Metadata for M&S Assets

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It’s what drives discovery.
Overview

• Producers and consumers need a common way to *label* and *describe* M&S resources.

Consistent labeling requires an *agreed upon markup* that is useful for identifying a variety of resources.
M&S COI Discovery Metadata Specification

- A way to tag and catalog M&S assets
- Provides for greater understanding and reuse
- Helps fulfill the DoD Net-Centric Data Strategy
  - Aligns with DDMS
  - Supports M&S Communities of Interest

MSC-DMS Support
- Resource Metacards
- Contact Metacards
- Taxonomy Metacards
- Multicards

metacard - holds key information, typically in XML format, that describes an asset allowing it to be discovered and reused.

MSC-DMS provides the specification for documenting metacards related to M&S assets.
Getting Visibility to Resources: 
*The M&S Catalog*

User interested in a resource can learn of availability from multiple repositories w/ single query
What Latest Version Offers

- Support for documenting and validating
  - Resource Metacards
  - Contact Metacards
  - Taxonomy Metacards (i.e., glossary of terms)
  - Multicards
- Improved organization and readability
- Improved alignment with DDMS
- Includes relaxed schema components
  - To support partially Built metacards
What Latest Version Offers

- Support for documenting and validating
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  - Contact Metacards
  - Taxonomy Metacards (i.e., glossary of terms)
  - Multicards

M&S Resource Assets Supported

1. M&S Software (models / simulations)
2. M&S Adjunct Tools (data loggers, visual)
3. Federations of Simulations
4. M&S Software Components
5. M&S Services
6. M&S Data
7. M&S Data Models
8. Interface Specifications
9. Documents
What Latest Version Offers

– Support for documenting and validating
  • Resource Metacards
  • Contact Metacards
  • Taxonomy Metacards (i.e., glossary of terms)
  • Multicards

M&S Contact Assets

1. Person
2. Organization
What Latest Version Offers

– Support for documenting and validating
  • Resource Metacards
  • Contact Metacards
  • Taxonomy Metacards (i.e., glossary of terms)
  • Multicards

M&S Taxonomy Assets

• A glossary of terms used by an organization, program or focus group that can be attributed to one or more M&S assets.
• Provides a greater context for understanding underlying metadata descriptions provided within an M&S Resource.
• An M&S Resource may include citations to relevant Taxonomies that have been defined.
A **multicard** allows multiple metacards to be aggregated into one file set.

The structures identified above reflect version MSC-DMS version 1.4
Getting Starting with Building Metacards

- Obtain MSC-DMS Specification & XML Schemas (and Examples)
  - www.msco.mil
  - DoD XML Registry
- Available Implementation Guidance:
  - M&SCO support contractors
  - M&S Catalog community
- Training Resources:
  - PPT tutorial slide set
  - SISO White papers
  - MSC-DMS based Metacard Examples (provided with MSC-DMS)
- Tools:
  - Metacard Builder (SimVentions))
  - EMBR Portal (JHU/APL)
  - XMLSpy Tool (Altova) + other XML tool vendors
- Literature References:
  - 10S-SIW-048, “Discovery and Reuse of Modeling and Simulation Assets”, April 2010
  - 10S-SIW-055, “Exploiting the Semantic World of M&S”, April 2010
  - 09S-SIW-076, “Discovery and Reuse of Modeling and Simulation Assets”, March 2009
Fill in form, which is generated from MSC-DMS schema
Other initiatives such as the EMBR Portal can be used to find assets and manage their metacards.
Summary

- Discovery Metadata results in Metacards
- Metacards associated with M&S assets
- Metacards need to be uploaded
- Metacards best built using Tools
- Metacards can be transformed
- Asset Use needs to be shared

```
If (Asset == (Built | Updated | Transformed)) then
{
    CreateMetacard(Title, Type, Description, POC, Keywords);
    UploadMetacard(LVCAF-Repository);
}
```

```
If (Asset == Used) then
{
    UpdateMetacard(UsageExperience);
}
```

Metacard Upload Process

Metacard Feedback Process
Questions?
Background Slides
MSC-DMS CCB Process

1. **MSC-DMS CCI Product Released**
   - **Review process**
   - 3 months

2. **Change Requests Submitted**
   - Change Request Assessment
   - 1 month
   - Adjudication via CCB Meeting(s)

3. **Previous CRs in Queue**
   - Stage One
   - Stage Two (if necessary)

4. **Integrate Approved CR into CCI Product**
   - CR Implementation Plan
   - Update process
   - 6+ month cycle (2 times / yr)
   - 2 months

M&S CO level

SC3 level

Configuration control
Metacard Upload Process

• Use a standard (i.e. MSC-DMS)
• Use a tool
• Fill out as much data as you can
  – Include link to the asset location
  – Validate it (against the schema)
• Upload the metacard
• Make the data searchable / discoverable
  – Index on Title, Type, Keywords, others
Metacard Feedback Process

- Use a standard (i.e. MSC-DMS)
- Use a tool
- Share experience / application / project
- Upload the metacard
- Allow the data searchable / discoverable
  - Index on Experience

M&S Asset

- Use It

M&S Metacard

- Update with experience
Submit to LVCAF Repository
Metacard Tool

XML based Metacard will be transformed to OWL-based format
Metacard Tool

Web service call is Synchronous – wait for completion
Web service call is Synchronous – wait for completion
OWL based Metacard will appear in the Asset listing of the JCOM Repository
Other initiatives such as the EMBR Portal can be used to find assets and manage their metacards.
Other Tools/Locations

Metacards can be collaborated, imported, edited, exported, tracked and validated.
Metacards can also be submitted for approval or to other sites.