SCORM 2004 - 3ʳᴰ Edition

Runtime CMI / ADL.NAV Datamodel

cmi._version (characterstring, RO) Represents the version of the data model
cmi.comments_from_learner._children (comment,location.timestamp, RO) Listing of supported data model elements
cmi.comments_from_learner._count (non-negative integer, RO) Current number of learner comments
cmi.comments_from_learner.n.comment (localized_string_type (SPM: 4000), RW) Textual input
cmi.comments_from_learner.n.location (characterstring (SPM: 250), RW) Point in the SCO to which the comment applies
cmi.comments_from_learner.n.timestamp (time (second,10,0), RW) Point in time at which the comment was created or most recently changed
cmi.comments_from_lms._children (comment,location.timestamp, RO) Listing of supported data model elements
cmi.comments_from_lms._count (non-negative integer, RO) Current number of comments from the LMS
cmi.comments_from_lms.n.comment (localized_string_type (SPM: 4000), RO) Comments or annotations associated with a SCO
cmi.comments_from_lms.n.location (characterstring (SPM: 250), RO) Point in the SCO to which the comment applies
cmi.comments_from_lms.n.timestamp (time(second,10,0), RO) Point in time at which the comment was created or most recently changed
cmi.completion_status (state (completed, incomplete, not attempted, unknown), RW) Indicates whether the learner has completed the SCO
cmi.completion_threshold (real(10,7) range (0..1), RO) Used to determine whether the SCO should be considered complete
cmi.credit (state (credit, no_credit), RO) Indicates whether the learner will be credited for performance in the SCO
cmi.entry (state (ab_initio, resume, ""), RO) Asserts whether the learner has previously accessed the SCO
cmi.exit (state (timeout, suspend, logout, normal, ""), W) Indicates how or why the learner left the SCO
cmi.interactions._children (id,type,objectives,timestamp,correct_responses,weighting,learner_resposne,result,latency,description, RO) Listing of supported data model elements
cmi.interactions._count (non-negative integer, RO) Current number of interactions being stored by the LMS
cmi.interactions.n.id (long_identifier_type (SPM: 4000), RW) Unique label for the interaction
cmi.interactions.n.type (state (true_false, multiple_choice, fill_in, long_fill_in, matching, performance, sequencing, likert, numeric, other), RW) Which type of interaction is recorded
cmi.interactions.n.objectives._count (non-negative integer, RO) Current number of objectives (i.e., objective identifiers) being stored by the LMS for this interaction
cmi.interactions.n.objectives.n.id (long_identifier_type (SPM: 4000), RW) Label for objectives associated with the interaction
cmi.interactions.n.timestamp (time(second,10,0), RW) Point in time at which the interaction was first made available to the learner for learner interaction and response
cmi.interactions.n.correct_responses._count (non-negative integer, RO) Current number of correct responses being stored by the LMS for this interaction
cmi.interactions.n.correct_responses.n.pattern (format depends on interaction type, RW) One correct response pattern for the interaction
cmi.interactions.n.weighting (real (10,7), RW) Weight given to the interaction relative to other interactions
cmi.interactions.n.learner_response (format depends on interaction type, RW) Data generated when a learner responds to an interaction
cmi.interactions.n.result (state (correct, incorrect, unanticipated, neutral, real (10,7)), RW) Judgment of the correctness of the learner response
cmi.interactions.n.latency (timeinterval (second,10,2), RW) Time elapsed between the time the interaction was made available to the learner for response and the time of the first response
cmi.interactions.n.description (localized_string_type (SPM: 250), RW) Brief informative description of the interaction
cmi.launch_data (characterstring (SPM: 4000), RO) Data provided to a SCO after launch, initialized from the dataFromLMS manifest element
cmi.learner_id (long_identifier_type (SPM: 4000), RO) Identifies the learner on behalf of whom the SCO was launched
cmi.learner_name (localized_string_type (SPM: 250), RO) Name provided for the learner by the LMS
cmi.learner_preference._children (audio_level,language,delivery_speed,audio_captioning, RO) Listing of supported data model elements
cmi.learner_preference.audio_level (real(10,7), range (0..*), RW) Specifies an intended change in perceived audio level
cmi.learner_preference.language (language_type (SPM 250), RW) The learner's preferred language for SCOs with multilingual capability
cmi.learner_preference.delivery_speed (real(10,7), range (0..*), RW) The learner's preferred relative speed of content delivery
cmi.learner_preference.audio_captioning (state (-1,0,1), RW) Specifies whether captioning text corresponding to audio is displayed
cmi.location (characterstring (SPM: 1000), RW) The learner's current location in the SCO
cmi.max_time_allowed (timeinterval (second,10,2), RO) Amount of accumulated time the learner is allowed to use a SCO
cmi.mode (state (browse, normal, review), RO) Identifies one of three possible modes in which the SCO may be presented to the learner
cmi.objectives._children (id,score,success_status,completion_status,description, RO) Listing of supported data model elements
cmi.objectives._count (non-negative integer, RO) Current number of objectives being stored by the LMS
cmi.objectives.n.id (long_identifier_type (SPM: 4000), RW) Unique label for the objective
cmi.objectives.n.score._children (scaled,raw,min,max, RO) Listing of supported data model elements
cmi.objectives.n.score.scaled (real (10,7) range (-1..1), RW) Number that reflects the performance of the learner for the objective
cmi.objectives.n.score.raw (real (10,7), RW) Number that reflects the performance of the learner, for the objective, relative to the range bounded by the values of min and max
cmi.objectives.n.score.min (real (10,7), RW) Minimum value, for the objective, in the range for the raw score
cmi.objectives.n.score.max (real (10,7), RW) Maximum value, for the objective, in the range for the raw score
cmi.objectives.n.success_status (state (passed, failed, unknown), RW) Indicates whether the learner has mastered the objective
cmi.objectives.n.completion_status (state (completed, incomplete, not attempted, unknown), RW) Indicates whether the learner has completed the associated objective
cmi.objectives.n.progress_measure (real (10,7) range (0..1), RW) Measure of the progress the learner has made toward completing the objective
cmi.objectives.n.description (localized_string_type (SPM: 250), RW) Provides a brief informative description of the objective
cmi.progress_measure (real (10,7) range (0..1), RW) Measure of the progress the learner has made toward completing the SCO
cmi.scaled_passing_score (real(10,7) range (-1 .. 1), RO) Scaled passing score required to master the SCO
cmi.score._children (scaled,raw,min,max, RO) Listing of supported data model elements
cmi.score.scaled (real (10,7) range (-1..1), RW) Number that reflects the performance of the learner
cmi.score.raw (real (10,7), RW) Number that reflects the performance of the learner relative to the range bounded by the values of min and max
cmi.score.min (real (10,7), RW) Minimum value in the range for the raw score
cmi.score.max (real (10,7), RW) Maximum value in the range for the raw score
cmi.session_time (timeinterval (second,10,2), WO) Amount of time that the learner has spent in the current learner session for this SCO
cmi.success_status (state (passed, failed, unknown), RW) Indicates whether the learner has mastered the SCO
cmi.suspend_data (characterstring (SPM: 64000), RW) Provides space to store and retrieve data between learner sessions
cmi.time_limit_action (state (exit,message, continue,message, exit,no message, continue,no message), RO) Indicates what the SCO should do when cmi.max_time_allowed is exceeded
cmi.total_time (timeinterval (second,10,2), RO) Sum of all of the learner's session times accumulated in the current learner attempt
adl.nav.request (request(continue, previous, choice, exit, exitAll, abandon, abandonAll, _none_), RW) Navigation request to be processed immediately following Terminate()
adl.nav.request_valid.continue (state (true, false, unknown), RO) Used by a SCO to determine if a Continue navigation request will succeed.
adl.nav.request_valid.previous (state (true, false, unknown), RO) Used by a SCO to determine if a Previous navigation request will succeed.
adl.nav.request_valid.choice (state (true, false, unknown), RO) Used by a SCO to determine if a Choice navigation request for a particular activity will succeed.

API_1484_11

Initialize("") : bool
Terminate("") : bool
GetValue(element : CMIElement) : string
SetValue(element : CMIElement, value : string) : bool
Commit("") : bool
GetLastError( ) : CMIErrorCode
GetErrorString(errorCode : CMIErrorCode) : string
GetDiagnostic (errorCode : CMIErrorCode) :string

Sequencing Activity State Data

Activity Information

Activity Progress Status controls:

Activity Attempt Count – which is the number of attempts the learner has made on this activity

Attempt Progress Status controls:

Attempt Completion Amount – which is the measure of the learner's progress towards completion and is related to cmi.progress_status

Attempt Completion Status – which indicates whether an attempt is complete and is related to cmi.completion_status
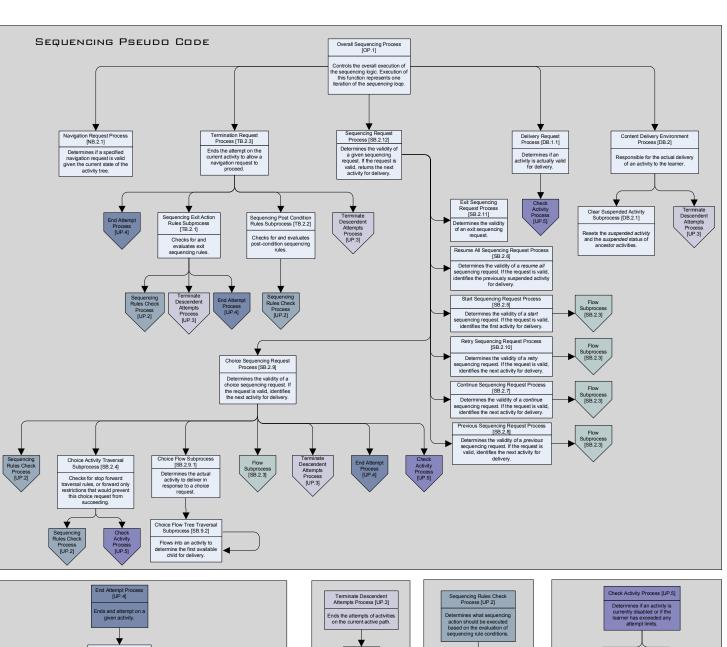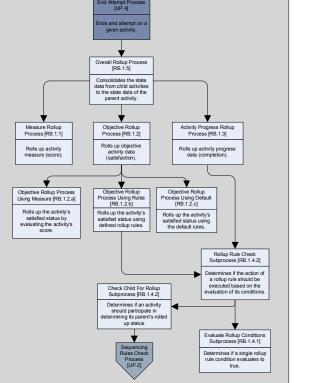
Objective Information

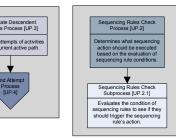**Objective Progress Status** controls:

Objective Satisfied Status – which indicates whether an objective is satisfied and is related to cmi.success_status
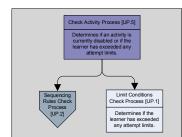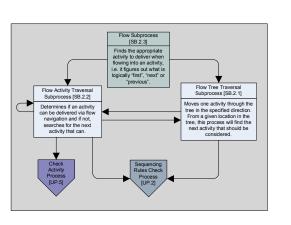
Objective Measure Status controls:

Objective Normalized Measure – which is the measure of the score for an objective and is related to cmi.score_scaled

Sequencing Pseudo Code