Core Component (UN/CCL) Library Maintenance, Validation and UN/CEFACT Reference Data Models
UN/CEFACT Key Outputs

• Business Standards
  • Process Models
  • Reference Data Models
  • Semantic Libraries (UNTDED, Core Component Library (CCL) and UN/EDIFACT Directories)

• Trade Facilitation Recommendations
• Technical Specifications
Semantic Foundation - Core Component (CCs)

Object Class Library
(D21A ~ 600 CCs)

Business Information Entities (BIEs)
Reuses of Object Class Library in different business Contexts
(D21A ~ 1330 BIEs)
UN/CEFACT Core Component Library Status

Latest Version D21A

- 1330 Aggregated Business Entities (ABIEs) in total

- Only 160 ABIEs needed to cover the business processes of international supply chains (Buy/Ship/Pay)

CCL includes components which support UN/CEFACT Domain Business Standards in the areas of:

- Cross Industry Supply Chain
- Multimodal Transport & Logistics
- Agricultural eCert, Animal Passports, eLabs & FLUX Fisheries
- Sustainability and circular economy component structures
- Cross-border management
CCL Production

The following steps apply to all requests for changes to the Core Component Library:

• Change request submitted from a project team
• Technical assessment by an editor
• Semantic assessment by a team including submitter(s)
• Harmonization
• Update of CCL
• Validation of updated library and schema
  • Quality Assurance
  • Formal Validation
• Publication
Maintenance Steps

- Technical and semantic assessments are based on published checklists
- Domain experts are needed for semantic assessment of the business need and solution
- Harmonization includes:
  - comparison of the change to the existing library to determine if it is indeed ‘new’ and not semantically equivalent to something that already exists
  - any changes to the submission are agreed upon by the submitter and by the appropriate domain team(s)
CCL Production

• Quality Assurance (including of any syntax solutions)
  • By library team
  • By the submitters

• Validation
  • By experts in the libraries, in the domains involved, in any syntax solutions produced, and in the publication of the particular libraries.

• Publication
  • Libraries are submitted to the UN/CEFACT Secretariat for publication.
# UN/CEFACT Core Components Library (CCL)

## Table of Core Components

<table>
<thead>
<tr>
<th>Identifier</th>
<th>Description</th>
<th>Business In Business Context</th>
<th>Core Data Type</th>
<th>Associated ABIE</th>
<th>Associated ASCC</th>
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## Diagram of Core Components

![Diagram of Core Components](https://www.unece.org/cefact/codesfortrade/unccl/ccl_index.html)

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https://www.unece.org/cefact/codesfortrade/unccl/ccl_index.html
Basis for Semantic Interoperability

Agreed and Harmonised

• Party and Role Definitions
• Semantic Anchors
• Message Structures
• Contextualised Code Subsets
• Contextualised Business Rules
Semantic Anchors

Shipment

A shipment is an identifiable collection of one or more Trade Items (available to be) transported together from the Seller (Original Consignor/Shipper), to the Buyer (Final/Ultimate Consignee):

- A Shipment can only be destined for one Buyer
- A Shipment can be made up of some or all Trade Items from one or more Sales Orders
- A Shipment can have only one Customs UCR
- A shipment may form part or all of a Consignment or may be transported in different Consignments.

Consignment

A consignment is a separately identifiable collection of Consignment Items (available to be) transported from one Consignor to one Consignee via one or more modes of transport as specified in one single transport service contractual document:

- A Consignment can only have one Transport Service Buyer
- A Consignment can only have one Transport Service Provider
- A Consignment can only have one Consignor
- A Consignment can only have one Consignee
- The Transport Service Buyer can be either the Consignor or the Consignee
- A Consignment is made up of one or more Consignment Items
- A Consignment can be made up of some or all Trade Items (aggregated into Consignment Items) from one or more Shipments
Benefits of UN/CEFACT Semantic Models

- The support for information sharing, such as enabled by data pipelines, with the timely capture of quality data from original data sources ensuring supply chain visibility
- Reduction of administrative burden by efficient reuse of data shared within the BUY SHIP PAY domain model
- Standardized data exchange structures, based on common Master data exchange structure and independent of exchange syntax
- Common basis for implementing in chosen data exchange syntax(es)
RDM Data Exchange Structure
Relationships

- Exchange Header
- Regulatory Header
- BUY
- SHIP
- PAY
How CCL growth is managed

Library Maintenance Team responsible for
  • Cross-Domain Harmonisation

Project Teams responsible for
  • Contextualised RDM development, CCL submissions and customised subset exchange structures
Building semantic models using a common library

UN/CEFACT Core Component Library (CCL)

Supply Chain (BUY PAY Context) Reference Data Model
- e.g. Invoice
- e.g. Order
- e.g. Quotation
- BUY PAY Master (Master message structure)

BUY SHIP PAY Reference Data Model
- Based on and subset of
- Multimodal Transport (SHIP Context) Reference Data Model
- Based on
- Based on
- Based on

BUY SHIP PAY MASTER (Master message structure)
- Based on
- Based on
- Based on

Multimodal Transport (SHIP Context) Reference Data Model
- e.g. Bill of Lading
- e.g. Booking
- e.g. BayPlan

SHIP Master (Master message structure)
Example Person Core Component

80 Attributes
27 Associations incl.

17 reuses as Business Information Entities

Reuse example: Transport Person for IMO FAL
UN/CEFACT International Supply Chain Reference Data Model Family - Future

Buy/Ship/Pay (BSP) RDM

- SC RDM: Cross Industry Supply Chain View
- MMT RDM: Multi Modal Transport View
- CBM RDM: Cross-Border Management View
- SDCE RDM: Sustainable Development & Circular Economy View
UN/CEFACT Publication Trade Example: Cross Industry Invoice (CII)

BUY PAY (Supply Chain)  
CCL subset

BUY PAY  
Master message structure

Invoice data exchange structure

Syntax Instantiation e.g.
XML schema, JSON LD?

BUY SHIP PAY (BSP)  
Semantic model subset of UN/CCL

BUY SHIP PAY  
Master message structure

BUY PAY  
Exchange syntax-neutral data exchange structure

Supply Chain RDM

Customised Subset (Decorated)

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UN/CEFACT Publication Transport Example: electronic Road Consignment Note (eCMR)

BUY SHIP PAY (BSP)
Semantic model
Subset of UN/CCL

BUY SHIP PAY
Master message structure

MMT subset
Exchange syntax-neutral
data exchange structure

SHIP (MultiModal Transport)
CCL subset

SHIP
Master message structure

eCMR message structure

Syntax Instantiation e.g.
XML schema, JSON LD?

Multi Modal
Transport RDM

Customised Subset
(Decorated)
Thank You

• All UNECE and UN/CEFACT Recommendations, codes, standards and publications are available for free on our website at:

  • [www.unece.org/cefact/](http://www.unece.org/cefact/) and tfig.unece.org

• All experts are welcome to join the standards development work free of charge

**UN/CEFACT Secretariat**

• Lance THOMPSON [lance.thompson@un.org](mailto:lance.thompson@un.org)