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Introduction to SCORM & Integrated Data Demonstration

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Presentation Objectives

- Understand basic ADL purpose
- Understand basic Sharable Content Object Reference Model (SCORM Specification)
 - Concepts
 - Terminology
- Understand S1000D to SCORM Connection
 - Similarities
 - Differences
 - Why use S1000D for “technical training content”?
- Demonstration of integrated data

ADL Overview



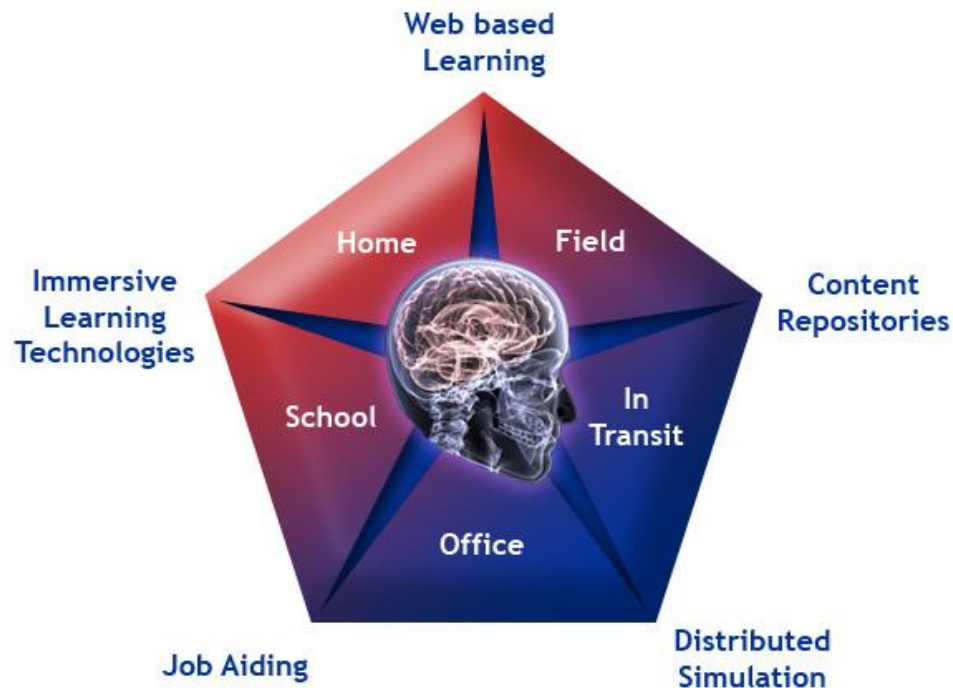
Advanced Distributed Learning Initiative (ADL)

- Founded in 1997: standardize and modernize training delivery for U.S. Department of Defense (DoD)
 - Develop and implement learning technologies for DoD and the federal government
 - Collaborate with government, industry, and academia to promote international specifications and standards for designing and delivering learning content
 - Operate under the direction of the DoD Office of the Under Secretary of Defense for Personnel and Readiness (OUSD P&R)



ADL Vision

Provide access to the highest quality education and training, tailored to individual needs, delivered cost-effectively, anywhere and anytime.



ADL Activities



ADL Network

Canada ADL Partnership Lab
Kingston, ON, Canada

ADL Co-Lab Hub
Alexandria, VA

Joint ADL Co-Lab
Orlando, FL

Academic ADL Co-Lab
Madison, WI

**Center for Online Workforce
Development**
Fairfax, VA

**ADL Memphis Intelligent Tutoring
Systems Center**
Memphis, TN

**Latin American and Caribbean
Region ADL Partnership Lab**
Mexico City, Mexico

Norway ADL Partnership Lab
Oslo, Norway

**German Workforce ADL
Partnership Lab**
Ilmenau, Germany

Korea ADL Partnership Lab
Seoul, Korea

Australia ADL Partnership Lab
Brisbane, Australia

Romania ADL Partnership Lab
Bucharest, Romania



ADL Principles for Content

- Accessib*ility*...
 - Locate and access instructional components from multiple locations and deliver them to other locations
- Interoperab*ility*...
 - Take instructional components developed for one system and use them in another system
- Durab*ility*...
 - Withstand technology changes over time without costly redesign, reconfiguration, or recoding
- Reusab*ility*...
 - Use instructional components in multiple applications, courses, and contexts

***Sharable Content Object
Reference Model Specification:
Concepts***



SCORM Content: Basics

- Is rendered in a **browser** via a system for managed learning
 - Typically Web-based
- Is displayed as html
 - Requires **javascript** that communicates with the systems that manage learning
- Accepts plug-ins and 3rd party tools
 - For example: Flash Player, QuickTime, and others

SCORM Functions: Basics

Sharable Content Object Reference Model (SCORM)

- Exchange courses between Learning Management Systems
- Reuse content pieces across different courses
- Track a learner's progress through computer-based instruction
- Sequenced content tailored to the learner

SCORM Benefits: Basics

- Provides an object-based approach for developing and delivering instructional content
- Allows interoperability of these objects across multiple delivery environments
- Enables sophisticated learning strategies based on the learner's mastery and progress (individualized learning)

***Sharable Content Object
Reference Model Specification:
Terminology***



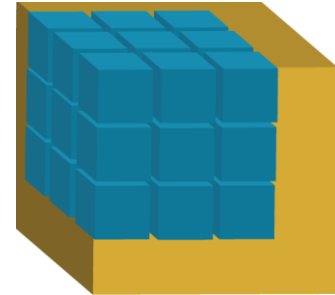
Asset

- Electronic representations of media such as text, images, sound, or any other piece of data a web client can deliver (simply...an asset is an electronic file).
 - A data module would be an asset.
- The most basic building block of content
- Can be reused in many different contexts and applications



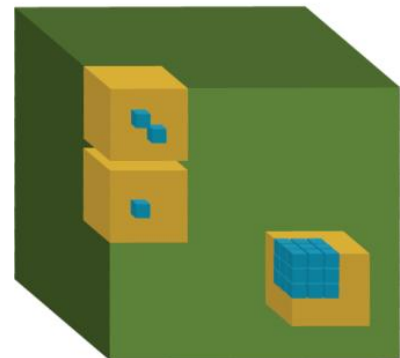
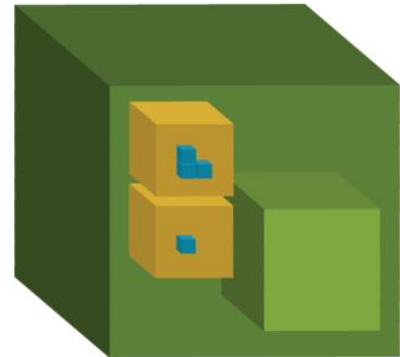
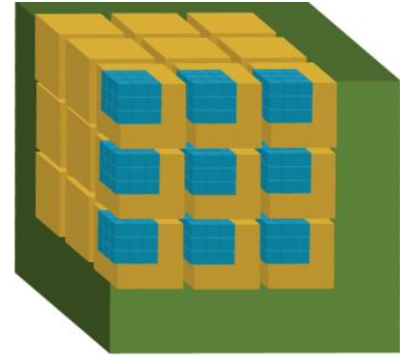
Sharable Content Object (SCO)

- SCO: one or more collected assets that become an independent, defined piece of instructional material
- The smallest logical unit of information you can deliver to your learners via an LMS
 - In technical terms, a SCO is defined as the only piece of information that uses the SCORM Application Programming Interface (API) for communication with an LMS.



Aggregation

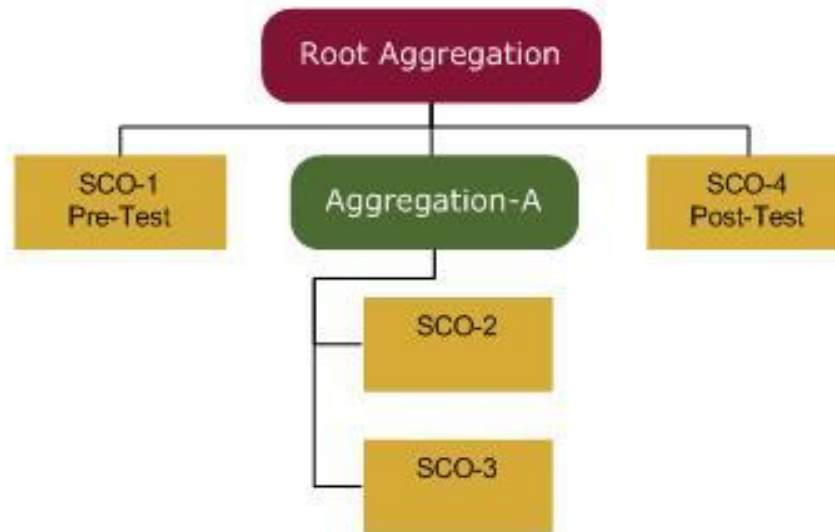
- Referenced collection of related content into SCOs
- Used to group related content for sequencing so that it can be delivered to learners in the manner you prescribe



Sequencing

- Ability to prescribe the way learners receive content in an interoperable manner

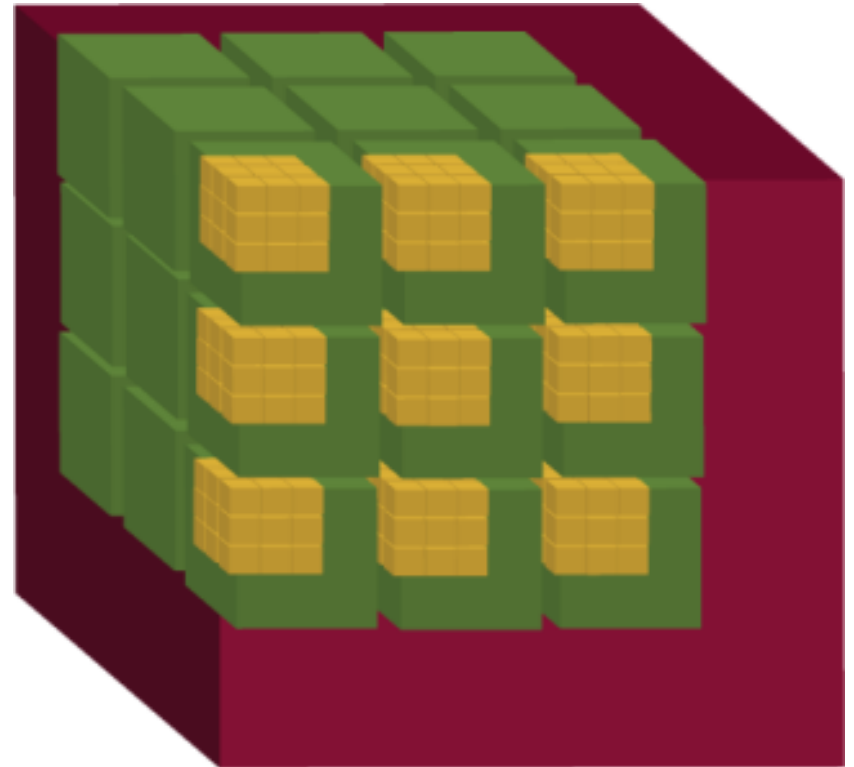
TEMPLATE 7: Pre- and Post-Test Sequencing (2)



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Updated 2009, Advanced Distributed Learning Initiative

Organization

- The part of a content package where SCOs are ordered into a tree structure and sequencing behaviors are assigned to them
 - Also known as a root aggregation
- Outlines the entire structure you created for the content that will be delivered as a single content package



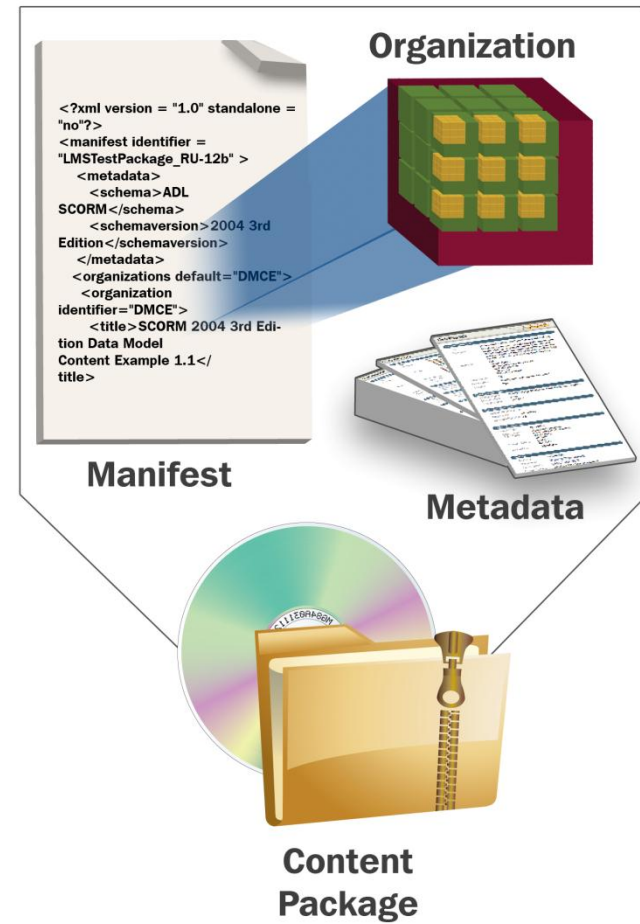
Content Package - 1

- A standardized, interoperable way to upload content to a SCORM-conformant LMS



Content Package – 2

- Contains two principal parts
 - XML manifest file listing
 - All resources or assets in package
 - Content structure diagram (organization)
 - Sequencing rules
 - Metadata for SCOs, aggregations, and package itself
 - All physical SCO and asset files for content package



API

- SCORM Application Programming Interface
 - Standardized method for a sharable content object (SCO) to communicate with the learning management system (LMS) when a learner is interacting with a SCO
 - SCOs can set or retrieve a specific set of information, for example a
 - Learner name
 - Set values, such as a score

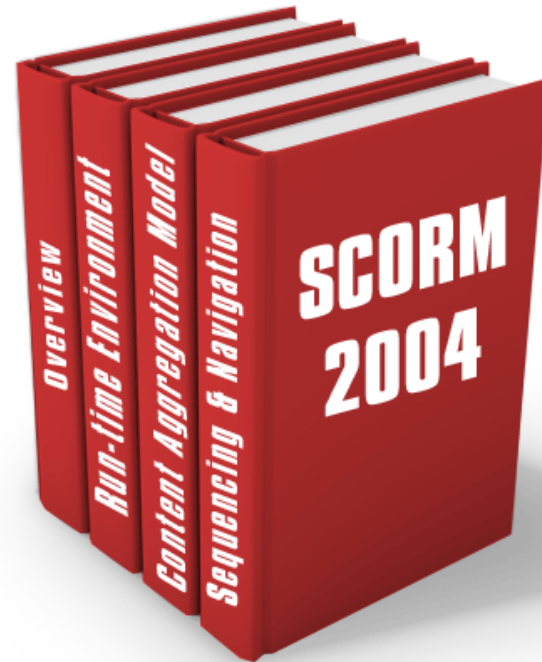


SCORM Bookshelf
(The Specification)



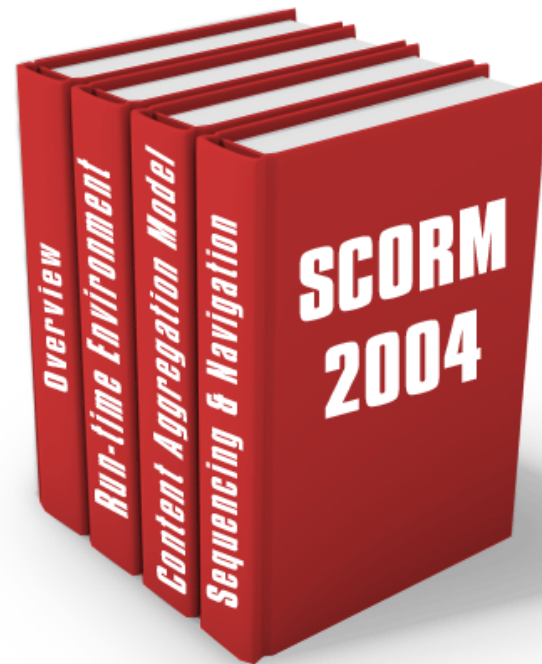
The SCORM Bookshelf

- Sharable Content Object Reference Model (SCORM) is a collection of specifications and guidelines that might be thought of as books in a library
- Nearly all of the specifications and guidelines come from other organizations



Four Books of SCORM

- Overview of SCORM 2004
- Content Aggregation Model
- Run-Time Environment
- Sequencing and Navigation



***S1000D to SCORM Connection:
Why Use S1000D for Technical
Training Content?***



SCORM Standardization Facts

- No asset (file) naming convention
 - No equivalent “SNS”
 - SCORM is used for *any content*
- No XML markup for content
 - Content is used in any format of choice
- No defined way to “chunk” information
 - No business rules to define what is “re-usable”

These facts are “*intentional*”



Facts about Technical Learning Content

- Technical learning content is based on “authoritative sources” (technical publications)
- Technical learning content must be “maintained” as the product and the technical data change
- Technical learning content is out date quickly if links to authoritative sources are not “maintained”
- Costs go up when “all related technical content” are not maintained by a common specification

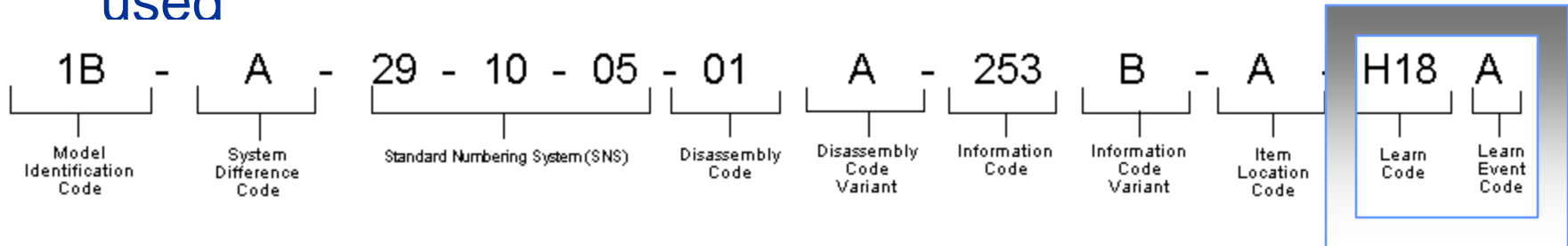
Why Use S1000D for Technical Training Content?

- Technical training must be configured to systems and technical data
- DMC file naming rules promotes content management for technical learning
- IndentAndStatus provides system-specific meta data

***Let S1000D be the regulating format for
technical learning content
AND
authoritative source technical publications***

S1000D and the Learning Data Module (LDM) Code

- Apply a “Learn Code” and “Learn Event Code” at the end of the data module code
 - “Learn Code” describes the “instructional purpose” of the training content.
 - “Learn Event Code” describes the branch of the LDM used



- DMC keeps authoritative source and training content “synchronized” in the CSDB.

Comparing SCORM to S1000D

Function	S1000D	SCORM 2004
Aggregation	S1000D - PubModule, scormContentPackage, SCO DM	IMS Manifest
Sequencing	S1000D - Process Data Module	IMS Simple Sequencing
Granularization and Reuse	S1000D - Data Modules	Sharable Content Objects
Meta Data	S1000D - <idStatus>, <pmStatus>, <scormContentPackageStatus>	Learning Object Metadata (Institute for Electronics and Electrical Engineers, LOM)
Content	S1000D- Learning Data Modules	No reference to content and format
Reporting and Interfacing	S1000D- Data and communication protocol not specified	IEEE ECMA Script API for Content-to-Runtime Services Communication

Communications

- Bookmark

www.ADLNet.gov

- Topic sections with regularly updated feature stories
- More resources for designers and developers

- Subscribe to

ADL Insights Newsletter on
www.ADLNet.gov

- Follow @ADL_Initiative on

twitter

- Join Advanced Distributed Learning Group on **LinkedIn**

The screenshot shows the homepage of the Advanced Distributed Learning (ADL) initiative. The header features the ADL logo and the text "ADVANCED DISTRIBUTED LEARNING". Below the header is a navigation menu with links for Home, Who We Are, What We Do, News and Events, Work With Us, Help, and Contact Us. The main content area is divided into several sections:

- ADL Initiative Introduction:** A paragraph describing the ADL initiative's mission to develop and implement learning technologies across the U.S. Department of Defense and federal government.
- ADL Announces All-Star Roster for Immersive Learning Technologies:** A section with a photo of a group of people and text announcing an impressive roster of players for the Immersive Learning Technologies team.
- ADL Announcements:** A section listing recent events, including the presentation of the Blackboard World 2009 Now Available, the ImplementationFest 2009 Registration Now Open, and the Research and Evaluation Team presented at ITEC 2009 Conference and Exhibition.
- ADL Events:** A table listing upcoming events:

Event	Date/Time
Webinar - Creating Reusable Content with SCORM 2004	8/14/2009 3:00 PM
Webinar - Choosing Authoring Tools	8/12/2009 12:00 PM
- Follow ADL_Initiative on twitter:** A section with a Twitter logo and text encouraging users to follow the initiative on Twitter.
- Learn About:** A section with links to "Webinars, News Posts, Online Office Hours" and "SCORM 2004 Updates".
- Around the World:** A section with a link to "Co-Lab and Partnership Labs".
- Case Studies:** A section with a link to "Federal, DOD, Corporate, Academic".
- Research & Evaluation:** A section with a link to "Training Evaluation, DOD Learning Effectiveness".
- Direct Link:** A section with a link to "ADS, Co-Lab, Hub".
- ADL Registry:** A section with a link to "Documentation, Software, Learning Requirements".
- Acronyms & Terms:** A section with a link to "DOD, ADL, and other technical acronyms and terms".
- Directions:** A section with a link to "ADS, Co-Lab, Hub, Joint ADL Co-Lab".
- Direct Link:** A section with a link to "ADS, Co-Lab, Hub, ADS, Co-Lab, Hub, ADS".



Demonstration



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Thank you - Questions?

Wayne Gafford, Stefano Tedeschi