IMS Specifications:
Creating an Education Technology Interoperability Ecosystem

Colin Smythe (IMS Chief Architect)

csmythe@imsglobal.org
Content

- Context for the Technical Work
- Current Specification Activity
- Technical Developments 2018/2019
- Getting Involved with IMS
- Future Meetings
My Background

• Role
  – Developing the top-level architectural perspective and understanding
  – Making sure the IMS specifications fit the IMS ECOSYSTEM
  – Overseeing the range of technologies we adopt and adapt to create IMS specifications
  – Facilitating the completion of various specifications
  – Supporting the adoption of the IMS specifications

• Current Specification Responsibilities
  – Question & Test Interoperability
  – OneRoster
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A wide range of specifications published since 1999.

We have an extensive legacy responsibility.

• Accessibility
• Accessible Portable Item Protocol®
• Caliper Analytics®
• Competency Definitions
• Content Packaging
• Common Cartridge®
• Competencies and Academic Standards Exchange™
• Course Planning and Scheduling
• Digital Repositories
• Enterprise
• Enterprise Services
• ePortfolio
• General Web Services
• Interactive WhiteBoard/ Common File Format
• Learner Information
• Learning Design
• Learning Information Services
• Learning Object Discovery and Exchange
• Learning Tools Interoperability®
• LTI Resource Search
• Meta-data
• OneRoster®
• Open Badges
• Question and Test Interoperability
• Resource List Interoperability
• Shareable State Persistence
• Simple Sequencing
• Tools Interoperability
• Vocabulary Definition Exchange
Published Specifications 2017/18

Specifications published (Final Release) since Aug 2017 are:

• Caliper/Sensor API 1.1
• OpenBadges 2.0
• LTI Resource Search 1.0
New Specifications

- Comprehensive Learner Record
  - Extended Transcript
- Computer Adaptive Testing
- Open Video
- Proctoring

New Versions

- Caliper 1.2 + MPs
- CASE 1.1
- Badge Connect API 1.0
- LTI Advantage
- OneRoster 1.2
- QTI 3.0
- Thin CC/CC 1.4
  - K-12 Profile
Technical Activity Summary
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Learning Tools Interoperability Advantage

- LTI 1.3 Core
  - IMS Security Framework
- LTI Extensions
  - LTI Deep Linking
  - LTI Names & Role Service
  - LTI Assignment and Grade Service
- Developer Tools
Security Framework

www.imsglobal.org/ims-security-framework
E-Assessment

• The only interoperability standard for the authoring and delivery of online tests

• Working on:-
  – Question and Test Interoperability (QTI) 3.0
  – Assessment Metric Profile for Caliper
  – Computer Adaptive Testing (CAT) 1.0
  – Proctoring 1.0 (using LTI Advantage)
  – PPARC, SBAC and CvTE Profiles
Learning Analytics

• To enable the provision of learning analytics from, in particular, heterogeneous sources

• Working on:-
  – Promoting/supporting adoption of Caliper (Sensor) 1.1
  – New Metric Profiles (driven by Member need)
  – Separation of Metric Profiles from the core Caliper specification
Enterprise Systems

• Exchanging information about learners and their learning activities

• Working on:-
  – Supporting OneRoster 1.1 adoption
  – OneRoster 1.2 Final Release
  – LTI Advantage integration
    • OneRoster Gradebook Service
    • OneRoster Rostering

• OneRoster 1.0 deprecation notification
  – https://www.imsglobal.org/article/deprecation-notice-oneroster-10
Packaged Content & Searching

• The exchange of learning materials as a flexible coherent learning experience

• Working on:-
  – Common Cartridge/Thin Common Cartridge 1.4
    • K-12 Thin CC Profile
  – Common Cartridge/Thin Common Cartridge 2.0
  – OpenVideo 1.0
  – LTI Resource Search 1.0
  – EPUB for Education 1.0
Competency Framework & Badging

• Competency-based learning supported by evidence of achievement

• Working on:-
  – Comprehensive Learner Record 1.0 (previously known as eTranscript)
  – Badge Connect API Base Document
  – Supporting deployment/adoption of CASE 1.0
  – Scope definition for CASE 1.1
Accessibility

• Establishing a common accessibility framework for the delivery of accessible content. Primary effort is driven by E-Assessment (QTI/APIP)

• Working on:-
  – Access For All Digital Resource Description (AfA DRD) 3.0 Candidate Final 2.0
  – Access For All Personal Needs and Preferences (AfA PNP) 3.0 Candidate Final 2.0
Security & Privacy

• Guidance and best practices for informing users on how PII is used by tools conforming to IMS standards, specifically LTI, Caliper Analytics and Learning Information Services

• IMS Security Framework

• Announced deprecation notification of use of SHA-1

• Planning full deprecation of OAuth 1.0.
Other Activities

• Communities of Practice
• Product Steering Boards
• App Sharing
• xAPI/Caliper Next Generation
• 1EdTech
• CASE Registry
• HED APIs (Edu-APIs)
• 1EdTech
• Japanese OneRoster Profile
• SBAC QTI 3.0 Profile
• Results, Assessments & Gradebooks
• Common Information Model/Data Model/Vocabularies
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Specification Development Team

Lisa Mattson

Technical
- Markus Gylling
- Dereck Haskins*
- Phil Nicholls*
- James Rissler*
- Colin Smythe

Product
- Jeff Bohrer
- Jill Hobson
- Mark Leuba
- Mark McKell
- Leslie McCafferty*

Support
- Matt Pasiewicz*
- Chris Coleman*
- **DevOps Support**
Technical Developments 2018/19

• Adoption of OpenAPI 3.0
• Improved conformance testing for Consumers
• Publish Security Framework
• Unique Identifiers Best Practices
• Improve conformance reporting to the Product Directory
• Next Generation Validator
Specification Development
Technical Issues

• When to support HTTP 2?
• When to support Transport Layer Security (TLS) 1.3 (RFC 8846)?
• How to realize Consumer Test Interface API?
• Adoption of Web Components?
• Expansion of adoption of OAuth 2.0?
• When to formally deprecate OAuth 1.0a?
Modelling Tool

LTI
Resource OneRoster CASE CAT CLR QTI AfA OpenVideo
Search 1.0 1.1/1.2 1.0 1.0 1.0 2.x/3.0 2.0/3.0 1.0

Service Bindings
- OpenAPI 2.0/3.0
  - JSON
  - YAML
- WSDL/XSD

Documentation
- HTML 4.2
- Respec

Test Systems
- Provider

Data Bindings
- XSD
- Context Files
- JSON Schema
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Getting Involved

• Establish localization/profiling activities to tailor the IMS specifications to your local needs
• Provide use-cases to help IMS identify the ‘pain-points’ for deployments in your country
• Tell us how we can help your organization adopt the IMS specifications
Test Systems Internationalization

• We want to provide language-specific web-site landing pages to our conformance test systems

• In particular for:
  – LTI Advantage
  – OneRoster

• We need your organization to help us provide the language translations
APIs for Higher Education (Edu APIs)

• Start from LMS/SIS interaction perspective
• Build upon the IMS specifications
  – Learning Information Services (LIS)
  – OneRoster
  – Course Planning & Scheduling
• Reflect international requirements
  – What are the HED institutional needs in your country?
  – What APIs are already used by HED in your country?
• More tomorrow!
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Upcoming Events

• **12\textsuperscript{th}-15\textsuperscript{th} November, 2018**
  IMS Quarterly in Suwanee, Georgia, USA

• **4\textsuperscript{th}-7\textsuperscript{th} February, 2019**
  IMS Quarterly in Tempe, AZ, USA

• **20\textsuperscript{th}-23\textsuperscript{rd} May, 2019**
  LILI 2019 in San Diego, CA, USA
Questions & Comments