Cargo Messaging Standards

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5th November, Marseille
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Role of Electronic Messaging in Air Cargo

- Facilitate Air Cargo end to end business processes including Sales, Operations and Finance.

- Fulfill Customs Requirements for Advance Cargo Information (ACI) e.g. US-AMS, EU-ICS, CA-ACI etc.
  
  Note: The Messaging standards are also used in US-ACAS pilots

- Compliance with Security Regulations such as electronic Consignment Security (e-CSD) etc.
Air Cargo Messaging Standards

- Two messaging standards are available in the air cargo industry
  - Cargo-IMP (traditional)
  - Cargo-XML (emerging)

- Developed and Maintained by the specific industry groups
  - Cargo-Data Interchange Task Force (CDITF)
  - Cargo-XML Task Force (CXMLTF)

- Distributed by IATA through the specific publications
  - Cargo-IMP Manual
  - Cargo-XML Manual and Toolkit
Cargo-IMP Standards

- Exist since 1975 - initially used by airlines for cargo interlining
- Initially exchanged using traditional SITA Type B Messaging
- Expanded to big forwarders, GHAs and some Customs Admin
- Hundreds of million of CIMP messages exchanged per year
- Cargo-IMP Manual 34th edition was produced in 2014
- 78 Cargo-IMP Messages are available in the latest edition
Cargo-XML Standards

- Development started in 2010
- Support modern technology and are exchanged over the internet
- Based on the UN/CEFACT standards and compatible with WCO DM
- Multimodal and Cross-border
- Limited adoption by the industry
- Cargo-XML Manual 3rd edition was produced in 2015
- 15 Cargo-XML Messages are available in the latest edition
Industry Cargo-EDI Strategy

- IATA has stopped producing new editions of Cargo-IMP Manual.
- Cargo-IMP Manual 34th is the last & final edition.
- Further developments in the Cargo-XML Messages only.
- Cargo-XML Manual and Toolkit is maintained.

Note: Cargo-IMP Messages can still be used but there will be no new versions.
IATA Recommendation

“Use latest versions of Cargo-IMP or adopt Cargo-XML Standards”
Cargo-XML Task Force (CXMLTF)
Cargo-XML Task Force (CXMLTF)
**CXMLTF – Approach to recommend new standards**

- **UNECE**
  United Nations Economic Commission for Europe

- **ISO**
  International Organisation for Standardisation / Technical Committee

- **UNTDED**
  United Nation Trade Data Element Directory

- **WCO Revised Kyoto Convention & WCO Data Model**

- **CCTS**
  UN/CEFACT Core Component Technical Specification

- **Cross Border Supply Chain Data Model**
  UN Layout Key (Recommendation n°1)

- **UN/CEFACT CCL**
  UN/CEFACT Core Component Library

- **IATA Cargo-XML Messages**

- **Task Force & Vendors Input**

- **UN/CEFACT NDRs**
  XML Naming and Design Rules

- **Cooperation with Standardization bodies**
  TBG1, 2, 3, 4, 17

- **UNECE UN/EDIFACT UN/CEFACT List of Trade Facilitation Recommendations**
CXMLTF has developed 15 Cargo-XML Messages that has been endorsed by the IATA Cargo Services Conference (CSC). These are:

<table>
<thead>
<tr>
<th>Transport Messages</th>
<th>Acronym</th>
<th>Commercial Messages</th>
<th>Acronym</th>
</tr>
</thead>
<tbody>
<tr>
<td>XML Waybill</td>
<td>XFWB</td>
<td>XML Invoice</td>
<td>XINV</td>
</tr>
<tr>
<td>XML House Waybill</td>
<td>XFZB</td>
<td>XML Packing List</td>
<td>XPCL</td>
</tr>
<tr>
<td>XML House Manifest</td>
<td>XFHL</td>
<td>XML Certificate of Origin</td>
<td>XCOO</td>
</tr>
<tr>
<td>XML Flight Manifest</td>
<td>XFFM</td>
<td>XML Shippers Letter of Instruction</td>
<td>XSLI</td>
</tr>
<tr>
<td>XML Freight Booked List</td>
<td>XFBL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>XML Status Message</td>
<td>XFSU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>XML Response Message</td>
<td>XFNMI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>XML Booking Message</td>
<td>XFFR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>XML Custom Status Notification</td>
<td>XCSN</td>
<td></td>
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</tr>
<tr>
<td>XML Shippers Dec for DG</td>
<td>XSDG</td>
<td></td>
<td></td>
</tr>
<tr>
<td>XML Generic Request Message</td>
<td>XGRQ</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Cargo-XML Messages (2/2)

- XML Rate Information Message is being developed.
- Intended to be used for rates exchange between airlines and partners.
- Rates such as Market/Contract/Spot
# Cargo-IMP vs Cargo-XML

<table>
<thead>
<tr>
<th>Features</th>
<th>Cargo-IMP</th>
<th>Cargo-XML</th>
</tr>
</thead>
<tbody>
<tr>
<td>Character Set</td>
<td>Limited (ASCII 7 bit)</td>
<td>Extended (UTF-8)</td>
</tr>
<tr>
<td>Size</td>
<td>Limited</td>
<td>Extended</td>
</tr>
<tr>
<td>Field/Line</td>
<td>65 characters</td>
<td>unlimited</td>
</tr>
<tr>
<td>Message</td>
<td>3500 characters</td>
<td>unlimited</td>
</tr>
<tr>
<td>Scope</td>
<td>Airport to Airport</td>
<td>End to end supply chain</td>
</tr>
<tr>
<td>Occurrences</td>
<td>Limited</td>
<td>Unlimited</td>
</tr>
<tr>
<td>Message Structure</td>
<td>Constraints</td>
<td>Flexible</td>
</tr>
<tr>
<td>Data Type</td>
<td>Limited</td>
<td>Extended</td>
</tr>
<tr>
<td>Communication Medium</td>
<td>Traditionally Proprietary (Now Public)</td>
<td>Public - Internet based</td>
</tr>
<tr>
<td>Platform Dependent</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Data Quality</td>
<td>Modest</td>
<td>Improved</td>
</tr>
<tr>
<td>Error Handling</td>
<td>Cumbersome</td>
<td>Improved</td>
</tr>
<tr>
<td>Data Validation</td>
<td>No</td>
<td>Yes (XSD)</td>
</tr>
<tr>
<td>UN/CEFACT Standards</td>
<td>No Compatibility</td>
<td>Compatible</td>
</tr>
<tr>
<td>Multimodal</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Cross-border</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Cargo-XML – Dimensions

Cargo-XML standards are delivered in an innovative way that:

- Improves industry efficiency
- Facilitates industry adoption
- Allows compliance with Regulations
- Facilitates advocacy
Where are the Cargo-XML messages published? (Cargo-XML Manual and Toolkit)

www.iata.org/cargoxm-toolkit

- Published Annually
- 3rd Edition is latest effective 1st January 2015
- Regular web updates
Features of 3rd Edition

Prominent Features:

- Cargo-XML Scorecard
- Migration Guidelines between Cargo-IMP ↔ Cargo-XML
- Cargo-XML Implementation Strategies – a White Paper
## Cargo-XML Scorecard for CXMLTF

<table>
<thead>
<tr>
<th>Company Name</th>
<th>XFWB</th>
<th>XFBZ</th>
<th>XEHL</th>
<th>XEFM</th>
<th>XFBF</th>
<th>XFSU</th>
<th>XFNM</th>
<th>XFFR</th>
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<tbody>
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<td>Air Canada</td>
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<td>Air France/KLM Cargo</td>
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<td>ALHA Group</td>
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<td>American Airlines Cargo</td>
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<td>British Airways/IAG</td>
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<td>Cargolux</td>
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<td>Cathay Pacific Cargo</td>
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<td>Delta Air Lines</td>
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<td>Emirates SkyCargo</td>
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<td>Korean Airline Cargo</td>
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<td>Lufthansa Cargo AG</td>
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<td>Qantas Freight</td>
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<tr>
<td>SAS Cargo</td>
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<tr>
<td>Singapore Airlines Cargo</td>
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<td>Swissport</td>
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<tr>
<td>Swiss WorldCargo</td>
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</tbody>
</table>
Cargo-XML White Paper


Although it is possible to support the Cargo-IMP partners in a Cargo-XML implementation however, it may result in compromising certain benefits of the Cargo-XML messages.

Companies migrating to Cargo-XML Messages need to have a solution in place to support their Cargo-IMP Partners.

It is recommended that parties involved in Cargo-XML messages exchange, upgrade their Cargo Management and/or Messaging Systems to include these additional fields of the Cargo-XML messages otherwise; there is a risk of data/information loss.
What are the Tools available for Cargo-XML Adoption?

https://cargo-xml-autocheck.iata.org/
Cargo-XML Autocheck

- Powerful online service
- Syntax check validation
- Self-test without partner
- Support during rollout and when connecting additional partners
- Permanent availability (24/7)
- High data quality and integrity
- Test results immediately available
- Fast overview of the error situation

https://cargo-xml-autocheck.iata.org/
Cargo-XML Training/Consultancy

http://www.iata.org/training/
Why Cargo-XML Training?

```xml
- <ram:IncludedMasterConsignmentItem>
  <ram:SequenceNumeric>1</ram:SequenceNumeric>
  <ram:TypeCode listAgencyID="1"/>
  <ram:GrossWeightMeasure unitCode="KGM">2360.0</ram:GrossWeightMeasure>
  <ram:GrossVolumeMeasure unitCode="MTQ">0.01</ram:GrossVolumeMeasure>
  <ram:PackageQuantity>318</ram:PackageQuantity>
  <ram:PieceQuantity>2</ram:PieceQuantity>
  <ram:Information>NDA</ram:Information>
</ram:IncludedMasterConsignmentItem>

- <ram:NatureIdentificationTransportCargo>
  <ram:Identification>FRESH FOODSTUFFS URGENT PERISHABLES - PLEASE DONT DELAY
  PLEASE PLACE IN CHILLER 2 DEGREES C UPON ARRIVAL 174 CARTONS LOADED INTO
  AKE14092XX 1335.0 KGS 144 CARTONS LOADED INTO AKE14092XX 1025.0 KGS DIM 1X1X1.2</ram:Identification>
</ram:NatureIdentificationTransportCargo>

- <ram:ApplicableFreightRateServiceCharge>
  <ram:CategoryCode>Q</ram:CategoryCode>
  <ram:ChargeableWeightMeasure unitCode="KGM">2360.0</ram:ChargeableWeightMeasure>
```
Cargo-XML Training

- Cargo-XML Training Course is available
- Classroom Training at IATA training center and in-company
- In company Training - tailored as per your requirements
- Miami training took place Feb 2nd, 13 people
- UK training took place on Jun 4th, 7 people
- Airlines, ground handlers and IT Providers
- Project managers and developers

Click here to visit webpage for Cargo-XML Training
Cargo-XML Standards Workshops

www.iata.org/events/cargo-xml-workshop
Cargo-XML Workshops

**Highlights**

- Industry experts share implementation experience
- Discussions on strategies to adopt Cargo-XML
- Migration from Cargo-IMP to Cargo-XML
- Tools and resources available for implementation
Strategic Partner/IT Service Providers and Cargo-XML

www.iata.org/cargoxml-toolkit
IT Providers (Strategic Partners) & Cargo-XML Licenses (1/2)
IT Providers  (Non Strategic Partners) & Cargo-XML Licenses (2/2)
Customs and Cargo-XML Standards

www.iata.org/cargoxml-toolkit
Customs & IATA Cargo-XML Standards

Following Customs Authorities have got IATA Cargo-XML Manual and Toolkit:

- World Customs Organization (WCO)
- CA-CBSA
- US-CBP
- Mexican Customs
- Argentinian Customs
- Paraguay Customs
- Pakistan Customs
- Abu Dhabi Customs
- Qatar Customs
- Bahrain Customs
IATA & UNCTAD signed MoU on adoption of Cargo-XML standards in ASYCUDA World
C-IMP to Cargo-XML Migration

A Challenge?

Tahir Syed
Manager Cargo Technology, IATA
Syedt@iata.org
Thursday, Nov 5th 2015
Transition to the Cargo-XML…

How do I support my partners who continue to use Cargo-IMP?
Transition to the Cargo-XML…

To what extent Cargo-XML and C-IMP are compatible?
Transition to the Cargo-XML…

What is the impact of big size Cargo-XML message on bandwidth of my network?
Key Fundamentals

Cargo-XML adoption is highly dependent on your:

1. Business partners
2. Cargo Management System Setup
3. Messaging Framework
4. Communication Methodology
Implementation Strategies

- Generally, there are two types of Cargo-XML implementations:

1. **Direct** Cargo-XML adoption
   - *Both Sender and Recipient exchange Cargo-XML messages*

2. **Transformation** between Cargo-IMP and Cargo-XML
   - *Either Sender or Recipient is converting from one format to another.*
   - *Applicable when*
     - *migrating from Cargo-IMP to Cargo-XML*
     - *supporting partner that uses a different standard*
Message Exchange Models

**Model 1 – Communication with Cargo-IMP Partner**

- **Cargo-XML**
- **Conversion to C-IMP**
- **Transmit C-IMP**

- **Cargo-IMP**
- **Conversion to C-IMP**
- **Transmit C-IMP**

**Model 2 – Communication with Cargo-XML Partner**

- **Cargo-XML**
- **Conversion to C-IMP**
- **Transmit Cargo-XML**

- **Cargo-IMP**
- **Conversion to C-XML**
- **Transmit Cargo-XML**
Transition Facilitation

- IATA is facilitating industry transition to Cargo-XML by offering:
  - “Migration Guidelines” between C-IMP and Cargo-XML
  - “Data Length Recommendations” for Cargo-XML
  - “Mapping” between C-IMP and Cargo-XML
  - “White Paper” communicating implementation strategies
  - “Message Samples” for C-IMP and equivalent Cargo-XML
  - “Support Desk” for Cargo-XML

Note: All of above is published in the IATA Cargo-XML Manual and Toolkit and also available on the www.iata.org/cargo-xml
Basic Components for Conversion

1. Character Set
2. Field Length
3. Field Occurrence
4. Structure
5. Semantic
6. Field Existence
7. Data Types
8. Message Split
# C-IMP to Cargo-XML Conversion

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 Character Set</td>
<td>ASCII 7 bit Character Set is recommended for both Cargo-XML and Cargo-IMP therefore no issue in character conversion.</td>
</tr>
<tr>
<td>1.2 Field lengths</td>
<td>1.2.1 Cargo-IMP Fields are limited in length and there are no issues in conversion to Cargo-XML.</td>
</tr>
<tr>
<td>1.3 Occurrences</td>
<td>1.3.1 Cargo-IMP Fields have limited occurrences therefore no issues in conversion to Cargo-XML.</td>
</tr>
<tr>
<td>1.4 Differences in message structure</td>
<td>1.4.1 Cargo-IMP Messages structure is different than than the Cargo-XML Messages. Conversion solution should be developed in accordance with the IATA Cargo-XML Manual and Toolkit.</td>
</tr>
<tr>
<td>1.5 Difference in message semantics</td>
<td></td>
</tr>
</tbody>
</table>
| 1.6 Field Existence (Optional/ Mandatory/Conditional) | 1.6.1 Each Cargo-XML Message contains all information of equivalent CIMP Message  
1.6.2 Additional information in the Cargo-XML Message is optional  
1.6.3 All additional mandatory fields which are not in CIMP comes with a default fixed values e.g. Mode of Transport Name = Air |
| 1.7 Difference in Data Type | 1.7.1 Data Types could be different however, conversion solution should take care of it. For example NVC becomes NoValueForCustoms = true in Cargo-XML |
| 1.8 Message split | 1.8.1 CIMP Messages may split into different parts and the Cargo-XML output is a single file. There is no issue in conversion to Cargo-XML. |
Cargo-XML to C-IMP Conversion

2.1 Character Set
- ASCII 7 bit Character Set is recommended for both Cargo-XML and Cargo-IMP therefore no issue in character conversion.

2.2 Field lengths
- Each Cargo-XML Message is published with a recommended data length for every data element. The data length recommendation is designed considering the Cargo-IMP Data Element length. As long as, recommendation is followed there is no issue in conversion. Otherwise, it may result in data loss as one need to use either Truncation, Rejection or Concatenation

2.3 Occurrences
- Cargo-CXML Messages may have data elements with more occurrences than the related element in Cargo-IMP. A recommendation on the data length is designed and specified in the Cargo-XML Manual and Toolkit. If not followed then may result into either rejection or Truncation

2.4 Differences in message structure
- Cargo-XML Messages structure is different than the C-IMP Messages. It need to be addressed in the Conversion Solution. The solution need to be developed in accordance with the specification in Cargo-XML Manual and Toolkit.

2.5 Difference in Message Semantics
- Cargo-XML Messages are multipurpose and may have different semantic than C-IMP. It need to be addressed in the Conversion Solution that need to be developed in accordance with the specification in Cargo-XML Manual and Toolkit.

2.6 Fields Existence (Optional/ Mandatory)
- Cargo-XML Messages have additional fields that are not available in C-IMP. Cargo System and/or Messaging Solution need to be upgraded to use these fields. These additional fields are either optional or mandatory with default value that make it possible to covert Cargo-XML to C-IMP.

2.7 Difference in DataType
- Cargo-CXML may have different data type than the related fields in CIMP. It need to be addressed in the Conversion Solution that need to be developed in accordance with the specification in Cargo-XML Manual and Toolkit. For example, IN Cargo-IMP Messages Data Element "No value Declared" is indicated by value NVC however it boolean in Cargo-XML Messages.

2.8 Business document split over multiple messages
- Does not happen in Cargo-XML
For further details visit http://www.iata.org/cargo-xml