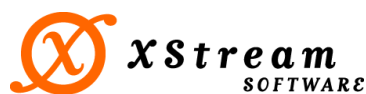


RapidBuilder[®] v6.0 Deluxe

**SCORM 2004, v1.2, and v1.1
Compliance**



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Introduction

RapidBuilder is a SCORM-compliant technology. The **Sharable Content Object Reference Model (SCORM)**, published by the Advanced Distributed Learning (ADL) project, is a collection of standards and specifications (adapted from multiple sources) that are used to enable interoperability, accessibility and reusability of web-based learning content.

As a continually evolving standard, there have been several versions of SCORM. RapidBuilder supports **SCORM 2004** (the most current version of SCORM) as well as **SCORM v1.2** and **SCORM v1.1** (previous versions of SCORM that are still widely used). A learning content file that complies with the SCORM specifications can be easily deployed and managed using any Learning Management System (LMS) that supports SCORM (including XStream's own web-based XStream LMS). For the purposes of SCORM, an LMS is any system for managing and deploying e-learning content.

NOTE: For background information and other details on SCORM, consult the various SCORM-related documents available at www.adlnet.gov.

In RapidBuilder, a SCORM course consists of a manifest file, a metadata file, various XML control files, and lessons in the form of **Sharable Content Objects (SCOs)**. Each **SCO**, which is a standardized, reusable learner object, consists of an .XML metadata file, an HTML file, and an embedded RapidBuilder .RBX file.

Components of a SCORM Course

In RapidBuilder, a SCORM course may be created/saved in SCORM 2004, SCORM v1.2, or SCORM v1.1 format. The folder and file structure of the course will differ slightly depending on the format selected.

SCORM 2004 or v1.2 Course Structure

In RapidBuilder, a saved SCORM 2004 or v1.2 course consists of the following elements:

- **Course Manifest File (imsmanifest.xml)** – The **Content Aggregation Model (CAM)** manifest file, which contains all the information necessary for registering and deploying the course. The **imsmanifest.xml** file, which includes data describing the overall course package (i.e., content structure, metadata, resources, sequencing information, and other details about the aggregation or grouping of the different course elements), is necessary for sharing and reusing the contents of the course within any Learning Management System (LMS) that supports SCORM. In order to register the SCORM course in a SCORM-compliant LMS, the system administrator provides a link to the course's **imsmanifest.xml** file.

Note that the **imsmanifest.xml** file is always present in the course folder for each SCORM course. Although it always has the same predefined structure, the contents of the **imsmanifest.xml** file will be different for each course (since different courses will have different names, descriptions, content structures, authors, resources, etc.).

NOTE: The "ims" in "imsmanifest.xml" comes from "IMS Global Learning Consortium, Inc." which is one of the organizations involved in defining the SCORM and metadata specifications.

- **Course Metadata File (XML)** – The course metadata file, which contains the course's metadata (meaning data about data). The main functionality of metadata is to provide a common way of describing the learning resources so that they can be searched for, located, retrieved and reused in

other places. Metadata, as such, provides third-party users with information about the learning resource and how it can be used so that they can reuse it as part of the SCORM courses they are creating.

- **Various XSD Files** – The various required IMS and ADL XSD control documents (such as **adlcp_rootv1p2.xsd**, **imscp_rootv1p1p2.xsd**, etc.), which are used by the manifest file during the import process into the LMS.
- **XMLSchema.dtd** and **datatypes.dtd** (SCORM 2004 only) – The **Document Type Definition (DTD)** files used to validate the XSD files. The DTD files essentially define the rules of the XSD files, such as which elements are present and the structural relationship between the elements. Specifically, the DTD files define such things as valid tag names and attribute names, which fields are optional, which are required, and which may occur multiple times in the document. The DTD files help to validate the data when the receiving application does not have a built-in description of the incoming data.
- **SCORMCONTAINER.JS** (stored in the “**XRMScripts**” subfolder) – The Javascript file for implementing **SCO** functionalities. Because the **SCORMCONTAINER.JS** file is a common file used to access the **SCO** functionalities for each lesson in the course, it is stored in a separate “**XRMScripts**” subfolder.
- **Sharable Content Objects** (stored in the “**Lessons**” subfolder) – The **Sharable Content Objects (SCOs)** incorporate the learning content for the course. A **SCO** is a self-contained, browser-launchable learner object that may be reused within any SCORM course. Each **SCO** created in RapidBuilder consists of the following:
 - **HTML file** (e.g., **SCO1.HTM**) – The actual **SCO** file that refers to the SCORMCONTAINER.JS file in order to access **SCO** functionalities.
 - **RapidBuilder file** (e.g., **SCO1.RBX**) – The RapidBuilder simulation file incorporating the learning content. The RBX file is embedded within the HTML file.
 - **XML file** (e.g., **SCO1.XML**) – The metadata file containing the metadata details (tags) for the **SCO**. Metadata essentially provides descriptive information (for use by developers) about the content represented in the **SCO**.
- **Course ZIP File** – A zip package file containing all of the course-related files described above.

SCORM v1.1 Course Structure

In RapidBuilder, a saved SCORM v1.1 course consists of the following elements:

- **Course Manifest File** – The **Content Structure Format (CSF)** manifest file, which contains all the information necessary for registering and deploying the course. This is the SCORM v1.1 equivalent of the **imsmanifest.xml** file provided in a SCORM v1.2 course.
- **scormcsf(1.1).dtd** – The **Document Type Definition (DTD)** file used to validate the CSF manifest file. The DTD file essentially defines the rules of the CSF file, such as which elements are present and the structural relationship between the elements. Specifically, the DTD file defines such things as valid tag names and attribute names, which fields are optional, which are required, and which may occur multiple times in the document. The DTD file helps to validate the data when the receiving application does not have a built-in description of the incoming data.
- **Course Metadata File (XML)** – The course metadata file containing the course’s metadata.
- **SCORMCONTAINER.JS** (stored in the “**XRMScripts**” subfolder) – The Javascript file for implementing **SCO** functionalities.

- **SCO Files** (stored in the “Lessons” subfolder) – Contains the **SCOs** (each consisting of an .HTM, .RBX, and .XML file).
- **Course ZIP File** – A zip package file containing all of the course-related files described above.

Creating a SCORM Course

In RapidBuilder, a SCORM course may be created/edited through the **Course Navigator**. The course is displayed in an expandable tree structure, which features a root **Course** node containing subsequent **Block** containers and **SCOs**. Each **Block** may contain **SCOs** and/or other **Blocks**.

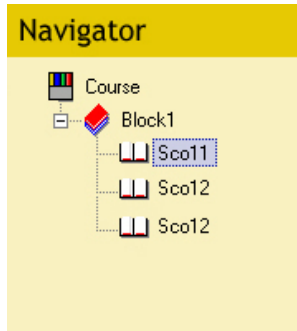


Figure 1: Typical SCORM Course Displayed in Course Navigator

The developer has the option of customizing the manifest and metadata information for the course as well as any selected **Block** or **SCO** within the course. After selecting the **Course** node or a **Block/SCO** node, the developer may enter/edit information in the form provided. Note that the process of creating a SCORM course in RapidBuilder is almost completely automated and requires minimal user input. The developer is not required to fill out the manifest and metadata forms in order to create the SCORM course. Even if the forms are not filled out, all the necessary information will be automatically provided within the course manifest **imsmanifest.xml** file (as well as the metadata files for the **Course** and **SCOs**).

Manifest and Metadata Fields	
ID	S.1
Title	Sco11
Version	
Prerequisites	
Max Time Allowed	hh:mm:ss
Time Limit Action	continue, no message
Mastery Score	0
Catalog Entry	
General Description	
General Keyword	
Life Cycle Status	Draft
Educational Description	
Cost	Yes
Copyright & Other Restrictions	Yes
Rights Description	
Classification Description	
Classification Keyword	

Figure 2: Manifest and Metadata Form for Selected SCO

NOTE: If creating a SCORM 2004 course, the developer also has the option of defining sequencing information for the course (as well as any selected **Block** or **SCO** within the course). In older versions of

SCORM (including v1.1 and v1.2), no sequencing information could be defined for a content aggregation, meaning that the learner was free to select lessons/learning units in any order, without any restrictions on the number of attempts. However, in SCORM 2004, the developer/author of the SCORM course can specify the order in which the SCOs will be played. The ordering of the SCOs is specified by setting certain tag values within the course's manifest file.

Converting RapidBuilder Files to SCORM Files

RapidBuilder provides several options for converting existing RapidBuilder files into SCORM files:

- Any existing RapidBuilder project (consisting of an .RPR project file and linked .RBX lesson files containing topic/subtopic frames) may be saved as an RBX-based or Flash/XML/DHTML-based SCORM course. During the RPR-to-SCORM conversion, each .RBX lesson file is converted into a **Block** container, and each one of the lesson's topics/subtopics is converted into a separate **SCO** contained within the **Block**. In addition, any topic/subtopic that contains other lower-level subtopics is created as both a **Block** (containing the lower-level subtopics) and a **SCO** (incorporating the content of the parent topic/subtopic).
- Any individual .RBX file may be saved as an RBX-based or Flash/XML/DHTML-based **SCO** (comprising an .HTM, .RBX/SWF/XML, and .XML metadata file). The **SCO** may be subsequently imported into any SCORM course.

Third-Party SCOs

For authored SCORM courses, RapidBuilder also supports third-party **SCOs**.

In addition to creating **SCOs** within RapidBuilder, developers may import external **SCOs** created with RapidExam, Performance Analyzer, RapidSVG, or any third-party SCORM course-authoring tool. This flexibility enables the developer to incorporate many different types of **SCOs** within a SCORM course.

Flash, XML, and DHTML-based SCORM Courses and SCOs

In RapidBuilder, RBX-based SCORM courses and **SCOs** may be saved as Flash (SWF), XML, and DHTML-based SCORM courses and **SCOs**.

The developer may perform the following tasks:

- Save an RBX-based SCORM course as a Flash/XML/DHTML-based SCORM course. Each RBX-based **SCO** (comprising an .HTM, .RBX, and .XML file) within the course will be converted into a Flash/XML/DHTML-based **SCO**.
NOTE: When saving an RBX-based SCORM course as a Flash/XML/DHTML-based SCORM course, keep in mind that the new Flash/XML/DHTML-based SCORM course will still contain all the regular required files (i.e., manifest file for registering the course, metadata .XML file, and **SCO** files). The only difference is that each of the **SCOs** within the course will now contain a Flash, .XML, or .HTML file instead of a RapidBuilder .RBX file.
- Save any individual .RBX file or RBX-based **SCO** as a Flash/XML/DHTML-based **SCO**. (Note that an RBX-based **SCO** may also be saved as a regular .RBX file).
- Save an RPR project as a Flash/XML/DHTML-based SCORM course. Each topic/subtopic within the project will be converted into a separate Flash/XML/DHTML-based **SCO**.

NOTES

- In RapidBuilder, a SCORM course may contain RBX-based **SCOs**, Flash-based **SCOs**, XML-based **SCOs**, DHTML-based **SCOs**, third-party **SCOs**, or any combination of these. Any RBX-based **SCO**, Flash/XML/DHTML-based **SCO**, or third-party **SCO** may be imported into any SCORM course, and any RBX-based **SCO** may be converted into a Flash/XML/DHTML-based **SCO**.
- Flash/XML/DHTML-based **SCOs** and third-party **SCOs** (created with other SCORM course-building tools) cannot be opened in RapidBuilder for editing. Although you may create Flash/XML/DHTML-based SCORM courses (containing Flash/XML/DHTML-based **SCOs**), import Flash/XML/DHTML-based **SCOs** and third-party **SCOs** into SCORM courses, and edit the manifest and metadata information for any Flash/XML/DHTML-based **SCO** or third-party **SCO** within a SCORM course, you cannot open up a Flash/XML/DHTML-based **SCO** or third-party **SCO** for editing because they contain third-party content files (which cannot be edited in **RapidBuilder**).

Managing/Deploying SCORM Courses

A SCORM 2004, v1.2, or v1.1 course may be registered and deployed through any Learning Management System (LMS) that supports the equivalent SCORM standard.

The **SCOs** within the SCORM course are self contained, browser-launchable files. RapidBuilder **SCOs** are always launched using a web browser (e.g., Internet Explorer or Netscape). In addition, in order to enable proper course tracking by the LMS, each self-contained **SCO** within the course is played individually (i.e., a **SCO** cannot be launched from another **SCO**). Note that the precise method used to access the **SCOs** within the SCORM course is dependent on the individual LMS.

XStream LMS, XStream's web-based Learning Management System, may be used to register, launch, and track any SCORM v1.2 course created with RapidBuilder, RapidExam, Performance Analyzer, RapidSVG, or another third-party SCORM course-building tool.

NOTE: XStream LMS only supports SCORM v1.2 courses. It does not support SCORM 2004 or v1.1 courses. The SCORM 2004 and v1.1 courses created with RapidBuilder must be managed and deployed using a third-party LMS that supports SCORM 2004 or v1.1.

Contact Information

For more information on the SCORM-compliant technology of **RapidBuilder v6.0 Deluxe**, please contact our sales team either by phone at (613) 731-9443 or by e-mail at salesupport@xstreamsoftware.com.

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