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ILS xAPI Statements

External Media-Object Status Update via xAPI Statements

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1 imc xAPI Learning Activity

The Experience API (xAPI) is a learning technology interoperability specification that makes it easier for learning technology products to communicate with one another. In this context, xAPI statements can be used to track learning events in almost real-time. When an event takes place, the partner sends an xAPI compliant HTTP POST payload to the corresponding imc LMS URL.

2 Authentication

The xAPI webhooks expects two-legged OAuth 2.0 authenticated POST requests. Two-legged OAuth is also known as OAuth 2.0 Client Credentials Grant. The partner providing the external content is the client, and the imc LMS is the the authorization server in the OAutch context. The partner system needs to authenticate at the LMS directly in a system-to-system context. This section outlines the authentication request/response:

2.1 Access Token Request Reference

Request Details as X-WWW-Form

Table 1

URL	Verb	Headers
https://DOMAIN-IMC-LMS-PLATFORM/igs/oauth/accesstoken	POST	Content-type=x-www-form-urlencoded

Request Body Parameters

Table 2

Parameter	Description	Required
grant_type	Value will always be client_credentials	Yes
client_id	Value provided by imc	Yes
client_secret	Value provided by imc	Yes

Sample cURL Request

Bash

```
curl -X POST 'https://your-learning-platform/igs/oauth/accesstoken' \
-H 'Content-Type: application/x-www-form-urlencoded' \
-d 'grant_type=client_credentials&client_id=partner123&client_secret=s3cr3t'
```

2.2 Access Token Response Reference

Response Details

Table 3

Status	Headers
200	Content-Type: application/json;charset=UTF-8

Response Body

Table 4

Item	Value
`access_token`	Valid access token string
`expires_in`	Time to live (TTL) in seconds
`token_type`	always "bearer"

Sample Response

JSON

```
{
  "access_token":"2YotnFZFEjr1zCsicMWpAA....",
  "token_type":"bearer",
  "expires_in":3600
}
```

2.3 Alternative Request as JSON

Sample cURL Request with JSON Payload

Bash

```
curl -X POST 'https://your-learning-platform/igs/oauth/accesstoken' \
--header 'Accept: application/json' \
--header 'Content-Type: application/x-www-form-urlencoded' \
--header 'Content-Type: application/json' \
--data-raw '{
              "grant_type": "client_credentials",
              "client_id": "partner123",
              "client_secret": "s3cr3t"
            }'
```

3 Activity Statement

In general, the activity webhook POST body is based on the “`actor`”, “`verb`”, “`object`” data model. This section describes each object in the data model. For additional details, review the Experience API Data section of the specification. Currently the imc LMS provides the following activities recognized:

- **`COMPLETED`** Sent when the learner/actor has completed an external course (= media object in the LMS).

3.1 Requirement

The POST activity statements require a mandatory information sent. Two options are available:

URL Param

Add the URL param "`igsClientId`" with the provided value from imc to ALL POST statement calls.

Header

Add the header "`X-IGS-Client-Id`" with the provided value from imc to ALL POST statement calls.

3.2 Completed Statement POST Body example

Here is an example “COMPLETED“ statement request POST body. This statement would be sent after actor “max.mustermann@somedomain.com“ completed the external object of type course with an unique id, which can be something like "urn:partnernamespace:objecttype:objectid".

JSON

```
{
  "actor":
  {
    "mbox": "mailto:max.mustermann@somedomain.com",
    "objectType": "Agent"
  },
  "result":
  {
    "duration": "PT2M33S",
    "completion": true
  },
  "verb":
  {
    "display":
    {
      "en-US": "COMPLETED"
    },
    "id": "http://adlnet.gov/expapi/verbs/completed"
  },
  "id": "0ea6d5c8-48f5-4e8d-805a-a996f8f6867f",
  "object":
  {
    "definition":
    {
      "type": "http://adlnet.gov/expapi/activities/course"
    },
    "id": "urn:partnernamespace:objecttype:objectid",
    "objectType": "Activity"
  },
  "timestamp": "2020-01-11T10:30:45.154Z"
}
```

3.3 Activity Statement: Sample cURL

Bash

```
curl -X POST \
  https://your-learning-platform.com/xAPI/statements \
  -H 'Authorization: Bearer AyOtu...' \
  -H 'Connection: close' \
  -H 'Content-Type: application/json' \
  -H 'X-Experience-API-Version: 1.0.0' \
  -d '{ "actor":
        {
          "mbox": "mailto:max.mustermann@somedomain.com",
          "objectType": "Agent"
        },
        "result":
        {
          "duration": "PT2M33S", "completion": true
        },
        "verb":
        {
          "display":
          {
            "en-US": "COMPLETED"
          },
          "id": "http://adlnet.gov/expapi/verbs/completed"
        },
        "id": "0ea6d5c8-48f5-4e8d-805a-a996f8f6867f",
        "object":
        {
          "definition":
          {
            "type": "http://adlnet.gov/expapi/activities/course"
          },
          "id": "urn:partnernamespace:objecttype:objectid",
          "objectType": "Activity"
        },
        "timestamp": "2020-01-11T10:30:45.154Z"
      }'
```

3.4 Actor

The "`actor`" object identifies the user who performed an action in the partner system. Currently only "`email`" as user identifier is supported. The emails of the partner system and in the imc LMS **must** match for the same user to establish a mapping.

- **`EMAIL`** A learner's work email address value.

Actor: Email Identifier Example

JSON

```
"actor":
{
  "mbox": "mailto: max.mustermann@somedomain.com",
  "objectType": "Agent"
}
```

3.5 Result

The "`result`" object represents a measured learning outcome. The completion field indicates whether or not the partners' course was completed in full and duration is the period of time over which the completion took place. Durations are expressed using the format for duration in ISO 8601:2004(E) section 4.4.3.2.

Example when course is completed

JSON

```
"result": {
  "duration": "PT2M33S",
  "completion": true
}
```

3.6 Verb

The "verb" object identifies the event triggered in the partner system. The supported verb is "COMPLETED". The event is fired when a user completes a partner course for "COMPLETED" statements.

Verb: Completed Example

JSON

```
"verb": {
  "display":
  {
    "en-US": "COMPLETED"
  },
  "id": "http://adlnet.gov/expapi/verbs/completed"
}
```

3.7 Object

"object" identifies a course at the partner. The "object.id" URN value is a unique identifier whose value should be treated as opaque.

Object: Course Example

JSON

```
"object":
{
  "definition":
  {
    "type": "http://adlnet.gov/expapi/activities/course"
  },
  "id": "urn:partnernamespace:objecttype:objectid",
  "objectType": "Activity"
}
```

4 Supported Verbs

In the table below, an overview of the xAPI verbs supported by imc is provided. For each verb, the associated activity type, its handling within the Detailed xAPI WBT report or xAPI WBT report, and its interpretation in the IMC Learning Suite are detailed.

xAPI Verb	Description	Activity type	Comments	Interpretation
abandoned	AU session was abnormally terminated by a learner's action (or due to a system failure)	Course	Will be stored as all other events Result: - Abandoned will be ignored in the report, (as with progressed)	Failure of the WBT due to different reasons
answered	Denotes that a question has been answered for a survey or scored question	cmi.interaction		
asked	An actor inquired with the expectation of a response or answer to a question	Module	Activity status: Asked	Learner is asking a question to a tutor or admin with the expectation that the person can view that question
attempted	Notifies the LMS that a course has begun.	Course		
attended	The actor was present at a virtual or physical event or activity	Course, module	Highest status: Concluded Activity status: Attended	The module or course was finished, but the result cannot be interpreted
commented	The actor provided digital or written annotations on or about an object	Course, module	Activity status: Commented	Learner wrote a comment to the tutor or admin

completed	A course or objective has been completed based on number of slides viewed or completion of a survey	course, objective		
experienced	A slide has been viewed	module		
failed	A course or objective has been completed with a failing score. This verb is only used when completion is based on a set of scored questions	course, objective		
interacted	The actor engaged with a physical or virtual object.	module	Activity status: Interacted	
passed	Notifies the LMS that a course or objective has been completed with a passing score. This verb is only used when completion is based on a set of scored questions	course, objective		

progressed	Sent at the end of each lesson after the experienced statement is sent. Provides the result data for the course as well as a result extension that tracks the overall progress of the course.	course, module, objective		
satisfied	The authority or activity provider determined the actor has fulfilled the criteria of the object or activity.	Course, module	Highest status: Passed Activity status: Satisfied Result: correct	Course or module was passed with a correct result
terminated		Course, module	Activity status: Terminated	Tracking when was the course/WBT closed
viewed	The actor has viewed the object	Module, course	Highest status: Started Activity status: Viewed	Learner has started to look at the course/module
waived	The activity has been skipped by the actor.	Module, objective, course	Highest status: Completed Activity status: Waived Result: correct	The learning activity requirements were met by means other than completing the activity.

5 Support of custom verbs

The custom verbs can be sent to imc Learning Suite, but they cannot be retrieved through API calls to imc Learning Suite or Detailed xAPI WBT report or xAPI WBT report. This functionality is not supported due to the variability of custom verb combinations created by customers, which makes standardized retrieval unfeasible.