Discovery of Modeling & Simulation Assets to Support Systems Engineering

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• The ability to discover, evaluate, and reuse relevant M&S assets could potentially improve engineering results and lower overall program costs.

• Tools to increase visibility and accessibility of DoD M&S asset metadata are needed.

Disclaimer: The views presented in this paper are those of the authors and do not necessarily represent the views of the Department of Defense or its Components.
• What is metadata?

• M&S COI metadata specification

• DoD M&S Catalog
What is Metadata?

• Metadata
  – Descriptive information about the meaning of other data (“Data about data”)

• Discovery Metadata
  – Information about M&S assets, such as resources, contacts, taxonomies

• Structural Metadata
  – Information about the rules governing metadata structure and format, such as schemas and transforms
Where is Metadata?

- Discovery Metadata → catalogs
- Structural Metadata → registries
- M&S Assets → repositories
• **MSC-DMS**: M&S Community of Interest Discovery Metadata Specification
  – The metadata specification tailored for the M&S COI that conforms to DDMS
• Specification and user-friendly Implementation Guides are posted on M&S CO’s website www.masco.mil/resource_discovery.html
MSC-DMS Status

• MSC-DMS under formal change management
  – Changes driven by users (mostly) and policy (sometimes)

Updates:

– 24 December 2010, Version 1.4:
  • Reorganization of the specification
  • Adds Contacts and Taxonomy Classifications
  • Multicard capability
  • Eliminate HLA Waiver requirement
  • Alignment with DDMS –V2.0 and 3.0

– 22 March 2010, Version 1.3:
  • Updated enumerated data sets
  • Added new capabilities
  • Improved VV&A coverage

– 9 September 2009, Version 1.2.1:
  • Correction to XML schema import

– 20 February 2009, Version 1.2
  • Alignment to DDMS-V2.0 and IC-ISM-V2.1
  • Content corrections

– 27 August 2008, Version 1.1:
  • Initial Set of User comments
  • DoD M&S Catalog Project Team Comments
  • Improved extensibility

– 21 January 2008, Version 1.0.1:
  • Draft comments
What’s new in 1.4?

Resource Metacard
- id (...)
- taxonomy
- Title
- Type
- Description
- Dates
- Version
- Rights
- Releasability
- Security
- Associations
- POCs
- Keywords
- Usages
- Media
- Image
- Taxonomies Cited
- Extensions
- other

Contact Metacard
- id (person, sponsor)
- Person
  - Name
  - Affiliation
  - Job Title
  - Address
  - Phone
  - Email
  - Web Address
  - Contact Inst
- Organization
  - Name
  - Type
  - Address
  - Phone
  - Email
  - Web Address
  - Contact Inst
- Description
- Releasability
- Security
- other

Taxonomy Metacard
- id (taxonomy)
- Title
- Description
- Date
- Version
- Name
- Acronym
- Expanded Acronym
- Definition
- Source
- Usage
- Synonym
- RelatedTerm
- other
- Releasability
- Security
- other
A **multicard** allows multiple metacards to be aggregated into one file set.
• Metacard Builder prototype
  – Java-based client application
• Enterprise Metacard Builder Resource (EMBR) Portal prototype (under direction of JHU APL)
  – Web-based metadata creation and maintenance
No Filter

Mission Domains:
Info = 1520
Mobility & Logistics = 322
Filter for Irregular Warfare

Info = 87
Mob & Log = 27
M&S COI is maturing a suite of services, tools, and standards to promote M&S asset visibility and reuse

- DoD M&S Catalog
  (https://mscatalog.osd.mil)

- M&S Metadata Specification
  (http://msco.mil/resource_discovery.html)

- Metadata editing and management tool
  (https://embrportal.com/)
Pedigree of MSC-DMS (1)

- DoD Net-Centric Data Strategy (NCDS)
  - Describes DoD enterprise data visibility goals and DDMS
  - Establishes COIs and “COI-specific metadata structures”
- DoD Directive 8320.02 establishes data sharing policy
  - Data shall be **visible** through discovery metadata
  - Data shall be **accessible** in shared spaces
  - Data shall be **understandable** via structural metadata
What’s new in 1.4?

Selected Highlights

» Added Resource Type enumerations
» Associations now support new types of assets
» Added HLA Coverage enumerations to increase flexibility
» To conform with DDMS 3.0:
  » Tweaked naming convention and cardinality of Contact and Organization components
  » Security component was added to more metadata sets