

Metadata for M&S Assets

Paul Gustavson
pgustavson@simventions.com
(540) 372-7727

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It's what drives discovery.

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

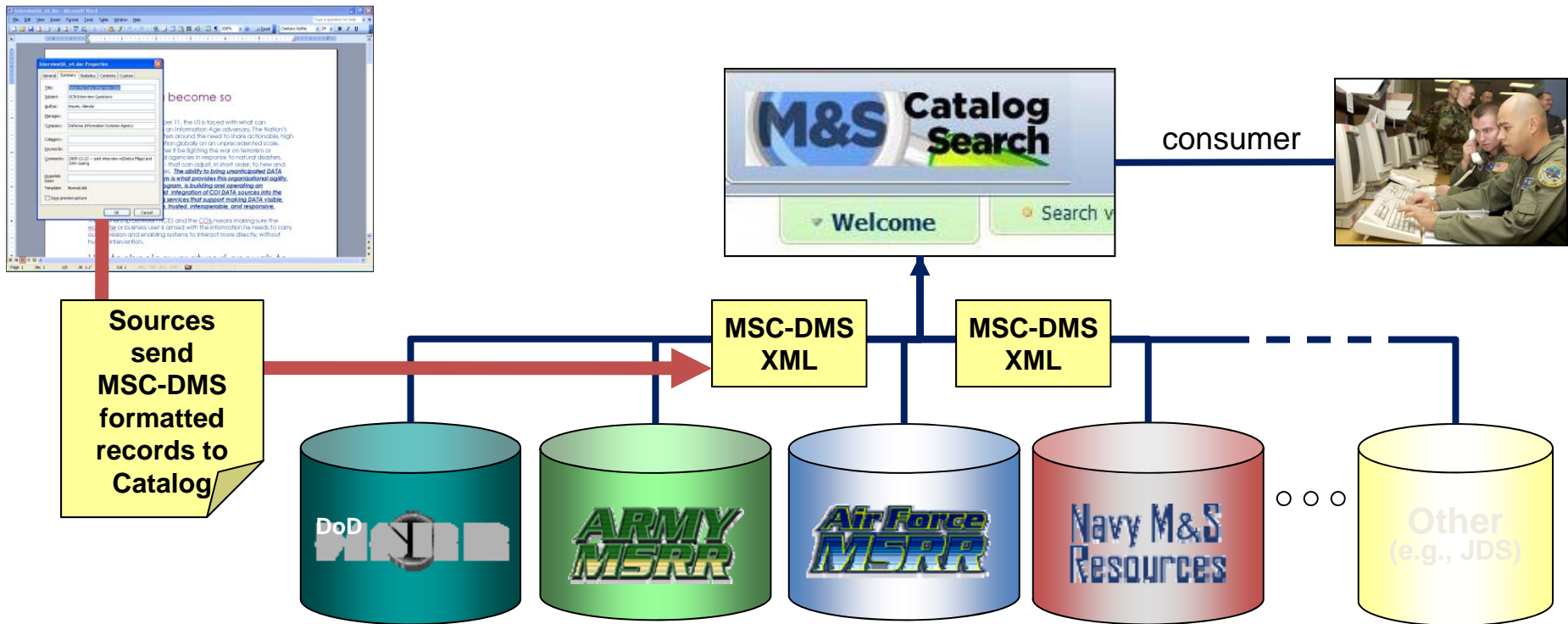
- Resource Metacards
- Contact Metacards
- Taxonomy Metacards
- Multicards

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.

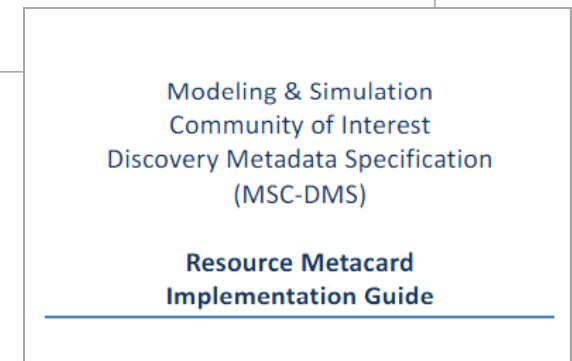
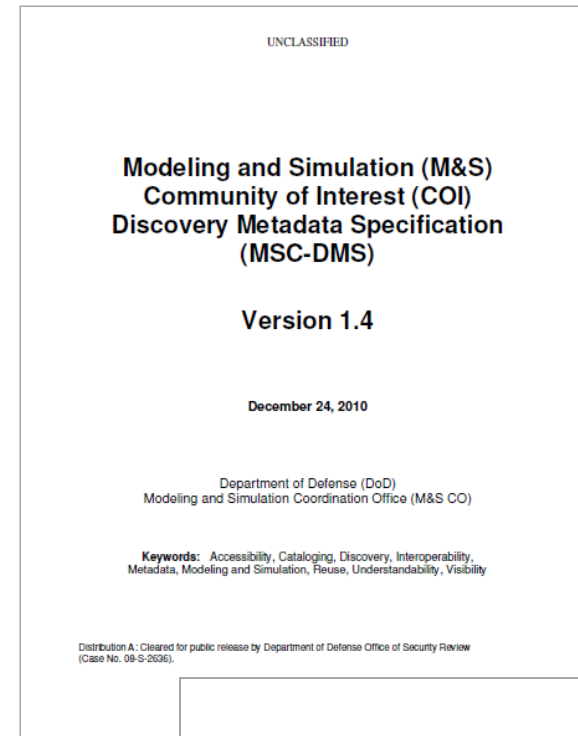
Getting Visibility to Resources: The M&S Catalog



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



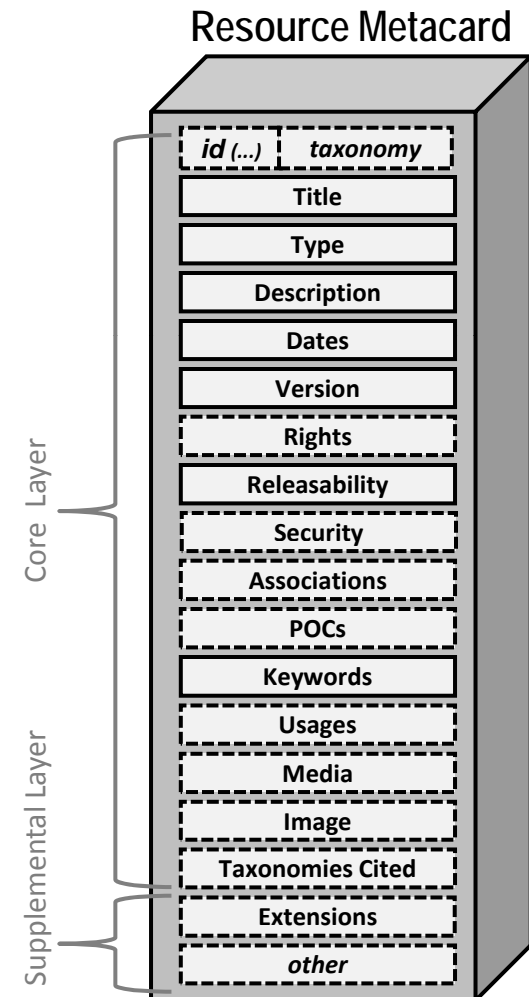
What Latest Version Offers

– Support for documenting and validating

- **Resource Metacards**
- 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



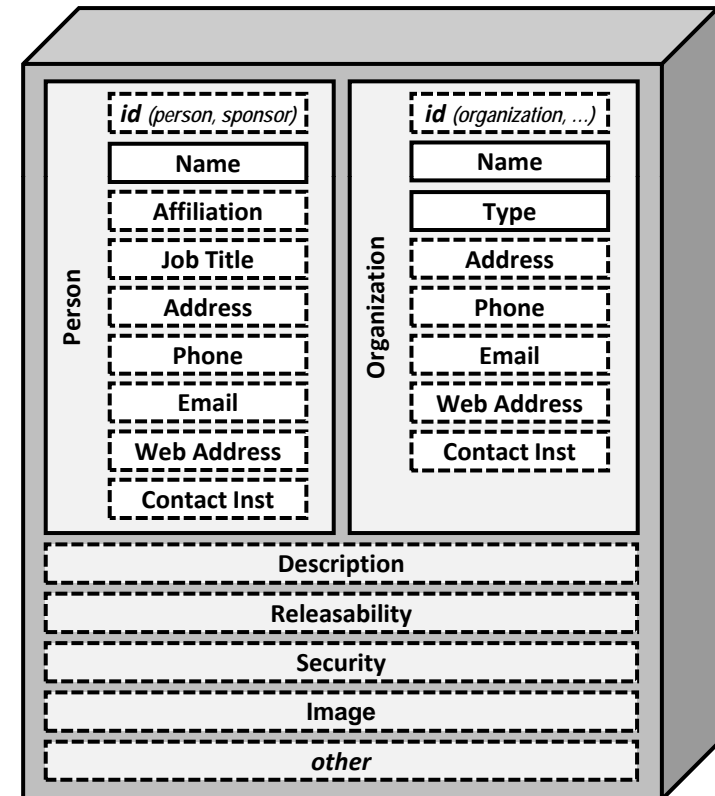
What Latest Version Offers

– Support for documenting and validating

- Resource Metacards
- **Contact Metacards**
- Taxonomy Metacards (i.e., glossary of terms)
- Multicards



Contact Metacard



M&S Contact Assets

1. Person
2. Organization

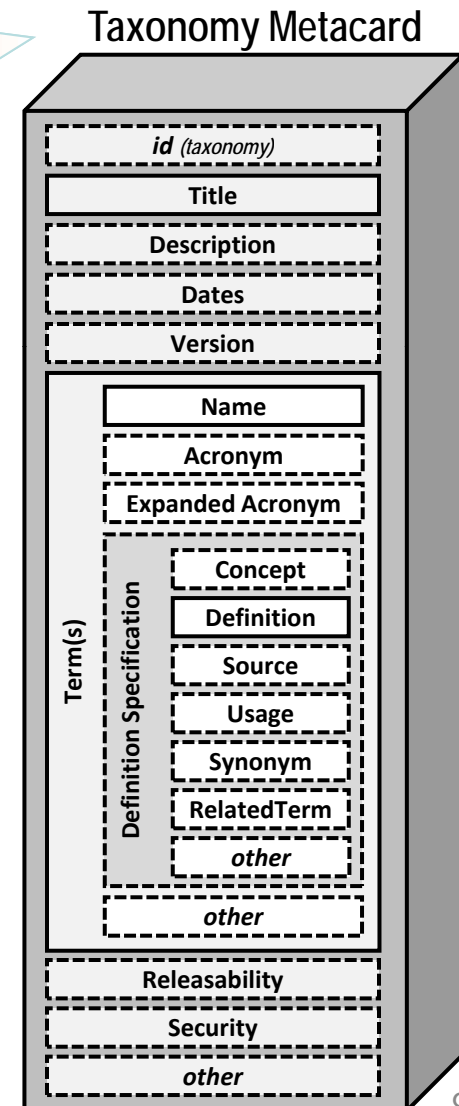
What Latest Version Offers

– Support for documenting and validating

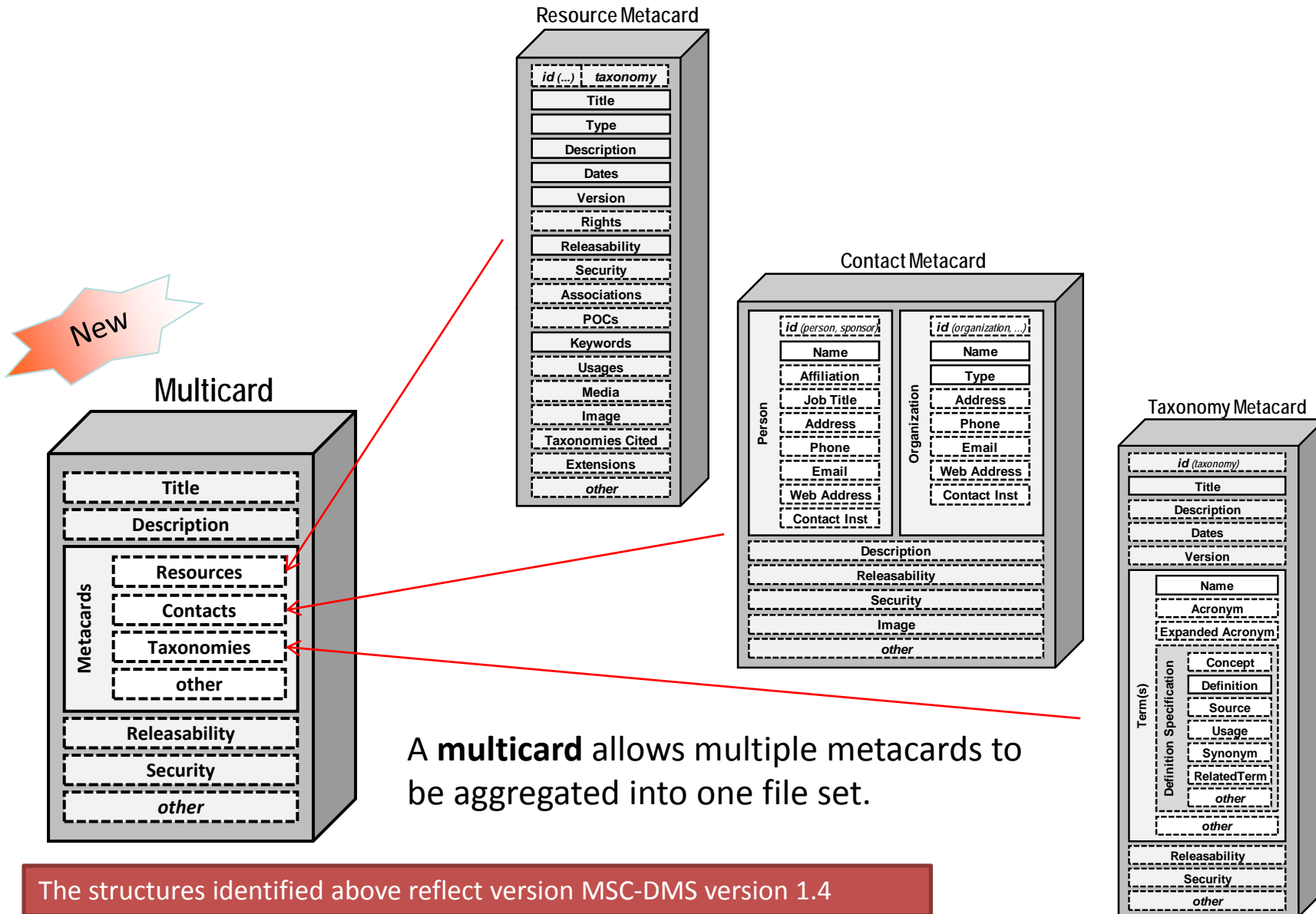
- Resource Metacards
- Contact Metacards
- **Taxonomy Metacards (i.e., glossary of terms)**
- Multicards

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.



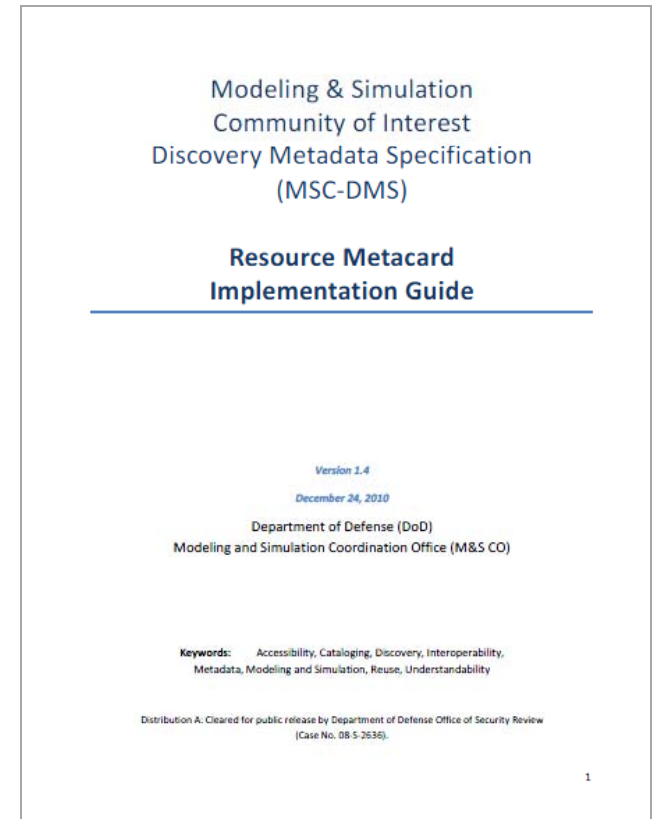
MSC-DMS Metacard Structures



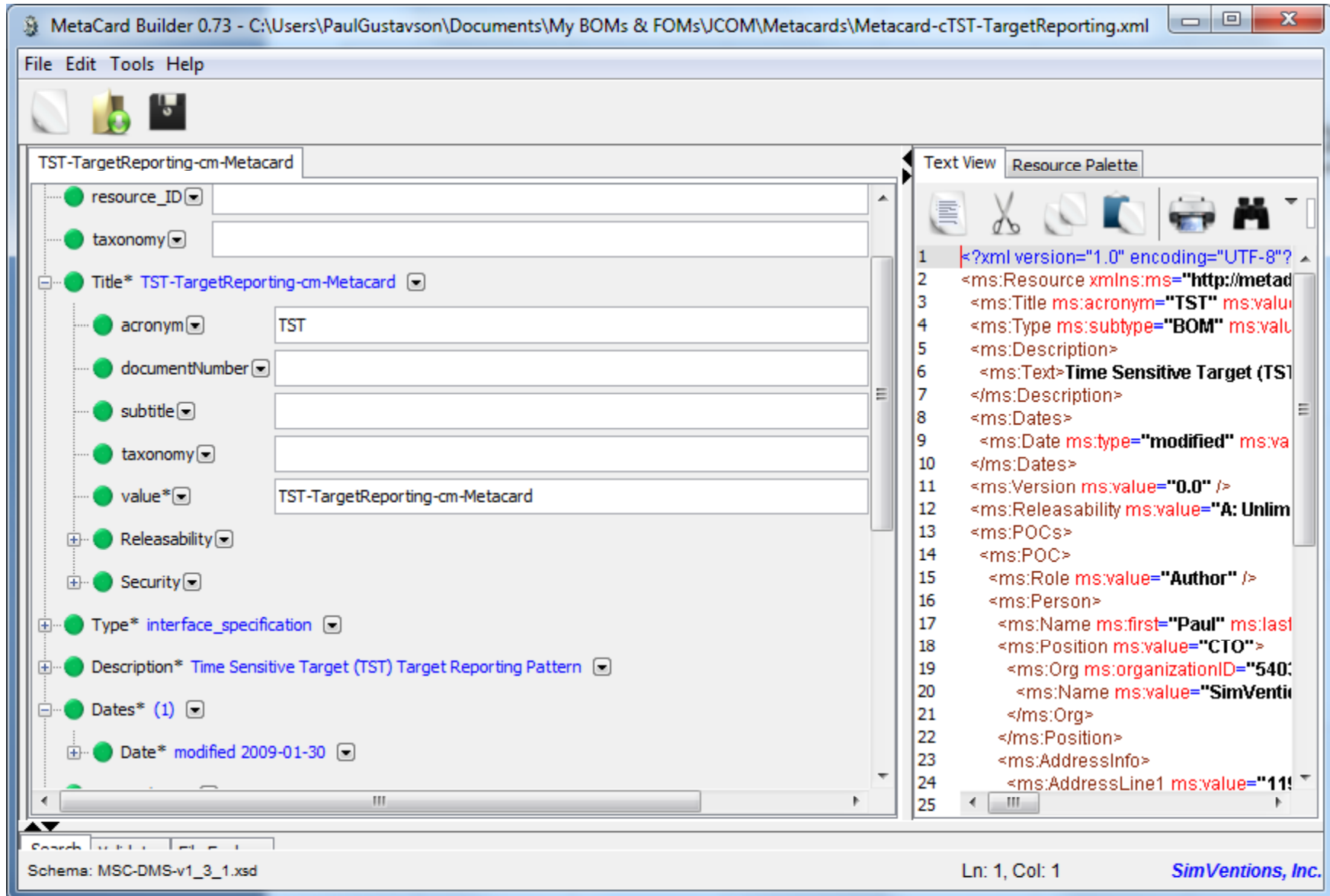
The structures identified above reflect version MSC-DMS version 1.4

Getting Starting with Building Metacards

- Obtain MSC-DMS Specification & XML Schemas (and Examples)
 - www.msco.mil
 - DoD XML Registry
- Available Implementation Guidance:
 - “MSC-DMS Implementation Guide” , Version 1.0, 9 February, 25, 2010
 - 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
 - 08F-SIW-043, “Maximizing Discovery of M&S Resources – An Inside Look at the M&S COI Discovery Metadata Specification (MSC-DMS)”, September 2008

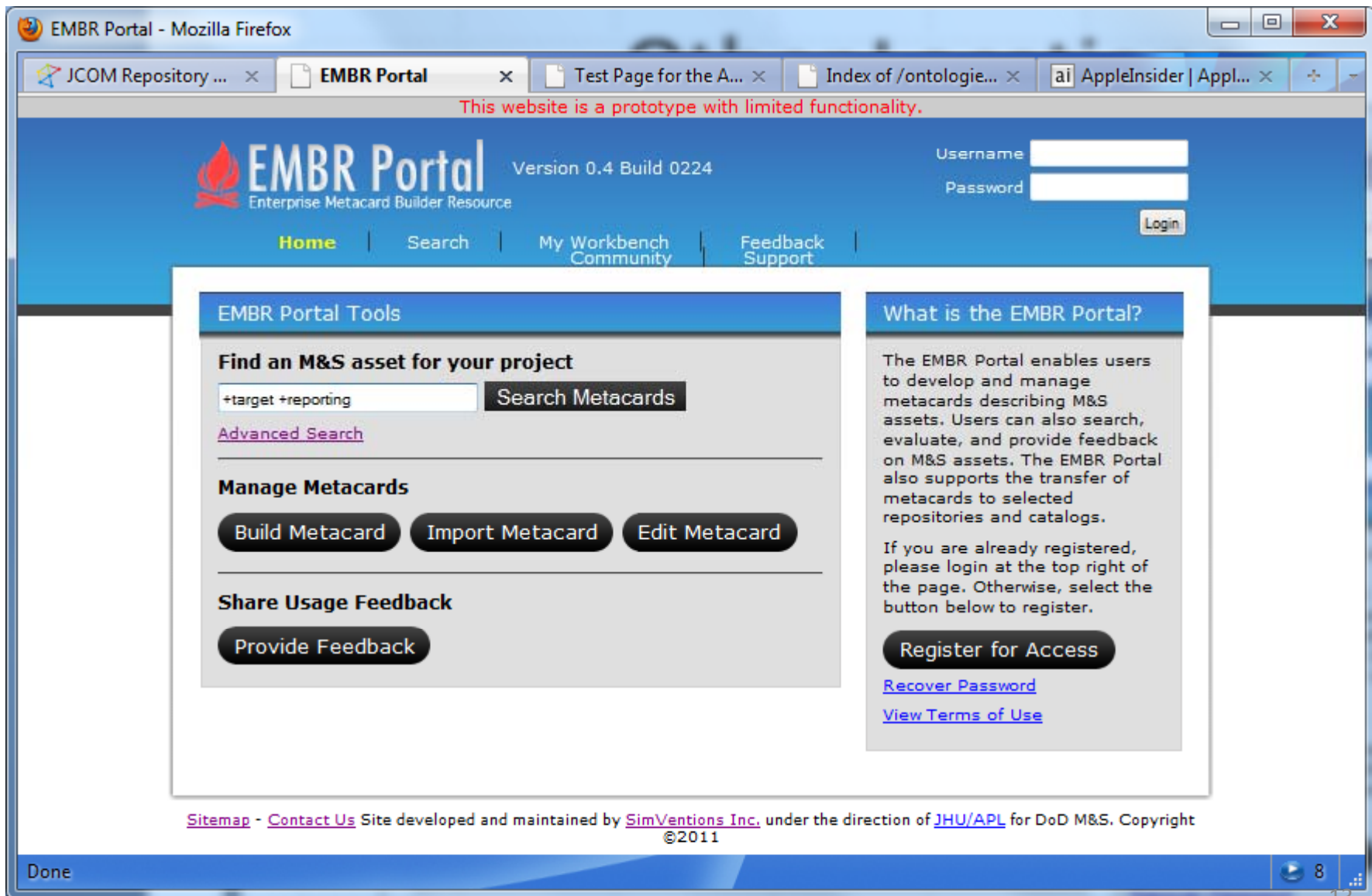


Metacard Builder Tool



Fill in form, which is generated from MSC-DMS schema

EMBR Portal



The screenshot shows the EMBR Portal website in a Mozilla Firefox browser window. The browser's address bar shows the URL "EMBR Portal". The website has a blue header with the EMBR Portal logo and the text "Enterprise Metacard Builder Resource". The version is "Version 0.4 Build 0224". There is a login form with fields for "Username" and "Password" and a "Login" button. A navigation menu includes "Home", "Search", "My Workbench Community", and "Feedback Support". The main content area is divided into two columns. The left column is titled "EMBR Portal Tools" and contains three sections: "Find an M&S asset for your project" with a search box containing "+target +reporting" and a "Search Metacards" button, a link to "Advanced Search", "Manage Metacards" with buttons for "Build Metacard", "Import Metacard", and "Edit Metacard", and "Share Usage Feedback" with a "Provide Feedback" button. The right column is titled "What is the EMBR Portal?" and contains a paragraph of text explaining the portal's purpose, a "Register for Access" button, and links for "Recover Password" and "View Terms of Use". At the bottom of the page, there is a footer with links for "Sitemap" and "Contact Us", and a copyright notice: "Site developed and maintained by SimVentions Inc. under the direction of JHU/APL for DoD M&S. Copyright ©2011".

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);
}
```

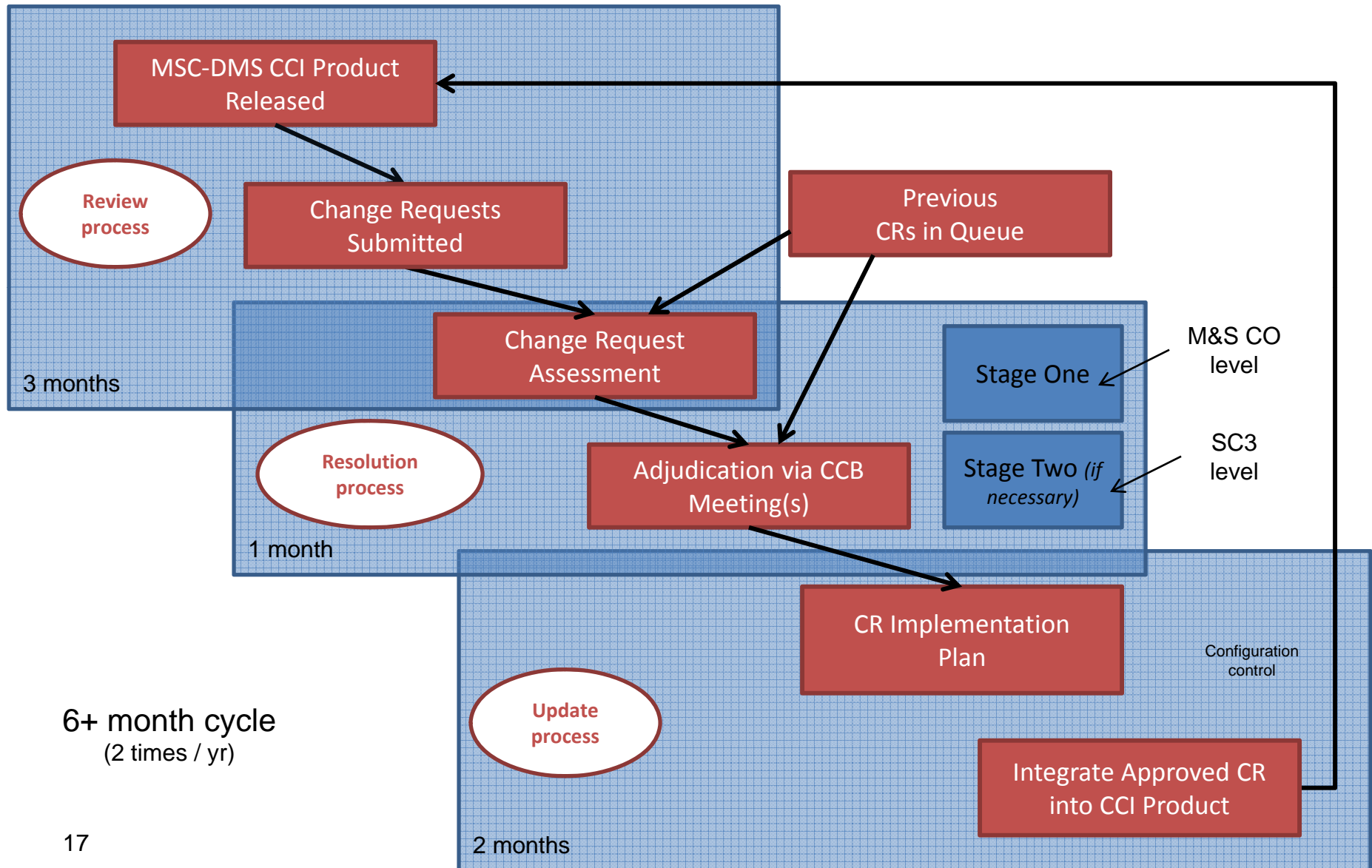
Metacard Upload Process

```
If (Asset == Used) then
{
    UpdateMetacard(Usage.Experience);
}
```

Metacard Feedback Process

Questions?

Background Slides



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

M&S Asset

- Build
- Update
- Transform

M&S Metacard

- Describe it using common format

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

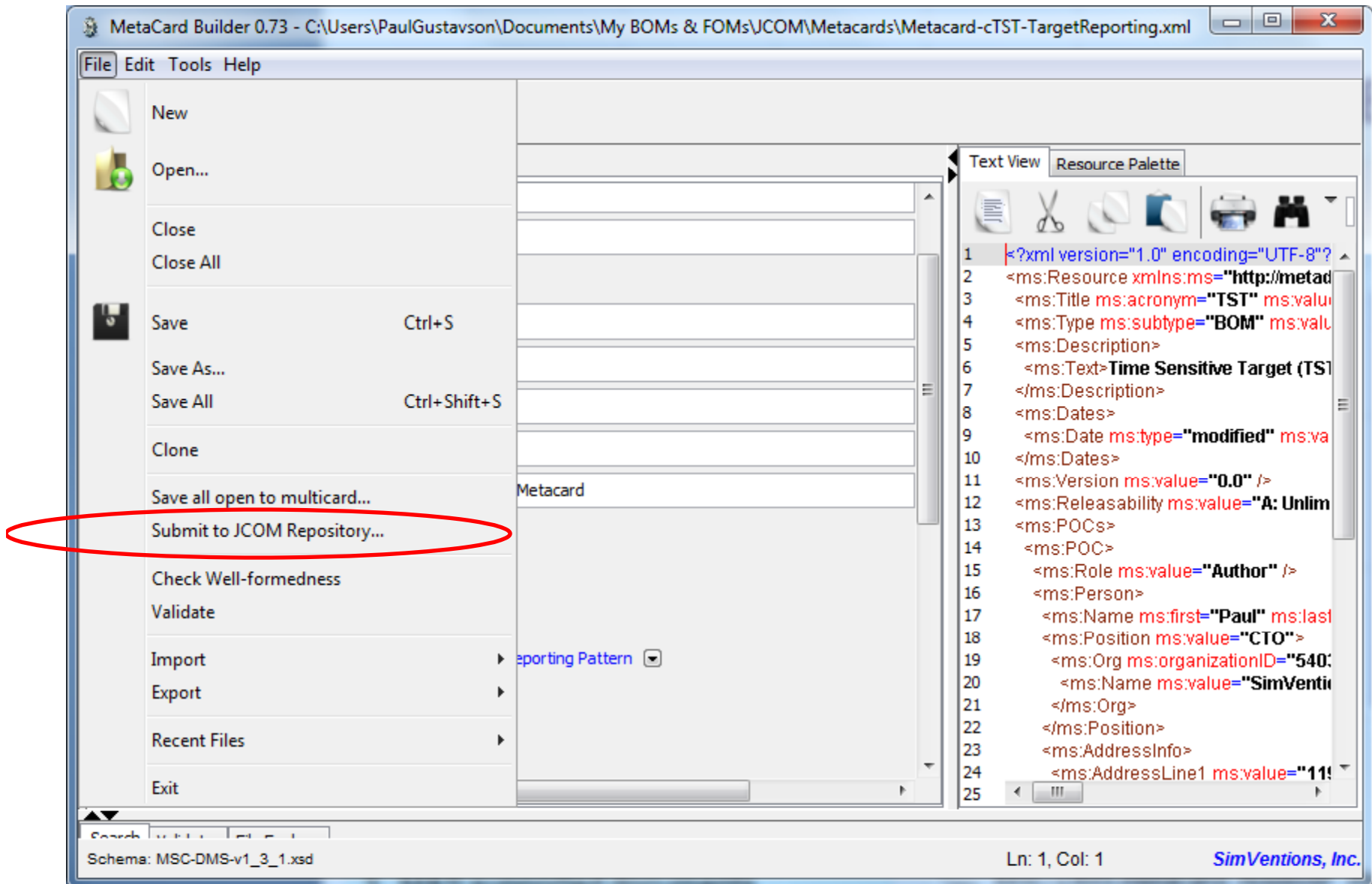
M&S Asset

•Use It

M&S Metacard

•Update with experience

Metacard Tool



MetaCard Builder 0.73 - C:\Users\PaulGustavson\Documents\My BOMs & FOMs\JCOM\Metacards\Metacard-cTST-TargetReporting.xml

File Edit Tools Help

- New
- Open...
- Close
- Close All
- Save Ctrl+S
- Save As...
- Save All Ctrl+Shift+S
- Clone
- Save all open to multicard...
- Submit to JCOM Repository...**
- Check Well-formedness
- Validate
- Import Reporting Pattern
- Export
- Recent Files
- Exit

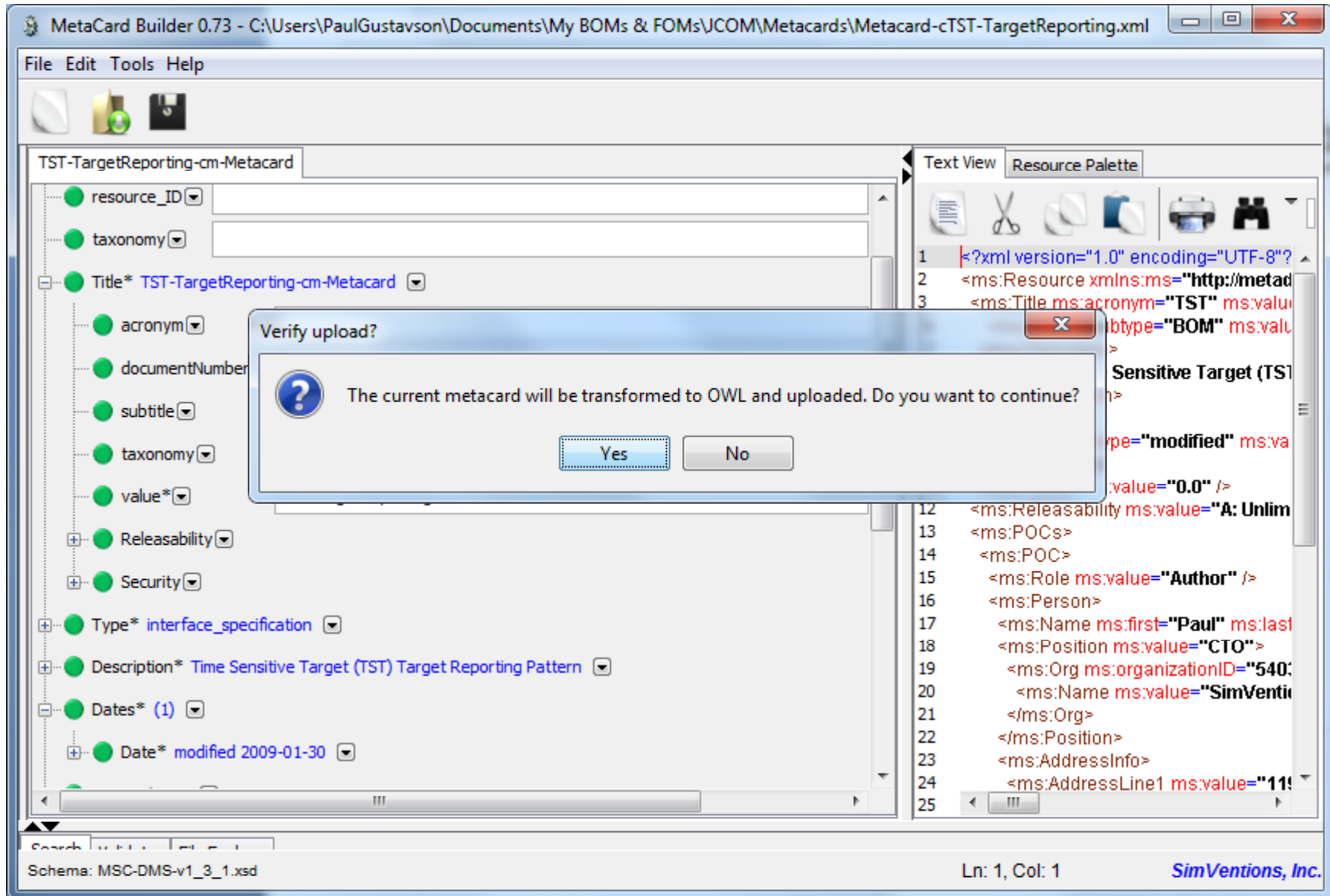
Text View Resource Palette

```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <ms:Resource xmlns:ms="http://metad
3 <ms>Title ms:acronym="TST" ms:valu
4 <ms>Type ms:subtype="BOM" ms:valu
5 <ms>Description>
6 <ms:Text>Time Sensitive Target (TST
7 </ms>Description>
8 <ms:Dates>
9 <ms>Date ms:type="modified" ms:va
10 </ms:Dates>
11 <ms:Version ms:value="0.0" />
12 <ms:Releasability ms:value="A: Unlim
13 <ms:POCs>
14 <ms:POC>
15 <ms:Role ms:value="Author" />
16 <ms:Person>
17 <ms>Name ms:first="Paul" ms:last
18 <ms:Position ms:value="CTO">
19 <ms:Org ms:organizationID="540:
20 <ms>Name ms:value="SimVentio
21 </ms:Org>
22 </ms:Position>
23 <ms:AddressInfo>
24 <ms:AddressLine1 ms:value="11!
```

Schema: MSC-DMS-v1_3_1.xsd Ln: 1, Col: 1 SimVentions, Inc.

Submit to LVCAF Repository

Metacard Tool



MetaCard Builder 0.73 - C:\Users\PaulGustavson\Documents\My BOMs & FOMs\JCOM\Metacards\Metacard-cTST-TargetReporting.xml

File Edit Tools Help

TST-TargetReporting-cm-Metacard

resource_ID

taxonomy

Title* TST-TargetReporting-cm-Metacard

acronym

documentNumber

subtitle

taxonomy

value*

Releasability

Security

Type* interface_specification

Description* Time Sensitive Target (TST) Target Reporting Pattern

Dates* (1)

Date* modified 2009-01-30

Verify upload?

The current metacard will be transformed to OWL and uploaded. Do you want to continue?

Yes No

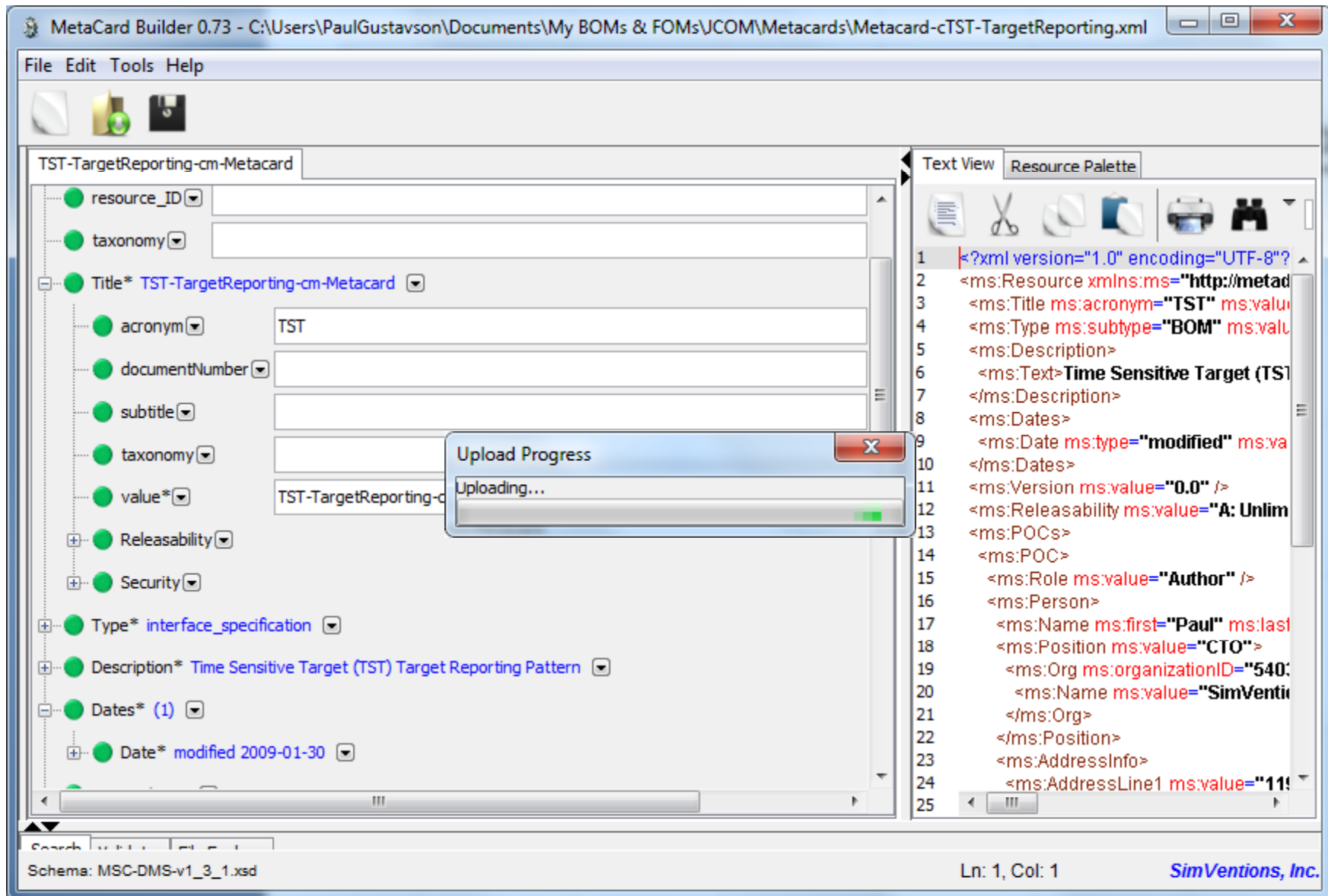
Text View Resource Palette

```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <ms:Resource xmlns:ms="http://metad
3 <ms>Title ms:acronym="TST" ms:valu
  ms:btype="BOM" ms:valu
  >
  Sensitive Target (TST
  )>
  pe="modified" ms:va
  .value="0.0" />
12 <ms:Releasability ms:value="A: Unlim
13 <ms:POCs>
14 <ms:POC>
15 <ms:Role ms:value="Author" />
16 <ms:Person>
17 <ms>Name ms:first="Paul" ms:last
18 <ms:Position ms:value="CTO">
19 <ms:Org ms:organizationID="540:
20 <ms>Name ms:value="SimVenti
21 </ms:Org>
22 </ms:Position>
23 <ms:AddressInfo>
24 <ms:AddressLine1 ms:value="11!
```

Schema: MSC-DMS-v1_3_1.xsd Ln: 1, Col: 1 SimVentions, Inc.

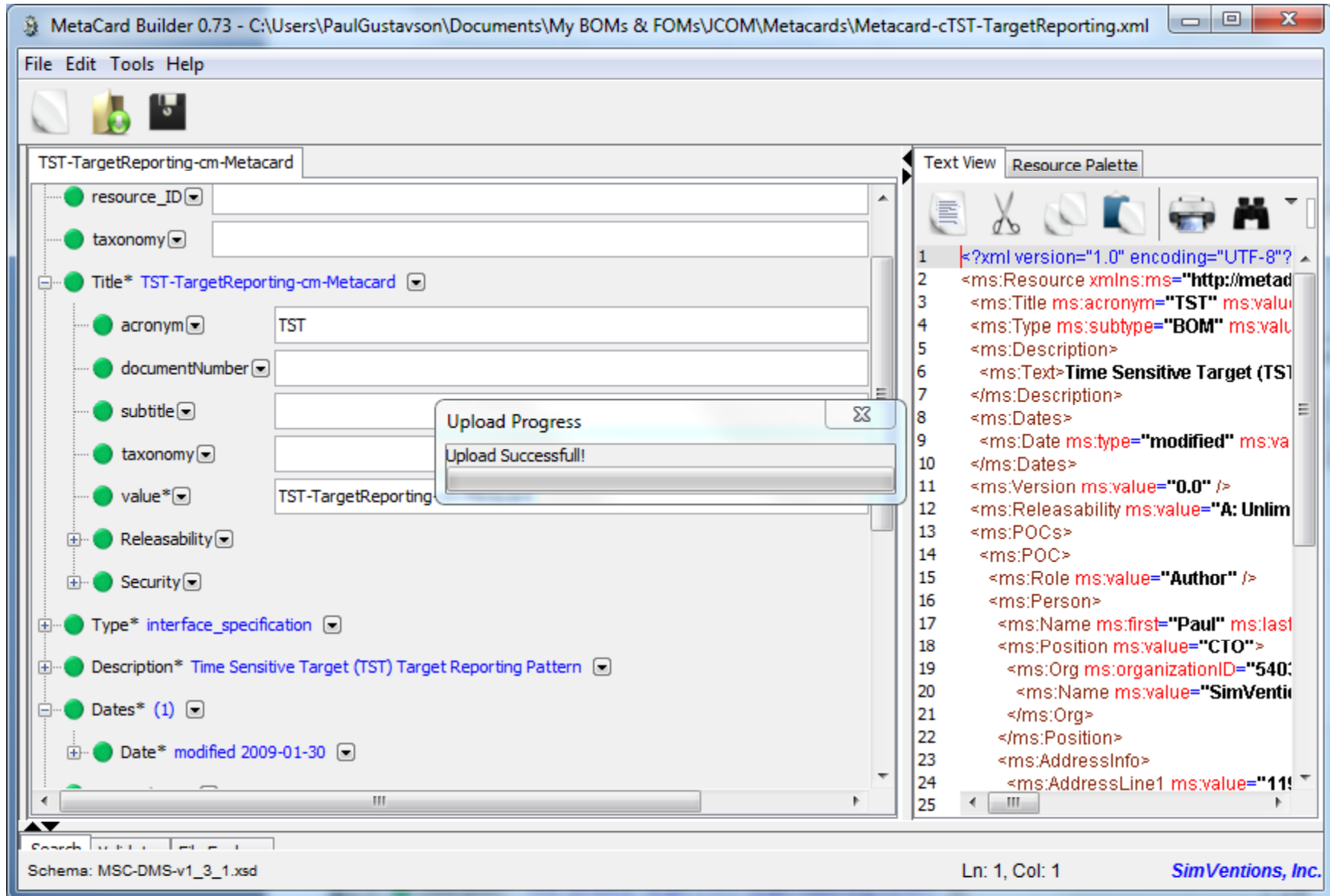
XML based Metacard will be transformed to OWL-based format

Metacard Tool



Web service call is Synchronous – wait for completion

Metacard Tool



MetaCard Builder 0.73 - C:\Users\PaulGustavson\Documents\My BOMs & FOMs\JCOM\Metacards\Metacard-cTST-TargetReporting.xml

File Edit Tools Help

TST-TargetReporting-cm-Metacard

- resource_ID
- taxonomy
- Title* TST-TargetReporting-cm-Metacard
- acronym TST
- documentNumber
- subtitle
- taxonomy
- value* TST-TargetReporting
- Releasability
- Security
- Type* interface_specification
- Description* Time Sensitive Target (TST) Target Reporting Pattern
- Dates* (1)
 - Date* modified 2009-01-30

Upload Progress

Upload Successful!

Text View Resource Palette

```

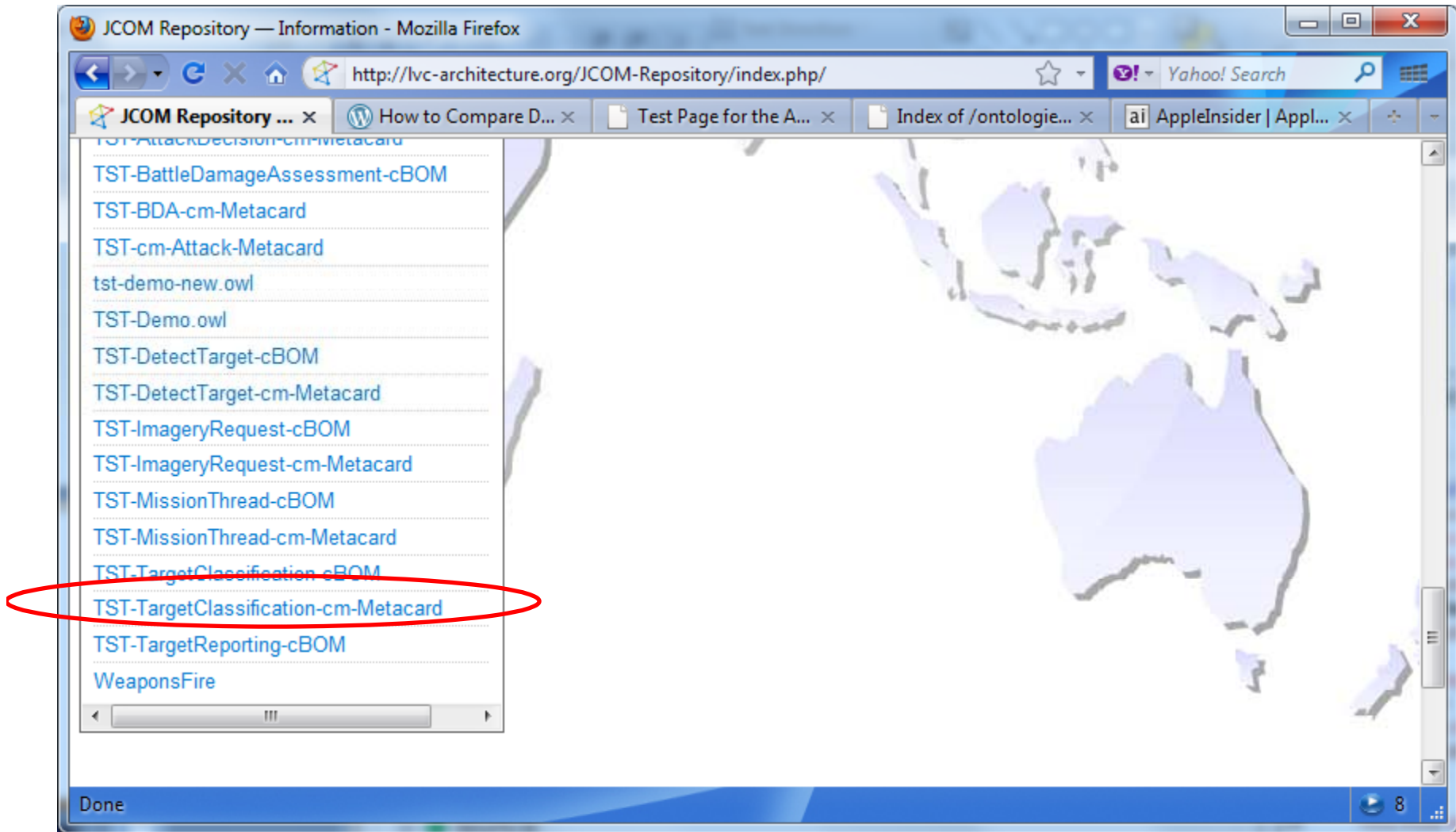
1 <?xml version="1.0" encoding="UTF-8"?
2 <ms:Resource xmlns:ms="http://metad
3 <ms>Title ms:acronym="TST" ms:valu
4 <ms>Type ms:subtype="BOM" ms:valu
5 <ms>Description>
6 <ms:Text>Time Sensitive Target (TST
7 </ms>Description>
8 <ms:Dates>
9 <ms>Date ms:type="modified" ms:va
10 </ms:Dates>
11 <ms:Version ms:value="0.0" />
12 <ms:Releasability ms:value="A: Unlim
13 <ms:POCs>
14 <ms:POC>
15 <ms:Role ms:value="Author" />
16 <ms:Person>
17 <ms>Name ms:first="Paul" ms:last
18 <ms:Position ms:value="CTO">
19 <ms:Org ms:organizationID="540:
20 <ms>Name ms:value="SimVentio
21 </ms:Org>
22 </ms:Position>
23 <ms:AddressInfo>
24 <ms:AddressLine1 ms:value="11!
25

```

Schema: MSC-DMS-v1_3_1.xsd Ln: 1, Col: 1 SimVentions, Inc.

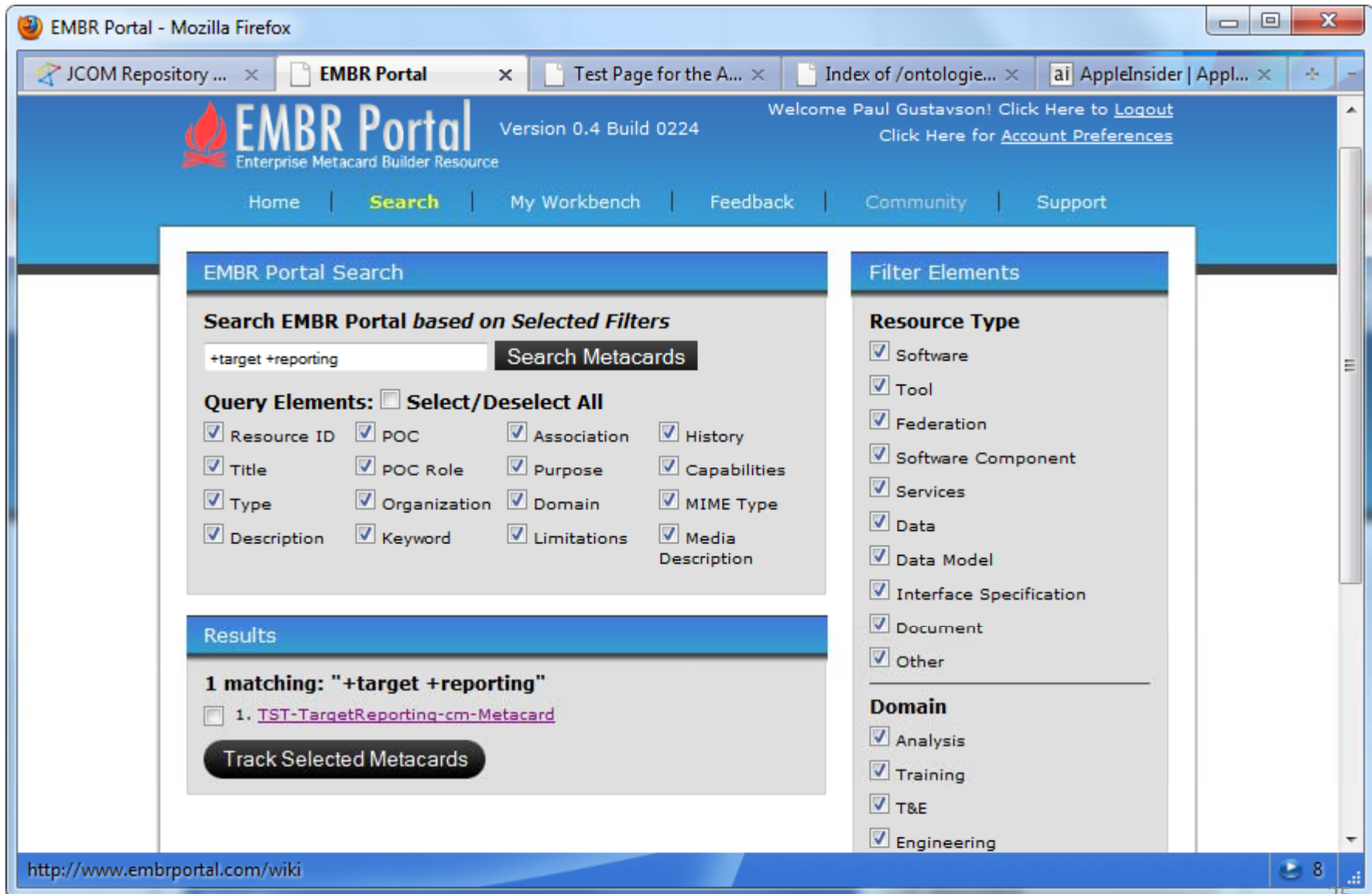
Web service call is Synchronous – wait for completion

JCOM Repository



OWL based Metacard will appear in the Asset listing of the JCOM Repository

Other Tools/Locations



EMBR Portal - Mozilla Firefox

JCOM Repository ... × EMBR Portal × Test Page for the A... × Index of /ontologie... × ai AppleInsider | Appl... ×

EMBR Portal Version 0.4 Build 0224 Welcome Paul Gustavson! Click Here to [Logout](#)
Click Here for [Account Preferences](#)

Home | **Search** | My Workbench | Feedback | Community | Support

EMBR Portal Search

Search EMBR Portal based on Selected Filters

+target +reporting **Search Metacards**

Query Elements: **Select/Deselect All**

<input checked="" type="checkbox"/> Resource ID	<input checked="" type="checkbox"/> POC	<input checked="" type="checkbox"/> Association	<input checked="" type="checkbox"/> History
<input checked="" type="checkbox"/> Title	<input checked="" type="checkbox"/> POC Role	<input checked="" type="checkbox"/> Purpose	<input checked="" type="checkbox"/> Capabilities
<input checked="" type="checkbox"/> Type	<input checked="" type="checkbox"/> Organization	<input checked="" type="checkbox"/> Domain	<input checked="" type="checkbox"/> MIME Type
<input checked="" type="checkbox"/> Description	<input checked="" type="checkbox"/> Keyword	<input checked="" type="checkbox"/> Limitations	<input checked="" type="checkbox"/> Media Description

Filter Elements

Resource Type

- Software
- Tool
- Federation
- Software Component
- Services
- Data
- Data Model
- Interface Specification
- Document
- Other

Domain

- Analysis
- Training
- T&E
- Engineering

Results

1 matching: "+target +reporting"

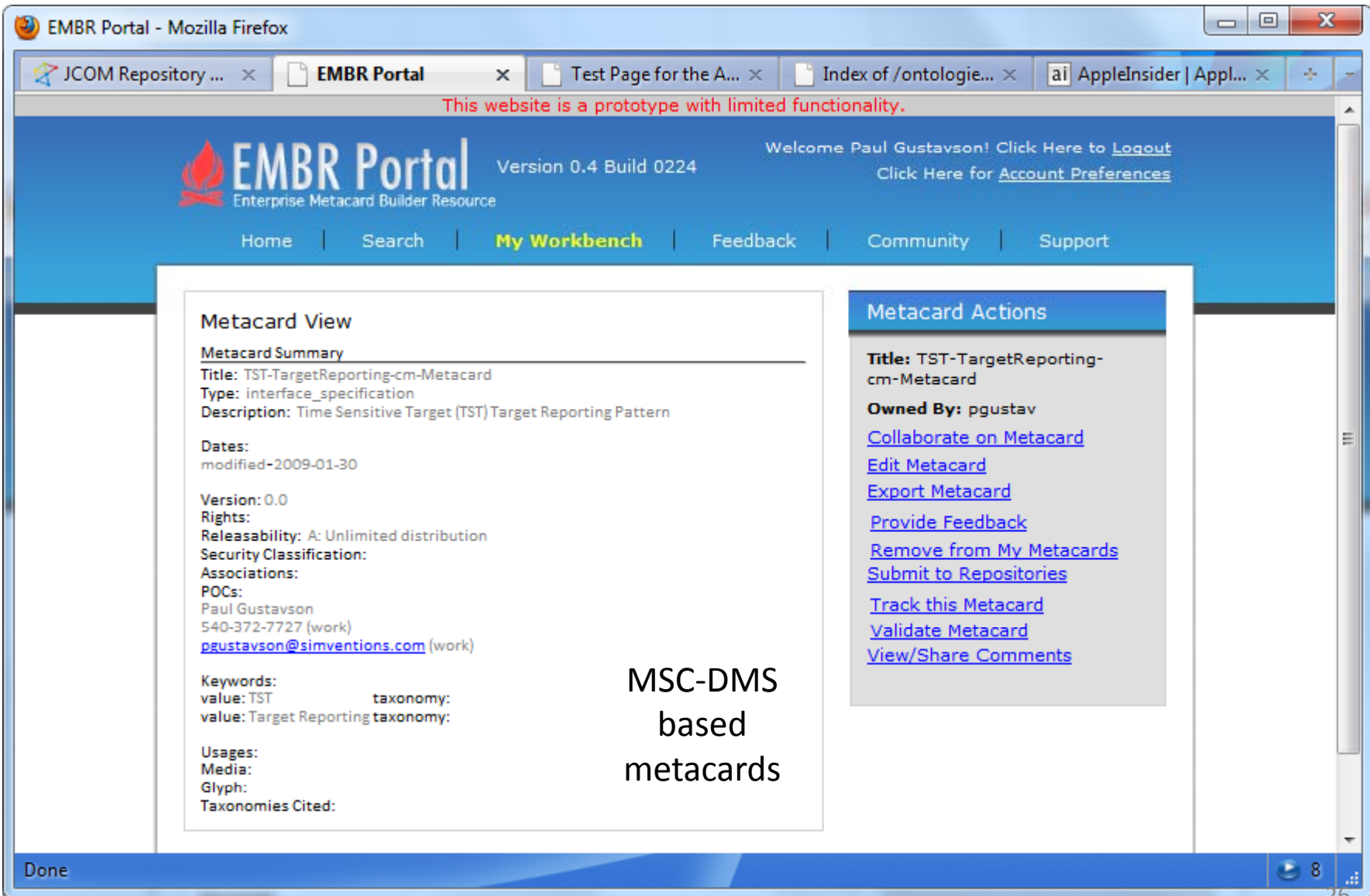
1. [TST-TargetReporting-cm-Metacard](#)

Track Selected Metacards

http://www.embrportal.com/wiki 8

Other initiatives such as the EMBR Portal can be used to find assets and manage their metacards

Other Tools/Locations



EMBR Portal - Mozilla Firefox

JCOM Repository ... x EMBR Portal x Test Page for the A... x Index of /ontologie... x ai AppleInsider | Appl... x

This website is a prototype with limited functionality.

EMBR Portal Version 0.4 Build 0224
Enterprise Metacard Builder Resource

Welcome Paul Gustavson! Click Here to [Logout](#)
Click Here for [Account Preferences](#)

Home | Search | **My Workbench** | Feedback | Community | Support

Metacard View

Metacard Summary

Title: TST-TargetReporting-cm-Metacard
Type: interface_specification
Description: Time Sensitive Target (TST) Target Reporting Pattern

Dates:
modified-2009-01-30

Version: 0.0
Rights:
Releasability: A: Unlimited distribution
Security Classification:
Associations:
POCs:
Paul Gustavson
540-372-7727 (work)
pgustavson@simventions.com (work)

Keywords:
value: TST taxonomy:
value: Target Reporting taxonomy:

Usages:
Media:
Glyph:
Taxonomies Cited:

Metacard Actions

Title: TST-TargetReporting-cm-Metacard
Owned By: pgustav

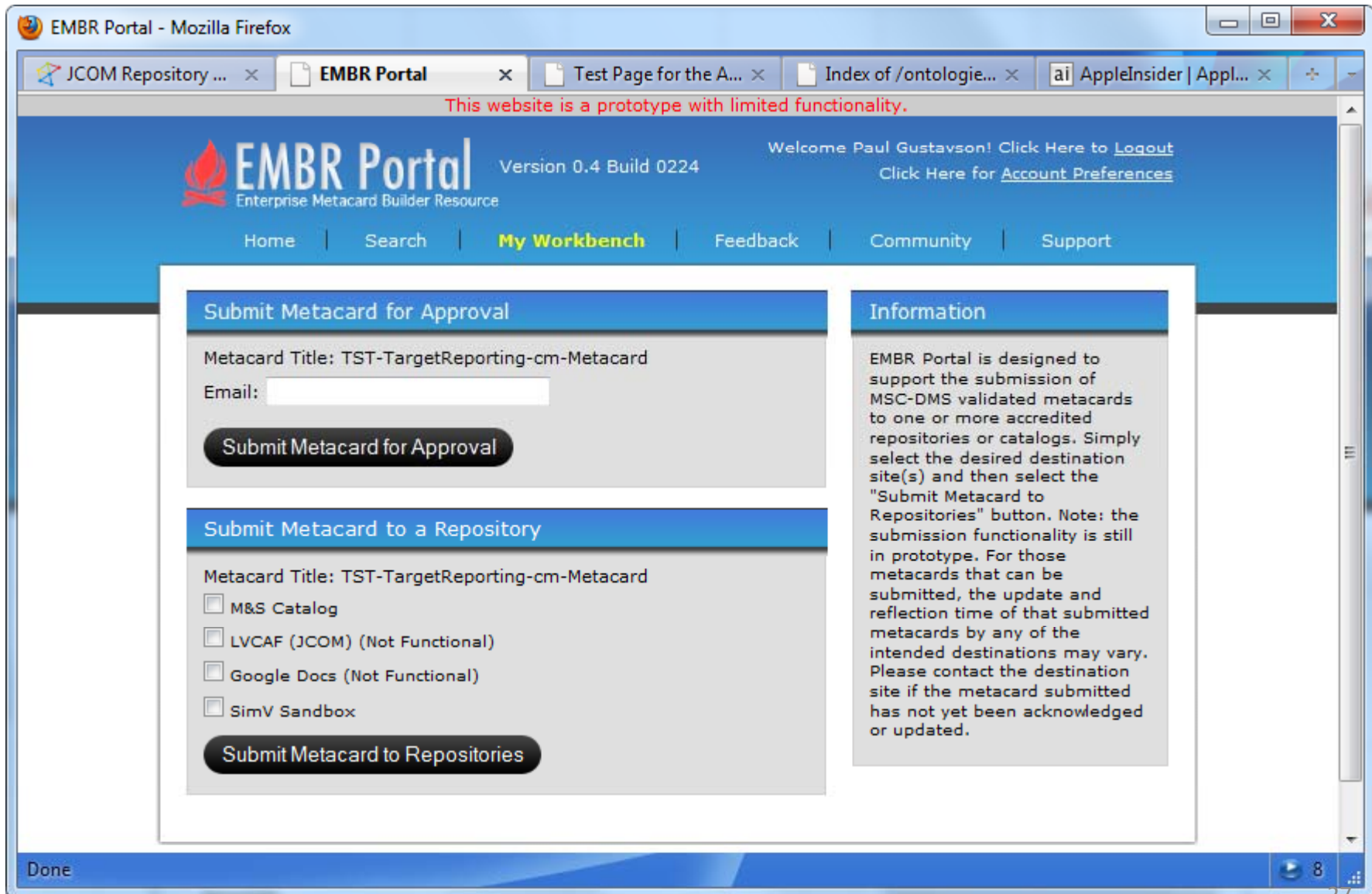
- [Collaborate on Metacard](#)
- [Edit Metacard](#)
- [Export Metacard](#)
- [Provide Feedback](#)
- [Remove from My Metacards](#)
- [Submit to Repositories](#)
- [Track this Metacard](#)
- [Validate Metacard](#)
- [View/Share Comments](#)

Done 8

MSC-DMS based metacards

Metacards can be collaborated, imported, edited, exported, tracked and validated.

Other Tools/Locations



EMBR Portal - Mozilla Firefox

JCOM Repository ... × EMBR Portal × Test Page for the A... × Index of /ontologie... × ai AppleInsider | Appl... ×

This website is a prototype with limited functionality.

EMBR Portal Version 0.4 Build 0224
Enterprise Metacard Builder Resource

Welcome Paul Gustavson! Click Here to [Logout](#)
Click Here for [Account Preferences](#)

Home | Search | **My Workbench** | Feedback | Community | Support

Submit Metacard for Approval

Metacard Title: TST-TargetReporting-cm-Metacard
Email:

Submit Metacard for Approval

Submit Metacard to a Repository

Metacard Title: TST-TargetReporting-cm-Metacard

- M&S Catalog
- LVCAF (JCOM) (Not Functional)
- Google Docs (Not Functional)
- SimV Sandbox

Submit Metacard to Repositories

Information

EMBR Portal is designed to support the submission of MSC-DMS validated metacards to one or more accredited repositories or catalogs. Simply select the desired destination site(s) and then select the "Submit Metacard to Repositories" button. Note: the submission functionality is still in prototype. For those metacards that can be submitted, the update and reflection time of that submitted metacards by any of the intended destinations may vary. Please contact the destination site if the metacard submitted has not yet been acknowledged or updated.

Done 8

Metacards can also be submitted for approval or to other sites