

## SCORM 2004 API Calls

As discussed in the [API Communication Overview](#) page, SCORM content communicates with an LMS via a client-side API. This API is designed to process a set of functions (defined by SCORM), and relay the information to the LMS. The following table outlines the SCORM 2004 API functions that are supported by Plateau.

<b>Initialize( )</b>	The content must call this function before calling any other API function. It indicates to the LMS system that the content is going to communicate. The LMS can take any initialization steps required in this function.
<b>GetValue( )</b>	<p>This function is used to pass data from the LMS to the content. Only one value is returned for each get request. The category and/or element is named in the parameter.</p> <p>The following GetValue parameters are supported by Plateau:</p> <ul style="list-style-type: none"> <li>• <b>cmi._version</b> - Represents the version of the data model - LMS returns "1.0"</li> <li>• <b>cmi.learner_id</b> - The learner ID</li> <li>• <b>cmi.learner_name</b> - The learner name</li> <li>• <b>cmi.location</b> - 1000 char string usually used for bookmarking</li> <li>• <b>cmi.credit</b> - Indicates if SCO is taken for credit - returns "credit" or "no_credit"</li> <li>• <b>cmi.completion_status</b> - Indicates if the learner has completed the SCO - returns "completed", "incomplete", "not attempted", or "unknown"</li> <li>• <b>cmi.entry</b> - Indicates if the learner has previously launched the SCO - returns "ab_initio", "resume", or ""</li> <li>• <b>cmi.progress_measure</b> - Progress indicator - returns a value from 0.0 to 1.0</li> <li>• <b>cmi.completion_threshold</b> - Value to determine SCO completion - Set in the LMS during import - returns a value from 0.0 to 1.0</li> <li>• <b>cmi.success_status</b> - Indicates the learner has mastered the SCO - returns "passed", "failed", or "unknown"</li> <li>• <b>cmi.score._children</b> - Returns "scaled", "raw", "min", and "max"</li> <li>• <b>cmi.score.raw</b> - The raw score value</li> <li>• <b>cmi.score.max</b> - The maximum possible score - if not set, assumed 100</li> <li>• <b>cmi.score.min</b> - The minimum possible score - if not set, assumed 0</li> </ul>

- **cmi.score.scaled** - The score value scaled from -1.0 to 1.0
- **cmi.scaled\_passing\_score** - Value to determine SCO mastery - Set in the LMS during import - Returns a value from 0.0 to 1.0
- **cmi.total\_time** - Returns the sum of all a learner's session times
- **cmi.mode** - Indicates the SCO mode - Returns "browse", "normal", or "review"
- **cmi.max\_time\_allowed** - Number of seconds a learner is allowed in a SCO - set in the LMS during import.
- **cmi.time\_limit\_action** - What the SCO should do when cmi.max\_time\_allowed is exceeded - set in the LMS during import - returns "exit\_message", "continue\_message", "exit\_no\_message", or "continue\_no\_message"
- **cmi.suspend\_data** - 4000 char string usually used for progress data
- **cmi.launch\_data** - 4000 char string used to pass data to the SCO on launch from the LMS
- **cmi.comments\_from\_learner.n.comment** - 4000 char string used to store learner comments where "n" is the comment number
- **cmi.comments\_from\_learner.\_children** - Returns "comment", "location", "timestamp"
- **cmi.comments\_from\_learner.\_count** - Returns the number of comments currently stored for the learner for this SCO.
- **cmi.comments\_from\_learner.n.location** - 250 char string used by the SCO to identify the location in the SCO to which the learner comment applies
- **cmi.comments\_from\_learner.n.timestamp** - date and time comment created
- **cmi.comments\_from\_lms.n.comment** - 4000 char string used to store SCO comments to be seen by all learners where "n" is the comment number
- **cmi.comments\_from\_lms.\_children** - Returns "comment", "location", "timestamp"
- **cmi.comments\_from\_lms.\_count** - Returns the number of comments currently stored for the LMS for this SCO.
- **cmi.comments\_from\_lms.n.location** - 250 char string used to identify the location in the SCO to which the lms comment applies
- **cmi.comments\_from\_lms.n.timestamp** - date and time comment created
- **cmi.objectives.\_children** - Returns "id", "score", "success\_status", "completion\_status", and "description"

- **cmi.objectives.\_count** - Returns the number of objectives currently stored for this SCO.
- **cmi.objectives.n.id** - 4000 char string - returns the objective identifier where "n" is the objective number
- **cmi.objectives.n.score\_children** - Returns "scaled", "raw", "min", "max"
- **cmi.objectives.n.score.scaled** - The objective score value scaled from -1.0 to 1.0
- **cmi.objectives.n.score.raw** - The raw objective score value
- **cmi.objectives.n.score.max** - The maximum possible objective score - if not set, assumed 100
- **cmi.objectives.n.score.min** - The minimum possible score - if not set, assumed 0
- **cmi.objectives.n.progress\_measure** - Progress indicator - returns a value from 0.0 to 1.0
- **cmi.objectives.n.success\_status** - Indicates the learner has mastered the objective - returns "passed", "failed", or "unknown"
- **cmi.objectives.n.completion\_status** - Indicates if the learner has completed the objective - returns "completed", "incomplete", "not attempted", or "unknown"
- **cmi.objectives.n.description** - 250 char string objective description
- **cmi.learner\_preference.\_children** - Returns "audio\_level", "language", "delivery\_speed", "audio\_captioning"
- **cmi.learner\_preference.audio\_level** - Identifies learner preference for audio volume - returns number > or = 0
- **cmi.learner\_preference.language** - 250 char string identifying the learner language preference
- **cmi.learner\_preference.audio\_captioning** - Enables captions - returns "off", "no\_change", or "on"
- **cmi.learner\_preference.delivery\_speed** - Identifies learner preference for presentation speed - returns number > or = 0
- **cmi.interactions.\_children** - Returns "id", "type", "objectives", "timestamp", "correct\_responses", "weighting", "learner\_response", "result", "latency", and "description"
- **cmi.interactions.\_count** - Returns the number of interactions currently stored for this SCO.
- **cmi.interactions.n.id** - 4000 char string - returns the interaction identifier where "n" is the interaction number
- **cmi.interactions.n.type** - Returns "true-false", "choice", "fill-in", "long-fill-in", "likert", "matching", "performance", "sequencing", "numeric", or "other"

	<ul style="list-style-type: none"> <li>• <b>cmi.interactions.n.weighting</b> - Weight of the interaction for use in grading by the SCO.</li> <li>• <b>cmi.interactions.n.learner_response</b> - Learner response - vocabulary depends on interaction type</li> <li>• <b>cmi.interactions.n.result</b> - Returns "correct", "incorrect", "unanticipated", "neutral", or a numeric estimate of correctness</li> <li>• <b>cmi.interactions.n.latency</b> - Time (seconds) spent answering the interaction</li> <li>• <b>cmi.interactions.n.description</b> - 250 char string description of the interaction</li> <li>• <b>cmi.interactions.n.timestamp</b> - Time the interaction was presented to the learner</li> <li>• <b>cmi.interactions.n.objectives._count</b> - Returns the number of objectives currently stored for this interaction.</li> <li>• <b>cmi.interactions.n.objectives.n.id</b> - 4000 char string - returns the objective identifier where "n" is the objective number</li> <li>• <b>cmi.interactions.n.correct_response._count</b> - Returns the number of correct responses for this interaction</li> <li>• <b>cmi.interactions.n.correct_response.n.pattern</b> - Returns a correct response pattern (answer) for the interaction - a single interaction may have multiple correct response patterns</li> </ul> <ul style="list-style-type: none"> <li>• <b>adl.nav.request</b> - Indicates the navigation request stored with the LMS - returns "continue", "previous", "choice", "exit", "exitAll", "abandon", "abandonAll", or "_none_"</li> <li>• <b>adl.nav.request_valid.continue</b> - Indicates if a "continue" navigation request is valid for this SCO - returns "true", "false", or "unknown"</li> <li>• <b>adl.nav.request_valid.previous</b> - Indicates if a "previous" navigation request is valid for this SCO - returns "true", "false", or "unknown"</li> <li>• <b>adl.nav.request_valid.choice.{target=STRING}</b> - Indicates if a "choice" navigation request is valid for this SCO where "target=STRING" is the SCO/module identified for navigation - returns "true", "false", or "unknown"</li> </ul> <p>The following are legitimate GetValue parameters, but are write-only. These would therefore return "" and set an error: 405 - element is write-only.</p> <ul style="list-style-type: none"> <li>• <b>cmi.core.exit</b></li> <li>• <b>cmi.core.session_time</b></li> </ul>
<b>SetValue( )</b>	<p>This function is used to pass data from the content to the LMS. The parameter indicates which category or element is being set. Only one value may be set with a single function call.</p>

The following SetValue parameters are supported by Plateau:

- **cmi.location** - 1000 char string usually used for bookmarking
- **cmi.completion\_status** - Indicates if the learner has completed the SCO - accepts "completed", "incomplete", "not attempted", or "unknown"
- **cmi.exit** - Indicates how the learner left the SCO - accepts "time-out", "suspend", "logout", "normal", or ""
- **cmi.progress\_measure** - Progress indicator - accepts a value from 0.0 to 1.0
- **cmi.success\_status** - Indicates the learner has mastered the SCO - accepts "passed", "failed", or "unknown"
- **cmi.score.raw** - The raw score value
- **cmi.score.max** - The maximum possible score - if not set, assumed 100
- **cmi.score.min** - The minimum possible score - if not set, assumed 0
- **cmi.score.scaled** - The score value scaled from -1.0 to 1.0
- **cmi.session\_time** - Time spent in the SCO - PT(hours)H(min)M(sec)S
  
- **cmi.suspend\_data** - 4000 char string usually used for progress data
  
- **cmi.comments\_from\_learner.n.comment** - 4000 char string used to store learner comments where "n" is the comment number
- **cmi.comments\_from\_learner.n.location** - 250 char string used by the SCO to identify the location in the SCO to which the learner comment applies
- **cmi.comments\_from\_learner.n.timestamp** - date and time comment created
  
- **cmi.objectives.n.id** - 4000 char string - the objective identifier where "n" is the objective number
- **cmi.objectives.n.score.scaled** - The objective score value scaled from -1.0 to 1.0
- **cmi.objectives.n.score.raw** - The raw objective score value
- **cmi.objectives.n.score.max** - The maximum possible objective score - if not set, assumed 100
- **cmi.objectives.n.score.min** - The minimum possible objective score - if not set, assumed 0
- **cmi.objectives.n.progress\_measure** - Progress indicator - accepts a value from 0.0 to 1.0
- **cmi.objectives.n.success\_status** - Indicates the learner has mastered the objective - accepts "passed", "failed", or "unknown"

- **cmi.objectives.n.completion\_status** - Indicates if the learner has completed the objective - accepts "completed", "incomplete", "not attempted", or "unknown"
- **cmi.objectives.n.description** - 250 char string objective description
- **cmi.learner\_preference.audio\_level** - Identifies learner preference for audio volume - accepts number > or = 0
- **cmi.learner\_preference.language** - 250 char string identifying the learner language preference
- **cmi.learner\_preference.audio\_captioning** - Enables captions - accepts "off", "no\_change", or "on"
- **cmi.learner\_preference.delivery\_speed** - Identifies learner preference for presentation speed - accepts number > or = 0
- **cmi.interactions.n.id** - 4000 char string - accepts the interaction identifier where "n" is the interaction number
- **cmi.interactions.n.type** - Accepts "true-false", "choice", "fill-in", "long-fill-in", "likert", "matching", "performance", "sequencing", "numeric", or "other"
- **cmi.interactions.n.weighting** - Weight of the interaction for use in grading by the SCO.
- **cmi.interactions.n.learner\_response** - Learner response - vocabulary depends on interaction type
- **cmi.interactions.n.result** - Accepts "correct", "incorrect", "unanticipated", "neutral", or a numeric estimate of correctness
- **cmi.interactions.n.latency** - Time (seconds) spent answering the interaction
- **cmi.interactions.n.description** - 250 char string description of the interaction
- **cmi.interactions.n.timestamp** - Time the interaction was presented to the learner
- **cmi.interactions.n.objectives.n.id** - 4000 char string - returns the objective identifier where "n" is the objective number
- **cmi.interactions.n.correct\_response.n.pattern** - Accepts a correct response pattern (answer) for the interaction - a single interaction may have multiple correct response patterns
- **adl.nav.request** - Indicates the navigation request the LMS should call when the SCO is terminated - accepts "continue", "previous", "choice", "exit", "exitAll", "abandon", "abandonAll", or "\_none\_"

The following are legitimate element name parameters, but are read-only. These would therefore return "false" and set an error: 404 - element is read-only:

- **cmi.\_version**

	<ul style="list-style-type: none"> <li>• <b>cmi.learner_id</b></li> <li>• <b>cmi.learner_name</b></li> <li>• <b>cmi.credit</b></li> <li>• <b>cmi.completion_status</b></li> <li>• <b>cmi.entry</b></li> <li>• <b>cmi.completion_threshold</b></li> <li>• <b>cmi.score._children</b></li> <li>• <b>cmi.scaled_passing_score</b></li> <li>• <b>cmi.total_time</b></li> <li>• <b>cmi.mode</b></li> <li>• <b>cmi.max_time_allowed</b></li> <li>• <b>cmi.time_limit_action</b></li> <li>• <b>cmi.launch_data</b></li> <li>• <b>cmi.comments_from_learner._children</b></li> <li>• <b>cmi.comments_from_learner._count</b></li> <li>• <b>cmi.comments_from_lms.n.comment</b></li> <li>• <b>cmi.comments_from_lms._children</b></li> <li>• <b>cmi.comments_from_lms._count</b></li> <li>• <b>cmi.comments_from_lms.n.location</b></li> <li>• <b>cmi.comments_from_lms.n.timestamp</b></li> <li>• <b>cmi.objectives._children</b></li> <li>• <b>cmi.objectives._count</b></li> <li>• <b>cmi.objectives.n.score_children</b></li> <li>• <b>cmi.learner_preference._children</b></li> <li>• <b>cmi.interactions._children</b></li> <li>• <b>cmi.interactions._count</b></li> <li>• <b>cmi.interactions.n.objectives._count</b></li> <li>• <b>cmi.interactions.n.correct_response._count</b></li> <li>• <b>adl.nav.request_valid.continue</b></li> <li>• <b>adl.nav.request_valid.previous</b></li> <li>• <b>adl.nav.request_valid.choice.{target=STRING}</b></li> </ul>
<b>Commit( )</b>	Any values set using the SetValue command are stored for delivery. This function submits any values not yet sent to the LMS.
<b>Terminate( )</b>	The content must call this function before it closes, if it successfully called Initialize at any point. It signals to the LMS that the content has finished communicating. The content may not call any API function except GetLastError after it calls Terminate

<b>GetLastError( )</b>	This function provides content with a way of assessing whether or not any given API call was successful, and if it was not successful, what went wrong. This routine returns an error code from the previous API call. Each time an API function is called (with the exception of this one), the error code is reset in the API. The content may call this any number of times to retrieve the error code, and the code will not change until the next API call.
<b>GetErrorString( )</b>	This function returns a textual description of the error represented by an error code number.
<b>GetDiagnostic( )</b>	This function would return an LMS-specific error description based on an error code number.

NOTE: For more detailed information, please refer to SCORM 2004 Run Time Environment document included in the Resources section of this site.

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## Related

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### Related

- [SCORM 2004](#)

Answer ID=621

reference to undefined name 'f1stat' Exception of type  
'MindTouch.Deki.Script.Runtime.DekiScriptUndefinedNameException' was thrown.: /content/body/pre,  
line 13, column 7 (click for details)

