

37th UN/CEFACT Forum Specification Domain meeting

10:00 – 12:30 12th of October

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Vice Chair:

Domain Coordinator:

Marek Laskowski

Hisanao Sugamata

Agenda

1. Project status review

2. API project roadmap

3. Requirements from Business Domains

4. Way Forward

Project Status

- **XHE Technical Specification** (Project leader: Anders Grangard)
Published → BIEs will be in CCL
- **Application Error and Acknowledgement** (Project leader: Hisanao Sugamata)
Published → BIEs were in CCL
- **Message Construction Guide for CCBDA** (Project leader: Hisanao Sugamata)
Finalized → Change request for NDR&CCBDA
- **RDM2API** (Project leader: Steven Capell)
Guide on JSON-LD vocabulary
Guide on UML Profile
→ Developed as a trial version
- **API Town Plan** (Project leader: Steven Capell)
→ Pending
- **API Technical Specification** (Project leader: Ian Watt)
→ Project started

API Technical Specification Project (Leader: Ian Watt)

Purpose

Multiple groups within UN/CEFACT wish to develop standard APIs as part of the set of technical deliverables from their project. The RDM2API project demonstrated that it is possible to go from the semantics of UN/CEFACT towards APIs. This project aims to develop a technical specification in order to move from RDM based deliverables to a standardized API which retains the richness of information available in RDMs.

Scope

Develop a technical specification which will standardize API production for UN/CEFACT RDM-based deliverables.

Deliverables

Application Programming Interface Technical Specification (API TechSpec)

Initial Contributions

RDM2API project “JSON -LD Vocabulary Publishing” guideline
RDM2API project “API 3.0 NDR and interface conformance rules” guideline

API Project Roadmap (for Discussion)

→ Steven Capell

We will discuss what technical specifications of UN/CEFACT will be set and what kind of libraries will be provided by UN/CEFACT and how around API.

Stage1: Business documents as APIs
=> JSON Schema NDR

Stage2: A supply chain vocabulary for the web
=> JSON-LD vocabulary

Stage3: API and VC semantic standards for the linked data trust web
=> API Design methodology

Stage1:Business documents as APIs

- Key stakeholders: Current users of UN/CEFACT e-business standards, especially UN/EDIFACT, that wish to move to Application Programming Interfaces (API).
- Use case: A traditional message exchange using the human-readable interchange format JSON.
- Specification deliverable: A JSON Schema NDR - very similar in concept to the current XML Schema NDR (although probably MUCH shorter and simpler). Parts of the [API design guide](#) deliverable from the RDM2API project will be re-usable for this.
- Business deliverables: once the specification is available, all existing UN/CEFACT e-business standards can just be re-published in an additional new syntax.
- Governance impact: none - just a new syntax for publishing existing work. Also, can be used by new standards of course.

Stage2:A supply chain vocabulary for the web

- Key stakeholders: Web developers building products and services for the modern supply chain who want to base their data models and interfaces on international standards. In very much the same way as <https://schema.org/> is used today to drive semantic consistency for millions of web publishers. Also, those who might be considering using the <https://w3c-ccg.github.io/traceability-vocab/> initiative, but would prefer to use a potentially more authoritative UN vocabulary.
- Use case: Any supply chain website or API that wants to present its data in a standard way. Just as recipe publishers follow <https://schema.org/Recipe> so that Google can search and present consistently, so too carriers, forwarders, traders, and regulators could use something like the draft w3c initiative definition of consignment to consistently represent consignment data on their websites and APIs.
- Specification deliverable: The specification would be very similar to the existing [JSON-LD design guide](#) deliverable from the RDM2API project. Probably 90% re-use.
- Business deliverable: Would be very similar to the existing draft vocabulary in the w3c initiative.
- Governance impact: This is the thing that needs additional work - UN/CEFACT secretariat would need some new tooling and processes to make this publishing activity simple - noting that the publishing would need to include all codelists as well as reference vocabularies.

Stage3:API and VC semantic standards for the linked data trust web

- Key stakeholders: All supply chain stakeholders (traders, intermediaries, carriers, regulators, banks) that want to uplift automation and increase reliability in their processes by dynamically pulling data from its source of truth and verifying its integrity.
- Use case: A transformational shift in the way data is published, accessed, and verified. For example, an importer could provide only a consignment reference to a regulator in order to seek clearance (instead of filing a complete import declaration). The regulator could follow the link, could pull (and verifies) the data about the consignment - which itself would contain discoverable (and verifiable) links to further data such as invoice lines, quality certificates, etc. The regulator could then compute duty obligations and performs automated risk assessments using high integrity verifiable data.
- Specification deliverable: A new methodology for the design of standards for the decentralized reliable web, including an updated NDR for API generation and VC (Verifiable Credential) claims.
- Business deliverable: Business experts use the new methodology to design new entity-based (not document-based) standards. Process modelling changes from bilateral exchange processes to decentralized discovery and verification processes.
- Governance impact: A fairly significant change to the way business experts need to think.

Requirements from Business Domains

SCM: Automotive by Joerg Walther

REST API were considered as the most suitable technology

The deliverables should be based on international standards & best practices

Specify an API toolbox

- UN/CEFACT Data Model

- UN/CEFACT API Design Rules

- Open-API V3.0 Specification

T&L: eCMR by Rudy Hemeleers

API trial implementation for eCMR based on RDM2API

- JSON-LD vocabulary (based on RDM2API project)

- Consider the data sharing architecture defining Dataset instead of Document

Key concerns:

- Internet of logistics (API network)

- Semantic Interoperability (JSON-LD, RDF)

- Decentralized identifiers and Verifiable Credentials

Opinions & Concerns by participants

Consensus

Through the trial projects by Steve and Rudy, they showed the API world (Stage 2 and 3) can be covered the business requirements and implementable.

Our deliverables have been open for years. People want a trustworthy partner for the source of data components and maintenance.

Stage for adopting API

We recognize there are 3 stages for adopting the new world of API.

- Stage1: Business documents as APIs=>JSON Schema NDR
- Stage2: A supply chain vocabulary for the web=>JSON-LD vocabulary
- Stage3: API and Verifiable Credential semantic standards for the linked data reliable web=>API Design methodology

Focus on the stage 1 & 2.

The stage 1 is the prerequisite to the stage 2.

The sufficient long-term resources will be needed to support stage 2 comparable with the long-term sufficient resources already needed for current UN/EDIFACT and CCL and RDM maintenance and development work.

Concerns on the transformational shift

Stage 3 is the transformational shift for data sharing among parties, including changing business models and social systems. It can be done only by UN/CEFACT ?

The world already has been moving to jump in the new way of data sharing. UN/CEFACT should lead the momentum.

In the API world, the dataset is to be defined and maintained rather than the document.

Interoperability Issues

The interoperability is the priority when the system is changed.

It needs to continue to support the current businesses using UN/EDIFACT, XML. Stage 3 seems to change “Document Exchange” to another type of data sharing.

The concern about the interoperability among API users: one API for one purpose? one identical API? customizations of API ? the famous 'every API is good as long as it mine'.

Wrap up

- We recognize there are 3 stages for adopting the new world of API.
 - Stage1: Business documents as APIs=>JSON Schema NDR
 - Stage2: A supply chain vocabulary for the web=>JSON-LD vocabulary
 - Stage3: API and Verifiable Credential semantic standards for the linked data reliable web=>API Design methodology
- We will start the stage 1 as a part of the project “ API Technical Specification”.
 - => Suggested as part of the Bureau-approved project
 - => Find the project experts to support the leader
- We will define the project scope of the stage 2.
 - =>Deliverables (Publish format, Publish site) should be defined.
 - =>Resolve the resource issue for development and maintenance.
 - =>It is to be presented to the Bureau.
- We will continue to assess the feasibility and the risk of the stage 3 for UN/CEFACT¹²

Note on the project Stage1 (Comments by the participants)

- Keep semantics in the generated JSON schema
 - => How to inherit the context specified upper level.
 - =>Keep the structure design used for XML schema.
- Watch out the difference between JSON Schema and JSON-LD vocabulary
 - =>JSON schema is defined for the document.
 - =>JSON-LD artifact is a component as a semantic module.
- Solution for JSON schema for the Namespace function of XML schema
 - =>There are no function specifying a namespace which is provided in XML schema.