



IMS Enterprise Services Specification: Overview

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Contents

- Specification goals & requirements
- Documentation set
- Core use-cases
- Information models review
- WSDL bindings review
- Best practices & implementation guide
- Conformance specification
- Future work

Goals & Requirements

- Add behaviors to the Enterprise v1.1 data model
- Adopt Web Services binding
- Maintain the Enterprise v1.1 data models
 - Person, Group, Membership
- Out-of-scope activity
 - IMS LIP <identification> reconciliation
 - New functionality i.e. Gradebook, Course Catalog, etc.
 - Query-based behaviors

Documentation Set

- Set of Enterprise Service documents are:
 - a) Enterprise Services Core Use Cases
 - b) Enterprise Services Specification
 - c) Enterprise Services Conformance Specification
 - d) Enterprise Services Best Practice & Implementation Guide
 - e) Person Management Service Information Model
 - f) Group Management Service Information Model
 - g) Membership Management Service Information Model
 - h) Enterprise Services Common Data Definitions
 - i) Person Management Service WSDL Binding
 - j) Group Management Service WSDL Binding
 - k) Membership Management Service WSDL Binding
 - l) WSDL Binding Files, Example Files, XMI File, Code Stubs
 - m) Enterprise Services Overview (this presentation)

Reviewing the Specification

- Recommended review approach:
 - Start with Enterprise Service Specification (All, detail)
 - Enterprise Service Core Use-cases (All, partial)
 - Enterprise Service Best Practice & Implementation (All, detail)
 - Information Model & WSDL Binding pairing (As required)
 - Person Management Services
 - Group Management Services
 - Membership Management Services
 - Common Data Definitions
 - Enterprise Service Conformance Specification (All, detail)
 - WSDL Binding Files, Example Files, Code Stubs (As required)

Core Use-cases

- Separate document containing:
 - Set of Person behavior use-cases
 - Set of Group behavior use-cases
 - Set of Membership behavior use-cases
- Out-of-scope
 - Query-based use-cases

The Component Services

- Person Management Service (PMS)
 - Manipulation of Individual-based data
- Group Management Service (GMS)
 - Manipulation of collections of things
- Membership Management Service (MMS)
 - Members (Groups or Persons) of Groups
- Enterprise Service Common Data Definitions
 - Objects that are used by more than one component and available to all Enterprise Service specifications

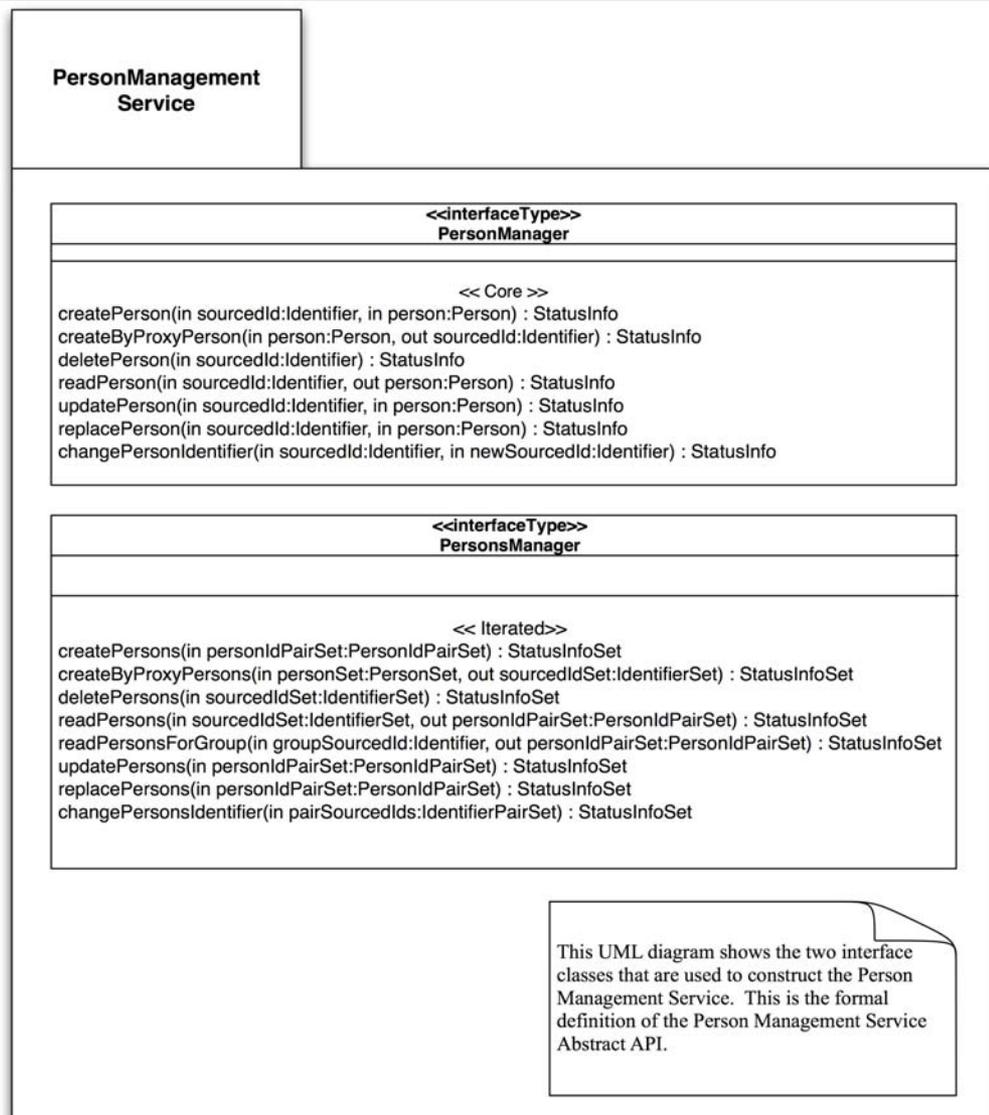
Behaviors & Data Models

- New behaviors
 - Exchange of information not the end-system storage of information
 - Constrain the manipulation of the data model
 - Establish permitted sequence of events and data persistence
 - Define error conditions and status reporting
 - Implemented as exchange of messages
- Established data models
 - Expressed using UML but converted to XML
 - XML expressed as 'elements' only
 - Request/response message structures also defined using XML
 - XML Schema Definition (XSD) used to capture the UML classes and data-types

Person Management Service

- Enterprise v1.1. Person Data Model
- Person data consists of:
 - FormatName, Name, Address, RecordInfo, UserId, URL, Email, Tel, Photo, Demographics, SystemRole, InstitutionRole, DataSource, Extension
- Basic Create/Read/Update/Delete operations
- Two sets of operations
 - Single object manipulation (7)
 - Set of objects manipulation (8)

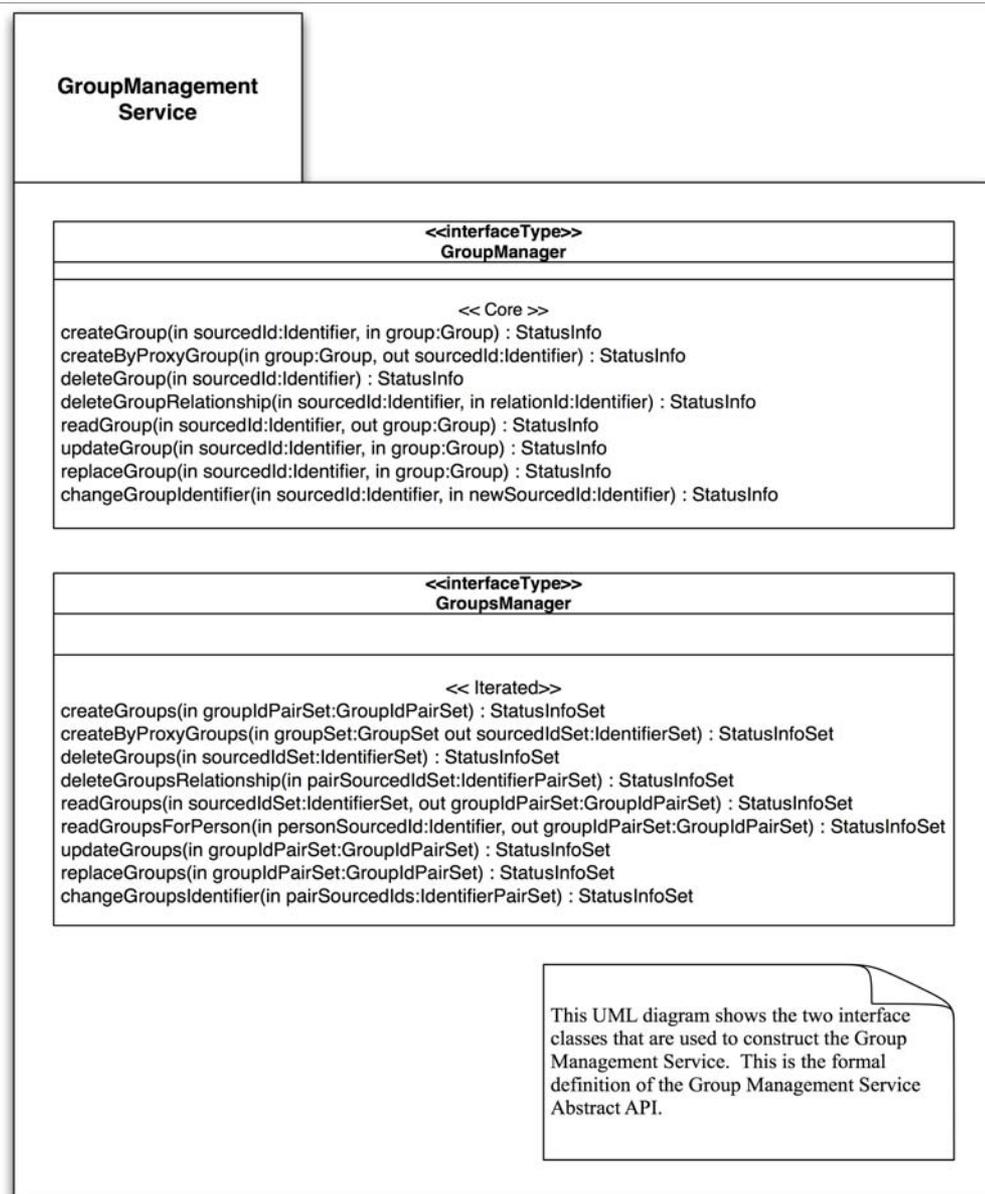
PMS UML Representation



Group Management Service

- Enterprise v1.1. Group Data Model
- Group data consists of:
 - GroupType, RecordInfo, URL, Email, Org, TimeFrame, Description, EnrollControl, Relationship, DataSource, Extension
- Basic Create/Read/Update/Delete operations
- Two sets of operations
 - Single object manipulation (8)
 - Set of objects manipulation (9)

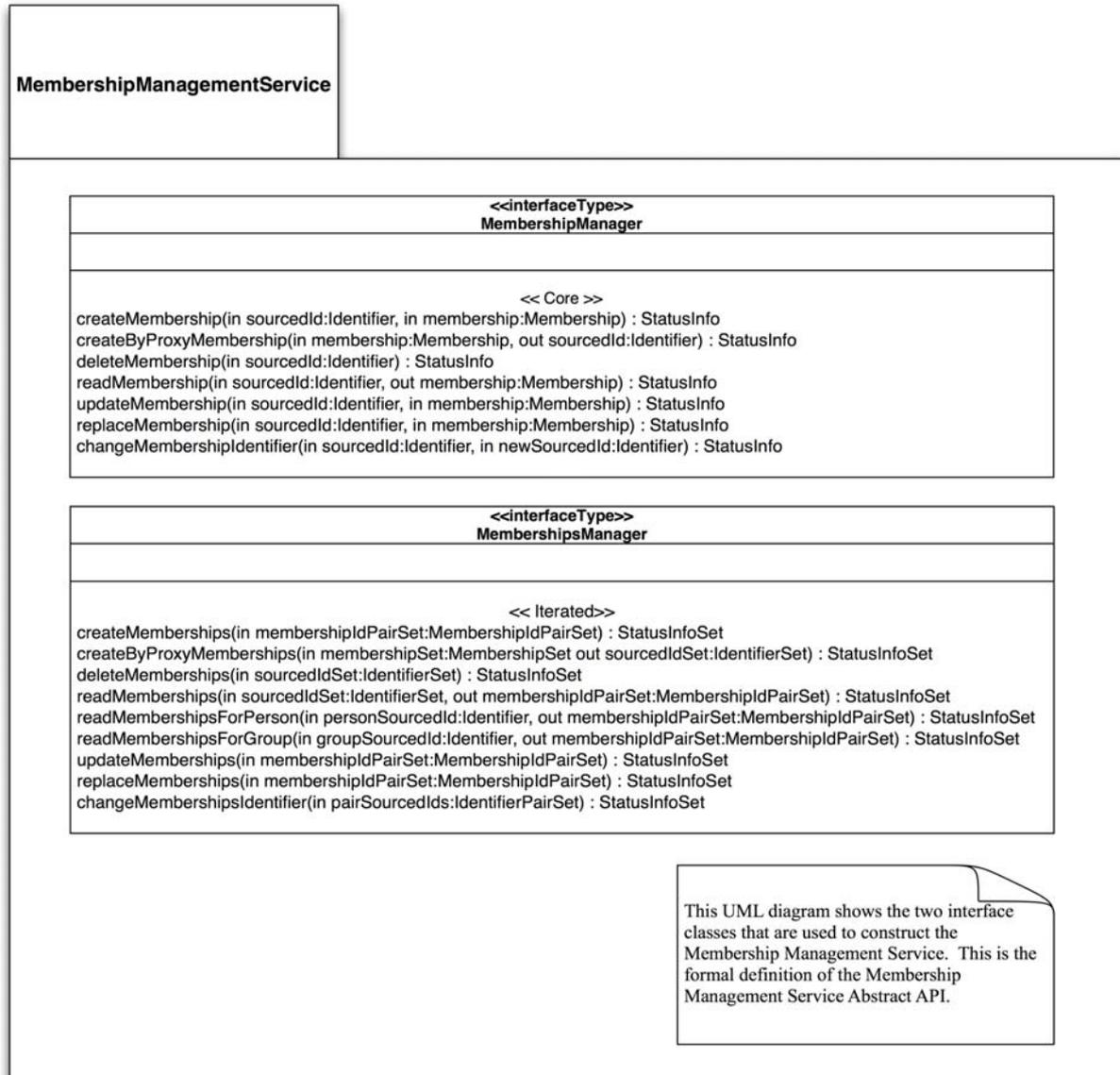
GMS UML Representation



Membership Management Service

- Enterprise v1.1. Membership Data Model
- Group data consists of:
 - GroupSourcedId, Member, MemberSourcedId
 - Role, RoleType, SubRole, RecordInfo, UserId, Email, TimeFrame, Status, DateTime, FinalResult, InterimResult, DataSource, Extension
- Basic Create/Read/Update/Delete operations
- Two sets of operations
 - Single object manipulation (7)
 - Set of objects manipulation (9)

MMS UML Representation



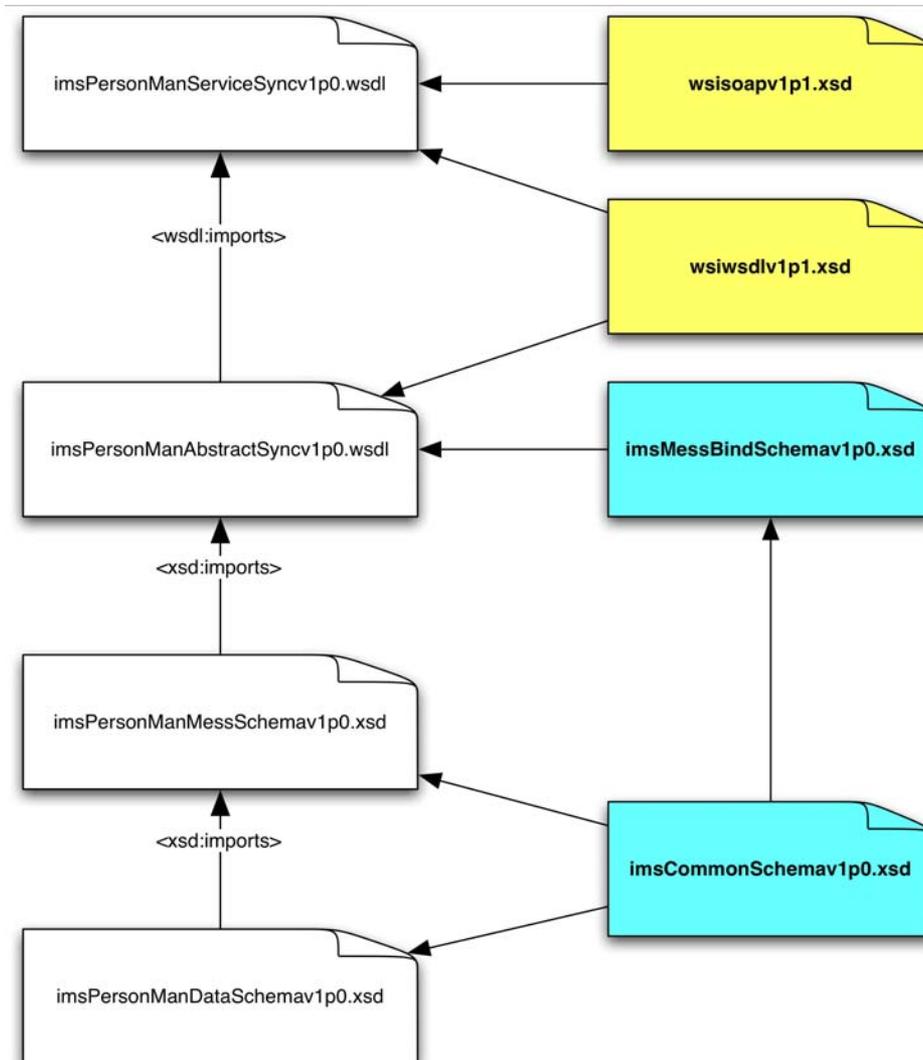
Binding to Web Services

- Based upon WS-I Organization Base Profile 1.0a
 - WSDL v1.1
 - SOAP v1.1
 - HTTP v1.1
- Characteristics
 - Support for SOAP faults
 - Status information in SOAP header
- Security - use HTTPS

The WSDL Bindings

- Synchronous binding available only
- The set of service WSDL files
 - Service Specific WSDL Files
 - Abstract Definition WSDL Files
- The set of service XSD files
 - Message Formats XSDs
 - Data Model XSDs
- The set of common XSD files
 - Message Header Schema XSD
 - Common Objects Schema XSD

WSDL Binding File Set



Best Practices Guide

- How to implement the Enterprise Services
- Describes simple SOAP/HTTP messages
- Describes relationship to:
 - IMS Enterprise Specification v1.1
 - OKI OSIDs
 - vCard, LDAP, eduPerson/Internet2, IMS LIP
- Provides
 - Glossary of Terms
 - Design patterns for Java and .NET implementations
 - Examples for creating extensions

Conformance Specification

- Based upon the Information Models i.e. binding independent
- System orientation
 - Service Requester ('Request' message generator)
 - Service Provider ('Response' message generator)
- Levels
 - 1 - 'Unsupported' by Provider
 - 2 - Mandatory elements in the data models only
 - 3 - Subset of optional elements in the data models
 - 4 - All elements in the data model

Conformance Statements

Service Requester	Service Provider			
	Level 1	Level 2	Level 3	Level 4
Level 1	No Interop	No Interop	No Interop	No Interop
Level 2	No Interop	Partial Interop	Requester Constrained	Requester Constrained
Level 3	No Interop	Provider Constrained	Partial Interop	Requester Constrained
Level 4	No Interop	Provider Constrained	Provider Constrained	Full Interop

Migration from Enterprise v1.1

- All of the core data model aspects have been maintained
- Features changed
 - <property> element is unnecessary
 - 'recstatus' attribute is unnecessary
 - No sub-groups in Groups
 - Memberships have their own 'sourcedId'
 - Single Member object per Membership object
 - Strong data-typing and constraints applied in the XSDs
- NOTE: The v1.0, v1.01, 1.1 DTDs are NOT valid expression of the Enterprise Services data models.

Support Files

- Example files
 - Hand generated SOAP/HTTP messages
- UML 2.0 XMI file
 - Source tool is 'Poseidon 2.0'
- Code stubs
 - Sourceforge/CETIS for Java

Future Work

- Asynchronous binding
 - Published when testing is complete (unknown timetable)
- New behaviors
 - Querying (start work in Sept 2005?)
- Other services
 - Gradebook
 - Course management

Summary

- ES specification consists of 11 documents
 - Person Management Service
 - Group Management Service
 - Membership Management Service
- Key requirement
 - Provide behaviors to support the IMS Enterprise Specification v1.1 data model
- WSDL & support files now available
- Asynchronous binding for future release



Questions, Comments, or
Issues ?