

SCORM Watch

A discussion of SCORM compliance, associated terminology, and best practices for implementation.



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An Overview of SCORM

The Sharable Content Object Reference Model (**SCORM**) is an **integrated** collection of **guidelines** and **specifications**, used to define interrelationship of eLearning content objects, providing development standards for **accessibility**, **interoperability**, **stability**, and **reusability**. Developed by the Department of Defense as a way for content developers to create consistently-consumable tutorials, SCORM centers on the creation of **Shareable Content Objects** (SCOs). SCOs developed to the reference model's standards may be delivered to learners via any SCORM-compliant Learning Management System (LMS), circumventing the need to redevelop eLearning content for multiple uses and delivery environments.

High-Level Requirements

SCORM standards are based on four high-level requirements: Accessibility, Interoperability, Durability, and Reusability. **Accessibility** speaks to where content is located and how it is delivered, requiring the ability to send and receive content to and from multiple locations. **Interoperability** requires that Content functions correctly on a wide variety of systems and browsers, notwithstanding the initial development tools and original target platform. **Durability** addresses content longevity, specifying that as new versions of software, systems, and platforms are released, no modifications to developed content are required in order to maintain proper functionality. **Reusability** directs that content be independent of the given learning context, and capable of functioning self-sufficiently, for frequent repurposing in recurrent training scenarios, or for consumption by diversified audiences. Some commonly-used SCORM-related terms are defined below.

Sharable Content Objects

Sharable Content Objects (SCOs) represent the smallest logical **building block of information** you can leverage through a Learning Management System. An SCO is considered the **only** component within a course that uses the SCORM API for LMS communications – the retrieving and storing of specific, standardized data (e.g., test scores, completion status, or student identification information).

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Aggregation

An aggregation (or cluster) is an assemblage of **correlated activities**. It may contain SCOs, packages, assets, or other aggregations. Aggregations are used to **group related content**, allowing **flexible delivery**. Unlike a physical file, an aggregation is a structure within a SCORM manifest where sequencing rules are applied.

Organization

The organization is contained within the content package, providing a **tree structure** and assigning **sequencing behaviors** to Sharable Content Objects. The organization outlines the complete structure for content intended to be delivered as a single content package.

Manifest File

A manifest is a file used to **organize** a content package, and is constructed as an **XML file** (Extensible Markup Language.) The manifest consists of a comprehensive **set of instructions** (as specified by SCORM) that **defines** a content package, instructing the Learning Management System as to timing, method, and specific content to deliver. The manifest file is permanently named “imsmanifest.xml”, appearing at the highest level of a content package (notwithstanding the rest of the package’s structure).

Metadata

Metadata is where **supplementary, explanatory data** about a course is located. In its most basic (and most common) form, only the “schema” and “schemaVersion” elements are used. The “**schemaVersion**” specifies the supported SCORM version, with many Learning Management Systems polling this value to determine which SCORM engine to use. Additional metadata concerning a package’s organization, activities, and assets may also be referenced in the manifest.

API Wrapper

For content to be an authentic “Sharable Content Object,” it must have the capacity to find an instance of the SCORM API. This is achieved by including a special “**API Wrapper**” JavaScript file in the content’s primary HTML page. This file, which **locates the SCORM API instance**, contains all the functions required for course content to communicate directly with the Learning

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API Wrapper (Cont'd.)

Management System. These functions are called using traditional **JavaScript**, and can be utilized similarly to other JavaScript functions on a web page.

Assets

Assets denote **electronic representations of content** in the form of text, images, sounds, videos, animations, and [interactives](#). While not intended to communicate directly with LMSs, assets are **reusable** items that can be redeployed and repurposed for a wide variety of different applications.

Templates

One highly recommended method for creating SCORM content is via the use of a pre-existing **development template**. Templates containing SCORM-compliant packages provide a **simple course structure** that can be **modified** and **extended** to create your own course materials. A JavaScript helper file is typically included (an API wrapper), simplifying implementation of the SCORM API. Templates that implement effective instructional design patterns are often shared or sold within eLearning development communities.

Content Packages

Upon completion of development, SCORM content is placed into a file referred to as a content package. The content package is contained in a .ZIP file, which **includes all elements required to provide content to students** through a SCORM-compliant Learning Management System.

Other Resources

- ▶ [The Four Instructional Architectures](#)
- ▶ [Task Analysis for Instructional Design](#)
- ▶ [PowerPoint to Captivate: A Step-By-Step Guide](#)