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IEEE Standard for Learning Technology—ECMAScript Application Programming Interface for Content to Runtime Services Communication

IEEE Computer Society

Developed by the
Learning Technology Standards Committee

IEEE Std 1484.11.2™-2020
(Revision of IEEE Std 1148.11.2-2003)

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Approved 24 September 2020

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Abstract: An ECMAScript application programming interface (API) for content-to-runtime-services communication is described in this standard. It is based on a current industry practice called “CMI—computer managed instruction.” This API enables the communication of information between content and a runtime service (RTS) typically provided by a learning management system (LMS) via common API services using the ECMAScript language. The purpose of this standard is to build consensus around, resolve ambiguities, and correct defects in existing specifications for an ECMA¬Script API for exchanging data between learning-related content and an LMS.

Keywords: application programming interface, API, computer managed instruction, content object, ECMAScript, ECMAScript API, IEEE 1484.11.2™, learning content, learning management system, LMS, runtime service, RTS

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Introduction

This introduction is not part of IEEE Std 1484.11.2-2020, IEEE Standard for Learning Technology—ECMAScript Application Programming Interface for Content to Runtime Services Communication.

This document describes a learning content ECMAScript API to support the data transfer needs of content with a runtime service in a Web-browser-based content delivery environment. This document provides a starting point for specifying a data communication channel and methods to support the data transfer needs of education, training, and human performance support content. The capabilities of this API model may be extended as other communication needs or methods arise.

Contents

IEEE Standard for Learning Technology—ECMAScript Application Programming Interface for Content to Runtime Services Communication

1. Overview

1.1 Scope

This standard describes an ECMAScript application programming interface (API) for content-to-runtime-services communication. This standard is based on an API defined in the "CMI Guidelines for Interoperability," version 3.4 [B1][1], defined by the Aviation Industry CBT Committee (AICC). It defines common API services in the ECMAScript language that enables the communication of information between learning-related content, and a runtime service (RTS) used to support learning management. This standard does not address the data structures that may be transmitted, data security, or communication between an RTS and a related management system.

1.2 Purpose

There is widespread acknowledgment that the ECMAScript API for content-to-runtime-services communication defined in the AICC "CMI Guidelines for Interoperability," version 3.4, has broad applicability to systems used for learning management. The purpose of this standard is to build consensus around, resolve ambiguities in, and correct defects in this ECMAScript API for exchanging data between learning-related content and a runtime service used to support learning management.

1.3 Word usage

The word *shall* indicates mandatory requirements strictly to be followed in order to conform to the standard and from which no deviation is permitted (*shall* equals is *required to*).[2,3]

The word *should* indicates that among several possibilities one is recommended as particularly suitable, without mentioning or excluding others; or that a certain course of action is preferred but not necessarily required (*should* equals is *recommended that*).

[1]The numbers in brackets correspond to those of the bibliography in Annex A.
[2]The use of the word *must* is deprecated and cannot be used when stating mandatory requirements, *must* is used only to describe unavoidable situations.
[3]The use of *will* is deprecated and cannot be used when stating mandatory requirements, *will* is only used in statements of fact.