



## Semantic Interoperability Community of Practice (SICoP)

Semantic Web Applications for National Security Conference  
Hyatt Regency Crystal City, Regency Ballrooms E and F  
Brand Niemann (US EPA) and Rick Morris (U.S. Army), Co-Chairs  
Semantic Interoperability Community of Practice (SICoP)  
Best Practices Committee (BPC), CIO Council

April 7, 2005

<http://web-services.gov/> and

<http://colab.cim3.net/cgi-bin/wiki.pl?SICoP>





# Overview

- The Semantic Interoperability Community of Practice (SICoP) Grew Out of the First Semantic Technologies for E-Government Conference, White House Conference Center, September 8, 2003.
- SICoP Was Chartered by the Knowledge Management Working Group (KM.Gov) of the CIO Council's Best Practices Committee in March 2004.
- SICoP is Producing Three "Best Practices" Modules:
  - (1) Introducing Semantic Technologies and the Vision of the Semantic Web (completed-delivered February 28th)
  - (2) The Business Case for Semantic Technologies (interim on April 8, 2005 and final for September 2005)
  - (3) Implementing the Semantic Web (in process for September 2005)



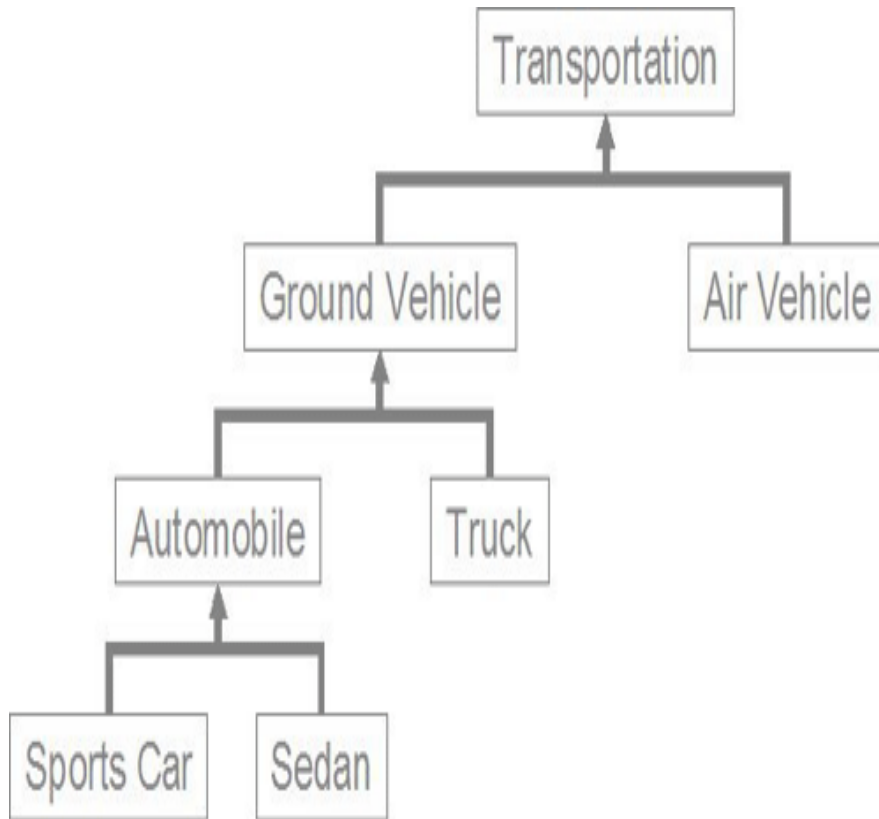
# Overview

- SICoP is Conducting Pilot Projects at the Request of the Federal CIO Council:
  - Formal Taxonomies for the U.S. Government
  - Federal Enterprise Architecture Reference Model Ontology (FEA RMO)
  - Semantic Technology Profiles for the Federal Enterprise Architecture Data Reference Model
- SICoP is Producing Workshops and Conferences:
  - Second Semantic Technologies for E-Government Conference, September 8-9, 2004
  - XML 2004 Conference: From Syntax to Solutions, November 14-17, 2004 (Keynote & Session Tracks)
  - Semantic Interoperability Study Group for the CIOC Architecture & Infrastructure Committee Leadership, October-December 2004
  - Monthly Collaboration Expedition Workshops with the Architecture & Infrastructure Committee at NSF (December 2004 and February 2005)
  - The Third Semantic Technologies for E-Government Conference, September 2005, Washington, DC
  - XML 2005 Conference: From Syntax to Semantics, November 14-18, Atlanta, Georgia (Keynote & Session Tracks)



# Formal Taxonomies for the U.S. Government

## Transportation Class Hierarchy



OWL Listing:

```
<?xml version="1.0"?> <rdf:RDF
  xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema#"
  xmlns:rdfs="http://www.w3.org/2000/01/rdf-schema#"
  xmlns:owl="http://www.w3.org/2002/07/owl#"
  xmlns:daml="http://www.daml.org/2001/03/daml+oil#" xmlns="http://www.owl-ontologies.com/unnamed.owl#"
  xmlns:dc="http://purl.org/dc/elements/1.1/"
  xml:base="http://www.owl-ontologies.com/unnamed.owl"> <owl:Ontology
  rdf:about=""/> <owl:Class
  rdf:ID="Transportation"/> <owl:Class
  rdf:ID="AirVehicle"> <rdfs:subClassOf
  rdf:resource="#Transportation"/> </owl:Class>
  <owl:Class rdf:about="#GroundVehicle">
  <rdfs:subClassOf
  rdf:resource="#Transportation"/> </owl:Class>
  <owl:Class rdf:about="#Automobile">
  <rdfs:subClassOf> <owl:Class
  rdf:ID="GroundVehicle"/> </rdfs:subClassOf>
  Etc.
```

Source: Formal Taxonomies for the U.S. Government, Michael Daconta, Metadata Program Manager, US Department of Homeland Security, XML.Com, <http://www.xml.com/pub/a/2005/01/26/formtax.html>



# FEA Reference Model Ontology

SWOOP v2.2.1

File View Bookmarks Resource Holder Advanced About

Address: [http://www.domainmodeling.com/owl/2004/11/fea/brm.owl#SF\\_Heath](http://www.domainmodeling.com/owl/2004/11/fea/brm.owl#SF_Heath)

Ontology List

- 1.1
- brm.owl
- BRM2PRM.owl
- FEA.owl**
- Feac.owl
- prm.owl
- srm.owl
- trm.owl

Concise Format | Abstract Syntax | RDF/XML | Turtle

**Imported OWL-Class:** [brm:SF\\_Heath](#)  
See its definition in Imported Ontology: [brm.owl](#)

**Equivalent to:**  
([3feac:comprises](#) . {[brm:LOB\\_Heath](#)})

**Disjoint with:**  
[brm:SF\\_LawEnforcement](#)  
[brm:SF\\_IncomeSecurity](#)  
[brm:SF\\_GeneralScienceAndInnovation](#)  
[brm:SF\\_InternationalAffairsAndCommerce](#)  
[brm:SF\\_IntelligenceOperations](#)  
[brm:SF\\_Education](#)  
[brm:SF\\_DefenseAndNationalSecurity](#)  
[brm:SF\\_CorrectionalActivities](#)  
[brm:SF\\_HomelandSecurity](#)  
[brm:SF\\_NaturalResources](#)  
[brm:SF\\_LitigationAndJudicialActivities](#)  
[brm:SF\\_Energy](#)  
[brm:SF\\_CommunityAndSocialServices](#)  
[brm:SF\\_WorkforceManagement](#)  
[brm:SF\\_EconomicDevelopment](#)  
[brm:SF\\_DisasterManagement](#)  
[brm:SF\\_Transportation](#)  
[brm:SF\\_EnvironmentalManagement](#)

**Subclass of:**  
[brm:SF\\_ServicesForCitizen](#)  
([3brm:isSubfunctionOf](#) . {[brm:LOB\\_Heath](#)})

Class Tree | Property Tree | List

- brm:SF\_DirectServicesF
- brm:SF\_FederalFinancie
- brm:SF\_KnowledgeCree
- brm:SF\_PublicGoodsCre
- brm:SF\_RegulatoryCorr
- brm:SF\_TransfersToSte
- brm:SF\_ServicesForCitizen
  - brm:SF\_CommunityAnd
  - brm:SF\_CorrectionalAct
  - brm:SF\_DefenseAndNa
  - brm:SF\_DisasterManag
  - brm:SF\_EconomicDevel
  - brm:SF\_Education
  - brm:SF\_Energy
  - brm:SF\_Environmentall
  - brm:SF\_GeneralScience
  - brm:SF\_Heath**
  - brm:SF\_HomelandSecur
  - brm:SF\_IncomeSecurity
  - brm:SF\_IntelligenceOpe
  - brm:SF\_InternationalAf
  - brm:SF\_LawEnforcemer
  - brm:SF\_LitigationAndJu
  - brm:SF\_NaturalResourc

Lookup  All Ontologies?

Source: SWOOP 2.2.1 from MindSwap Research Group (Jim Hendler).



# Introduction to the White Paper Series

- This set of white papers is the combined effort of KM.Gov and SICoP.
- The papers will make the case that these technologies are substantial progressions in information theory and not yet-another-silver-bullet technology promising to cure all IT ills.
- The papers are written for agency executives, CIOs, enterprise architects, IT professionals, program managers, and others within federal, state, and local agencies with responsibilities for data management, information management, and knowledge management.



# Module 1: Introducing Semantic Technologies and the Vision of the Semantic Web

- This white paper is intended to inform readers about the principles and capabilities of semantic technologies and the goals of the Semantic Web.
  - It provides a primer for the field of semantics along with information on the emerging standards, schemas, and tools that are moving semantic concepts out of the labs and into real-world use.
  - It also explains how describing data in richer terms, independent of particular systems or applications, can allow for greater machine processing and, ultimately, many new and powerful autonomic computing capabilities.



# Module 1: Introducing Semantic Technologies and the Vision of the Semantic Web

- This white paper focuses upon applications of semantic technologies believed to have the greatest near-term benefits for agencies and government partners alike.
  - These include semantic web services, information interoperability, and intelligent search. It also discusses the state and current use of protocols, schemas, and tools that will pave the road toward the Semantic Web.
- **Takeaways:** We want readers to gain a better understanding of semantic technologies, to appreciate the promises of the next generation of the World Wide Web, and to see how these new approaches to dealing with digital information can be used to solve difficult information-sharing problems.





# Acknowledgements

- Executive Editors and Co-Chairs.
  - Special Recognition to Outgoing Co-Chair Rick Morris
- Managing Editor, Editor, and Copy Editor.
  - Special Recognition to Editor Ken Fromm
- Primary Contributors and Contributors.
- Reviewers.
- Leadership of the Best Practices and Architecture and Infrastructure Committees.
- Supporting Agencies and Organizations.

# *Special Recognition*

**Rick (Rodler F.) Morris, U.S. Army, Office of the CIO**

**For the “Outstanding Leadership” as Co-Chair of the SICoP During Its  
Formation and First Year  
Presented at the Semantic Web Applications for National Security  
Conference, April 7-8, 2005.**

**By SICoP Co-Chair, Brand Niemann, U.S. EPA, and SICoP Members**

***KM.GOV***

**SICoP**



**SEMANTIC WEB APPLICATIONS FOR NATIONAL SECURITY  
CONFERENCE ON APRIL 7-8, 2005  
IN WASHINGTON, DC**

# *Special Recognition*

**Kenneth R. Fromm, Loomia, Inc.**

**For the “Outstanding Editorial Leadership” in the Completion of the SICoP White Paper “Introducing Semantic Web Technologies: Harnessing the Power of Information Semantics” Presented at the Semantic Web Applications for National Security Conference, April 7-8, 2005.**

**By SICoP Co-Chairs, Rick Morris, U.S. Army, & Brand Niemann, U.S. EPA**

***KM.GOV***

**SICoP**



**SEMANTIC WEB APPLICATIONS FOR NATIONAL SECURITY  
CONFERENCE ON APRIL 7-8, 2005  
IN WASHINGTON, DC**



# SICoP at SWANS

- Semantic Web Government-Wide Enterprises, Projects, and Initiatives, Rick Morris, SICoP Co-Chair
- Pilot Program Elements Panel and Keynote – Strategic Information Delivery, Mike Daconta, SICoP Module 3 Team Lead
- Pilot Program Elements Panel:
  - FEA Reference Model Ontology: Lessons Learned So Far
  - Building a National Health Information Network Ontology
  - Public Domain Databases for Semantic Searching and Ontology Building
  - Proposed SICoP Ontology and Taxonomy Coordinating Work Group (ONTACG)
- Business Use Case, Mills Davis, SICoP Module 2 Team Lead
- Pilot Program Advice: Technical Leadership (Ralph Hodgson) and Program Management (Mike Daconta and Rick Morris)