transports

Livestock may be defined by using the harmonizedSystemCode element and code list. This element uses values from the harmonized system commodity directory from WCO and listing 01-Live Animals may be used. This is a hierarchical code structure so the definition of livestock may be further specified (e.g. listing 0101 defines "horses, asses, mules and hinnies, live").

When livestock transport is determined by adding these values in the harmonizedSystemCode element, the cargoTypeCode element should also contain a relevant value. It is recommended to use code value 5 from the UN/CEFACT Recommendation on codes number 21 which is defined as "Other non-containerized".

- ▲ ● transportCargoCharacteristics
 - cargoTypeCode 5
 - harmonizedSystemCode "HSCODE" 01

6.3. How to specify the cargo size

In most logistics collaboration models it is necessary that the LSB includes at least one (estimated) value for weight, volume and/or number of packages/Logistic Units (LU) that are contained in the Consignment or Shipment. Clearly the values included in a specific TransportCargoCharacteristics segment in the Transport Instruction should correspond with the level at which the segment has been included e.g. if included at Shipment-level then include totals for the entire Shipment. Or if included at the ConsignmentItem level provide the totals relevant for the LU that make up that ConsignmentItem.

Example 12 – Cargo size

Below segment is an example was taken from a TI and was included at the Consignment level. Therefore that Consignment consisted of materials that were packaged into a total of **5** Logistic Units, amounted to a total Gross Weight of **1500 kilogram** making up a total volume of **3.5 cubic metres**. Measurement unit codes should comply with **UN/ECE Recommendation 20 – revision 6**.

```
<transportCargoCharacteristics>
  <cargoTypeCode>21</cargoTypeCode>
  <cargoTypeDescription languageCode="en">General cargo</cargoTypeDescription>
  <totalGrossVolume measurementUnitCode="CBM">3.5</totalGrossVolume>
  <totalGrossWeight measurementUnitCode="KGM">1500</totalGrossWeight>
  <totalPackageQuantity>5</totalPackageQuantity>
</transportCargoCharacteristics>
```

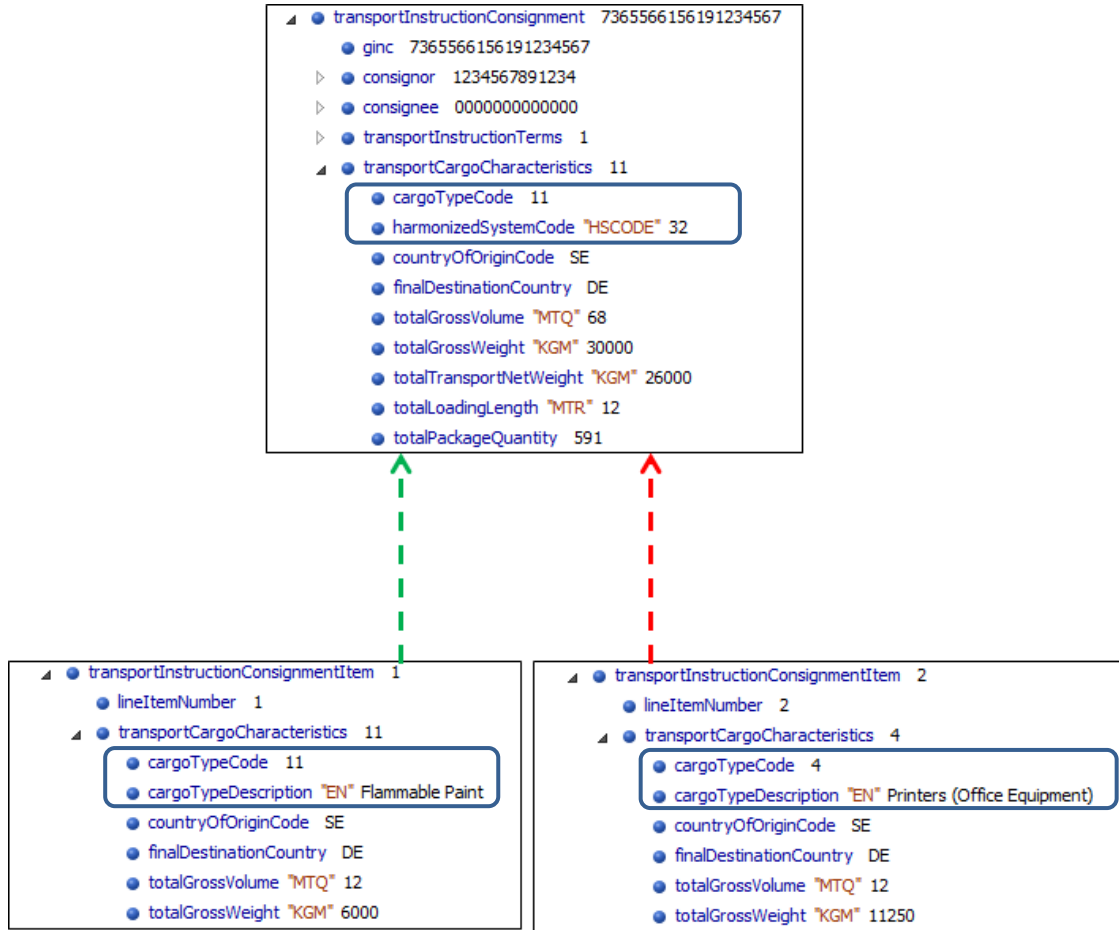
6.4. How to handle multiple cargo types

Since the cargoTypeCode element in transportInstructionConsignment is bounded (1) there is no way to specify a collection of the cargoTypeCodes specified in different transportConsignmentItems or to exclude this element. The suggested practice is therefore to use the most restrictive cargoTypeCode from the transportInstructionConsignmentItems in the cargoTypeCode associated with the transportInstructionConsignment. E.g. if one of the transportInstructionConsignmentItems's type code is dangerous goods and the second is general cargo the cargoTypeCode listed in the transportInstructionConsignment will be dangerous goods.

Example 14 – Multiple cargo types

ConsignmentItem 1 (at bottom left in diagram below) consist of **Flammable Paint** whereas ConsignmentItem 2 (btoom right) consists of **Printers (Office Equipment)**. Therefore ConsignmentItem 1 is subject to Dangerous Goods regulations whereas ConsignmentItem 2 is not subject to any restrictive regulations.

As a result the Cargo Type specified at the Consignment level should be the most restrictive one being **11 Flammable Paint**.



7. Collecting and delivering the goods

7.1. When would I use this?

In order for the driver to be able pick-up and drop-off the goods detailed scheduling information may be required, and also information of driver, vehicle ID and vehicle size.

7.2. How to include slot booking information for a shipment

For a shipment the planned despatch and delivery dates can be specified in various formats.

Example 15 – Planned despatch and delivery (shipment)

Planned despatch is on July 12th at 12:15 PM, goods need to be delivered between 4 and 5 PM the same day.

```
<plannedDelivery>
  <logisticEventPeriod>
    <beginDate>2012-07-12</beginDate>
    <beginTime>16:00:00</beginTime>
    <endDate>2012-07-12</endDate>
    <endTime>17:00:00</endTime>
  </logisticEventPeriod>
</plannedDelivery>
<plannedDespatch>
  <logisticEventDateTime>
    <date>2012-07-12</date>
    <time>12:15:00</time>
  </logisticEventDateTime>
</plannedDespatch>
```

7.3. How to include slot booking information for a consignment

For a consignment the planned pick-up and drop-off dates can be specified, and also the arrival and departure times of the transport means may be specified.

Example 16 – Planned pick-up and drop-off (consignment)

Planned pick-up is on 12 July between 4 and 5 PM. Goods need to be delivered on July 15th.

```
<plannedPickUp>
  <logisticEventPeriod>
    <beginDate>2012-07-12</beginDate>
    <beginTime>16:00:00</beginTime>
    <endDate>2012-07-12</endDate>
    <endTime>17:00:00</endTime>
  </logisticEventPeriod>
</plannedPickUp>
<plannedDropOff>
  <logisticEventDateTime>
    <date>2012-07-15</date>
  </logisticEventDateTime>
</plannedDropOff>
```

7.4. How to provide transport means details

Transport means can be specified as part of the Transport Movement Details of the Consignment.


Example 17 – Transport Means Details

A truck with license plate number KF-12-GH will handle the movement.

```
<transportMeans>
  <transportMeansType>31</transportMeansType>
  <transportMeansID>KF-12-GH</transportMeansID>
</transportMeans>
```

7.5. How to provide driver information

Driver information is specified as part of the Transport Movement Details of the Consignment.

-  **Note:** Note that this is the driver of the “main” transport means and that a driver of a truck being transported on board a ferry is described in section 13.3 (How to describe passenger information).

Example 18 – Driver information

Driver for the movement will be LENMAN, with national identity card number SE12134.

```
<associatedPerson>
  <personName>LENMAN</personName>
  <identityDocument>
    <identityDocumentNumber>SE12134</identityDocumentNumber>
    <identityDocumentType>NATIONAL_IDENTITY_CARD</identityDocumentType>
  </identityDocument>
</associatedPerson>
```

8. Transport equipment

8.1. When would I use this?

It may be necessary to include instructions on the type of transport equipment that must be / will be used.

This information can only be included in Consignment based Transport Instructions. There are two ways the information may be included:

1. By the LSB in the Transport Instruction
2. By the LSS in the Transport Instruction Response.

8.2. How to provide the transport equipment asset identifier

There are two main GS1 keys that can be applied for identification of transport equipment.

1. GRAI: Global Returnable Asset Identifier.
2. GIAI: Global Individual Asset Identifier

The GRAI supports both type as well as instance identification, which makes it more suitable for administrative purposes. The GIAI only supports instance identification, but can hold a variety of different formats including external pre-existing codes.

Example 19 – Transport Equipment GRAI

Two examples of the use of the GRAI: First example is a non-serialized GRAI that only identifies the type of equipment. The second example adds a serial number, making it possible to refer to the individual assets.

```

<returnableAssetTypeIdentification>
  <grai>871234567890123</grai>
</returnableAssetTypeIdentification>
<individualReturnableAssetIdentification>
  <grai>871234567890123123</grai>
</individualReturnableAssetIdentification>
  
```

Example 20 – Transport Equipment GIAI

Example of the use of the GIAI to identify an individual piece of transport equipment.

```

<individualAssetIdentification>
  <giai>123456789ABXYZ123</giai>
</individualAssetIdentification>
  
```

8.3. How to provide the transport equipment details

To specify the details concerning the size, there is the option to specify the length, height and width.

Other option is to use a standard code. GS1 XML allows multiple codelists to be applied, depending on the type of equipment. Known codelists are: EANCOM 8155 (has some codes suitable for road transport), ISO 6346 size and type code (intermodal containers). When specifying the code also the name of the applied code list should be specified in the message.

Example 21 – Transport Equipment Type Code

The included transport equipment is a tank container, specified with code 20TD according to ISO 6346.

```
<includedTransportEquipment>  
  <transportEquipmentTypeCode codeListName="ISO6346">20TD</transportEquipmentTypeCode>  
</includedTransportEquipment>
```

8.4. How to specify the collection and return of transport equipment

Within the transport equipment element it is possible to specify the party role of the provider of the transport equipment in an attribute of the Transport equipment.

Example 22 – Transport Equipment Provider

Transport equipment is provided by the Shipper.

```
<transportEquipmentProviderPartyRole>SHIPPER</transportEquipmentProviderPartyRole>
```

Furthermore it is possible to specify where the transport equipment will have to be collected and returned.

Example 23 – Collect and Return a Container

Transport equipment needs to be returned in Amsterdam at terminal X.

```
<returnLocation>  
  <address>  
    <city>Amsterdam</city>  
    <countryCode>NL</countryCode>  
    <name>International Container Terminal X</name>  
  </address>  
</returnLocation>
```

- ✔ **Note:** It can be required to plan the related transport movements explicitly. For example in case of container transport the collection of the (full container) and subsequent delivery will be specified using transport movements.

9. Handling Instructions

Handling instructions can be specified for consignments as well as for shipments, and at header level as well as detail level. It is possible to include multiple Handling Instruction segments at each level in the transport instruction message structure.

9.1. When would I use this?

Handling instructions help to specify special precautions to protect the goods during transport.

9.2. How to specify handling instruction codes and text

Handling instructions may be sent as a code or a descriptive text or combination of both.

In case codes are used they should follow the table for EANCOM data-element 4079 (version 01B).

It is possible to include for each Handling Instruction how/where it should be used during execution of the transportation by including an appropriate value in the PrintingInstructionCode.

Example 24 – Handle with care

Item needs to be handled with care, is glass. The text (Glass!) is also to be printed on the packing list.

```
<handlingInstruction>
  <handlingInstructionCode>HWC</handlingInstructionCode>
  <handlingInstructionText languageCode="en">Glass!</handlingInstructionText>
  <printingInstructionCode>PRINT_ON_PACKING_LIST</printingInstructionCode>
</handlingInstruction>
```

9.3. How to specify temperature constraints

It is possible to specify temperature constraints both for storage and transport.

Example 25 – Temperature Constraints

Temperature of the goods during transport must be kept between 8 and 15 degrees.

```
<transportTemperature>
  <maximumTemperature temperatureMeasurementUnitCode="CEL">15</maximumTemperature>
  <minimumTemperature temperatureMeasurementUnitCode="CEL">8</minimumTemperature>
</transportTemperature>
```

10. Dangerous Goods

Dangerous goods details can be specified for consignments as well as for shipments, and at header level as well as detail level.

10.1. How to describe Net Explosive Weight

In case of explosives the net explosive weight defines the explosive mass being transported without packaging. For this to be described in the dangerous goods section of a consignment (or consignment item) the NET_EXPLOSIVE_WEIGHT should be added to the DangerousGoodsAttribute code list. This way one can specify that the net explosive weight is the target entity and the actual mass can be specified by using the dangerousGoodsAttributeMeasurement as illustrated in the figure below.

Example 26 – Specifying net explosive weight

In the illustration below the dangerousGoodsAttribute specifies that 100 kilograms of weapons cartridges are being transported.

- ▲ ● dangerousGoodsInformation 0348
 - dangerousGoodsUNIdentifier 0348
 - dangerousGoodsShippingName "EN" CARTRIDGES FOR WEAPONS
 - dangerousGoodsDescription "EN" 1.4 — Explosives with a major fire
 - ▲ ● dangerousGoodsRegulationInformation IMD
 - dangerousGoodsRegulationCode IMD
 - dangerousGoodsHazardClass 1.4
 - ▲ ● dangerousGoodsAttribute NET_EXPLOSIVE_WEIGHT
 - dangerousGoodsAttributeTypeCode NET_EXPLOSIVE_WEIGHT
 - dangerousGoodsAttributeMeasurement "KGM" 100

10.2. How to describe dangerous goods sub class

In order to specify a hazard sub class one can simply just add the sub class in the dangerousGoodsHazardClass and the main class can be derived from this since a sub class is always the second order digit of its main class. In addition it's possible to add further details in the dangerousGoodsDescription element as illustrated in the figure below.

Example 27 –Specifying the dangerous goods sub class

The dangerousGoodsHazardClass element specifies that cartridges for weapons belong to the dangerous goods hazard class 1.4.

- ▲ ● dangerousGoodsInformation 0348
 - dangerousGoodsUNIdentifier 0348
 - dangerousGoodsShippingName "EN" CARTRIDGES FOR WEAPONS
 - dangerousGoodsDescription "EN" 1.4 — Explosives with a major fire
 - ▲ ● dangerousGoodsRegulationInformation IMD
 - dangerousGoodsRegulationCode IMD
 - dangerousGoodsHazardClass 1.4
 - ▲ ● dangerousGoodsAttribute NET_EXPLOSIVE_WEIGHT
 - dangerousGoodsAttributeTypeCode NET_EXPLOSIVE_WEIGHT
 - dangerousGoodsAttributeMeasurement "KGM" 100

10.3. How to describe dangerous goods limited quantity

In order to describe the limited quantity level of dangerous goods the LIMITED_QUANTITY_LIMIT must be selected from the dangerousGoodsAttributeCode¹ code list. After having selected this from this code list the dangerousGoodsAttributeMeasurement can be used for specifying the quantity.

Example 28 – Specifying the dangerous goods limited quantity

When specifying the dangerous limited quantity the dangerousGoodsAttribute element can be used. The dangerousGoodsAttributeTypeCode specifies the type of attribute in question, in this case the limited quantity of a dangerous goods substance. The limited quantity/weight is specified using the dangerousGoodsAttributeMeasurement element.

- ▲ ● dangerousGoodsInformation 1294
 - dangerousGoodsUNIdentifier 1294
 - dangerousGoodsShippingName "EN" Flammable Liquids
 - dangerousGoodsTechnicalName "EN" Flammable Liquids
 - dangerousGoodsDescription "EN" Flammable Paint
- ▷ ● contact Per Olofson
- ▲ ● dangerousGoodsRegulationInformation IMD
 - dangerousGoodsRegulationCode IMD
 - dangerousGoodsRegulationName IMO IMDG code
 - dangerousGoodsHazardClass 3
 - dangerousGoodsPackingGroup 2
- ▷ ● dangerousGoodsAttribute FLASHPOINT
- ▷ ● dangerousGoodsAttribute EMERGENCY
- ▷ ● dangerousGoodsAttribute MAXIMUM_EXEMPTION_LIMIT
- ▲ ● dangerousGoodsAttribute LIMITED_QUANTITY_LIMIT
 - dangerousGoodsAttributeTypeCode LIMITED_QUANTITY_LIMIT
 - dangerousGoodsAttributeMeasurement "KGM" 3000

10.4. How to describe dangerous goods excepted quantity

There is a MAXIMUM_EXEMPTION_LIMIT value in the dangerousGoodsAttributeCode code list. After having selected this from this code list the dangerousGoodsAttributeMeasurement can be used for specifying the quantity.

¹ Change request needed since this code is not yet available in the standard.

Example 29 – Specifying the dangerous goods excepted quantity

The illustration below shows how the dangerousGoodsAttribute element is used for specifying the maximum exemption limit of the dangerous goods substance.

- ▲ ● dangerousGoodsInformation 1294
 - dangerousGoodsUNIdentifier 1294
 - dangerousGoodsShippingName "EN" Flammable Liquids
 - dangerousGoodsTechnicalName "EN" Flammable Liquids
 - dangerousGoodsDescription "EN" Flammable Paint
 - ▷ ● contact Per Olofson
 - ▲ ● dangerousGoodsRegulationInformation IMD
 - dangerousGoodsRegulationCode IMD
 - dangerousGoodsRegulationName IMO IMDG code
 - dangerousGoodsHazardClass 3
 - dangerousGoodsPackingGroup 2
 - ▷ ● dangerousGoodsAttribute FLASHPOINT
 - ▷ ● dangerousGoodsAttribute EMERGENCY
 - ▲ ● dangerousGoodsAttribute MAXIMUM_EXEMPTION_LIMIT
 - dangerousGoodsAttributeTypeCode MAXIMUM_EXEMPTION_LIMIT
 - dangerousGoodsAttributeMeasurement "KGM" 5000
 - ▷ ● dangerousGoodsAttribute LIMITED_QUANTITY_LIMIT

10.5. How to include dangerous goods information for multiple modes

In the dangerousGoodsRegulationInformation element you can specify information related to specific dangerous goods classification regimes. For example if there is a need to include dangerous goods information related to both maritime transport and road transport one can include two dangerousGoodsRegulationInformation elements, one that specifies details according to the IMDG (International Maritime Dangerous Goods) Code and one that specifies details according to the ADR (European Agreement concerning the International Carriage of Dangerous Goods by Road) Code.

Example 30 – Specifying dangerous goods for multiple modes

In order to specify dangerous goods information for two or more transport modes one can include one dangerousGoodsRegulationInformation element for each mode.

- ▲ ● dangerousGoodsInformation 0348
 - dangerousGoodsUNIdentifier 0348
 - dangerousGoodsShippingName "EN" CARTRIDGES FOR WEAPONS
 - dangerousGoodsDescription "EN" 1.4 — Explosives with a major fire hazard
 - ▲ ● dangerousGoodsRegulationInformation IMD
 - dangerousGoodsRegulationCode IMD
 - dangerousGoodsHazardClass 1.4
 - ▲ ● dangerousGoodsRegulationInformation ADR
 - dangerousGoodsRegulationCode ADR
 - dangerousGoodsHazardClass 1.4F

11. Advanced Consignment Scenarios

When there is a need to combine consignments or shipments during (part of) their journey advanced constructs are needed.

11.1. How to specify Consolidation and Break Bulk operations

All goods items and load units that are to be consolidated are considered as parts of shipments. Consolidation takes place when these shipments, possibly from several senders, are grouped into one consignment. The purpose of consolidation is to support efficient handling and transport of several shipments that require the same transport service. The subsequent transport operations will utilise the aggregate set of information about the consignment and not the information relating to each shipment.

An example of a consolidation is when a set of pallets are loaded into a single container and the subsequent transport operations address only the information relating to the container and not each single pallet within it.

A break bulk operation takes place when the shipments are decoupled from their "parent" consignment and managed as individual units. An example of a break bulk operation is when the pallets are unloaded from a single container.

During a transport a shipment and consignment can be involved in a number of consolidation and break-bulk operations.

A consolidation of shipments is in a Transport Instruction described by means of one consignment element and one or more shipment element for each shipment being consolidated. The consignment element refers to all consolidated shipments in the 'containedShipmentReference' element as illustrated in the example below.

Example 31 – Consolidation and Break-bulk

As the example below illustrates, the individual shipments are described in the Transport Instruction and the consignment element includes a reference to all of them. Another thing to note is that since this is a Transport Instruction concerning consolidation, this must be expressed in the transportServiceCategoryType element.



Note: Code list must be amended to include consolidation (and break-bulk).

11.2. How to specify Cross-docking operations

The Transport Instruction may be used to steer cross-dock operations across a network of cross-dock hubs. Two types of instructions are required in such cases:

1. Instruction to a cross-dock hub to ship incoming goods to a next hub.
2. Instruction to a cross-dock hub to reconstruct the orders per final destination.

Note: Important to note is that these instructions are not used to instruct on the transport between hubs, but purely to instruct on the grouping and shipping.

Example 32 – Instruction to cross-dock to next hub

Consignee 7322111700012 is GLN of the **final** hub.

Transport service condition 14 Through Transport indicates the consignment needs to be cross-docked.

```

<transportInstructionConsignment>
  <ginc>7365566156191234567</ginc>
  <consignor>
    <gln>7365566000101</gln>
  </consignor>
  <consignee>
    <gln>7322111700012</gln>
  </consignee>
  <transportInstructionTerms>
    <transportServiceCategoryType>30</transportServiceCategoryType>
    <transportServiceConditionType>14</transportServiceConditionType>
  </transportInstructionTerms>

```

Planned arrival location 7355667000120 is the GLN of the **next** hub

```

<transportInstructionTransportMovement>
  <sequenceNumber>1</sequenceNumber>
  <plannedArrival>
    <logisticLocation>
      <gln>7355667000120</gln>
    </logisticLocation>
  </plannedArrival>

```

Shipment information holds the information on the orders per final destination. This information is included to enable to forward this information to the next hub, and have it available at the final hub. In the consignment the references to the contained shipments are included.

```

<containedShipmentReference>
  <gsin>73655662107654320</gsin>
</containedShipmentReference>
<containedShipmentReference>
  <gsin>73655662107654321</gsin>
</containedShipmentReference>

```

The shipment details for each of the shipments are included in the same Transport Instruction, using the transportInstructionShipment element.

Example 33 – Instruction to reconstruct order for final destination

To trigger the order reconstruction at the final hub the following information the following solution can be applied.

Consignee 7322111700012 identifies still the GLN of the final hub.

Transport service condition 99² specifies shipments need to be reconstructed by order to be delivered to the final destination.

```
<transportInstructionConsignment>
  <ginc>7365566156191234555</ginc>
  <consignor>
    <gln>7365566000101</gln>
  </consignor>
  <consignee>
    <gln>7355667654321</gln>
  </consignee>
  <transportInstructionTerms>
    <transportServiceCategoryType>30</transportServiceCategoryType>
    <transportServiceConditionType>99</transportServiceConditionType>
  </transportInstructionTerms>
</transportInstructionConsignment>
```

Shipment information holds the information on the orders per final destination. In the consignment the references to the contained shipments are included.

```
<containedShipmentReference>
  <gsin>73655662107654320</gsin>
</containedShipmentReference>
<containedShipmentReference>
  <gsin>73655662107654321</gsin>
</containedShipmentReference>
```

The shipment details for each of the shipments are included in the same Transport Instruction, using the transportInstructionShipment element.

² Need a new code to support this scenario.

12. Multi modal transport

! **Important:** This chapter contains topics related to the Road – Ferry – Road scenario that came out of the eFreight implementation project. Some of these topics may also apply to other scenarios. In future versions we plan to include more multi-mode scenarios.

12.1. How to include the Release ID

The Release ID will be added as a transportReference in the consignment section as illustrated in the figure below.

✓ **Note:** If there is a need to securely communicate the release ID, it is assumed that the entire message will be encrypted.

Example 34 – Release ID

Release ID for the consignment is GotKielReleaseID12345.

```

    ▲ ● transportInstructionConsignment 7365566156191234567
        ● ginc 7365566156191234567
        ▶ ● consignor 1234567891234
        ▶ ● consignee 0000000000000
        ▶ ● transportInstructionTerms 1
        ▶ ● transportCargoCharacteristics 11
        ▶ ● plannedPickUp
        ▶ ● plannedDropOff
        ▶ ● transportInstructionTransportMovement 1
        ▶ ● deliveryTerms FOB
        ▶ ● containedShipmentReference 73655661561900101
        ▶ ● containedShipmentReference 73655661561900102
        ▶ ● containedShipmentReference 73655661561900103
        ▲ ● transportReference GotKielReleaseID12345
            ● entityIdentification GotKielReleaseID12345
            ● transportReferenceTypeCode Release ID
    
```

12.2. How to describe a boarded transport means

It is possible to define a transport means as part of the cargo, for example a truck when loaded onto a ship.

Example 35 – Boarded transport means

When the transport means is boarded onboard a ferry this will be regarded as a part of the consignment by the ferry operator. Hence details related to the transport means and transport equipment associated with such a transport (e.g. tractor and trailer) is to be added to the consignment element.

Two sub-elements of consignment are suited for defining characteristics associated with the transport means. These are the transportCargoCharacteristics where gross weight and net weight is added and includedTransportEquipment where one can specify dimensions and vehicle identification.

- ▲ ● transportInstructionConsignment 7365566156191234567
 - ginc 7365566156191234567
 - ▷ ● consignor 1234567891234
 - ▷ ● consignee 0000000000000
 - ▷ ● transportInstructionTerms 1
 - ▲ ● transportCargoCharacteristics 11
 - cargoTypeCode 11
 - harmonizedSystemCode "HSCODE" 01
 - countryOfOriginCode SE
 - finalDestinationCountry DE
 - totalGrossVolume "MTQ" 68
 - totalGrossWeight "KGM" 30000
 - totalTransportNetWeight "KGM" 26000
 - totalLoadingLength "MTR" 12
 - totalPackageQuantity 591
 - ▲ ● includedTransportEquipment BBP is Truck and trailer combination
 - transportEquipmentTypeCode BPP
 - ▲ ● individualReturnableAssetIdentification 0000000000000000
 - grai 0000000000000000
 - additionalReturnableAssetIdentification "TRACTOR_ID" WFN766
 - ▲ ● individualReturnableAssetIdentification 0000000000000000
 - grai 0000000000000000
 - additionalReturnableAssetIdentification "TRAILER_ID" WFN233
 - transportEquipmentWeight "KGM" 4000
 - ▷ ● transportSeal 123456
 - ▲ ● dimension Depth equals length?
 - depth "MTR" 17.5
 - height "MTR" 2.7
 - width "MTR" 2.5

12.3. How to indicate power supply requirements for transport equipment

Example 36 – Power supply requirements

In order to specify that a trailer or other types of transport equipment requires power supply when boarded on-board the ferry this may be specified by using the `handlingInstructionText` and/or the `handlingInstructionCode`³ elements.

- ▲ ● `handlingInstruction` PS = Power Supply
 - `handlingInstructionCode` PS
 - `handlingInstructionText` "EN" Two power outlets required
- ▲ ● `storageTemperature` 15
 - `maximumTemperature` "CEL" 15
- ▲ ● `transportTemperature` 15
 - `maximumTemperature` "CEL" 15

12.4. How to describe passenger information

In order to describe details associated with the driver and additional passengers of a transport means in an accompanied scenario the `passengerInformation` element in `transportInstructionConsignment` should be used. This should not be confused with the associated `Person` element in `transportInstructionTransportMovement` which is targeted for describing persons associated with the ferry (e.g. captain or crew).

In `passengerInformation` each `passengerCategory` requires a separate `passengerInformation` element. The example below shows two passengers; one driver and one accompanying family member.

Example 37 – Passenger information

The illustration below shows how the `passengerInformation` element can be used to describe both a driver of an accompanying transport means and a passenger (in this case a family member).

- ▲ ● `passengerInformation` 1
 - `numberOfPassengers` 1
 - `passengerCategoryCode` DRIVER
 - `passengerTariffGroup` "EN" 1
 - ▲ ● `person` Janne Carlson
 - `personName` Janne Carlson
 - `dateOfBirth` 1965-05-04
 - `gender` MALE
 - `nationality` SE
 - ▲ ● `identityDocument` 123456789
 - `identityDocumentNumber` 123456789
 - `identityDocumentType` PASSPORT
 - ▲ ● `passengerInformation` 1
 - `numberOfPassengers` 1
 - `passengerCategoryCode` FAMILY_MEMBER
 - `passengerTariffGroup` "EN" 2
 - ▲ ● `person` Jenny Carlson
 - `personName` Jenny Carlson
 - `dateOfBirth` 1970-02-04
 - `gender` FEMALE
 - `nationality` SE
 - ▲ ● `identityDocument` 987654321
 - `identityDocumentNumber` 987654321
 - `identityDocumentType` PASSPORT

³ The latter requires such a value to be present in the `HandlingInstructionCode` code list.

13. About this Guide

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Maintenance

Maintenance of this guide is handled via the GS1 Global Standards Management Process (GSMP). In case you would like to suggest any changes or modifications to the guide please access the GSMP work request system <http://wr.gs1.org/>