Practical NIEM implementation: A training course

Abstract

A technical course in NIEM (National Information Exchange Model), the United States government XML standard for information sharing. Either version 2.1 or 3.0 can be covered. The course is designed to teach attendees the entire process of creating NIEM IEPDs on a technical level. Hands-on exercises are used to emphasize the material, including a group case study that results in a complete IEPD. The instructor has practical experience implementing NIEM for three different federal agencies, and has taught the official NIEM Practical Implementer's Course for the IJIS Institute.

Duration

4 days

Schedule

To schedule a class, please contact us at pwalmsley@datypic.com.

Topics covered

1. Anatomy of an XML exchange
   - Common terminology
   - XML message exchange patterns
   - Common design challenges
2. XML conceptual review
   - Basic XML syntax
   - Documents, elements and attributes
   - Encoding, special characters and escapes
   - Additional XML components (entities, comments, PIs)
3. Basic XML Schema for NIEM
   - XML Schema overview
   - Sample schema
   - Element and attribute declarations
   - Type definitions
   - Annotations
4. More XML Schema for NIEM
   - Namespaces
   - Relationship mechanisms
   - Hierarchical inclusion
   - XML referencing
5. Substitution groups
   - Multiple representations
   - Substitution groups
   - Explicit substitution groups
   - Implied substitution groups

6. Extension schemas

- NIEM schema extension basics
- Type extension
- Implied substitution group
- Concrete extension
- Dynamic type substitution
- Extension method comparison

7. NIEM overview

- NIEM at 50,000 feet
- What is an IEPD?
- NIEM tools

8. IEPD concepts

- IEP defined
- Major IEPD artifacts
- IEPD lifecycle
- NIEM IEPD reuse
- IEPD development considerations

9. How NIEM uses XML

- NIEM namespaces
- NIEM use of URIs
- Naming conventions
- Conceptual structure
- Hierarchies: type vs. container
- Inheritance
- Contextual definitions
- Associations
- Roles
- Substitution groups
- Type augmentation
- Metadata
- Code tables

10. Business skills

- IEPD and project lifecycle relationship
- Conducting high-level stakeholder identification
- IEPD project inception
- IEPD development objectives
- Requirements-gathering techniques for NIEM IEPDs

11. Exchange content modeling

- Purpose of modeling
- UML: Class and attribute
- UML: Generalization
- UML: Composition
- UML: Association
- UML: Aggregation

12. Mapping

- What is mapping?
- Relationship to UML
- Documenting mappings

13. Subset schemas

- Subset schema defined
- Wantlist
- How do i produce a subset schema?
- Component selection tips
- Constraints

14. Extension and exchange schemas

- Creating an extension schema
- Creating an exchange schema
- Issues for consideration

15. Packaging and distribution

- Manual IEPD construction
- IEPD metadata
- NIEM IEPD repositories

16. Implementation considerations

- NIEM conformance
- Scope of NIEM
- IEP delivery method
- IEP capability implementation
- Web Services