27 January 2020

Information Model

1.0

Data and Interface Standards
Digital Container Shipping Association

Table of contents

List of figures

List of tables

Preface

The vision of the Digital Container Shipping Association (DCSA) is to shape the digital future of container shipping by being the industry's unified voice, working toward alignment and standardization, setting the frameworks for effective and universally adoptable solutions, exploring possibilities of innovation, and moving the industry forward through standards for IT and noncompetitive business practices. The DCSA aims at paving the way for interoperability in the container shipping industry through digital transformation and standardization. It is the DCSA's mission to represent, lead, and serve the container shipping industry for safer, more secure, and more efficient operations of container shipping companies.

The DCSA has five key objectives:

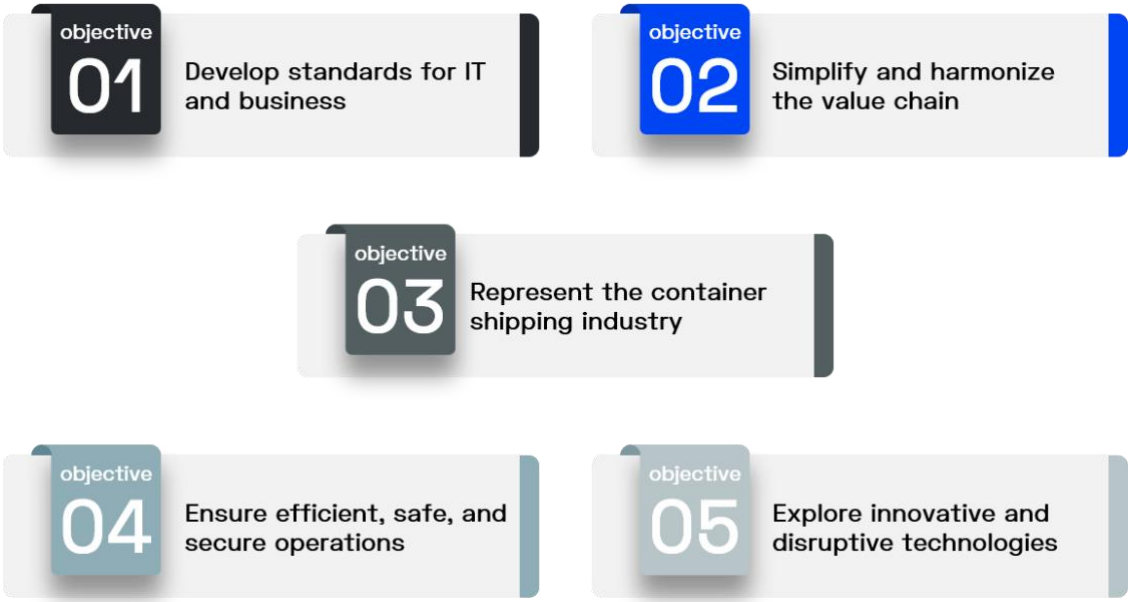

Figure 1. The DCSA's key objectives

The objective of the DCSA's Data and Interface Standards project workstream is to strengthen the container shipping industry's ability to send and receive data across the industry participants. Furthermore, it aims at enhancing intercarrier cooperation based on shared requirements and ensuring interoperability by using a shared data language, preferably inspired by existing standards and aligned with the industry process definitions in the DCSA Industry Blueprint.

The standards published by the DCSA are technology agnostic. The DCSA does not point to the use of specific vendors' technologies or systems but relies on open source shared requirements for the industry that can be used by all parties, regardless of the choice of technology.

This document

This document is the first publication of the DCSA Information Model and is created to organize and catalog the information being generated or consumed in connection with the processes described in the DCSA Industry Blueprint. The information model is also used as a collective term to describe all the products that model the data needed to meet the interface requirements. The Information Model includes a diagrammatic representation of selected data entities and their relationship with one another.

This document is supported by a range of supplementary publications by the DCSA, which will be referenced in the relevant sections. The supporting publications are:

- **DCSA Industry Blueprint 1.0**
  Provides insights on as-is carrier processes. The DCSA Industry Blueprint comprises processes related to the movement of a container/equipment from one location to another, processes that are linked to a shipment/booking, processes that are considered critical for industry digitization and standardization efforts, and finally processes that are not considered commercially sensitive or of competitive advantage.

- **DCSA Interface Standard for Track and Trace 1.0**
  The interface standard for track and trace documentation is created to ensure that all members and partners in the container shipping industry can base their interfaces on a common understanding of the data and processes of the industry to enable consistency, simplicity, and timeliness in the solutions for tracking and tracing across the industry, supporting the interoperability in container shipping.

- **DCSA Glossary of Terms 1.1**
  This publication promotes alignment between terms across all DCSA stakeholders in the container shipping industry. The first version of the glossary was published on the DCSA website in the summer of 2019 in the context of the DCSA Industry Blueprint.

- **Reading Guides for the DCSA Information Model 1.0, and on the DCSA Interface Standard for Track and Trace 1.0**
  The two reading guides for the DCSA Information Model and the DCSA Interface for Track and Trace, respectively, should help set the context around the DCSA initiatives. The guides provide insight into the different concepts and methods utilized in the production of the documents, and they suggest ways the documents can be used as a foundation for future implementations.

- **DCSA Event Naming Convention 1.0, and Event Structure Definitions 1.0**
  Throughout the years, track and trace solutions have become a commonly seen service in the container shipping industry. However, due to misalignment of terminology and ways of working, each carrier and third parties have designed its own events that have been published on the carriers' websites. To align this across the industry, the DCSA has developed a naming convention that sets the standards for naming as well as understanding customer-facing track and trace events.

Document ID

The following table contains the introductory information regarding the project workstream.

Name	Description
Project name	Data and Interface Standards
Project workstream	DCSA Information Model
Project number	1

Table 1. Document ID

Referenced documents

- DCSA Industry Blueprint 1.0
- DCSA Glossary of Terms 1.1
- DCSA Information Model 1.0 Reading Guide
- DCSA Interface Standard for Track and Trace 1.0
- DCSA Interface Standard for Track and Trace 1.0 Reading Guide
- DCSA Event Naming Convention 1.0
- DCSA Event Structure Definitions 1.0

The above-mentioned documents can be found on DCSA.org website.

Bureau International des Containers et du Transport Intermodal (BIC) – Container Identification Number (2019):
https://www.bic-code.org/identification-number/

International Organization for Standardization (ISO) 6346:1995 – Freight containers -- Coding, identification and marking:
https://www.iso.org/standard/20453.html

International Maritime Organization (IMO) – Identification number schemes (2019):
http://www.imo.org/en/OurWork/MSAS/Pages/IMO-identification-number-scheme.aspx

ISO 6346:1995 – Freight containers — Coding, identification and marking — Amendment 3:2012:
https://www.iso.org/standard/59778.html

National Motor Freight Traffic Association (NMFTA) - Standard Carrier Alpha Codes (SCAC) 2019:
http://www.nmfta.org/pages/scac

Republic of the Marshall Islands - Vessel Registration and Mortgage Recording Procedures (MI-100, 2018):
https://www.register-iri.com/wp-content/uploads/MI-100.pdf

Shipplanning Message Development Group (SMDG) – Master Terminal Facilities (v20191217), Master Liner codes list (v20181011) and Recommendation #02 (2014):
http://www.smdg.org/smdg-master-codes-lists/
http://www.smdg.org/documents/smdg-recommendations/

United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT) Recommendation no. 19 (2000, first version):
https://www.unece.org/fileadmin/DAM/cefact/recommendations/rec19/rec19_ecetrd138.pdf

UN/CEFACT – UNLOCODE (2019):

https://www.unece.org/cefact/locode/service/location.html

UN/Trade Data Element Directory (TDED) (2005):
https://www.unece.org/fileadmin/DAM/trade/untdid/UNTDED2005.pdf

UN/CEFACT Core Component Library (CCL) (2019):
https://www.unece.org/cefact/codesfortrade/unccl/ccl_index.html

UN/Electronic Data Interchange for Administration, Commerce and Transport (EDIFACT):
https://www.unece.org/cefact/edifact/welcome.html
and (accessed 2019)
https://www.unece.org/tradewelcome/un-centre-for-trade-facilitation-and-e-business-uncefact/outputs/standards/unedifact/tradeedifactrules/part-4-edifact-rules-for-electronic-data-interchange-for-administration-commerce-and-transport/part-4-unedifact-rules-chapter-22-syntax-rules.html

UN/CEFACT BUY/SHIP/PAY Reference Data Model (BSP RDM) (version 1, 2019)
https://www.unece.org/fileadmin/DAM/cefact/brs/BuyShipPay_BRS_v1.0.pdf

UN/CEFACT Multi-Modal Transport Reference Data Model (MMT RDM) (v1.0, 2018)
https://www.unece.org/cefact/brs/brs_index.html

1 Introduction

1.1 Objective

The DCSA Information Model has been created to provide a holistic overview of the information that has been agreed on as part of the process standards defined in the DCSA Industry Blueprint and in line with the definitions documented in the DCSA Glossary of Terms.

By standardizing the terms used and by documenting the related data, the information model aims to provide a foundation that can be used in the current interface standardization work and for future initiatives. The DCSA recognizes that there is a variety of other standards out there today and endeavors to reuse these resources where it fits within the context of the container shipping industry. Some of these existing standards are more widely adopted than others, for example, the UN/CEFACT Multimodal Transport Reference Data Model (MMT RDM), and it is the intention to constantly evaluate the DCSA Information Model against this and other standards.

1.2 Overview

In this document, *movement of goods* refers to international multimodal transport of containers with a focus on ocean carriage, which is most often one leg of the transport. The motivation behind the use case *tracking and tracing a shipment* is to track and trace the transport equipment and the transportation modes used for transporting goods rather than tracking and tracing the goods themselves or the content of the equipment used for transportation of the shipment.

The DCSA Information Model has been built to act as a translator between the information requirements being identified as a result of the business processes that have been mapped in the DCSA Industry Blueprint and the existing standards that currently describe the reference data relevant to the industry. This helps identify what is already available and where any potential gaps exist that need further investigation. This is depicted in Figure 2 along with how the DCSA Information Model interacts with the different elements.

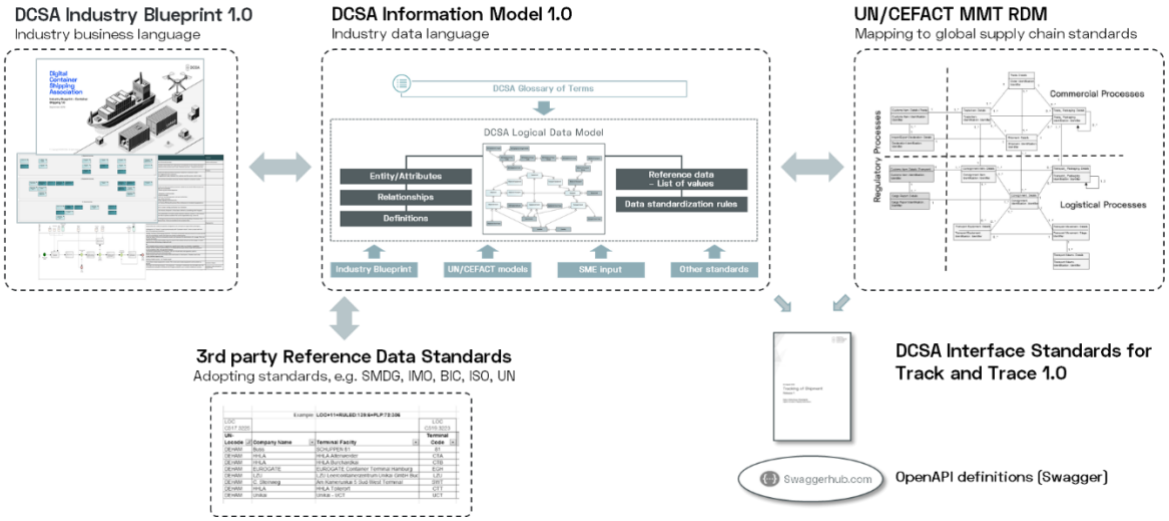

Figure 2. The DCSA Information Model as a translator

1.3 Conformance

All parties in the container shipping industry are recommended to implement and follow the data definitions, data modelling, and reference data rules in the DCSA Information Model outlined and specified in this document.

1.4 Normative references

The documents listed below constitute normative references for the DCSA Information Model:

- DCSA Industry Blueprint
- DCSA Glossary of Terms
- DCSA Information Model Reading Guide
- DCSA Interface Standard for Track and Trace
- DCSA Interface Standard for Track and Trace Reading Guide
- DCSA Event Naming Convention
- DCSA Event Structure Definitions.

2 DCSA Information Model

The DCSA Information Model refers to the collection of artifacts and products that document and define the reviewed and agreed data standards that must be followed within the DCSA framework. The adoption of the industry standards in the DCSA Information Model will help ensure the ongoing standardization and optimization of interoperability and data exchange between the parties in the container shipping industry as well as other stakeholders working within the industry. As depicted in the diagram below (Figure 3), the DCSA Information Model consists of the following artifacts and products:

- **Logical data model:** A diagrammatic representation of:
  - Data entities and the data attributes that store details about the entities
  - The relationships that exist between data entities
  - Standardized names of data entities and data attributes, for example, *equipment* versus *container*; definitions of the entities and attributes are stored as part of the metadata for the model.

- **Standardized lists of data**: This is particularly relevant for reference data entities through which a controlled list of values is recommended to help ensure that the same data are being used within and between organizations.

- **Data standardization rules:** When a predetermined data value cannot be offered, the data standardization rules can help with the generation of consistent data values that can be used.

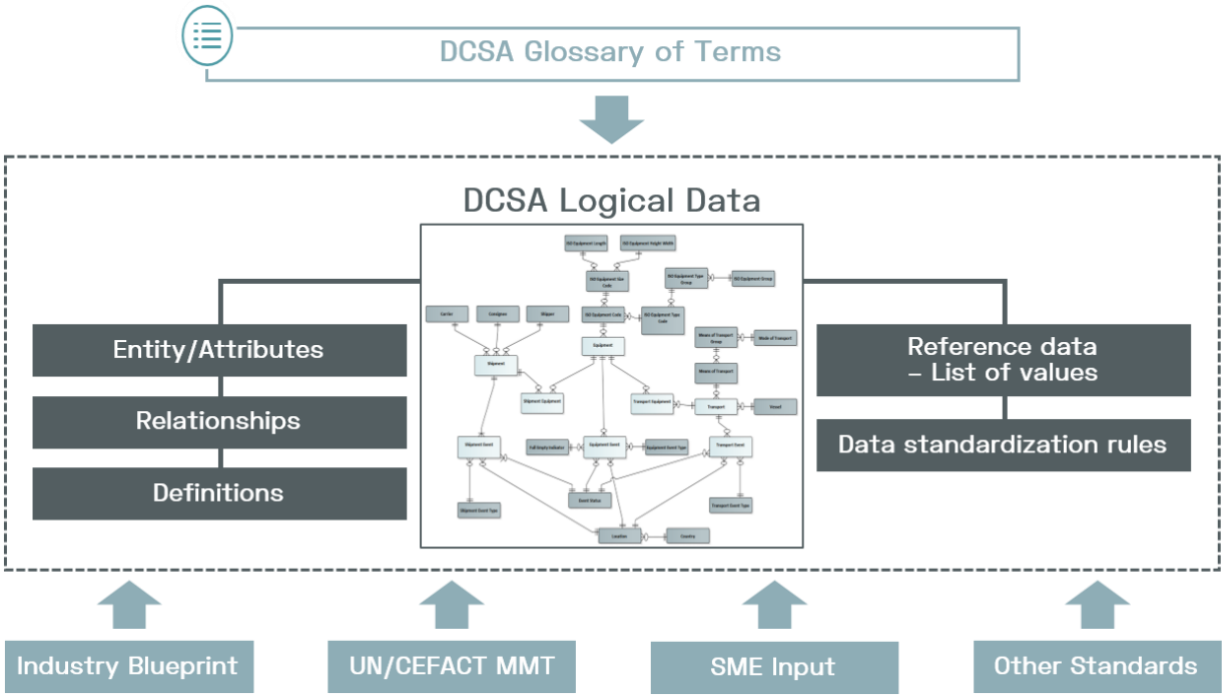

Figure 3. Overview of the contents of the DCSA Information Model

The DCSA Information Model has been designed to support a shared understanding of concepts, terms, and rules within the shipping industry. The principles behind the creation of the model have been to look to the current standards used within the industry and to reuse these standards where appropriate or propose new standards where a usable standard could not be found. The key input for the DCSA Information Model includes:

- **DCSA Industry Blueprint**: comprises recommended current-state standards for the processes used in container shipping. The terminology used in the information model has primarily been aligned with the DCSA Industry Blueprint terminology.

- **DCSA Glossary of Terms**: Definitions of terms used across the DCSA in an industry-specific language.

- **UN/CEFACT MMT RDM**: The Multimodal Transport (MMT) Reference Data Model (RDM) has been used as a key resource to help define and standardize entities within the DCSA Logical Data Model. The MMT RDM can be expressed as a subset of and one out of three reference data models developed on the basis of a framework called the Core Component Library (CCL) by the UN/CEFACT. The data modeling concepts support all terms and definitions related to the information entities within the DCSA Logical Data Model referring to the MMT RDM and the UNTDED (2005).

- **UN/EDIFACT documentation**: message document structure supported by the CCL, which ensures the mapping of references between key EDI messages and the MMT RDM. The data definitions in the UN/EDIFACT messages link back to the data and definitions included in the UNTDED and thus to the definitions in the UN/CEFACT MMT RDM.

- **SME input**: input from the appointed subject matter experts (SMEs) among the DCSA members.

As the model deals with industry data at logical and conceptual levels rather than applying physical naming conventions configured in, for example, physical databases, the DCSA Information Model must be considered the container shipping industry's reference data model, helping the users of the model to understand how data are generated/consumed as a result of the execution of industry processes and how these data can be mapped in a logical way.

2.1 The DCSA Information Model data types and formats

For each data attribute, which the DCSA Logical Data Model points to, a particular data type has been selected to provide additional details that have already been identified. An overview of the different data types utilized is presented in Table 2. When the data type is selected, the reasoning below is applicable throughout this document.

Data type	Usage rule
Character	The Character data type stores character data in a fixed-length field. The data stored can be a string, made up of a combination of letters, numbers, and special characters. An example is Character(20), which dictates that the data field is of a fixed length of 20 characters.
Text	The Text data type stores strings in a variable-length field. Data can consist of letters, numbers, and symbols. In cases where there is a maximum number of characters allowed, this will be stated by capturing the maximum numbers of characters allowed, in brackets, e.g. Text(100) is used when the length of the data field can vary, up to a maximum of 100 characters.
Number	The Number data type is a whole number that can be positive, negative, or zero. Therefore, the numbers 10, 0, and -25 are all numbers. A number cannot have decimal places.
Date	The Date data type follows the ISO 8601 conventions, whereby the dates are arranged so the largest temporal term (the year) is placed to the left and each successively smaller term is placed to the right of the previous term, e.g. YYYY-MM-DD or 2019-07-17.
DateTime	The DateTime data type follows the ISO 8601 convention. The 'Time' component is expressed in a 24-hour clock time format, as follows: HH:MM:SS, where H = hours (00-23), M = minutes (00-59) S = seconds (00-59). Example: 22:45:26 (10:45:26 pm). When combined together with the 'Date' data type format, a "T" (to denote the Time aspect) will be added in between the two entities and the combined format will be: 'YYYY-MM-DDTHH:MM:SS'. The DateTime attribute is always accompanied by a 'UTC Offset' attribute to provide context as to which time zone the DateTime relates to in the form ZHH:MM. The Z denotes the ± (plus or minus sign). If the time being described is one hour ahead of UTC, such as the time in Luanda, the zone designator would be "+01:00". To represent a time behind UTC, the offset is negative. For example, the time in Quito is UTC−05:00 and the zone designator would then be "−05:00". The DateTime format, including UTC Offset is: 'YYYY-MM-DDTHH:MM:SSZHH:MM'.

Table 2. Data type overview

Attribute naming conventions

To maintain consistency in the DCSA Logical Data Model, certain labels are used repeatedly to make the meaning of these attributes a bit clearer.

For entities that hold reference data, the following suffixes will be used:

- Code: a business code used to uniquely identify each row. These codes may be recognizable by the business community and therefore have a business meaning.
- Name: a short description of what the reference data value is; this is the value that will usually be used in reporting.
- Description: In cases where an additional explanation may be beneficial, a description may be included.

Table 3 below shows a selection of the formats that the data types can have.

Format	Format usage rule
Code	A code from a controlled list such as ISO-3166 country code.
Identifier (ID)	A controlled public identifier type such as a business registration number.
Primary Key	The preferred key for an entity type.
Foreign Key and Primary Foreign Key	One or more attributes in an entity type that represents a key, either primary or secondary, in another entity type.

Table 3. Data type formats

3 The DCSA Logical Data Model

The DCSA Logical Data Model is presented at entity level in Figure 4 below.

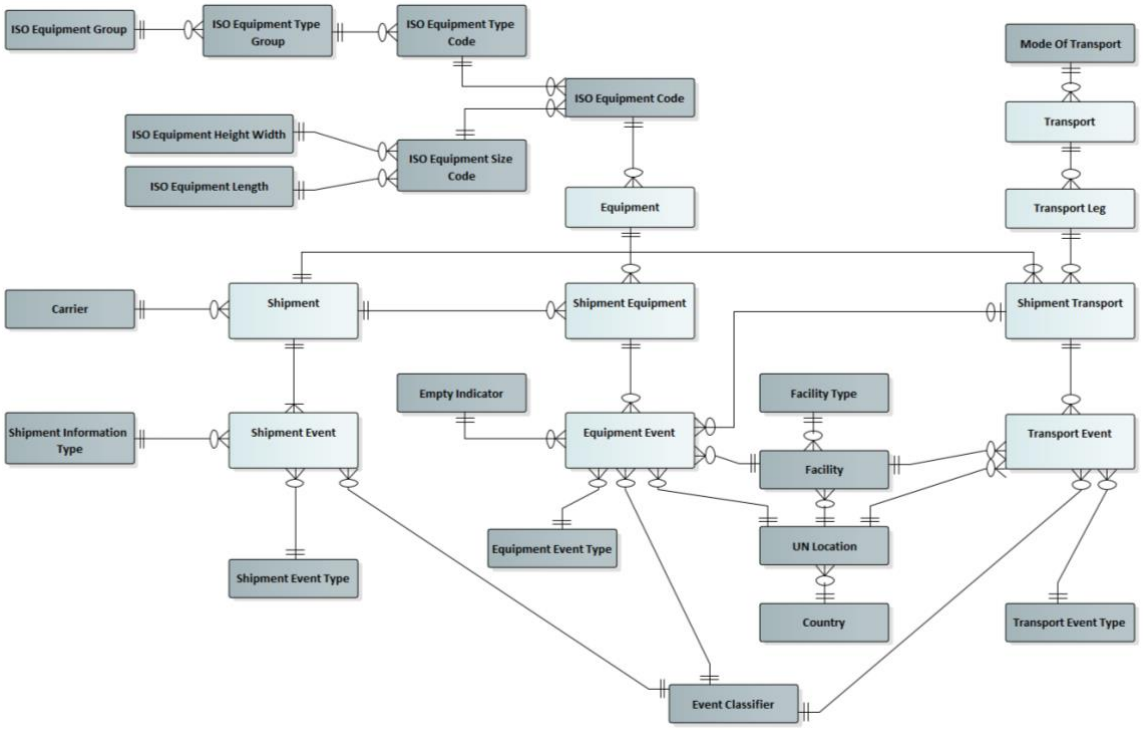

Figure 4. The DCSA Logical Data Model: overview of data entities

The entities in the DCSA Logical Data Model can be split into the following two categories:

1) Entities (colored light)
2) Reference data entities (colored dark).

The DCSA Logical Data Model details the entities and their relationship with one another. An entity is an object that can have information stored about it, for example, Shipment, Equipment, and Transport. A relation describes the industry data-related rules between two or more entities.

In many cases, the entity data are generated as unique transactional records, for example, a booking whose data cannot be predetermined in the same way that reference data can. However, it is important for the DCSA to point to specific formats or conventions that can be followed to avoid duplicated information (for example, two unique instances of equipment with the same reference number) or incompatible data formats (for example, conflicting date formats such as 2 March 2010 written as 02/03/2010 versus 2010-03-02). With regard to reference data, a holistic dataset (list of values) will be described to ensure that the data are accurate and will yield the same results no matter who uses them. Within each subject area in the subsequent sections, the reference data, which the DCSA recommends, will be cited. In cases where a standard already exists, and it has been agreed within the DCSA to utilize the standard, it will be referenced; otherwise it will be specified where a new dataset is created.

In general, the DCSA Logical Data Model is a work-in-progress model, limited in size by the scope of each release. Therefore, the model will transform and grow over time and for example cover more breadth per relevant subject area in subsequent releases.

4 Subject areas in the DCSA Logical Data Model

The DCSA Logical Data Model is split into five subject areas to provide a more focused overview of each part of the model as illustrated in Figure 5. Each subject area consists of one or more data entities and the related reference data.

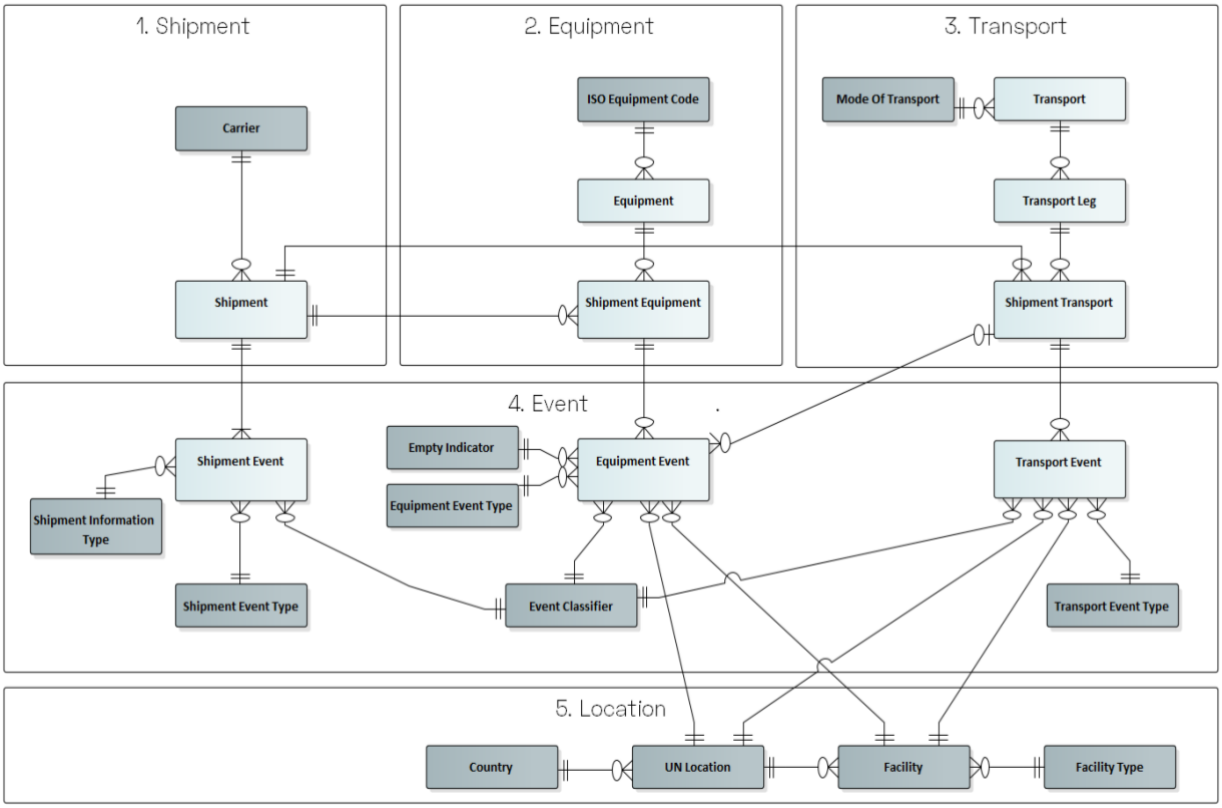

Figure 5. Subject areas in the DCSA Logical Data Model

The subject areas, as above, are aligned with the DCSA publications the DCSA Industry Blueprint and the DCSA Event Naming Convention **and Event Structure Definitions**. These publications, in turn, use the terminology *journeys* as an alternative to *subject areas,* and they are structured in the journeys: Shipment, Equipment, and Transport/Vessel. The subject areas Shipment, Equipment, and Transport match the journeys within the DCSA Event Naming Convention, while in the DCSA Industry Blueprint, the Transport journey is termed Vessel.

In the following sections, each of the subject areas and their relating data entities and data attributes will be described in the following order:

1) Shipment
2) Equipment
3) Transport
4) Event
5) Location.

Within each subject area, an overview of and insight into the reference data values are provided. Where an existing reference data standard is reused, the source will be stated. Otherwise, an alternative will be specified. All reference data entities will be described in relation to the subject areas that they are part of.

4.1 Shipment

The subject area Shipment contains two entities: Carrier and Shipment. In future releases, other entities that define reference data will be added, for example, other parties like consignee. The term shipment has been defined in accordance with the DCSA Industry Blueprint 1.0. Other organizations may refer to a Consignment in a similar context as the DCSA uses the term Shipment, as the preferred term in the container shipping industry. For example, the UN/CEFACT MMT reference data model defines a *shipment* and a *consignment* as distinct, but related, entities.

The Shipment subject area and its entities will allow for the identification of the shipment that must be tracked together with the carrier. The Shipment entity is shown in Figure 6, and all shipments will be stored in this entity. The Carrier reference data entity provides the flexibility to use either the SMDG Master Liner codes list or the NMFTA SCAC code list to identify the carrier, and all carriers will be represented by this entity. The relationship between the Shipment entity and the relevant parties is that a shipment must be assigned to one and only one carrier (as defined by the Carrier entity), and in addition, a consignee and a shipper may be captured as optional text (the shipper and the consignee can be the same unit/individual).

This version of the information model assumes a limited scope of the first publication with a 1:1 relationship between shipment and bill of lading.

The Shipment Event entity is linked to the Shipment entity to gather the events related to the shipment. This is documented in the Event subject area, in a later section of this document.

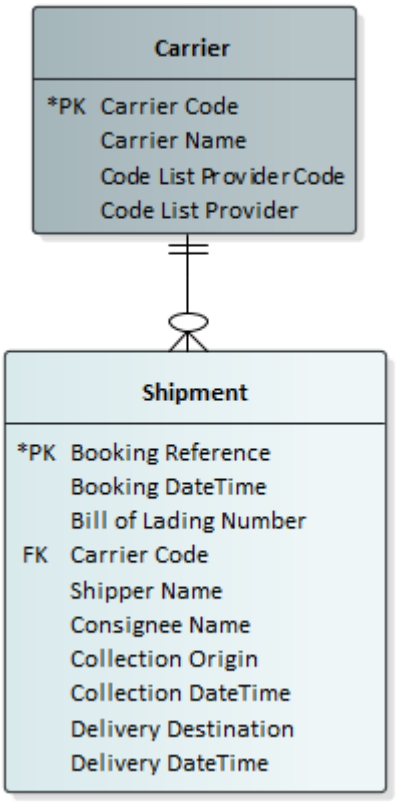

Figure 6. Shipment subject area

The Shipment entity and its data attributes are defined in Table 5 and Table 4.

Entity: Shipment		
A shipment is the realization of a customer booking for which all containers have a common routing and details of scheduling.		
Attribute	**Definition**	**Data type**
Booking Reference	The identifier for a shipment, which is issued by and unique within each of the carriers.	Text(20)
Booking DateTime	The date and time of the booking request.	DateTime
Bill of Lading Number	Bill of lading number is an identifier that links to a shipment. Bill of lading is the legal document issued to the customer which confirms the carrier's receipt of the cargo from the customer acknowledging goods being shipped and specifying the terms of delivery.	Text(20)
Carrier Code	A unique carrier identifier, currently sourced from either the NMFTA SCAC codes list or the SMDG Master Liner codes list.	Text(50)
Shipper Name	The name of the shipper, who requested the booking.	Text(50)
Consignee Name	The name of the consignee.	Text(50)
Collection Origin	The location through which the shipment originates. It can be defined as a UN Location Code value or an address. The customer (shipper) needs to place a booking in order to ship the cargo (commodity) from an origin to destination. This attribute specifies the location of the origin.	Text(250)
Collection DateTime	The date and the time that the shipment items need to be collected from the origin.	DateTime
Delivery Destination	The location to which the shipment is destined. It can be defined as a UN Location Code value or an address. The customer (shipper) needs to place a booking in order to ship the cargo (commodity) from an origin to destination. This attribute specifies the location of the destination. Also known as 'place of carrier delivery'.	Text(250)
Delivery DateTime	The date (and when possible time) that the shipment items need to be delivered to the destination.	DateTime

Table 4. Shipment entity

4.1.1 Shipment reference data

The reference data for the shipment subject area for release 1.0 are focused around the carrier as shown in the below Figure 7.

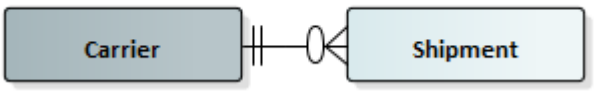

Figure 7. Shipment reference data entity

Entity: Carrier		
Carrier means any person, organization or government undertaking the transport of goods by any means of transport. The term includes both carriers for hire or reward (known as common or contract carriers in some countries) and carriers on own account (known as private carriers in some countries).		
Attribute	**Definition**	**Datatype**
Carrier Code	A unique carrier identifier, currently sourced from either the NMFTA SCAC codes list or the SMDG Master Liner codes list.	Text(50)
Carrier Name	The name of the carrier.	Text(100)
Code List Provider Code	The code provided for the Carrier by the code list provider.	Text(50)
Code List Provider	The organization providing the code list, i.e. SMDG or NMFTA.	Text(50)

Table 5. Carrier

The Carrier entity has been designed to accommodate reference data from two separately maintained data sets: the SMDG Master Liner codes list (where the Code List Provider value will be set to “SMDG”) and the NMFTA SCAC code list (where the Code List Provider value will be set to “NMFTA”). In order to enforce uniqueness, the codes provided by the SMDG and the NMFTA will be prefixed with the value in the Code List Provider attribute, e.g. for the code “QCL”, which exists in both the SMDG and NMFTA reference data sets, the Carrier Code values will be:

- SMDG-QCL
- NMFTA-QCL

4.2 Equipment

As shown in Figure 8, the equipment subject area is modeled to ensure that a specific equipment can be identified and detailed appropriately in terms of type and size in accordance with ISO 6346:1995 *Freight containers – Coding, identification and marking* and amendment 3 (2012) to ISO 6346:1995. Whenever ISO 6346:1995 is mentioned as a reference in this document, this includes amendment 3.

The entity Equipment stores all instances of equipment used to fulfill a shipment. The relationship between each shipment and an equipment is held in the Shipment Equipment entity. Each piece of equipment can be categorized according to its type and size, and this information is contained in a hierarchy of reference tables based on ISO 6346. The ISO Equipment Code entity brings together reference data regarding equipment size (via the ISO Equipment Size Code entity) and reference data regarding equipment type (via the ISO Equipment Type entity).

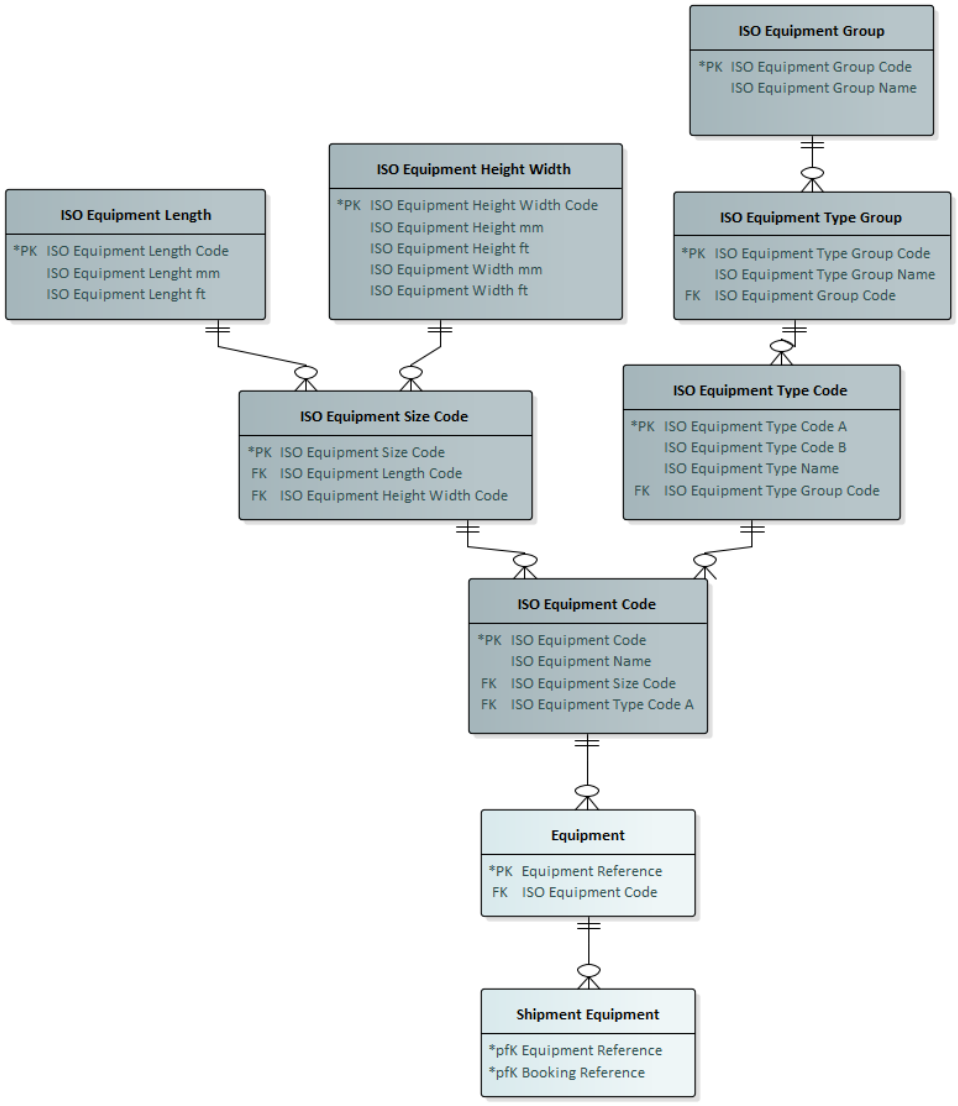

Figure 8. Equipment subject area

The equipment entities within the Equipment subject area are defined and detailed in Table 6, Table 7, Table 8, Table 9, Table 10, Table 11, Table 12, Table 13, and Table 14.

Entity: Equipment		
Used for storing cargo in/on during transport. The equipment ”size/type" is defined by the ISO 6346 code. The most common equipment size/type is 20'/40'/45' Dry Freight Container, but a number of different versions exists.		
Attribute	**Definition**	**Data type**
Equipment Reference	The unique identifier for the equipment, which should follow the BIC ISO Container Identification Number where possible. According to ISO 6346, a container identification code consists of a 4-letter prefix and a 7-digit number (composed of a 3-letter owner code, a category identifier, a serial number and a check-digit). If a container does not comply with ISO 6346, it is suggested to follow Recommendation #2 “Container with non-ISO identification” from SMDG.	Text(15)
ISO Equipment Code	Unique code for the different equipment size/type used for transporting commodities. The code is a concatenation of ISO Equipment Size Code and ISO Equipment Type Code A and follows the ISO 6346 standard.	Character(4)

Table 6. Equipment entity

Entity: ISO Equipment Length		
Identifies the unique length of a piece of equipment based on ISO standard 6346 terms.		
Attribute	**Definition**	**Data type**
ISO Equipment Length Code	ISO first size code character that represents the length of a piece of equipment; follows the ISO 6346 standard.	Character(1)
ISO Equipment Length mm	ISO equipment length in millimeters; follows the ISO 6346 standard.	Text(10)
ISO Equipment Length ft	ISO equipment length in feet and inches; follows the ISO 6346 standard.	Text(10)

Table 7. ISO Equipment Length entity

Entity: ISO Equipment Height and Width		
Identifies the unique height and the width of an equipment in ISO 6346 standard terms.		
Attribute	**Definition**	**Data type**
ISO Equipment Height and Width Code	ISO code to uniquely identify the height and width of an equipment; follows the ISO 6346 standard.	Character(1)
ISO Equipment Height mm	ISO equipment height in millimeters; follows the ISO 6346 standard.	Text(10)
ISO Equipment Height ft	ISO equipment height in feet and inches; follows the ISO 6346 standard.	Text(10)
ISO Equipment Width mm	ISO equipment width in millimeters; follows the ISO 6346 standard.	Text(25)
ISO Equipment Width ft	ISO equipment width in feet and inches; follows the ISO 6346 standard.	Text(10)

Table 8. ISO Equipment Height and Width entity

Entity: ISO Equipment Size Code		
Uniquely identifies the length and height/width of a piece of equipment in ISO 6346 standard terms.		
Attribute	**Definition**	**Data type**
ISO Equipment Size Code	ISO size code designation; two alphanumeric characters used to designate the size code of a piece of equipment. • The first character represents the length • The second character represents the width and the height The size code follows the ISO 6346 standard.	Character(2)
ISO Equipment Length Code	ISO first size code character that represents the length of a piece of equipment; follows the ISO 6346 standard.	Character(1)
ISO Equipment Height and Width Code	ISO second size code character representing the height and width of a piece of equipment; follows the ISO 6346 standard.	Character(1)

Table 9. ISO Equipment Size Code entity

Entity: ISO Equipment Group		
The highest level of ISO grouping for equipment according to the ISO 6346 standard.		
Attribute	**Definition**	**Data type**
ISO Equipment Group Code	A code for the equipment group as defined by the ISO 6346 standard.	Character(1)
ISO Equipment Group Name	A name defined by the ISO 6346 standard that describes the equipment group.	Text(100)

Table 10. ISO Equipment Group entity

Entity: ISO Equipment Type Group		
Entity used to group the different ISO equipment types according to the ISO 6346 standard.		
Attribute	**Definition**	**Data type**
ISO Equipment Type Group Code	Unique code for the different type groups defined by the ISO 6346 standard.	Character(2)
ISO Equipment Type Group Name	A name that describes the type group code; follows the ISO 6346 standard.	Text(100)
ISO Equipment Group Code	A code for the equipment group as defined by the ISO 6346 standard.	Character(1)

Table 11. ISO Equipment Type Group entity

Entity: ISO Equipment Type Code		
Identifies the different types of equipment based on the different sizes, types, and purpose of the equipment, for example *20-foot reefer container,* and follows the ISO 6346 standard.		
Attribute	**Definition**	**Data type**
ISO Equipment Type Code A	Code for the different equipment types used for transporting commodities. For equipment designed and tested with full stacking (minimum superimposed mass of 192,000 kilos) and racking (minimum transverse force of 150 kN) capabilities. Superimposed mass is as defined in ISO 1496-1:1990; the code follows the ISO 6346 standard.	Character(2)
ISO Equipment Type Code B	Code for equipment designed and tested with reduced stacking and/or racking capabilities, but not equipment that is approved or operated with one door off or otherwise operated with a temporary reduced capability; The code follows the ISO 6346 standard.	Character(2)
ISO Equipment Type Name	Textual description of the size and type as detailed by the ISO 6346 standard.	Text(200)
ISO Equipment Type Group Code	Unique code for the different type groups defined by the ISO 6346 standard.	Character(2)

Table 12. ISO Equipment Type Code entity

Entity: ISO Equipment Code		
Identifies the different types and sizes of equipment based on the different sizes, types, and purposes of the equipment, for example *20-foot reefer container*, based on the ISO 6346 standard.		
Attribute	**Definition**	**Data type**
ISO Equipment Code	Unique code for the different equipment size/type used for transporting commodities. The code is a concatenation of ISO Equipment Size Code and ISO Equipment Type Code A and follows the ISO 6346 standard.	Character(4)
ISO Equipment Name	Textual description for the equipment; follows the ISO 6346 standard.	Text(100)
ISO Equipment Size Code	ISO size code designation; two alphanumeric characters used to designate the size code of a piece of equipment. • The first character represents the length • The second character represents the width and the height The size code follows the ISO 6346 standard.	Character(2)
ISO Equipment Type Code A	Code for the different container types used for transporting commodities. For containers designed and tested with full stacking (minimum superimposed mass of 192,000 kilos) and racking (minimum transverse force of 150 kN) capabilities. Superimposed mass is as defined in ISO 1496-1:1990. The code follows the ISO 6346 standard.	Character(2)

Table 13. ISO Equipment Code entity

Entity: Shipment Equipment		
A shipment may be fulfilled using part or all of an equipment or may be transported using multiple pieces of equipment. This entity captures how the shipment will be fulfilled/split using one or more pieces of equipment.		
Attribute	**Definition**	**Data type**
Booking Reference	The identifier for a shipment, which is issued by and unique within each of the carriers.	Text(20)
Equipment Reference	The unique identifier for the equipment, which should follow the BIC ISO Container Identification Number where possible. According to ISO 6346, a container identification code consists of a 4-letter prefix and a 7-digit number (composed of a 3-letter owner code, a category identifier, a serial number and a check-digit). If a container does not comply with ISO 6346, it is suggested to follow Recommendation #2 "Container with non-ISO identification" from SMDG.	Text(15)

Table 14. Shipment Equipment entity

4.2.1 Equipment reference data

The accepted standard for defining the different types of equipment is ISO 6346. The reference data published as part of ISO 6346 have been modeled into a structure of six reference data entities in the DCSA Logical Data Model as shown in Figure 9, and examples, corresponding to the standards included in ISO 6346, are listed for each of the entities below.

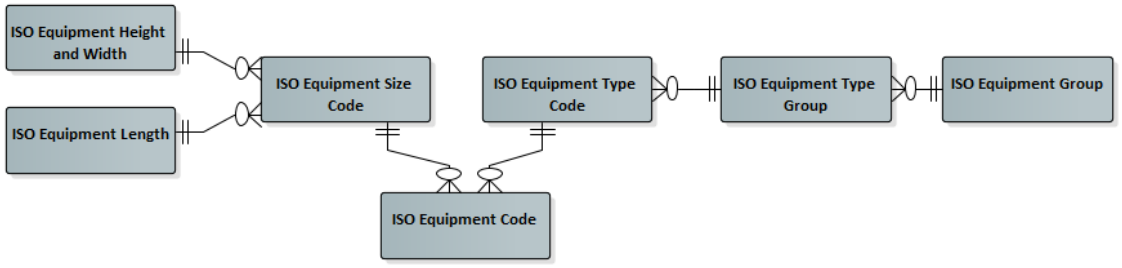

Figure 9. Equipment reference data entities

4.2.1.1 ISO equipment code

Table 15 contains examples of ISO 6346 equipment codes.[1] This list is a small part of the full list of ISO 6346 equipment codes and names. There are more than 15,000 unique equipment code combinations (not including ISO equipment type code B).

ISO Equipment Code	ISO Equipment Name
10G0	10ft General purpose container Without ventilation Opening(s) at one end or both ends
25R2	20ft Thermal container Self-powered refrigerated/heated Mechanically refrigerated
45P7	40ft Platform (container) Platform-based container for named cargo Car carrier

Table 15. ISO Equipment Code, examples

[1] NEN Standards Products & Services has granted the DCSA permission to use the ISO 6346 equipment code examples in this publication.

4.2.1.2 ISO equipment type code

Table 16 contains examples of ISO 6346 equipment type codes (ISO equipment code A is the last two characters of the ISO equipment code as shown in Table 15). This list is only a part of the full list of ISO 6346 equipment codes (A and B), type names, and type group codes. There are 62 type codes.

ISO Equipment Code A	ISO Equipment Code B	ISO Equipment Type Name	ISO Equipment Type Group Code
G0	GA	Opening(s) at one end or both ends	GP
R2	RD	Mechanically refrigerated	RS
P7	PW	Car carrier	PT

Table 16. ISO Equipment Type Code, examples

4.2.1.3 ISO equipment type group

Table 17 contains examples of ISO 6346 equipment type group codes. This list is only a part of the full range of ISO 6346 equipment type group codes, names, and group codes. There are 21 type group codes.

ISO Equipment Type Group Code	ISO Equipment Type Group Name	ISO Equipment Group Code
GP	Without ventilation	G
RT	Refrigerated and heated	R
PT	Platform-based container for named cargo	P

Table 17. ISO Equipment Type Group, examples

4.2.1.4 ISO equipment group

Table 18 contains examples of ISO 6346 equipment group codes and names. This list is only a sample of the full list. There are 11 group codes.

ISO Equipment Group Code	ISO Equipment Group Name
G	General purpose container
R	Thermal container
P	Platform (container)

Table 18. ISO Equipment Group, examples

4.2.1.5 ISO equipment size code

Table 19 contains examples of ISO 6346 equipment size codes (the ISO equipment size code is the first two characters of the ISO equipment code). This list is only a sample of the full list. There are 255 equipment size codes.

ISO Equipment Size Code	ISO Equipment Length Code	ISO Equipment Height and Width Code
10	1	0
25	2	5
45	4	5

Table 19. ISO Equipment Size Code, examples

4.2.1.6 ISO equipment height and width

Table 20 contains examples of ISO 6346 height/width codes. This list is only a sample of the full list. There are 15 height and width codes.

ISO Equipment Height and Width Code	ISO Equipment Height mm	ISO Equipment Height ft in	ISO Equipment Width mm	ISO Equipment Width ft
0	2438 mm	8ft	2438 mm	8ft
5	2895 mm	9ft 6in	2438 mm	8ft
F	> 2895 mm	> 9ft 6in	> 2438 mm and < 2500 mm	

Table 20. ISO Equipment Height and Width, examples

4.2.1.7 ISO equipment length

Table 21 contains examples of ISO 6346 equipment length codes. This list is only a sample of the full list. There are 23 different length codes of which six are currently unassigned.

ISO Equipment Length Code	ISO Equipment Length mm	ISO Equipment Length ft
1	2,991 mm	10ft
4	12,192 mm	40ft
L	13,716 mm	45ft

Table 21. ISO Equipment Length, examples

4.3 Transport

As illustrated in Figure 10, the Transport subject area consists of three entities for storing different levels of transport-related information and one entity pointing to reference data. The subject area is modeled with one entity for storing specific instances of transport (the Transport entity) and one entity for storing each leg of a specific instance of transport (the Transport Leg entity). The Transport entity is connected to the Transport Leg entity to enable the capability of keeping track of the different legs of a transport. Likewise, the Transport Leg entity is linked to the Shipment Transport entity to handle the situations when a transport type for a specific booking is known (for example, the specific vessel), but the equipment is not yet known. The Transport entity is also linked to the Mode of Transport entity describing the possible modes of transport (i.e., DCSA Transport Types) available.

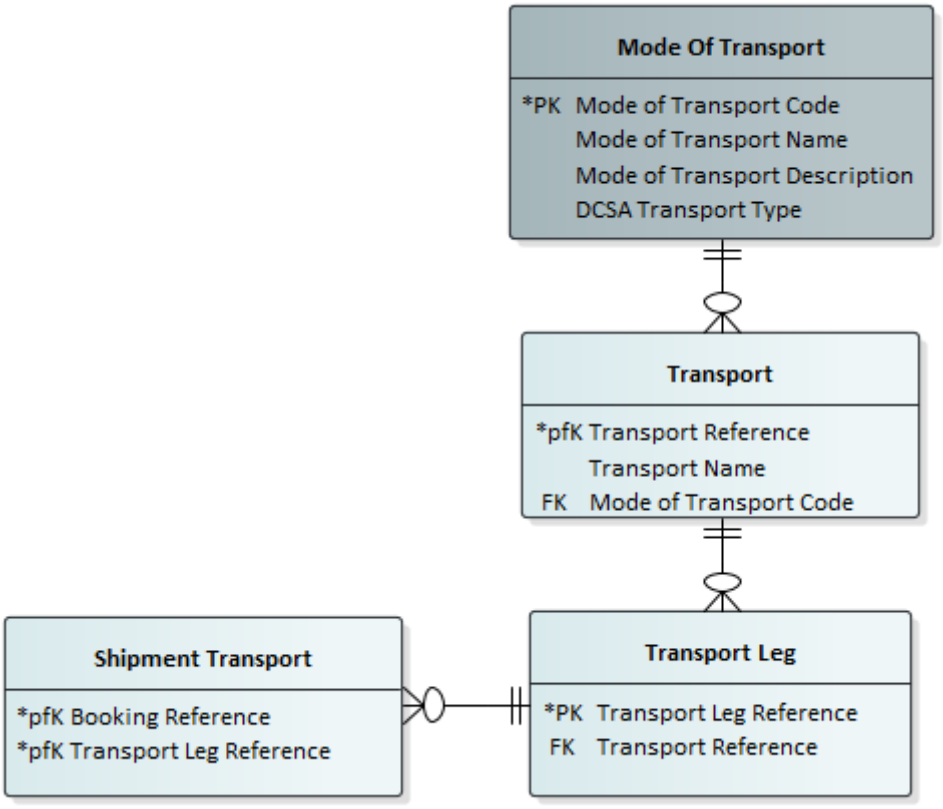

Figure 10. Transport subject area

The transport-related entities within the Transport subject area have been defined and detailed in Table 22, Table 23, Table 24, and Table 25.

Entity: Mode of Transport		
The code specifying the transport mode for the logistic transport movement, following the UN/CEFACT Recommendation 19 - Codes for Modes of Transport mapped to the transport types as defined in the DCSA Glossary of Terms.		
Attribute	**Definition**	**Data type**
Mode of Transport Code	The code specifying the mode (e.g. transport by rail) for the transport. The code follows UN/CEFACT Recommendation 19 - Codes for Modes of Transport.	Number
Mode of Transport Name	The name of the mode of transport. The code follows UN/CEFACT Recommendation 19 - Codes for Modes of Transport.	Text(100)
Mode of Transport Description	The description of the mode of transport as detailed by UN/CEFACT Recommendation 19 - Codes for Modes of Transport.	Text(250)
DCSA Transport Type	The DCSA defined types of transport as used in events mapped to the Mode of Transport Code.	Text(50)

Table 22. Mode of Transport entity

Entity: Transport		
The transport instance used to convey goods or other objects from place to place during logistics cargo movements.		
Attribute	**Definition**	**Data type**
Transport Reference	The reference for the transport, e.g. when the mode of transport is a vessel, the Transport Reference will be the vessel IMO number.	Text(50)
Transport Name	The name of the particular transport instance, e.g. for a vessel this is the vessel name.	Text(100)
Mode of Transport Code	The code specifying the mode (e.g. transport by rail) for the transport. The code follows UN/CEFACT Recommendation 19 - Codes for Modes of Transport.	Number

Table 23. Transport entity

Entity: Transport Leg		
A transport leg is a specific section of the complete transport of a shipment.		
Attribute	**Definition**	**Data type**
Transport Leg Reference	The transport leg reference will be specific per mode of transport: • Vessel: Voyage number • Truck: Not yet specified • Rail: Not yet specified • Barge: Not yet specified.	Text(50)
Transport Reference	The reference for the transport, e.g. when the mode of transport is a vessel, the Transport Reference will be the vessel IMO number.	Text(50)

Table 24. Transport Leg entity

Entity: Shipment Transport		
This entity captures how the shipment will be fulfilled/split using one or more transport legs.		
Attribute	**Definition**	**Data type**
Booking Reference	The identifier for a shipment, which is issued by and unique within each of the carriers.	Text(20)
Transport Leg Reference	The transport leg reference will be specific per mode of transport: • Vessel: Voyage number • Truck: Not yet specified • Rail: Not yet specified • Barge: Not yet specified.	Text(50)

Table 25. Shipment Transport entity

4.3.1 Transport reference data

The Mode of Transport reference data entity contains the different modes of transport available to complete a shipment as shown in Figure 11.

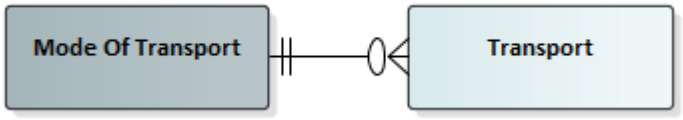

Figure 11. Transport reference data entity

4.3.1.1 Mode of Transport

Table 26 contains the overview of mode of transport codes and names as published by the UN/CEFACT.[2] In the below overview, these are linked to the DCSA-defined transport types.

Mode of Transport Code	Mode of Transport Name	Mode of Transport Description	DCSA Transport Type
0	Transport mode not specified	Transport mode has not been specified	
1	Maritime transport	Transport of goods and/or persons is by sea	Vessel
2	Rail transport	Transport of goods and/or persons is by rail	Rail
3	Road transport	Transport of goods and/or persons is by road	Truck
4	Air transport	Transport of goods and/or persons is by air	
5	Mail	Method to convey goods is by mail	
6	Multimodal transport	Method to convey goods and/or persons is by multimodal transport	
7	Fixed Transport installation	Transport of item is via a fixed transport installation	
8	Inland water Transport	Transport of goods and/or persons is by inland water	Barge
9	Transport mode not applicable	The mode of transport in not applicable	

Table 26. Mode of Transport

2 https://www.unece.org/fileadmin/DAM/cefact/recommendations/rec19/rec19_ecetrd138.pdf accessed September 2, 2019.

4.4 Event

The Event subject area as shown in Figure 12 covers the three entities: Equipment Event, Transport Event, and Shipment Event, which specify specific journeys in the track and trace domain. The journeys create a contextual framework around the events, which ensures that the entities, supporting the specific journeys for a shipment that is being tracked, are the same for the entire journey. This is important as the context and occurrences for a mode of transport are different to the context of an equipment or a shipment. For each journey, a syntax standard has been specified, which governs the way values can be combined to create a unique event.

4.4.1 Event structure and naming convention

The structure surrounding the Equipment, Transport and Shipment Events are governing the naming and understanding of events that are driven by occurrences in the lifecycle of the equipment. Please refer to the DCSA Event Naming Convention **and Event Structure Definitions** to get more information about the definitions, syntax, parameters, and values for the events.

The Event subject area in Figure 12 also includes the Event Classifier entity, which contains three different values: Estimated, Actual, and Planned. The Event Version Numbers in each of the event entities allow for multiple versions of the same status type to be captured, for example, if a particular transport event is Estimated Vessel Arrival at Port Terminal, and then re-estimated at a later stage, there will be two versions of the same transport event type with an Event Status of *Estimated*.

The entities Equipment Event and Transport Event are, likewise, linked to the Facility entity in the Location subject area, which makes it possible to specify the location where the event takes place or took place.

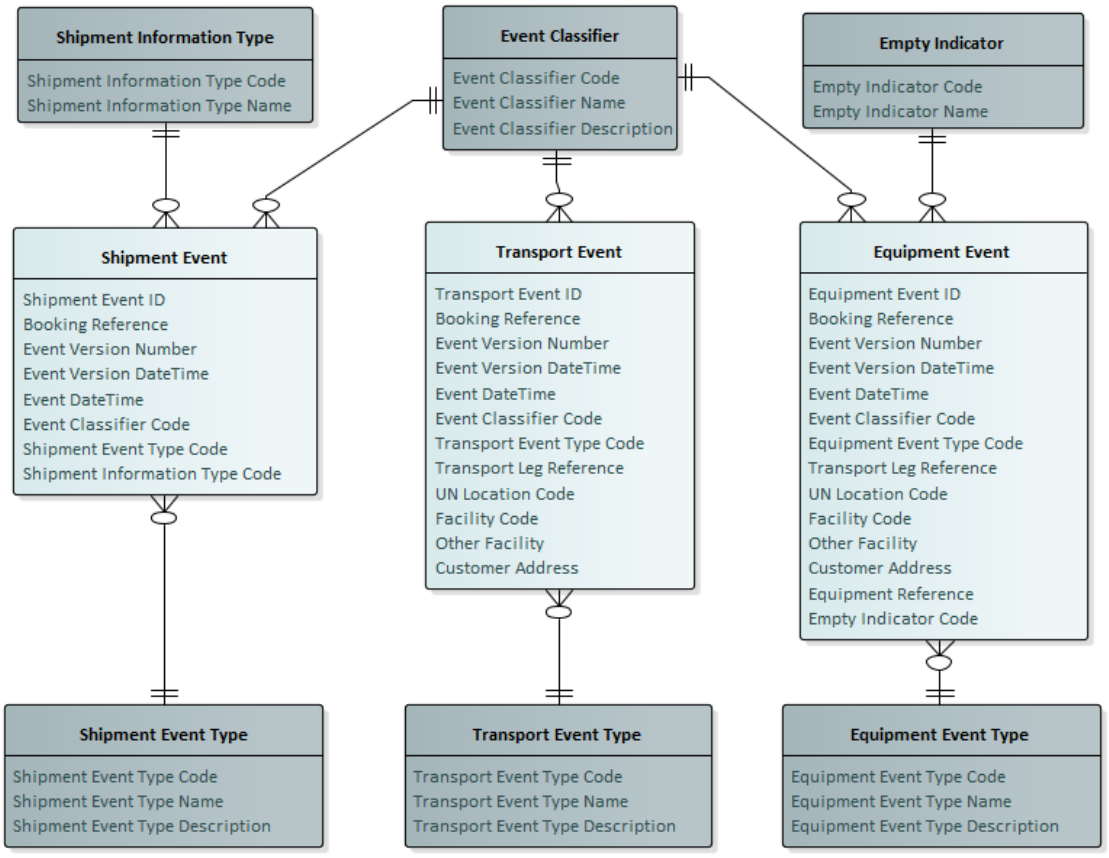

Figure 12. Event subject area

The events have been split in this way to reflect what the event specifically relates to and to capture additional information that only exists for the specific type of event; for example, only events relating to Equipment have an additional Empty Indicator value. The reference data for each type of event is stored in the corresponding Event Type entity; for example, the reference data values for the different types of Equipment Events are stored in the Equipment Event Type entity.

Each entity within the Event subject area is defined in Table 27, Table 28, Table 30, Table 31, Table 32, Table 33, Table 34, and Table 35 together with descriptions of the data attributes needed and the data type for each data attribute.

Entity: Event Classifier		
Classifier denoting whether the event is planned, estimated or actual.		
Attribute	**Definition**	**Data type**
Event Classifier Code	Code for the event classifier, either PLN, ACT or EST.	Character(3)
Event Classifier Name	Name of the classifier.	Text(100)
Event Classifier Description	The description of the event classifier.	Text(250)

Table 27. Event Classifier entity

Entity: Empty Indicator		
The Status of the equipment as to whether it is empty or laden. These are the two values that are tracked.		
Attribute	**Definition**	**Data type**
Empty Indicator Code	Code to denote whether the equipment is empty or laden. The values are EMPTY or LADEN.	Character(5)
Empty Indicator Name	Name to denote whether the equipment is empty or laden. The values are EMPTY or LADEN.	Text(100)

Table 28. Empty Indicator entity

Entity: Shipment Information Type		
This describes all events relating to the shipment e.g. Booking confirmed.		
Attribute	**Definition**	**Data type**
Shipment Information Type Code	The code to identify the type of information that is related to the shipment.	Character(3)
Shipment Information Type Name	The description of the event that is related to the type of information related to the shipment, e.g. Booking, Arrival Notice or Transportation document.	Text(100)

Table 29. Shipment Information Type entity

Entity: Shipment Event Type		
This describes all event types relating to the shipment e.g. Booking confirmed.		
Attribute	**Definition**	**Data type**
Shipment Event Type Code	The code to identify the event that is related to the Shipment.	Character(4)
Shipment Event Type Name	The description of the event that is related to the Shipment, e.g. Booking confirmed.	Text(100)
Shipment Event Type Description	The description of each event type.	Text(250)

Table 30. Shipment Event Type entity

Entity: Equipment Event Type		
This describes all events relating to the equipment e.g. Equipment loaded onto vessel.		
Attribute	**Definition**	**Data type**
Equipment Event Type Code	The code to identify the event that is related to the equipment.	Character(4)
Equipment Event Type Name	The name of the event that is related to the equipment, e.g. equipment loaded.	Text(100)
Equipment Event Type Description	The description of the event that is related to the equipment.	Text(250)

Table 31. Equipment Event Type entity

Entity: Transport Event Type		
This is a list of values for all events relating to the transport means. e.g. Vessel departed.		
Attribute	**Definition**	**Data type**
Transport Event Type Code	The code to identify the type of event that is related to the transport.	Character(4)
Transport Event Type Name	The name of the event type for the Transport Event Code, e.g. Vessel departed.	Text(100)
Transport Event Type Description	The description of the event type.	Text(250)

Table 32. Transport Event Type entity

Entity: Shipment Event		
An event that happens to a shipment, e.g. Booking confirmed.		
Attribute	**Definition**	**Data type**
Shipment Event ID	Unique identifier for the shipment event captured.	Number
Booking Reference	The identifier for a shipment, which is issued by and unique within each of the carriers.	Text(20)
Event Version Number	Version number to track when a revised estimate is entered. This can be used to identify the first estimated value and the latest estimate.	Number
Event Version DateTime	The date and time when the event version was entered.	DateTime
Event DateTime	Indicating the date and time of when the event occurred or will occur.	DateTime
Event Classifier Code	Code for the event classifier, either PLN, ACT or EST.	Character(3)
Shipment Event Type Code	The code to identify the event that is related to the shipment.	Character(4)
Shipment Information Type Code	The code to identify the type of information that is related to the shipment.	Character(3)

Table 33. Shipment Event entity

Entity: Equipment Event		
An event that happens to an equipment item, e.g. equipment loaded onto vessel at port terminal.		
Attribute	**Definition**	**Data type**
Equipment Event ID	Unique identifier for the equipment event captured.	Number
Booking Reference	The identifier for a shipment, which is issued by and unique within each of the carriers.	Text(20)
Event Version Number	Version number to track when a revised estimate is entered. This can be used to identify the first estimated value and the latest estimate.	Number
Event Version DateTime	The date and time when the event version was entered.	DateTime
Event DateTime	Indicating the date and time of when the event occurred or will occur.	DateTime
Event Classifier Code	Code for the event classifier, either PLN, ACT or EST.	Character(3)
Equipment Event Type Code	The code to identify the event that is related to the equipment.	Character(4)
Transport Leg Reference	The transport leg reference will be specific per mode of transport: • Vessel: Voyage number • Truck: Not yet specified • Rail: Not yet specified • Barge: Not yet specified.	Text(50)
UN Location Code	The UN Location Code identifies a location in the sense of a city/a town/a village, being the smaller administrative area existing as defined by the competent national authority in each country. A complete UN Location Code is a combination of a 2-character country code and a 3-character city/town/area Location Code, e.g. BEANR is known as the city of Antwerp (ANR), which is located in Belgium (BE).	Character(5)
Facility Code	The code used for identifying the specific facility. Up to 11 characters, including the five characters from the UN Location Code.	Text(11)
Other Facility	An alternative way to capture the facility, when no standardized DCSA facility code can be found.	Text(50)
Customer Address	An address such as business address or home address.	Text(50)
Equipment Reference	The unique identifier for the equipment, which should follow the BIC ISO Container Identification Number where possible. According to ISO 6346, a container identification code consists of a 4-letter prefix and a 7-digit number (composed of a 3-letter owner code, a category identifier, a serial number and a check-digit). If a container does not comply with ISO 6346, it is suggested to follow Recommendation #2 “Container with non-ISO identification” from SMDG.	Text(15)
Empty Indicator Code	Code to denote whether the equipment is empty or laden. The values are EMPTY or LADEN.	Character(5)

Table 34. Equipment Event entity

Entity: Transport event		
An event that happens to a transport instance, e.g. Vessel departed.		
Attribute	**Definition**	**Data type**
Transport Event ID	Unique identifier for the transport event captured.	Number
Booking Reference	The identifier for a shipment, which is issued by and unique within each of the carriers.	Text(20)
Event Version Number	Version number to track when a revised estimate is entered. This can be used to identify the first estimated value and the latest estimate.	Number
Event Version DateTime	The date and time when the event version was entered.	DateTime
Event DateTime	Indicating the date and time of when the event occurred or will occur.	DateTime
Event Classifier Code	Code for the event classifier, either PLN, ACT or EST.	Character(3)
Transport Event Type Code	The code to identify the type of event that is related to transport.	Character(4)
Transport Leg Reference	The transport leg reference will be specific per mode of transport: • Vessel: Voyage number • Truck: Not yet specified • Rail: Not yet specified • Barge: Not yet specified.	Text(50)
UN Location Code	The UN Location Code identifies a location in the sense of a city/a town/a village, being the smaller administrative area existing as defined by the competent national authority in each country. A complete UN Location Code is a combination of a 2-character country code and a 3-character city/town/area Location Code, e.g. BEANR is known as the city of Antwerp (ANR), which is located in Belgium (BE).	Character(5)
Facility Code	The code used for identifying the specific facility. Up to 11 characters, including the five characters from the UN Location Code.	Text(11)
Other Facility	An alternative way to capture the facility, when no standardized DCSA facility code can be found.	Text(50)
Customer Address	An address such as business address or home address.	Text(50)

Table 35. Transport event entity

4.4.2 Event reference data

An event occurs with relation to the main entities Shipment (for example, Shipment Release Message Issued), Transport (for example, Actual Vessel Departure from Port Terminal), and Equipment (for example, Actual Gate in of Laden Equipment at Port Terminal). These events have been documented by the DCSA Event Naming Convention **and Event Structure Definitions** supported with the DCSA reference data. The Shipment, Transport, and Equipment events have been modeled separately to keep the logical association of what the specific event relates to, for example:

- All types of events relating to shipment to be captured in the Shipment Event Type
- All types of events relating to transport to be captured in the Transport Event Type
- All types of events relating to equipment to be captured in the Equipment Event Type.

Each of the above event types can further be related to the estimated, planned, or actual state captured in the Event Classifier entity, and Equipment Events can be related to the Empty Indicator. The collation of Event entities is depicted in Figure 13.

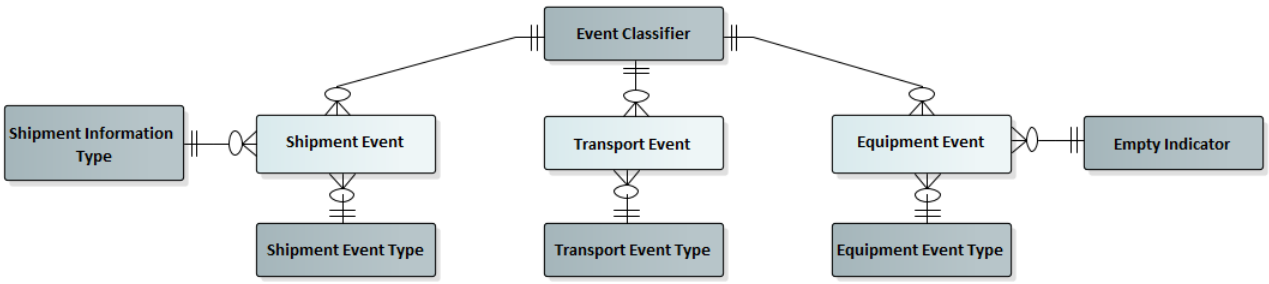

Figure 13. Event reference data entities

4.4.2.1 Event Classifier

Table 36 contains the code and name for the event status.

Event Classifier Code	Event Classifier Name
EST	Estimated
ACT	Actual
PLA	Planned

Table 36. Event Status

4.4.2.2 Empty Indicator

Table 37 contains the Empty Indicator code and name.

Empty Indicator Code	Empty Indicator Name
EMPTY	Empty
LADEN	Laden

Table 37. Empty Indicator

4.4.2.3 Equipment Event Type

Equipment Event Type Code	Equipment Event Type Name
LOAD	Load
DISC	Discharge
GTIN	Gate in
GTOT	Gate out
STUF	Stuffing
STRP	Stripping

Table 38. Equipment Event Type

4.4.2.4 Transport Event Type

Transport Event Type Code	Transport Event Type Name
ARRI	Arrival
DEPA	Departure

Table 39. Transport Event Type

4.4.2.5 Shipment Event Type

Shipment Event Type Code	Shipment Event Type Name
RECE	Received
CONF	Confirmed
ISSU	Issued
APPR	Approved
SUBM	Submitted
SURR	Surrendered
REJE	Rejected
PENA	Pending approval

Table 40. Shipment Event Type

4.4.2.6 Shipment Information Type

Shipment Information Type code	Shipment Information Type Name
BOK	Booking
SHI	Shipping Instruction
VGM	Verified Gross Mass
SRM	Shipment Release Message
TRD	Transport Document
ARN	Arrival Notice

Table 41. Shipment Information Type

4.5 Location

The modeling of the Location subject area as shown in Figure 14, consists of the four reference data entities: Country, UN Location Code, Facility, and Facility Type. Location identified within the UN Location Code entity, the Location Code, is at a more granular level than the one identified within the Country entity (the Country Code). The location identifier within the Facility entity (the Facility Code), is at an even more granular level than the location provided by the UN Location Code. Also, each Facility must have one Facility Type Code. To make it possible to track the location of an event, the Facility entity is also linked to each of the Event entities for Equipment and Transport. These entities are described in the Event subject area.

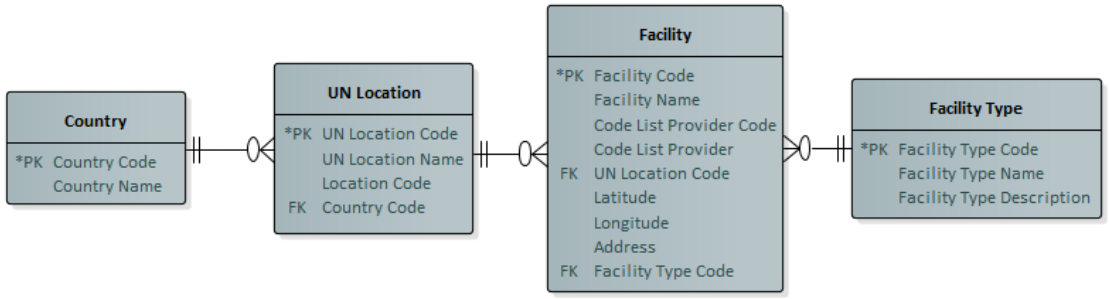

Figure 14. Location subject area

In Table 42, Table 43, Table 44, and Table 45 below, the definitions of the entities Country, UN Location Code, Facility, and Facility Type and the appertaining attributes are listed.

Entity: Country		
Country name as defined by the ISO 3166 standard published by ISO. The standard defines codes for the names of countries, dependent territories, and special areas of geographical interest.		
Attribute	**Definition**	**Data type**
Country Code	The two-letter ISO 3166 country code. E.g. BE for Belgium.	Character(2)
Country Name	The full name for the country as defined by ISO 3166-1.	Text(75)

Table 42. Country entity

Entity: UN Location		
A location as defined by UNECE and commonly known as "UN/LOCODE" ("United Nations Code for Trade and Transport Locations"). The UN Location identifies a location in the sense of a city/a town/a village, being the smaller administrative area existing as defined by the competent national authority in each country.		
Attribute	**Definition**	**Data type**
UN Location Code	The UN Location Code identifies a location in the sense of a city/a town/a village, being the smaller administrative area existing as defined by the competent national authority in each country. A complete UN Location Code is a combination of a 2-character country code and a 3-character city/town/area Location Code, e.g. BEANR is known as the city of Antwerp (ANR), which is located in Belgium (BE).	Character(5)
UN Location Name	The name of the location as defined by the UNECE.	Text(100)
Location Code	Location Code identifies a location in the sense of a city/a town/a village, being the smaller administrative area existing as defined by the competent national authority in each country. Location Code is a 3-character code e.g. ANR for Antwerp.	Character(3)
Country Code	The two-letter ISO 3166 country code. E.g. BE for Belgium.	Character(2)

Table 43. UN Location entity

Entity: Facility		
The facility is a location entity at sub-level to UN Location Code and provides the locational context to the event, which is being reported on, as defined by the DCSA.		
Attribute	**Definition**	**Data type**
Facility Code	The code used for identifying the specific facility. Up to 11 characters, including the five characters from the UN Location Code.	Text(11)
Facility Name	The name of the facility.	Text(100)
Code List Provider Code	The code provided for the Facility by the code list provider. This code does not need to be unique on its own. It is used together with the UN Location Code to create the unique attribute "Facility Code".	Text(6)
Code List Provider	The organization providing the code list, i.e. SMDG.	Text(50)
UN Location Code	The UN Location Code identifies a location in the sense of a city/a town/a village, being the smaller administrative area existing as defined by the competent national authority in each country. A complete UN Location Code is a combination of a 2-character country code and a 3-character city/town/area location code, e.g. BEANR is known as the city of Antwerp (ANR), which is located in Belgium (BE).	Character(5)
Latitude	The latitude for the specific facility. A geographic location identifier following ISO 6709.	Text(16)
Longitude	The longitude for the specific facility. A geographic location identifier following ISO 6709.	Text(16)
Address	The address of the facility.	Text(250)
Facility Type Code	Four character code to identify the specific type of facility.	Character(4)

Table 44. Facility entity

Entity: Facility Type		
The Facility Type entity provides the locational context to the event, which is being reported on. The facility types are defined as unique types of areas, where equipment and/or a transport type can be located for a specified period of time. Defined by the DCSA.		
Attribute	**Definition**	**Data type**
Facility Type Code	Four character code to identify the specific type of facility.	Character(4)
Facility Type Name	The name of the facility type.	Text(100)
Facility Type Description	The description of the facility type.	Text(250)

Table 45. Facility Type entity

4.5.1 Location reference data

There are four sets of reference data in the Location subject area as shown in Figure 15. Examples of each of these are listed in the tables below.

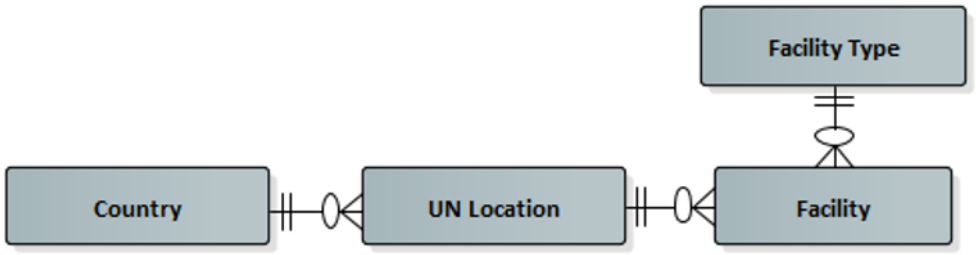

Figure 15. Location reference data entities

4.5.1.1 Country

Table 46 contains examples of country names and codes as published by ISO. The full country list (ISO 3166-1) can be procured via the ISO Online Browsing Platform (OBP).[3]

Country Code	Country Name
AL	Albania
BR	Brazil
HR	Croatia
DK	Denmark
SV	El Salvador

Table 46. Country

4.5.1.2 UN Location

The first two characters of the UN Location Code are the ISO 3166-1 alpha-2 Country Code, which are followed by a three-character code representing a city/a town area location within the country. An area containing several functions (port, train station, airport, etc.) should still only have one UN Location Code assigned.

Table 47 contains examples of location names and codes as provided by the UN/ECE linked to the Country Code. Combining the Country Code and the Location Code constitutes the UN Location Code.

UN Location Code	Country Code	Location Code	UN Location Name
ALMIL	AL	MIL	Milot
BRAGS	BR	AGS	Alagoinhas
HRVUK	HR	VUK	Vukovar
DKAAR	DK	AAR	Aarhus
SVSMG	SV	SMG	San Miguel

Table 47. UN Location

4.5.1.3 Facility

Table 48 contains examples of facility codes and their appertaining attributes.

[3] https://www.iso.org/obp/ui/#search accessed on September 2, 2019.

Facility Code	Facility Name	Code List Provider Code	Code List Provider	UN Location Code	Latitude	Longitude	Address	Facility Type Code
AEAUHADT	KHALIFA PORT CONTAINER TERMINAL	ADT	SMDG	AEAUH	N 24° 48' 37"	E 054° 38' 46"	Khalifa Port Container Terminal Building 70 Taweelah - Abu Dhabi - U.A.E.	POTE
AUBNEDPBNE	DP WORLD BRISBANE FISHERMAN ISLANDS	DPBNE	SMDG	AUBNE	S 27° 22' 23"	E 153° 10' 14"	Wharf 4, Port Drive, Fisherman Islands, Port of Brisbane, QLD 4178, Australia	POTE
INNSAGTICI	GATEWAY TERMINALS INDIA (GTI)	GTICI	SMDG	INNSA	N 18° 56' 54"	E 072° 56' 29"	APM Terminals Mumbai, Gateway Terminals India Pvt. Ltd., GTI House, JNPT, Sheva, Navi Mumbai 400707, India	POTE

Table 48. Facility

4.5.1.4 Facility Type

Table 49 contains the different Facility Type codes, their names, and the description of them as defined by the DCSA.

Facility Type Code	Facility Type Name	Facility Type Description
BOCR	Border crossing	Border crossing is the point at a border between two countries where people, transports or goods can cross. This may or may not include a customs checkpoint.
CULO	Customer location	Customer location is the premise of the customer, who can be either the shipper or the consignee.
COFS	Container freight station	Container freight station is a facility where LCL (Less Than Container Load) shipments are consolidated or dispersed, cargo is stuffed into containers prior to shipment, or cargo is stripped from containers prior to release to the consignee.
COYA	Container yard	Container yard is a facility in relative proximity to a port or inland terminal for intermediate storage of equipment. This facility, as an alternative to storing equipment at the port or inland terminal, provides intermediate storage of equipment until loading for the next transport leg can commence. This is also known as off-dock storage.
DEPO	Depot	Depot is a designated area where empty equipment is stored between use.
INTE	Inland terminal	Inland terminal is a facility where containers are loaded, moved or discharged. The inland terminal can be serviced by trucks, rail and barges (at river terminals).
POTE	Port terminal	Port terminal is a facility located adjacent to a waterway where containers are loaded, moved or discharged onto/from sea-going vessels and barges.

Table 49. Facility Type

5 Selected data modeling terms defined

Table 50 provides a definition of selected terms used throughout this document and provides the reader with insight into the meaning of the term and the origin of the definition. Specific terms and definitions that are indispensable for this document may include alternative or reproduced definitions from existing standards, or they may be referenced as a shared understanding within the DCSA.

Term	Definition
Data entity	An object in a data model (e.g. in The DCSA Logical Data Model; *Equipment* is a data entity).
Information model	The information model refers to a collection of artifacts and products that help define the information that is relevant to the container shipping industry.
Logical data model	A graphical way of representing data architecture without any regard to the physical implementation or the database management system technology involved in storing the data, providing information about the various entities, and the relationships between the entities.
Reference data	Reference data are data that define the set of permissible values to be used by the data entities. Reference data is typically a class of data that are commonly referred to as code tables or look-up tables consisting of two attributes: a code and a description. Reference data may be described as any kind of data that is used to categorize other data or connecting data in a database.

Table 50. Selected data modeling terms