LVC Architecture Roadmap Implementation – Asset Reuse Mechanisms*

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NDIA Systems Engineering M&S Committee
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*Adapted from "Emerging Solutions for LVC Asset Reuse", 11S-SIW-034, April 5, 2011
Introduction

- LVC Architecture Roadmap (LVCAR) Phase II Current Tasks
  - Common Bridges and Gateways
  - LVC Common Capabilities
  - LVC Futures

- LVC Asset Reuse Implementation Subtask as part of LVC Common Capabilities
  - Enhancement of Discovery and Acquisition of Reusable M&S Assets (Transactional Mechanisms)
  - Exploration of improved collaborative behaviors to improve reuse (Social Marketing Mechanisms)
  - Enhancement of M&S Systems Engineering Processes and Guidance (Processed-based Mechanisms)

- This presentation:
  - Describes the requirements and use cases for a federated repository
  - Discusses the development of a prototype portal and tools for metacard development
  - Illustrates the use of Common M&S Systems Engineering Processes uses to facilitate prototype verification and testing
Functional Model of LVC Asset Reuse
EMBR Portal Vision
Role-Based Collaboration

- **Producer**
  - Create Metacards
  - Edit / Collaborate on Metacards

- **Integrator**
  - Search for Metacards
  - Post Metacard Feedback
  - Evaluate Metacard Feedback

- **Consumer**
  - Post to Wiki
EMBR Portal Functions by Role

<table>
<thead>
<tr>
<th>Capability</th>
<th>Developer</th>
<th>Integrator</th>
<th>Consumer</th>
</tr>
</thead>
<tbody>
<tr>
<td>To develop/modify a metacards</td>
<td>Create/update</td>
<td>Update/augment</td>
<td>Augment (use experience)</td>
</tr>
<tr>
<td>To discover metacards instances</td>
<td>See how the metacards has been proliferated</td>
<td>Proliferation/availability</td>
<td>See what assets are available</td>
</tr>
<tr>
<td>To evaluate application use</td>
<td>Gather feedback (for update)</td>
<td>Feedback/learn</td>
<td>Learn how the asset has been used</td>
</tr>
</tbody>
</table>
EMBR Portal

Search EMBR Portal based on Selected Filters

models [Search]

Advanced Search

7 Results for: "models"

1. SWARM (Surface Warfare Analysis Response Model)
2. ESSM Computer-in-the-Loop (CIL)
3. Anti-Air Warfare Simulation
4. RCSfuze
5. AN/SPS-48E radar model
6. SPY-3 Firm Track Range (FTR) Model
7. ThreatSim

Add to Favorites
EMBR Portal: Features

- Login and registration
- Search and discover capability:
  - Indexed search of metacards using Lucene search engine
- Comment on existing metacards
- A bookmark capability to mark metacards of interest
- A personal workbench capability that:
  - Lists previous search queries
  - Lists bookmarked metacards of interest
  - Provides access to a data locker that contains metacards managed by the individual
  - Enables the user to request collaboration with another metacard owner
  - Edit or builds metacards
  - Monitor s usage experience and user feedback
- The feedback mechanism provides asset usage experience contained within an M&S asset metacard (MSC-DMS format)
- The collaboration capability enables two or more people to work on and discuss development of a metacard
- An online support system enables users to submit trouble tickets and seek assistance on using the EMBR Portal
- External interfaces that enable the Portal to exchange data with existing catalogs, repositories, and registries
EMBR Portal Home Page (Not Logged In)

This website is a prototype with limited functionality.

EMBR Portal Tools

Find an M&S asset for your project

Search Metacards

Advanced Search

Manage Metacards

Build Metacard  Import Metacard  Edit Metacard

Share Usage Feedback

Provide Feedback

What is the EMBR Portal?

The EMBR Portal enables users to develop and manage metacards describing M&S assets. Users can also search, evaluate, and provide feedback on M&S assets. The EMBR Portal also supports the transfer of metacards to selected repositories and catalogs.

If you are already registered, please login at the top right of the page. Otherwise, select the button below to register.

Register for Access

Recover Password

View Terms of Use
EMBR Portal Home Page (Logged In)
EMBR Portal Home Page (Cont.)

Recently Updated Metacards

**EMBR Portal**
- Deploy - Updated: 2011-04-02
- RDD First Response - Updated: 2011-04-02
- cICAS-AlertStrike - Updated: 2011-04-02
- cICAS-BattleDamageAssessment - Updated: 2011-04-02
- cICAS-CommSent - Updated: 2011-04-02

**My Metacards & My Collaborations**
- DIS Filter - Updated: 2011-01-15
- Gateway Builder - Updated: 2011-01-15
- GMU Gateway - Updated: 2011-01-15
- VR-Exchange - Updated: 2011-01-15
- Making Your BOMs and FOM Modules Play Together - Updated: 2011-01-19

**Tracked Metacards**
- Making Your BOMs and FOM Modules Play Together - Updated: 2011-01-19
- Pitch Recorder - Updated: 2011-01-31
- Standard for Link16 Simulations for navy sim - Updated: 2011-02-01
- Title for test metacard - Updated: 2011-02-08
- Call of Duty Black Ops - Updated: 2011-02-09

Network System Under Test Gateway
Number of Messages: 2

Comments Received
No Recent Comments
EMBR Portal: Metacard Search Utility (I)
EMBR Portal Workbench (I)
EMBR Portal Workbench (II)

Back to: My Workbench

My Metacards

- **Range Data Gateway**
  - Collaborators: 0 | Valid: Yes | Submitted: No

- **GMU Gateway**
  - Collaborators: 0 | Valid: No | Submitted: No

- **Network System Under Test Gateway**
  - Collaborators: 1 | Valid: Yes | Submitted: No

- **VR-Exchange**
  - Collaborators: 0 | Valid: No | Submitted: No

- **DIS Filter**
  - Collaborators: 1 | Valid: No | Submitted: No

Ballistic missile defense system modeler

Information

**You own/manage 10 metacards**

The following managing capabilities are provided:

- **View** - clicking the link identified by the metacard title will launch the Metacard Viewer. The Metacard Viewer will display the metacard information, and will provide a set of additional functions that can be performed on the metacard.

- **Edit** - opens the metacard details using the Workbench Designer (Metacard Builder).

- **Export** - save a metacard to your computer or mobile device. Choose the default XML format (MSC-DMS), or another format.

- **Collaborate** - co-author and communicate with others in the development or update of a metacard.

- **Validate** - check to see if the metacard is compliant and well-formed.
EMBR Portal Metacard View

Metacard View

Metacard Summary
Title: VR-Exchange
Type: tool
Description: Provide gateway between various architectures / protocols

Dates:
lastVerified=2010-05-01

Version: 1
Rights:
Relensability: A: Unlimited distribution
Security Classification:
Associations:
POCs:
Mat& Technologies

Keywords:
value: HLA taxonomy: Architectures
value: DIS taxonomy: Architectures
value: TENA taxonomy: Architectures

Usages:
purpose: HLA, DIS, TENA, and others (via an API)
applicationDomain:
limitations:
history:  

Media:
Glyph:
Taxonomies Cited:

Metacard Actions
Title: VR-Exchange
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
EMBR Portal Metacard Builder
EMBR Portal Collaboration

My Collaborations

- **Gateway Builder**
  - Collaborators: 1 | Valid: Yes | Submitted: No

- **Standard for Link16 Simulations for navy sims**
  - Collaborators: 1 | Valid: No | Submitted: No

- **Making Your BOMs and FOM Modules Play Together**
  - Collaborators: 1 | Valid: No | Submitted: No

- **Pitch Recorder**
  - Collaborators: 4 | Valid: No | Submitted: No

- **ModIOS logger/player**
  - Collaborators: 1 | Valid: Yes | Submitted: No

Information

You are collaborating on **7 metacards**

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- **Validate** - check to see if the metacard is compliant and well-formed.
EMBR Portal Feedback

Notifications

Collaboration Requests
No Recent Requests

Collaboration Messages
Network System Under Test Gateway
Number of Messages: 2

Feedback Received
Range Data Gateway - 2011-01-17
  Feedback Description: I have not used this adjunct tool, but I have heard valuable comments from the TENA community.

Call of Duty Black Ops - 2011-01-17
  Great FPS, with amazing graphics.

Call of Duty Black Ops - 2011-01-17
  Great FPS, with amazing graphics.

Call of Duty Black Ops - 2011-01-17
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Call of Duty Black Ops - 2011-01-17
  Great FPS, with amazing graphics.

Prev 1 of 5 Next

Comments Received
No Recent Comments
## Systems Engineering Process Mapping to Asset Reuse Use Cases and LVC Roles

<table>
<thead>
<tr>
<th>LVC/Asset Reuse Role/Reuse Threads</th>
<th>Publish/Release Asset</th>
<th>Design Simulation Environment</th>
<th>Build Simulation Environment</th>
<th>Integrate/Test Simulation Environment</th>
<th>Evaluate Simulation Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicable Simulation Engineering Processes</td>
<td>4.3</td>
<td>1.3, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 4.1</td>
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<td>5.2, 5.3</td>
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<tr>
<td>Applicable Asset Reuse Use Cases</td>
<td>UC01, UC03, UC07, UC08, UC09, UC12, UC17, UC18, UC19, UC21</td>
<td>UC01, UC03, UC04, UC05, UC06, UC08, UC11, UC20</td>
<td>UC01, UC03, UC05, UC09, UC13, UC14, UC15, UC21</td>
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<td>UC01, UC03, UC07, UC08, UC09, UC10, UC11, UC17, UC18, UC21, UC22</td>
</tr>
</tbody>
</table>

### Producer
- Federation
- Developer/Integrator
- Program Manager
- Sponsor

### Integrator
- Federation Engineer/Tester
- Federation Manager

### Consumer
- User/Operator
- V&V Agent
- Accrreditor
## Design Simulation Environment Process: Detailed Mapping to Use Cases

<table>
<thead>
<tr>
<th>Use Cases/ Simulation Environment Processes</th>
<th>1.3 Conduct Initial Planning</th>
<th>2.1 Develop Scenario</th>
<th>2.2 Develop Conceptual Model</th>
<th>2.3 Develop Simulation Environment Requirements</th>
<th>3.1 Select Member Applications</th>
<th>3.2 Design Simulation Environment</th>
<th>3.3 Design Member Applications</th>
<th>4.1 Develop Simulation Data Exchange Model</th>
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<tr>
<td>Use Cases/ Simulation Environment Processes</td>
<td>3.3 Design Member Applications</td>
<td>3.4 Prepare Detailed Plan</td>
<td>4.2 Establish Simulation Environment Agreements</td>
<td>4.3 Implement Member Application Designs</td>
<td>4.4 Implement Simulation Environment Infrastructure</td>
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</table>
Questions and Feedback
Backup Slides