NIEM MILOPS

STAKEHOLDER ENGAGEMENT

Wednesday, 09 March 2022

AGENDA

Time	Topic	Presenter
1000 -1010	Opening Remarks / Domain Way Forward	Mrs. Katherine Escobar
1010-1020	JADC2 minimum essential metadata	Mr. Charles Chipman
1020-1030	NMO Status	Mrs. Katherine Escobar
1030-1040	NBAC Status	Mr. Kamran Atri & Mr. Thomas Krul
1040-1050	NTAC Status	Dr. Scott Renner & Mr. Mike Hulme
1050-1110	Demo – Restricted Repository	Mr. Mark Dotson & Mr. Ray Cooper
1110-1125	Open Discussion	All
1125-1130	Closing Remarks	Mrs. Katherine Escobar

OPENING REMARKS / INTRODUCTIONS

Katherine Escobar

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DOMAIN WAY FORWARD

- Transition from APAN to Github
- Preview Github site
- Domain Governance review
- Membership (CCB, Domain, Participant)
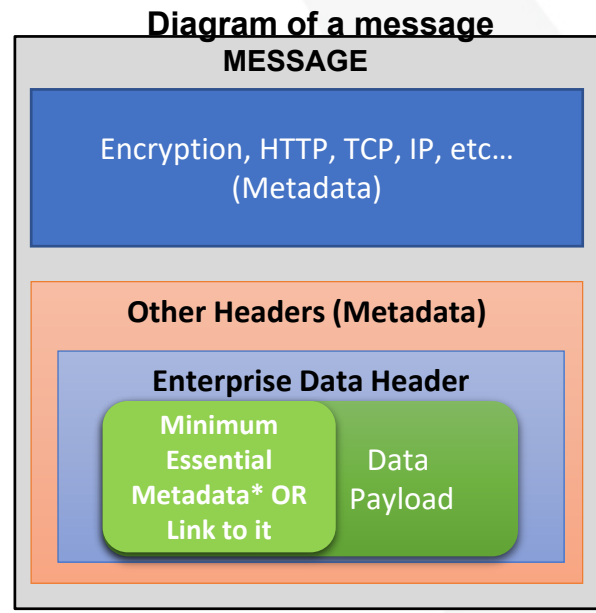
JADC2 MINIMUM ESSENTIAL METADATA

Charles Chipman

DOD / JADC2 MINIMUM ESSENTIAL METADATA (MEM)

Key Considerations:

- "Minimum Essential Metadata (MEM)" is a <u>limited</u> set of metadata necessary to support the 'must have' functions for any data across *DoD, joint, interagency, and coalition* at the time of 'creation' that will be exchanged. The 'must have' functions are:

- **Access**	- **Audit (*multiple types*)**
- **Correlation**	- **Records Management**
- **Discovery**	- **Protection**

- Applies to any DoD data that is exchanged (excludes raw, unprocessed data)
- Applies at the time of creation, as close as is technically feasible to the time of creation for some data assets (e.g. sensor data, etc.), or when DoD acquired the data asset
- MEM is not dependent upon how long a piece of data or information lives (i.e. one day or 20 years)

Diagram of a message

MESSAGE

Encryption, HTTP, TCP, IP, etc…
(Metadata)

Other Headers (Metadata)

Enterprise Data Header

Minimum Essential Metadata* OR Link to it

Data Payload

* Plus any additional function or mission specific metadata applied to the payload beyond the MEM

Any organization or community can add more than the minimum essential at the time of creation not less

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REQUIREMENTS SOURCES

- **Program Management – Information Sharing Environment (PM-ISE) Priority Objective 3 (PO3)**, v1 – Data Tagging Functional Requirements, Dec 2014 – *based upon Dublin Core*

- **National Archives and Records Administration (NARA)** Code of Federal Regulations
  - NARA Bulletin 2015-04: Metadata Guidance *based on Dublin Core*
  - Universal Electronic Records Management Requirements, Version 2 developed by the National Archives and Records Administration's (NARA) Requirements Working Group (RWG)

    https://www.archives.gov/records-mgmt/policy/universalermrequirements

- **NATO/International-** *based on Dublin Core*

- **FIPS & NIST Policies**

- **DoD & Director of National Intelligence Policies**

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DRAFT MINIMUM ESSENTIAL METADATA

Resource Description:

- **Unique Identifier** - *an unambiguous (unique) reference to the resource (PO#3, NARA, & NATO)*
- **Legal Authority** - *The particular documented legal basis for mission activities associated with the creation, retention and use of a resource. (PO#3)*
- **Creator**– *An organizational entity primarily responsible for generating the resource. For DoD, creator is synonymous with author, originator, and collector. (PO#3, NARA, & NATO)*
- **Office of Record** - *Organizational element that is legally responsible for the data asset (e.g. records management, classification, eDiscovery, FOIA search). (Modified from NARA)*
- **Date & Time Created** – *Date and time on which the data resource was created to include when a data resource came under government control (i.e. acquisition of third party data, etc.) (modified from NATO)*
- **Description (Subject)** - *A brief account of the resource. (PO#3, NARA, & NATO)*
- **Format** - *Information about the file format, physical medium, or dimensions of the resource. (NATO)*

Safe Guarding & Sharing – (Entitlements Management)

- **Security Classification** - *A single indicator identifying the highest level of classification contained within a resource (NARA, & NATO)*
- **Disclosure & Releasibility** - *Information pertaining to countries, organizations, or communities approved to receive the resource (PO#3, NARA, & NATO)*
- **Handling Restrictions** - *Limitations not related to classification or releasibility, such as Controlled Unclassified Information designations.(PO#3 & NARA)*

Note: Using the PO#3 terminology with some exceptions (Office of Record, Date & Time Created, and Format)

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NIEM AND METADATA

- Within NIEM, metadata is defined as "data about data"; that is, information that is not descriptive of objects and their relationships, but is descriptive of the data itself

- Characteristics of metadata include:

  - Metadata objects may appear outside the data they describe. They are applied by reference via the metadata attribute

  - Metadata objects may be applied to multiple objects within the same document

  - Each metadata attribute may hold references to multiple metadata objects, which enables messages to apply multiple metadata properties to objects and relationships

- NIEM supports metadata through use of metadata properties and types that are derived from structures:MetadataType

- Examples of NIEM metadata include nc:MetadataType and CUI marking metadata types; NIEM also supports use of IC-ISM

PLAN FOR MEM AND NIEM/MILOPS

- Goal: add MEM to NIEM/MilOps Domain 5.2 Release
- Projected Timeline
  - Mar: map/extend MEM to NIEM using the current version of DoD Minimum Essential Metadata Requirements document
  - Apr/May: process MilOps change request (CR)
  - Jun: Publish in 5.2

QUESTIONS

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NMO STATUS

Katherine Escobar

- OASIS Transition
- NIEM Training
- National Defense University Engagement

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NBAC STATUS

Kamran Atri & Thomas Krul

NTAC STATUS

Dr. Scott Renner & Mike Hulme

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CURRENT ACTIVITIES

- Common Model Format (CMF)
  - Multiple technology support (XML, JSON, RDF, …)
  - Provide open-source CMF toosl for developers
- Guidance for NIEM Message Specifications
- NIEM 6 Architecture improvements

NIEM COMMON MODEL FORMAT (CMF)

- Goal: Technology independence for data models
  - Before: Data models are represented as XML Schema documents
  - After: Data models are represented in the *Common Model Format (CMF)*
- The metamodel is the data model for CMF
- Benefits
  - The NIEM model (core & domains) can be used by developers working with many data formats (JSON, RDF, etc.), and not just XML
  - A single message model can support many message formats
  - A NIEM message in one format can be translated into other formats (XML to JSON, JSON to XML, etc.)
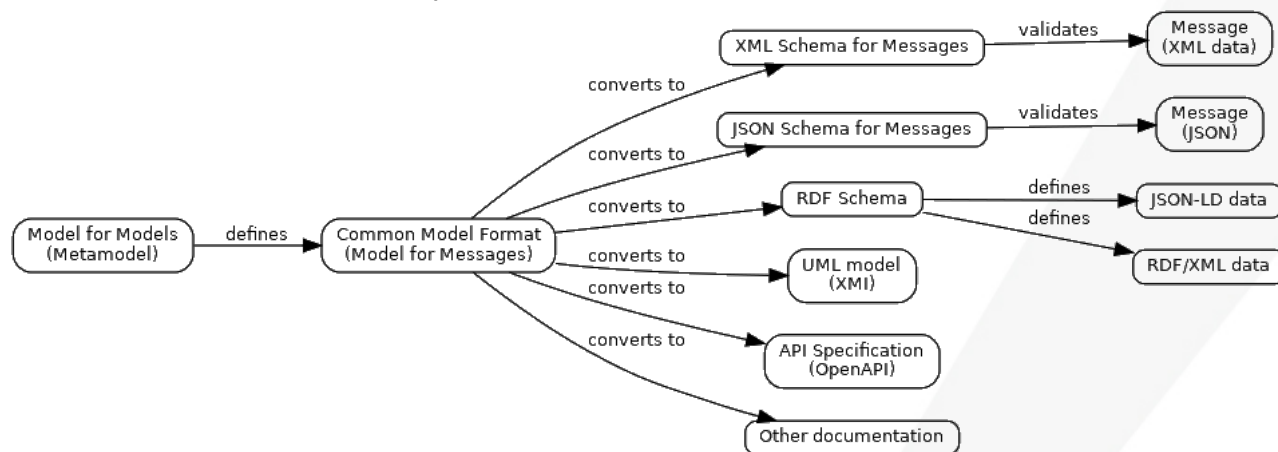
CMF STATUS & 2022 WORK PLAN

- Develop free, open-source metamodel / CMF tools

- Refine the metamodel / CMF as tool development proceeds

- Working now:
  - Metamodel / CMF version 2
  - Convert NIEM-based XML schema to CMF
  - Convert CMF to NIEM XML schema documents

- Planned for 2022:
  - Convert CMF to ontology formalism (RDFS+OWL)
  - Convert CMF to JSON Schema
  - Convert CMF to UML diagrams (XMI)
  - Convert UML diagrams to CMF

- Other technologies, eventually: Google Protocol Buffer, Apache Avro, YAML, etc.

NIEM MESSAGE SPECIFICATIONS

- The simplified next generation of IEPDs
  - Convention over configuration
  - Simple cases made simple, while complex cases still supported
- *Guidance for NIEM Message Specifications* in preparation now
  - A "how-to" guide, not a technical specification
  - Formal specification to follow, if needed

NIEM 6 ARCHITECTURE

- Major architectural changes happen only with a major release
- Next major release is NIEM 6.0 in 2023 (if so directed)
- Several significant changes in the works:
  - Replace XML Schema with CMF as the NIEM model representation
  - Simplify or replace metadata attributes
  - Handle ordered, repeated properties (replace @sequenceID)
  - Currently 14 other proposals
- For each proposal: consider, test, consult NBAC
- All in good time for v6.0 release

DEMO – RESTRICTED REPOSITORY

Mark Dotson & Ray Cooper

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OPEN DISCUSSION

Closing Remarks

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