

Webservice Standardization



70th SMDG Meeting in St. Petersburg

27 September 2017



Hapag-Lloyd

Webservice Standardization by SMDG

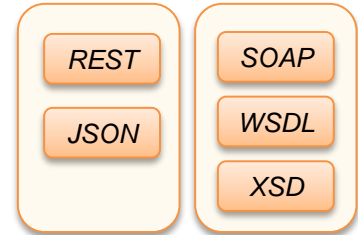


Requirements on standardization

At the SMDG meeting in March 2017 in Genoa it was decided that in addition to the world of UN/Edifact standards, the SMDG would also start to engage in the standardization of Webservices.

Current level of standardization

- ✓ **Technical standards** already exist, such as REST or SOAP.
The SMDG will use them but will **not** engage in developing them.
- **Implementation guides** – no standards exists.
Each party implements based on their own individual requirements.
- **Business level description** of Input Request and Output Response -
No standard exists. Each party uses their own wording.



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Existing standards for technical layer

REST – Representational state transfer

REST is a simple alternative to WSDL and SOAP. It's a programming framework (a core set of principles, properties, and constraints) that allows a service requestor to access web resources (a core set of principles, properties, and constraints)

JSON – JavaScript Object Notation

It is the most common, language-independent data format used for browser/server communication. It is partly replacing XML. It's based on JavaScript. It's a simple data format that uses human-readable text to transmit data objects.

SOAP - Simple Object Access Protocol

SOAP is an XML-based protocol specification for exchanging structured information via web services. SOAP is a W3C standard. In use since version 1.0 in 1999, as successor of RPC.

As an **example** of what SOAP procedures can do, an application can send a SOAP request to a server that has web services enabled with the parameters for a search. The server then returns a SOAP response (an XML-formatted document with the resulting data).

SOAP is widely in use for Webservices.

WSDL – Webservice Description Language

WSDL is an **XML-based** description language **independent** of transmission protocol, programming language or development platform. The filename extension is **.wsdl**. Current W3C standard is **WSDL 2.0**. It provides a **machine-readable** description of how the service can be called, what parameters it expects, and what data structures it returns.

XSD – XML Schema Definition

specifies how to describe the elements in an XML document. W3C recommendation.

W3C = World Wide Web Consortium

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Missing: A catalog of Webservices from Business Perspective

- ✓ All carriers and shippers presumably have similar operational requirements

Role of the SMDG

- The SMDG will publish a catalog of Webservices for the maritime industry. Users could be Shipper – Forwarder – Carrier – Agent – Terminal – Customs
- For each Webservice in the catalog there will be the business description, the implementation guide and the technical source
- The SMDG will offer the standardized Webservices in addition to the Edifact MIGs.

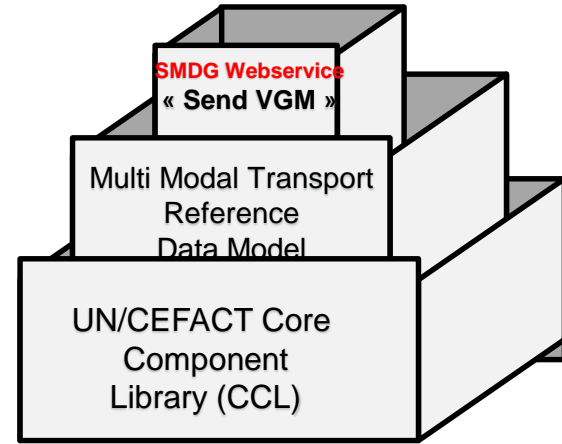
Name	Get Tare Weight	Send VGM	Obtain schedule connections	Track + Trace
Purpose	Shipper needs container tare weight for VGM calculation	Shipper sends VGM to carrier or terminal and needs immediate reply (accept or reject)	Shipper needs schedule connections between two ports e.g. from SGSIN to NLRTM	Shipper needs to know the position of his cargo
Input request	Container number	VGM, container ID, booking number etc	two ports e.g. from SGSIN to NLRTM	Booking or B/L or container number
Output response	Size type and tare weight	Accept or reject with reason	Vessels and voyages with their ETA / ETD and cut-offs	Tracing status / latest position



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Modelling the Business Layer

- Use the MMT Multimodal Transport Data Reference Model by UN/CEFACT
 - ✓ Do not re-invent new wheel, use existing techniques.
 - ✓ The Multi Modal Transport (MMT) reference data model is a limited structured subset of the UN/CEFACT ebXML Core Components Library.
 - ✓ The Core Components Library, a neutral and syntax independent business data library with clear reference to the UN/EDIFACT transport messages.



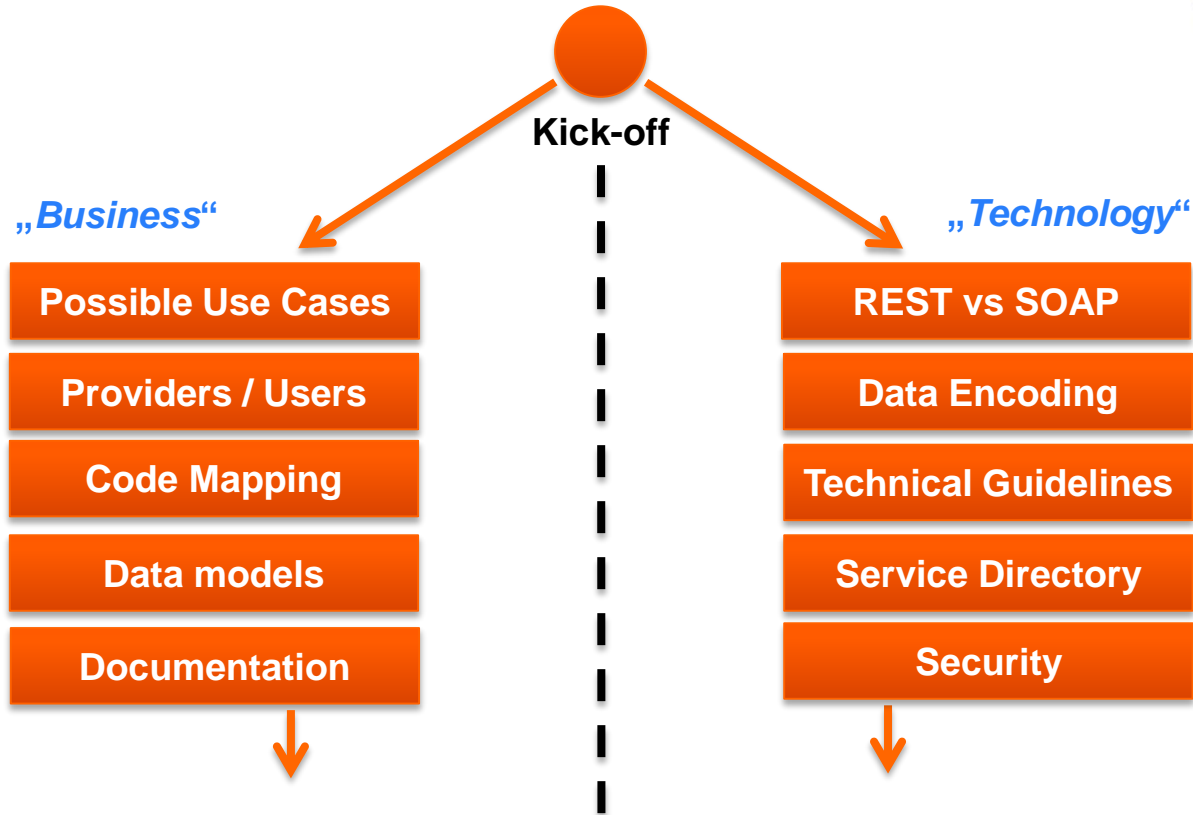
The Core Component Technical Specification (CCTS) defines how the data is structured within the CCL and to use the CCL effectively it is important to have at least a basic understanding of the CCTS.

Explanation of the core components technical specification: <http://tfig.unece.org/contents/core-component-technical-specifications.htm>
The core components technical specification: http://www.unece.org/fileadmin/DAM/cefact/codesfortrade/CCTS_index.htm

Explanation of the core components library: <http://tfig.unece.org/contents/uncefact-ccl.htm>
The Core Components Library: http://www.unece.org/cefact/codesfortrade/uncl/CCL_index.html

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Moving forward



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Moving forward



Let's try to separate business aspects („what“ we need) from technical ones („how“ shall we do it)

Business:

- What are the possible use cases, which are simple, where is the biggest impact?
- Who will be provider of a web service, who will be the user? Is the use restricted to dedicated B2B scenarios, or does any web service provide an „open“ web service (no prior registration required)? Is there any potential in a shared community („SMDG as authentication provider“), or will users be registered/managed by individual web service?
- What about Code mappings? In EDIfact, this is typically based on agreed codes between partners, often mapped by the receiver into his own codes. How does that translate into a web service scenario?
- For each identified use case: What's needed in the data model, how does the interaction work?
- How do we intend to document our standardized web service use cases?

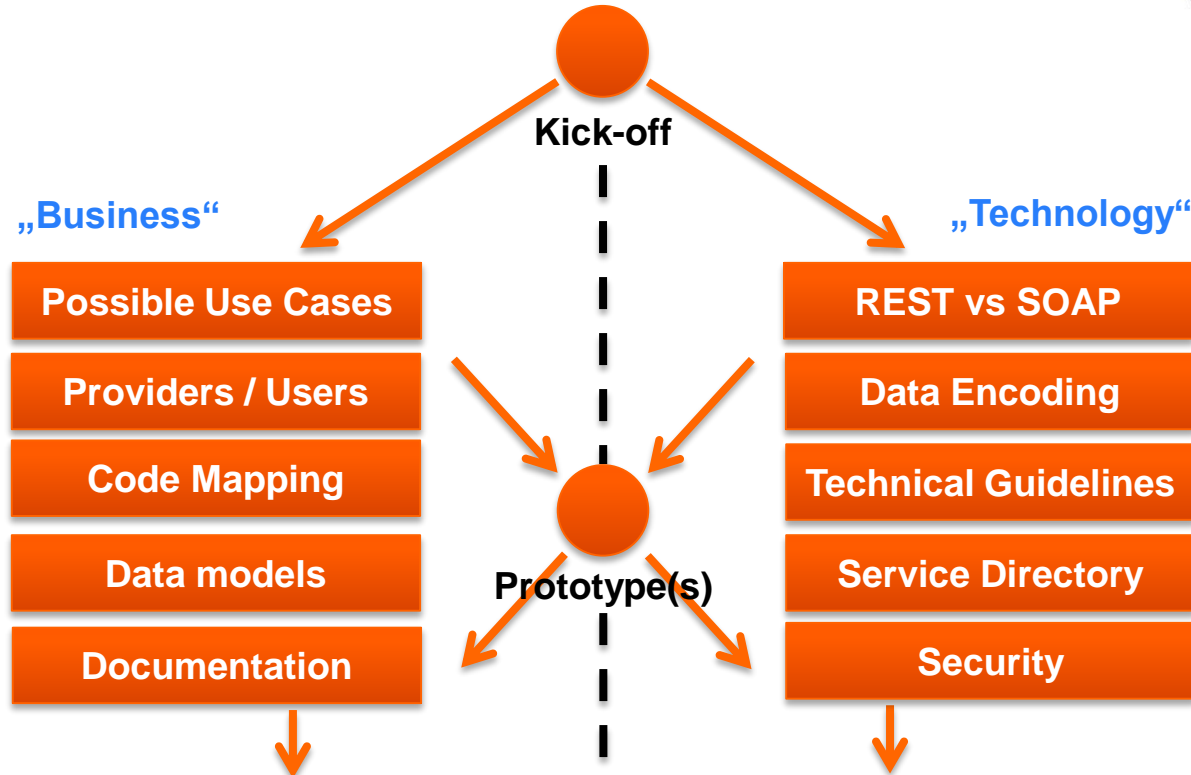
Technology:

- What are the principles we agree on (REST? SOAP?)
- How do we encode data models (general principle preferred to avoid technical discussions for each use case separately). Core components as a basis? General mapping for multiple MIME types (JSON, XML) would be very helpful, web service users should select the encoding he prefers.
- What are the general guidelines to ensure for SMDG web services (keeping as much freedom of implementation as possible)
- Does it make sense to provide a directory of web service implementations to facilitate acceptance of SMDG web services?
- Are there any general aspects of Security we need to standardize?

And many more topics will come up once we start...

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Moving forward





... anyhow let's try to build 1 or 2 early prototypes as soon as possible to get experience and learn from it!

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Examples – Pilot candidates

Real-life use cases for Webservice required or already existing in the maritime industry

Webservice Name:	Get Tare Weight	Send VGM	Obtain schedule connections	Schedule to Terminal	Track + Trace Shipper	Automated container tracking
Purpose:	Shipper needs container tare weight for VGM calculation	Shipper sends VGM to carrier or terminal and needs immediate reply (accept or reject)	Shipper needs schedule connections between two ports e.g. from SGSIN to NLRTM	Carrier sends vessel schedule to terminal	Shipper needs to know the position of his cargo	The tracking device provider sends the container position to the carrier
Input request 	Container number	VGM, container ID, booking number etc	two ports e.g. from SGSIN to NLRTM	Locode and Terminalcode	Booking or B/L or container number	- / - (time triggered)
Output response 	Size type and tare weight, MGW + other cntr master data	Accept or reject with reason	Vessels and voyages with their ETA / ETD and cut-offs	For each voyage: Vessel name + ID, voyage number, ETA+ETD + cut-offs	Tracing status / latest position	Container number, position Lat+Lon

Other Possible Working Group Tasks

Working Group Roadmap

- Consider and discuss synchronization with other standards groups:
 - UN/CEFACT - domains and CCL
 - WCO Data Model Team - data model and recent focus group on IMO FAL messages
 - GS1 - GS1 UN/CEFACT XML
 - DG MOVE
- Explore EDIFACT/XML linkage and best conversion practices
- Create a list of existing relevant Web Services best practice case studies.
 - Commercial, ports, Customs, transportation ministries
- Determine impact of XML message size.
- Consider alternatives to XML/JSON
- Create demonstration pilot with software provider members.
 - Example message sets
 - TPFREP, EIPP ?
- Strategic goal: Linkage to possible SMDG Web Services offerings ???
 - On-demand, real-time:
 - message validation, version transformations, language mappings, archiving



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Working Group Roadmap

3. Kickoff call with Working Group in Nov 2017?

- Presentation by working group chairs
- Align on goals, technical definition, use case definition, granularity, pilot candidates
- Invite view from Terminals
- Assign homework to members: Prepare draft for Standards definition
Prepare pilot candidates



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Working Group Roadmap

5. Next SMDG meeting

- Presentation concepts for technical level, granularity for REST / JSON levels, Standards definition, Use case level definition using the MMT Data Model
- Live presentation of pilot Webservices
- Obtain approval for the concept
- Discuss next steps – more Webservice candidates
- Discuss roll out concept, how to reach out to different parties in the maritime transport chain for example EU customs authorities

