

Navy E-learning Profile

Requirements and Guidelines for Implementing xAPI in E-learning Content



Document Version: 1.3

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Revision History

Version	Release Date	Notes
0.5	5/05/2020	Initial draft of the profile. Authors review only.
0.9	6/29/2020	Second draft of the profile. Internal Navy review only.
1.0	7/31/2020	All edits and feedback incorporated. First full version of the profile released.
1.1	4/20/2021	Updated Assessment and Interaction section to reference Navy Assessment Profile
1.2	7/20/2021	Global update from “NETC” to “Navy.”
1.3	7/20/2022	Clarification of requirements and supporting text.

Table 1: Navy E-learning Profile Revision History

1. Overview

1.1. How to Read this Document

This document is provided as an auxiliary resource to the formal xAPI Specification (version 1.0.3) and addresses the Navy-specific requirements for implementing xAPI in e-learning content. If an object or property is listed as “optional” in the xAPI Specification, but that same object or property is listed as a requirement herein, then this document takes precedence. The requirements in this document provide content developers with the mandatory Learning Record Provider (LRP) obligations for implementing xAPI Statements in e-learning content. The following common syntactic and typographic conventions are used in this document:

- Footnotes appear at the bottom of pages where there is a need to provide additional information or references.
- Words or concepts will use *Italics* or “double quotations” when there is a need to draw special attention to them.
- Title Case is used to identify concepts and terminology from the xAPI Specification.
- A Courier font such as this is used to represent data objects or properties associated with the xAPI Statement Data Model. A Courier font is also used to distinguish between technical terminology or concepts originating from the xAPI Specification or an xAPI Profile. A Courier font is also used to represent unique identifiers such as IRIs or IDs.
- xAPI Statement examples represented as JSON snippets and other types of syntax examples are provided inside of light blue background box area like the one below:

```
"data-object":{  
    "property1": "value",  
    "property2": "value"  
}
```

1.1.1. Conformance Requirements

These xAPI conformance requirements are intended to be reused as part of the contract requirements in a Data Item Description (DID) deliverable or Contract Data Requirements List (CDRL). The use of “SHOULD” and “MAY” was avoided since these types of contract documents normally contain only mandatory instructions. Complete definitions are provided below. Not following these recommendations could risk interoperability and/or lead to xAPI deliverables not being accepted by the Navy.

1. SHALL OR SHALL NOT. If a product fails to implement a SHALL or SHALL NOT requirement, the product is non-conformant to the Navy’s requirements.

1.2. When to Use this Profile

The purpose of this document is to provide content developers with best practices, technical guidance, and standard requirements for implementing xAPI in e-learning content. This document is intended to serve as the Navy's official technical requirements for any e-learning content contractually required to support xAPI.

1.2.1. E-learning Use Cases

The xAPI enables the Navy to track data from a wide range of e-learning content types and delivery mediums, such as instructor-led asynchronous or synchronous, self-paced, self-directed, and augmented with a variety of multimedia such as interactive courseware, graphics, and animations. Many use cases for xAPI were developed in response to the e-learning community's desire to modernize the Sharable Content Object Reference Model (SCORM)'s capabilities and to support more content types and scenarios beyond a single-learner, self-paced model.

While E-learning is often broadly associated with any learning conducted on the internet, Navy xAPI e-learning content currently includes ANY of the following use cases:

1. newly developed single-learner (self-paced or self-directed), stand-alone web-based learning activities or lessons
2. newly developed single-learner (self-paced or self-directed) courses or courseware
3. learning content that is not SCORM-based, but must report data to an LRS in a similar way as a SCORM course

E-learning content often includes assessments for measuring one's knowledge and interactive multimedia that contains audio or video. Additional interaction tracking requirements for granular activities such as these are also addressed in this Navy E-learning Profile.

More e-learning use cases and types of content may be added to this Profile as requirements are identified. For example, it is expected that collaborative learning environments used with an LMS will allow for team-based or group participation in learning or training activities. When such use cases are identified this Profile will be updated with the associated xAPI requirements and a new version of the Profile will be issued.

1.3. How to Use this Profile

This document is intended to be used in addition to the xAPI Specification and the Navy Core xAPI Profile. Please see these documents for the general data and content integration requirements. This document assumes

an understanding of the xAPI Specification¹ and the underlying concepts explained therein. All communication and data formats SHALL follow the general requirements in the xAPI specification. The guidance provided in this document is meant to provide additional information and requirements specific to supporting e-learning communications and data with xAPI. This Profile's requirements are principally organized in the following sections:

- Profile Overview
- Profile Concepts
- xAPI Statement Requirements & Examples
- xAPI Document Resource Requirements & Examples

2. Navy E-learning Profile

2.1. Overview

2.1.1. Terminology

The terminology in this Navy xAPI Profile assumes an understanding of the xAPI as well as the historical influence of SCORM on e-learning content.

2.1.2. Granularity of E-learning Content

In terms of xAPI, Statements about activities can be made at any level of granularity. The granularity practices provided in this Navy xAPI Profile are based on prior or existing Navy policies and guidance on content structure and aggregation (e.g., NAVEDTRA 136, Navy ILE Instructional Content Guide).

Additional types of e-learning activities may be identified and later added to this Profile as future xAPI requirements for the Navy evolve. For example, future requirements may include tracking new or more granular types of interactions. An updated version of this Profile will be issued if more requirements are identified. The following sections define the most common types of activities used for Navy e-learning content. The diagram below provides a visual example of some of the different types of activities and their relationships.

¹ The xAPI Specification, <https://github.com/adlnet/xAPI-Spec>



Figure 1: Diagram of E-learning Activity Granularity

2.1.2.1. Courses

A course is an aggregation or collection of one or more lesson activities. A course structure may vary and is often informed by the instructional design or by the organization of lessons or other content in an LMS. A course is also sometimes referred to in Navy instructional policies as a “module” or a “course module.”

2.1.2.2. Lessons

A lesson can stand alone or it can be associated with a broader course Activity. A lesson can include an introduction, pretest, one or more sections of instructional content, and a posttest. A lesson can optionally include section activities.

2.1.2.3. Assessment Interactions

E-learning lessons can include various types of assessments as part of the instructional design strategy for measuring the learning and performance objectives. For example, assessment interactions can be used for

practice tests, knowledge checks, pretests, and posttests. When assessments are packaged with a SCORM course or used as part of the E-learning Profile, assessments are always associated with a parent lesson Activity. Refer to Section 2.1.4.1 in the Navy Core xAPI Profile for guidance on context requirements and direct parent relationships. Refer to the Navy Assessment Profile for all the other options for tracking other types of assessments with xAPI.

2.1.2.4. Sections

E-learning lessons often include sections for organizing instructional information or for controlling the flow of instructional information. The instructional design and development of e-learning content dictates whether or not sections will be utilized in a lesson Activity. If sections are utilized, they are required to be associated with a parent lesson Activity.

2.1.2.5. Files, Links, Pages, Videos

Granular activities can also be tracked with xAPI. For example, files, links, pages, and videos can also be tracked as more granular activities within a lesson. See the Navy Common Reference Profile for some of the possibilities for tracking general activities with xAPI.

2.1.3. Sessions in xAPI

A communication session ties together all the data generated as a learner is experiencing content, starting once the content has initialized (or resumed) and ending when the content has terminated (or suspended). There can be one or more sessions in an attempt. The Context Registration value of each xAPI Statement is used to group statements together into a session.

2.1.4. Attempts in xAPI

Learning activities in SCORM allowed for the learner to attempt a lesson multiple times and to have associated data recorded. Similarly, in xAPI an attempt may span one or more communication sessions and the attempt may be suspended and resumed. Recording the number of attempts on a lesson is possible in xAPI by grouping together Statements with a unique Registration identifier (ID). This practice makes it possible for reports and analytics to identify the Statements that should be considered part of a single attempt. The Navy E-learning Profile borrows from existing practices prescribed in the xAPI SCORM Profile for scenarios involving Activity attempts by a learner. Other aspects of the xAPI SCORM Profile are not required to be implemented by content developers unless explicitly defined in the requirements of this document.

2.2. E-learning Profile Concepts

The following tables provide a list of available vocabulary Concepts available for use by implementers of the Navy E-learning Profile. If additional e-learning use cases are identified and new Concepts are added, then an updated version of this Profile will be issued.

2.2.1. Verbs

Concept	Description	IRI	Applicable Activity
completed	Indicates the Actor finished or concluded the Activity normally.	http://adlnet.gov/expapi/verbs/completed	course, lesson, section
failed	Indicates the Actor did not successfully pass an Activity to a level of predetermined satisfaction.	http://adlnet.gov/expapi/verbs/failed	lesson
initialized	Indicates that the Actor successfully started an attempt on an Activity.	http://adlnet.gov/expapi/verbs/initialized	course, lesson
passed	Indicates the Actor successfully passed an Activity to a level of predetermined satisfaction.	http://adlnet.gov/expapi/verbs/passed	lesson
resumed	Indicates that the Actor continued or reopened a suspended attempt on an Activity.	http://adlnet.gov/expapi/verbs/resumed	lesson
scored	Indicates a numerical value related to an Actor's performance on an Activity.	http://adlnet.gov/expapi/verbs/scored	lesson
suspended	Indicates that the Actor suspended an attempt on an Activity with the intent to return at a later time.	http://adlnet.gov/expapi/verbs/suspended	lesson
terminated	Indicates that the Actor successfully ended an attempt on an Activity.	http://adlnet.gov/expapi/verbs/terminated	course, lesson

Table 2: Verbs in the Navy E-learning Profile

2.2.2. Activity Types

Concept	Description	IRI	ContextActivity Relationships
---------	-------------	-----	-------------------------------

course	A course is an aggregation or collection of one or more lesson Activities.	http://adlnet.gov/expapi/activities/course	N/A
lesson	A lesson is learning content that may or may not take on the form of a SCO (formal, tracked learning). A lesson is a single, continuous session of formal instruction on a subject.	http://adlnet.gov/expapi/activities/lesson	course (parent)
profile	A Profile defines a set of rules and recommendations for generating xAPI Statements for a particular domain. The inclusion of a Profile Activity in a Statement identifies that Statement as following the rules outlined in the Profile.	http://adlnet.gov/expapi/activities/profile	N/A
section	A section is used to organize information within a lesson.	https://w3id.org/xapi/netc-e-learning/activity-types/section	lesson (parent)

Table 3: Activity Types in the Navy E-learning Profile

2.2.3. Context

2.2.3.1. Context Activities Category

The Context Activities Category array is a location in an xAPI Statement reserved for objects used to categorize, or tag, the Statement. This location is used in profiles to indicate that a Statement follows a specific profile or a collection of profiles. This Navy E-learning Profile defines specific Statement requirements for e-learning

course content and also references requirements in the Navy Core xAPI Profile. This is represented in xAPI Statements by adding the following two activities to the Context Activities Category array of the Statements.

```
{
  "id": "https://w3id.org/xapi/netc/v1.0",
  "definition": {
    "type": "http://adlnet.gov/expapi/activities/profile"
  }
}
```

Navy xAPI Profile activity

```
{
  "id": "https://w3id.org/xapi/netc-e-learning/v1.0",
  "definition": {
    "type": "http://adlnet.gov/expapi/activities/profile"
  }
}
```

Navy E-learning Profile activity

2.2.3.2. Context Extensions

If the values can be determined, the Navy E-learning Profile requires that the `launch-location` and `school-center` Context Extensions be included in xAPI Statements. These Navy-specific Context Extensions are only required to be set if they are identified in advance or obtained dynamically. Consult the Navy Common Reference Profile for additional guidance on the appropriate values for these Navy Context Extensions.

2.2.4. Document Resources

The xAPI Specification includes several Document Resources that provide a way to store additional information about the state of a learning experience specific for a particular learner. In terms of the Navy E-learning Profile, Document Resources should be used to store document data associated with the Activity and/or Agent, and are not intended to capture learning experience data in the form of a Statement. The tables below provide the different types of Document Resources used by the Navy E-learning Profile. If additional e-learning use cases are identified and new Document Resources are added, then an updated version of the Profile will be issued. Please see the xAPI Document Resource Requirements & Examples Section of this document for more details on the intended usage of these State Resources.

2.2.4.1. State Resources

Concept	Description	IRI
SCORM Activity State	The Activity State Object contains a list of Context Registration UUIDs for the specified Activity.	https://w3id.org/xapi/netc-e-learning/activity-state
SCORM Activity Attempt State	The Activity Attempt State Object contains the state data for the specified attempt on an Activity. It has the following properties available: credit, mode, location, preferences, total_time, and adl_data.	https://w3id.org/xapi/scorm/attempt-state

Table 4: State Resources Used in the Navy E-learning Profile

2.3. xAPI Statement Requirements & Examples

2.3.1. Overview

This section provides the detailed requirements for the most common types of xAPI Statements for e-learning content. This section is organized by different types of e-learning activities (e.g., courses, lessons, assessment interactions, sections, files, links, pages, video). An example illustration of the possible sequence of xAPI Statements for a course with a lesson and a video is provided below.

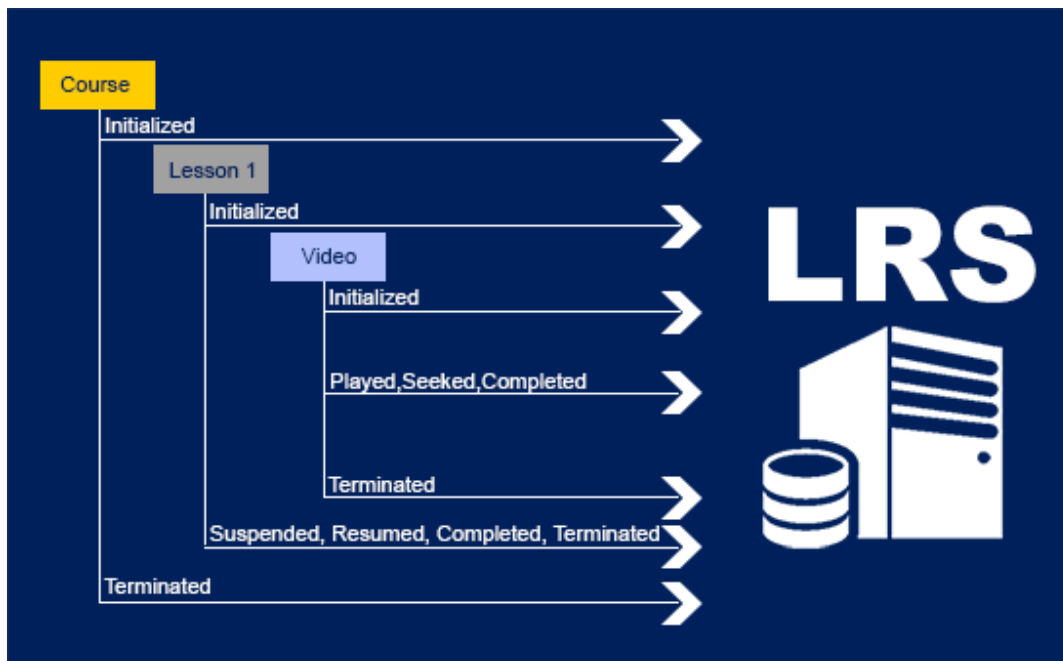


Figure 2: Example Statement Sequence for a Course

2.3.2. Courses

2.3.2.1. Initializing a Course

An Initialized Statement is required to be communicated when an attempt on a course is started. A new Context Registration Universally Unique Identifier (UUID) SHALL be included in the Initialized Statement (and associated Terminated Statement for the course). There is no requirement that lessons or other granular activities use this same UUID within an attempt on the course. An attempt includes all the data generated during a learning Activity after the Initialized Statement but before the Terminated Statement. An Initialized Statement for a course SHALL precede the Initialized Statement for a lesson if a lesson is part of a broader course. All of the Navy xAPI requirements for an Initialized Statement for course activities are provided below.

2.3.2.1.1. Initialized Course Statement Requirements

The following are the requirements for an xAPI Statement for initializing an e-learning course:

- The `actor` property SHALL be set according to the requirements in the Navy Core xAPI Profile
- The `verb.id` SHALL be set to `http://adlnet.gov/expapi/verbs/initialized`
- The `verb.display.en` SHALL be set to `initialized`
- The `object.id` SHALL be set to a unique identifier for the course according to the Activity ID requirements in the Navy Core xAPI Profile
- The `object.definition.type` SHALL be set to `http://adlnet.gov/expapi/activities/course`

- The `context.contextActivities.category` array SHALL include the Navy Core xAPI Profile activity identified in the Context Activities Category section above
- The `context.contextActivities.category` array SHALL include the Navy E-learning Profile activity identified in the Context Activities Category section above
- The `context.registration` SHALL be set to a new attempt UUID
- The `context.platform` SHALL be set to the appropriate string value defined in the Navy Core xAPI Profile
- If known, the following Context Extensions requirements apply:
 - The `https://w3id.org/xapi/netc/extensions/school-center` property SHALL be set to the appropriate predefined value from the Navy Common Reference Profile
 - The `https://w3id.org/xapi/netc/extensions/launch-location` property SHALL be set to the appropriate predefined value from the Navy Common Reference Profile
- The `timestamp` SHALL be set according to the requirements in the Navy Core xAPI Profile

2.3.2.1.2. Initialized Course Statement Example

```
{
  "actor": {
    "name": "John Doe",
    "account": {
      "homePage": "https://edipi.navy.mil",
      "name": "0123456789"
    }
  },
  "verb": {
    "id": "http://adlnet.gov/expapi/verbs/initialized",
    "display": {
      "en": "initialized"
    }
  },
  "object": {
    "id": "https://navy.mil/netc/xapi/activities/courses/37823a7a-afee-42aa-c4ee-3333acac402",
    "definition": {
      "name": {
        "en": "P-8A Poseidon Course"
      }
    }
  }
}
```

```

    },
    "description": {
      "en": "An interactive e-learning course on the Navy's P-8A aircraft."
    },
    "type": "http://adlnet.gov/expapi/activities/course"
  }
},
"context": {
  "contextActivities": {
    "category": [
      {
        "id": "https://w3id.org/xapi/netc/v1.0",
        "definition": {
          "type": "http://adlnet.gov/expapi/activities/profile"
        }
      },
      {
        "id": "https://w3id.org/xapi/netc-e-learning/v1.0",
        "definition": {
          "type": "http://adlnet.gov/expapi/activities/profile"
        }
      }
    ]
  },
  "registration": "ad8ca9da-51b1-48eb-ae58-a68d4d3ae886",
  "platform": "Moodle 3.8.3",
  "extensions": {
    "https://w3id.org/xapi/netc/extensions/school-center": "Center for Naval Aviation Technical Training (CNATT)",
    "https://w3id.org/xapi/netc/extensions/launch-location": "Ashore"
  }
},
"timestamp": "2020-04-29T16:00:21.230Z"
}

```

2.3.2.2. Terminating a Course

A Terminated Statement is recommended to be communicated when an attempt on a course is ended. Communicating the Initialized Statement and the Terminated Statement for a course is optional since individually tracked lessons may not always be part of a course. The `context.registration` used for a course initialization and termination SHALL be the same unique ID. There is no requirement that lessons or other granular activities use this same UUID within an attempt on the course. The overall course results can also be conveyed in the Terminated Statement. The instructional design of the course will help determine what the content developer should set for the overall course results in `result.success`, `result.completion`, and `result.score.scaled`. All of the Navy xAPI requirements for a Terminated Statement for course activities are provided below.

2.3.2.2.1. Terminated Course Statement Requirements

The following are the requirements for an xAPI Statement for terminating an e-learning course:

- The `actor` SHALL be set according to the requirements in the Navy Core xAPI Profile
- The `verb.id` SHALL be set to `http://adlnet.gov/expapi/verbs/terminated`
- The `verb.display.en` SHALL be set to `terminated`
- The `object.id` SHALL be set to a unique identifier for the course according to the Activity ID requirements in the Navy Core xAPI Profile
- The `object.definition.type` SHALL be set to `http://adlnet.gov/expapi/activities/course`
- The `context.contextActivities.category` array SHALL include the Navy Core xAPI Profile activity identified in the Context Activities Category section above
- The `context.contextActivities.category` array SHALL include the Navy E-learning Profile activity identified in the Context Activities Category section above
- The `context.registration` SHALL be set to the same attempt UUID established during the last Initialization
- The `context.platform` SHALL be set to the appropriate string value defined in the Navy Core xAPI Profile
- If known, the following Context Extensions requirements apply:
 - The `https://w3id.org/xapi/netc/extensions/school-center` property SHALL be set to the appropriate predefined value from the Navy Common Reference Profile
 - The `https://w3id.org/xapi/netc/extensions/launch-location` property SHALL be set to the appropriate predefined value from the Navy Common Reference Profile
- If known, set the following Result Object properties to the overall result values for the course Activity using the requirements below:
 - The `result.duration` SHALL be set to an ISO 860 formatted duration value representing the total time spent in the course

- The `result.success` SHALL be set to `true` if the course was passed
- The `result.success` SHALL be set to `false` if the course was failed
- The `result.completion` SHALL be set to `true` if the course was completed
- The `result.completion` SHALL be set to `false` if the course was not completed
- The `result.score.scaled` SHALL be set to a decimal number between `-1` and `1` if there is an overall score associated with the course
- The `timestamp` SHALL be set according to the requirements in the Navy Core xAPI Profile

2.3.2.2.2. Terminated Course Statement Example

```
{
  "actor": {
    "name": "John Doe",
    "account": {
      "homePage": "https://edipi.navy.mil",
      "name": "0123456789"
    }
  },
  "verb": {
    "id": "http://adlnet.gov/expapi/verbs/terminated",
    "display": {
      "en": "terminated"
    }
  },
  "object": {
    "id": "https://navy.mil/netc/xapi/activities/courses/37823a7a-afee-42aa-c4ee-3333acac402",
    "definition": {
      "name": {
        "en": "P-8A Poseidon Course"
      },
      "description": {
        "en": "An interactive e-learning course on the Navy's P-8A aircraft."
      },
      "type": "http://adlnet.gov/expapi/activities/course"
    }
  }
}
```

```

    }
  },
  "context": {
    "contextActivities": {
      "category": [
        {
          "id": "https://w3id.org/xapi/netc/v1.0",
          "definition": {
            "type": "http://adlnet.gov/expapi/activities/profile"
          }
        },
        {
          "id": "https://w3id.org/xapi/netc-e-learning/v1.0",
          "definition": {
            "type": "http://adlnet.gov/expapi/activities/profile"
          }
        }
      ]
    },
    "registration": "ad8ca9da-51b1-48eb-ae58-a68d4d3ae886",
    "platform": "Moodle 3.8.3",
    "extensions": {
      "https://w3id.org/xapi/netc/extensions/school-center": "Center for Naval Aviation Technical Training (CNATT)",
      "https://w3id.org/xapi/netc/extensions/launch-location": "Ashore"
    }
  },
  "result": {
    "duration": "PT1H10M5S",
    "success": true,
    "completion": true,
    "score": {
      "scaled": 0.95
    }
  }
}

```

```
},  
"timestamp": "2020-04-29T17:00:00.130Z"  
}
```

2.3.3. Lessons

2.3.3.1. Initializing a Lesson

xAPI Statements can describe how a learner scored, passed, failed and/or completed a lesson within a given attempt. Each attempt begins with an Initialized Statement and ends with a Terminated Statement. When the Initialized Statement is sent, a new `context.registration` ID SHALL be created and used for the entire attempt. Unlike the Context Registration for courses, any Statements issued between the Initialized Statement and Terminated Statement of the lesson attempt SHALL use the same UUID for `context.registration` in order to associate the Statements with the attempt. All of the Navy xAPI requirements for an Initialized Lesson Statement are provided below.

2.3.3.1.1. Initialized Lesson Statement Requirements

The following are the requirements for an xAPI Statement for initializing an e-learning lesson:

- The `actor` SHALL be set according to the requirements in the Navy Core xAPI Profile
- The `verb.id` SHALL be set to `http://adlnet.gov/expapi/verbs/initialized`
- The `verb.display.en` SHALL be set to `initialized`
- The `object.id` SHALL be set to a unique identifier for the lesson according to the Activity ID requirements in the Navy Core xAPI Profile
- The `object.definition.type` SHALL be set to `http://adlnet.gov/expapi/activities/lesson`
- The `context.contextActivities.parent` array SHALL include the course Activity
- The `context.contextActivities.category` array SHALL include the Navy Core xAPI Profile activity identified in the Context Activities Category section above
- The `context.contextActivities.category` array SHALL include the Navy E-learning Profile activity identified in the Context Activities Category section above
- The `context.registration` SHALL be set to a new attempt UUID
- The `context.platform` SHALL be set to the appropriate string value defined in the Navy Core xAPI Profile
- If known, the following Context Extensions requirements apply:
 - The `https://w3id.org/xapi/netc/extensions/school-center` property SHALL be set to the appropriate predefined value from the Navy Common Reference Profile

- The `https://w3id.org/xapi/netc/extensions/launch-location` property SHALL be set to the appropriate predefined value from the Navy Common Reference Profile
- The timestamp SHALL be set to the time the lesson was initialized using the Timestamp requirements in the Navy Core xAPI Profile
- The Activity State SHALL be set to the values defined in the “Saving a New Attempt” Activity State Resource Requirements & Examples Section of this document.

2.3.3.1.2. Initialized Lesson Statement Example

```
{
  "actor": {
    "name": "John Doe",
    "account": {
      "homePage": "https://edipi.navy.mil",
      "name": "0123456789"
    }
  },
  "verb": {
    "id": "http://adlnet.gov/expapi/verbs/initialized",
    "display": {
      "en": "initialized"
    }
  },
  "object": {
    "id": "https://navy.mil/netc/xapi/activities/lessons/9e32f474-af07-11ea-b3de-0242ac130004",
    "definition": {
      "name": {
        "en": "Advanced Airborne Sensor Lesson"
      },
      "description": {
        "en": "An e-learning lesson on the Advanced Airborne Sensor."
      },
      "type": "http://adlnet.gov/expapi/activities/lesson"
    }
  }
}
```

```

    },
    "context": {
      "contextActivities": {
        "parent": [
          {
            "id":
              "https://navy.mil/netc/xapi/activities/courses/37823A7A-AFEE-42AA-C4EE-3333ACAC402",
            "definition": {
              "name": {
                "en": "P-8A Poseidon Course"
              },
              "description": {
                "en": "An interactive e-learning course on the Navy's P-8A aircraft."
              },
              "type": "http://adlnet.gov/expapi/activities/course"
            }
          }
        ],
        "category": [
          {
            "id": "https://w3id.org/xapi/netc/v1.0",
            "definition": {
              "type": "http://adlnet.gov/expapi/activities/profile"
            }
          },
          {
            "id": "https://w3id.org/xapi/netc-e-learning/v1.0",
            "definition": {
              "type": "http://adlnet.gov/expapi/activities/profile"
            }
          }
        ]
      }
    },
  },

```



```

    "registration": "d88ca9da-51b1-48eb-ae58-a68d4d3ae994",
    "platform": "Moodle 3.8.3",
    "extensions": {
      "https://w3id.org/xapi/netc/extensions/school-center": "Center for Naval
Aviation Technical Training (CNATT)",
      "https://w3id.org/xapi/netc/extensions/launch-location": "Ashore"
    }
  },
  "timestamp": "2020-04-29T16:01:41.520Z"
}

```

2.3.3.2. Suspending a Lesson

Learners can suspend their e-learning lesson with the intent of coming back to it at a later time. With this in mind, the Navy requires content to track the state of each learning attempt by suspending and later resuming the lesson.

2.3.3.2.1. Suspended Lesson Statement Requirements

The following are the requirements for an xAPI Statement for suspending an e-learning lesson:

- The `actor` SHALL be set according to the requirements in the Navy Core xAPI Profile
- The `verb.id` SHALL be set to `http://adlnet.gov/expapi/verbs/suspended`
- The `verb.display.en` SHALL be set to `suspended`
- The `object.id` SHALL be set to a unique identifier for the lesson according to the Activity ID requirements in the Navy Core xAPI Profile
- The `object.definition.type` SHALL be set to `http://adlnet.gov/expapi/activities/lesson`
- The `context.contextActivities.parent` array SHALL include the course Activity
- The `context.contextActivities.category` array SHALL include the Navy Core xAPI Profile activity identified in the Context Activities Category section above
- The `context.contextActivities.category` array SHALL include the Navy E-learning Profile activity identified in the Context Activities Category section above
- The `context.registration` SHALL be set to the same attempt UUID established during the last lesson Initialization
- The `context.platform` SHALL be set to the appropriate string value defined in the Navy Core xAPI Profile

- If known, the following Context Extensions requirements apply:
 - The `https://w3id.org/xapi/netc/extensions/school-center` property SHALL be set to the appropriate predefined value from the Navy Common Reference Profile
 - The `https://w3id.org/xapi/netc/extensions/launch-location` property SHALL be set to the appropriate predefined value from the Navy Common Reference Profile
 -
- The timestamp SHALL be set to the time the content was suspended using the Timestamp requirements in the Navy Core xAPI Profile

2.3.3.2.2. Suspended Lesson Statement Example

```
{
  "actor": {
    "name": "John Doe",
    "account": {
      "homePage": "https://edipi.navy.mil",
      "name": "0123456789"
    }
  },
  "verb": {
    "id": "http://adlnet.gov/expapi/verbs/suspended",
    "display": {
      "en": "suspended"
    }
  },
  "object": {
    "id": "https://navy.mil/netc/xapi/activities/lessons/9e32f474-af07-11ea-b3de-0242ac130004",
    "definition": {
      "name": {
        "en": "Advanced Airborne Sensor Lesson"
      },
      "description": {
        "en": "An e-learning lesson on the Advanced Airborne Sensor."
      },
      "type": "http://adlnet.gov/expapi/activities/lesson"
    }
  }
}
```

```

    }
  },
  "context": {
    "contextActivities": {
      "parent": [
        {
          "id":
            "https://navy.mil/netc/xapi/activities/courses/37823A7A-AFEE-42AA-C4EE-
            3333ACAC402",
          "definition": {
            "name": {
              "en": "P-8A Poseidon Course"
            },
            "description": {
              "en": "An interactive e-learning course on the Navy's P-8A aircraft."
            },
            "type": "http://adlnet.gov/expapi/activities/course"
          }
        }
      ],
      "category": [
        {
          "id": "https://w3id.org/xapi/netc/v1.0",
          "definition": {
            "type": "http://adlnet.gov/expapi/activities/profile"
          }
        },
        {
          "id": "https://w3id.org/xapi/netc-e-learning/v1.0",
          "definition": {
            "type": "http://adlnet.gov/expapi/activities/profile"
          }
        }
      ]
    },
  },

```

```

    "registration": "d88ca9da-51b1-48eb-ae58-a68d4d3ae994",
    "platform": "Moodle 3.8.3",
    "extensions": {
      "https://w3id.org/xapi/netc/extensions/school-center": "Center for Naval
      Aviation Technical Training (CNATT)",
      "https://w3id.org/xapi/netc/extensions/launch-location": "Ashore"
    }
  },
  "timestamp": "2020-04-29T16:10:41.520Z"
}

```

2.3.3.3. Resuming a Lesson

After an attempt on a lesson is suspended, it should be able to be resumed by the user. If a resumed attempt requires additional information, such as retrieving data for bookmarking purposes, then see the xAPI Document Resource Requirements & Examples Section of this document. All of the Navy xAPI requirements for a Resumed Statement are provided below.

2.3.3.3.1. Resumed Lesson Statement Requirements

The following are the requirements for an xAPI Statement for resuming an e-learning lesson:

- The `actor` SHALL be set according to the requirements in the Navy Core xAPI Profile
- The `verb.id` SHALL be set to `http://adlnet.gov/expapi/verbs/resumed`
- The `verb.display.en` SHALL be set to `resumed`
- The `object.id` to a unique identifier for the lesson according to the Activity ID requirements in the Navy Core xAPI Profile
- The `object.definition.type` SHALL be set to `http://adlnet.gov/expapi/activities/lesson`
- The `context.contextActivities.parent` array SHALL include the course Activity
- The `context.contextActivities.category` array SHALL include the Navy xAPI Profile activity identified in the Context Activities Category section above
- The `context.contextActivities.category` array SHALL include the Navy E-learning Profile activity identified in the Context Activities Category section above
- The `context.registration` SHALL be set to the same attempt UUID established during the last lesson Initialization

- The `context.platform` SHALL be set to the appropriate string value defined in the Navy Core xAPI Profile
- If known, the following Context Extensions requirements apply:
 - The `https://w3id.org/xapi/netc/extensions/school-center` property SHALL be set to the appropriate predefined value from the Navy Common Reference Profile
 - Set `https://w3id.org/xapi/netc/extensions/launch-location` property SHALL be set to the appropriate predefined value from the Navy Common Reference Profile
- The `timestamp` SHALL be set to the time the content was resumed and using the Timestamp requirements in the Navy Core xAPI Profile

2.3.3.3.2. Resumed Statement Example

```
{
  "actor": {
    "name": "John Doe",
    "account": {
      "homePage": "https://edipi.navy.mil",
      "name": "1625378"
    }
  },
  "verb": {
    "id": "http://adlnet.gov/expapi/verbs/resumed",
    "display": {
      "en": "resumed"
    }
  },
  "object": {
    "id": "https://navy.mil/netc/xapi/activities/lessons/9e32f474-af07-11ea-b3de-0242ac130004",
    "definition": {
      "name": {
        "en": "Advanced Airborne Sensor Lesson"
      },
      "description": {
        "en": "An e-learning lesson on the Advanced Airborne Sensor."
      }
    }
  }
}
```

```

    "type": "http://adlnet.gov/expapi/activities/lesson"
  },
  "context": {
    "contextActivities": {
      "parent": [
        {
          "id":
            "https://navy.mil/netc/xapi/activities/courses/37823A7A-AFEE-42AA-C4EE-
            3333ACAC402",
          "definition": {
            "name": {
              "en": "P-8A Poseidon Course"
            },
            "description": {
              "en": "An interactive e-learning course on the Navy's P-8A aircraft."
            },
            "type": "http://adlnet.gov/expapi/activities/course"
          }
        }
      ],
      "category": [
        {
          "id": "https://w3id.org/xapi/netc/v1.0",
          "definition": {
            "type": "http://adlnet.gov/expapi/activities/profile"
          }
        },
        {
          "id": "https://w3id.org/xapi/netc-e-learning/v1.0",
          "definition": {
            "type": "http://adlnet.gov/expapi/activities/profile"
          }
        }
      ]
    }
  }
]

```

```

    },
    "registration": "d88ca9da-51b1-48eb-ae58-a68d4d3ae994",
    "platform": "Moodle 3.8.3",
    "extensions": {
        "https://w3id.org/xapi/netc/extensions/school-center": "Center for Naval
        Aviation Technical Training (CNATT)",
        "https://w3id.org/xapi/netc/extensions/launch-location": "Ashore"
    }
    },
    "timestamp": "2020-04-29T16:15:41.520Z"
}

```

2.3.3.4. Completing a Lesson

Lesson activities can be completed by the users when the intent or objectives of the lesson have been met. Regardless of how the completion criteria is determined for a particular e-learning project, responsibility falls on the content to generate an xAPI Statement that informs Navy's LRS that the learner has completed the lesson. The final completion of a lesson SHALL be communicated by using a Terminated Statement that sets `result.completion` to `true`. However, the intermittent completion of activities within a lesson may be set via a Completed Statement. Please review the Terminating a Lesson Section of this document for the requirements and an example of a Terminated Statement with completion results. All of the Navy xAPI requirements for a general Completed Statement are provided below.

2.3.3.4.1. Completed Lesson Statement Requirements

The following are the requirements for an xAPI Statement for completing an e-learning lesson:

- The `actor` SHALL be set according to the requirements in the Navy Core xAPI Profile
- The `verb.id` SHALL be set to `http://adlnet.gov/expapi/verbs/completed`
- The `verb.display.en` SHALL be set to `completed`
- The `object.id` SHALL be set to a unique identifier for the lesson according to the Activity ID requirements in the Navy Core xAPI Profile
- The `object.definition.type` SHALL be set to `http://adlnet.gov/expapi/activities/lesson`
- The `context.contextActivities.parent` array SHALL include the course Activity
- The `context.contextActivities.category` array SHALL include the Navy Core xAPI Profile activity identified in the Context Activities Category section above

- The `context.contextActivities.category` array SHALL include the Navy E-learning Profile activity identified in the Context Activities Category section above
- The `context.registration` SHALL be set to the same attempt UUID established during the last lesson Initialization
- The `context.platform` SHALL be set to the appropriate string value defined in the Navy Core xAPI Profile
- If known, the following Context Extensions requirements apply:
 - The `https://w3id.org/xapi/netc/extensions/school-center` property SHALL be set to the appropriate predefined value from the Navy Common Reference Profile
 - The `https://w3id.org/xapi/netc/extensions/launch-location` property SHALL be set to the appropriate predefined value from the Navy Common Reference Profile
- The `timestamp` SHALL be set according to the requirements in the Navy Core xAPI Profile

2.3.3.4.2. Completed Lesson Statement Example

```
{
  "actor": {
    "name": "John Doe",
    "account": {
      "homePage": "https://edipi.navy.mil",
      "name": "0123456789"
    }
  },
  "verb": {
    "id": "http://adlnet.gov/expapi/verbs/completed",
    "display": {
      "en": "completed"
    }
  },
  "object": {
    "id": "https://navy.mil/netc/xapi/activities/lessons/9e32f474-af07-11ea-b3de-0242ac130004",
    "definition": {
      "name": {
        "en": "Advanced Airborne Sensor Lesson"
      }
    }
  },
}
```



```

    "description": {
      "en": "An e-learning lesson on the Advanced Airborne Sensor."
    },
    "type": "http://adlnet.gov/expapi/activities/lesson"
  },
  "context": {
    "contextActivities": {
      "parent": [
        {
          "id":
            "https://navy.mil/netc/xapi/activities/courses/37823A7A-AFEE-42AA-C4EE-3333ACAC402",
          "definition": {
            "name": {
              "en": "P-8A Poseidon Course"
            },
            "description": {
              "en": "An interactive e-learning course on the Navy's P-8A aircraft."
            },
            "type": "http://adlnet.gov/expapi/activities/course"
          }
        }
      ],
      "category": [
        {
          "id": "https://w3id.org/xapi/netc/v1.0",
          "definition": {
            "type": "http://adlnet.gov/expapi/activities/profile"
          }
        },
        {
          "id": "https://w3id.org/xapi/netc-e-learning/v1.0",
          "definition": {
            "type": "http://adlnet.gov/expapi/activities/profile"
          }
        }
      ]
    }
  }
}

```

```

    }
  }
]
},
"registration": "d88ca9da-51b1-48eb-ae58-a68d4d3ae994",
"platform": "Moodle 3.8.3",
"extensions": {
  "https://w3id.org/xapi/netc/extensions/school-center": "Center for Naval
Aviation Technical Training (CNATT)",
  "https://w3id.org/xapi/netc/extensions/launch-location": "Ashore"
}
},
"timestamp": "2020-04-29T16:30:41.520Z"
}

```

2.3.3.5. Scoring a Lesson

When learners obtain a score as part of a quiz or a formal assessment, the score value is reported as part of the lesson. The use of the Scored Statement on a lesson is for granular journaling purposes and does not necessarily represent the final score of the lesson. For example, the Scored Statement is used when the lesson records a score that may change by allowing the user to re-answer a question in a single attempt on the lesson. The lesson's Scored Statement SHALL set `result.score.scaled` to a decimal number between -1 and 1. If a score is to be considered the overall score for the lesson, then a Terminated Statement SHALL be used to represent the final score.

2.3.3.5.1. Scored Lesson Statement Requirements

The following are the requirements for an xAPI Statement for scoring an e-learning lesson:

- The `actor` SHALL be set according to the requirements in the Navy Core xAPI Profile
- The `verb.id` SHALL be set to `http://adlnet.gov/expapi/verbs/scored`
- The `verb.display.en` SHALL be set to `scored`
- The `object.id` SHALL be set to a unique identifier for the lesson according to the Activity ID requirements in the Navy Core xAPI Profile
- The `object.definition.type` SHALL be set to `http://adlnet.gov/expapi/activities/lesson`

- The `context.contextActivities.parent` array SHALL include the course Activity
- The `context.contextActivities.category` array SHALL include the Navy Core xAPI Profile activity identified in the Context Activities Category section above
- The `context.contextActivities.category` array SHALL include the Navy E-learning Profile activity identified in the Context Activities Category section above
- The `context.registration` SHALL be set to the same attempt UUID established during the last lesson Initialization
- The `context.platform` SHALL be set to the appropriate string value defined in the Navy Core xAPI Profile
- If known, the following Context Extensions requirements apply:
 - The `https://w3id.org/xapi/netc/extensions/school-center` property SHALL be set to the appropriate predefined value from the Navy Common Reference Profile
 - The `https://w3id.org/xapi/netc/extensions/launch-location` property SHALL be set to the appropriate predefined value from the Navy Common Reference Profile
- The `result.score.scaled` SHALL be set to a decimal number between -1 and 1 if there is an overall score associated with the course
- The `timestamp` SHALL be set according to the requirements in the Navy Core xAPI Profile

2.3.5.5.2. Scored Lesson Statement Example

```
{
  "actor": {
    "name": "John Doe",
    "account": {
      "homePage": "https://edipi.navy.mil",
      "name": "0123456789"
    }
  },
  "verb": {
    "id": "http://adlnet.gov/expapi/verbs/scored",
    "display": {
      "en": "scored"
    }
  },
  "object": {
```

```

    "id": "https://navy.mil/netc/xapi/activities/lessons/9e32f474-af07-11ea-b3de-0242ac130004",
    "definition": {
      "name": {
        "en": "Advanced Airborne Sensor Lesson"
      },
      "description": {
        "en": "An e-learning lesson on the Advanced Airborne Sensor."
      },
      "type": "http://adlnet.gov/expapi/activities/lesson"
    },
    "context": {
      "contextActivities": {
        "parent": [
          {
            "id": "https://navy.mil/netc/xapi/activities/courses/37823A7A-AFEE-42AA-C4EE-3333ACAC402",
            "definition": {
              "name": {
                "en": "P-8A Poseidon Course"
              },
              "description": {
                "en": "An interactive e-learning course on the Navy's P-8A aircraft."
              },
              "type": "http://adlnet.gov/expapi/activities/course"
            }
          }
        ],
        "category": [
          {
            "id": "https://w3id.org/xapi/netc/v1.0",
            "definition": {
              "type": "http://adlnet.gov/expapi/activities/profile"
            }
          }
        ]
      }
    }
  }
}

```

```

    }
  },
  {
    "id": "https://w3id.org/xapi/netc-e-learning/v1.0",
    "definition": {
      "type": "http://adlnet.gov/expapi/activities/profile"
    }
  }
]
},
"registration": "d88ca9da-51b1-48eb-ae58-a68d4d3ae994",
"platform": "Moodle 3.8.3",
"extensions": {
  "https://w3id.org/xapi/netc/extensions/school-center": "Center for Naval
Aviation Technical Training (CNATT)",
  "https://w3id.org/xapi/netc/extensions/launch-location": "Ashore"
}
},
"result": {
  "score": {
    "scaled": 0.90
  }
},
"timestamp": "2020-04-29T16:28:21.510Z"
}

```

2.3.3.6. Passing a Lesson

If applicable in a given lesson, learners may pass or fail the success criteria. Passing a lesson is often reserved for e-learning content that contains assessments, knowledge measurement, or grading of a learner's performance. However, a Passed Statement could also be used for knowledge checks or practice tests without a scoring requirement. Multiple Passed Statements can be sent in a given attempt. However, the final success of a lesson SHALL be communicated by using a Terminated Statement that sets `result.success` to `true`. Please review Terminating a Lesson Section of this document for the requirements and an example of a

Terminated Statement with success results. All of the Navy xAPI requirements for a general Passed Statement are provided below.

2.3.3.6.1 Passed Lesson Statement Requirements

The following are the requirements for an xAPI Statement for passing an e-learning lesson:

- The `actor` SHALL be set according to the requirements in the Navy Core xAPI Profile
- The `verb.id` SHALL be set to `http://adlnet.gov/expapi/verbs/passed`
- The `verb.display.en` SHALL be set to `passed`
- The `object.id` SHALL be set to a unique identifier for the lesson according to the Activity ID requirements in the Navy Core xAPI Profile
- The `object.definition.type` SHALL be set to `http://adlnet.gov/expapi/activities/lesson`
- The `context.contextActivities.parent` array SHALL include the course Activity
- The `context.contextActivities.category` array SHALL include the Navy Core xAPI Profile activity identified in the Context Activities Category section above
- The `context.contextActivities.category` array SHALL include the Navy E-learning Profile activity identified in the Context Activities Category section above
- The `context.registration` SHALL be set to the same attempt UUID established during the last lesson Initialization
- The `context.platform` SHALL be set to the appropriate string value defined in the Navy Core xAPI Profile
- If known, the following Context Extensions requirements apply:
 - Set `https://w3id.org/xapi/netc/extensions/school-center` property SHALL be set to the appropriate predefined value from the Navy Common Reference Profile
 - Set `https://w3id.org/xapi/netc/extensions/launch-location` property SHALL be set to the appropriate predefined value from the Navy Common Reference Profile
- Set `timestamp` SHALL be set to the requirements in the Navy Core xAPI Profile

2.3.3.6.2. Passed Lesson Statement Example

```
{
  "actor": {
    "name": "John Doe",
    "account": {
      "homePage": "https://edipi.navy.mil",
```

```

    "name": "0123456789"
  }
},
"verb": {
  "id": "http://adlnet.gov/expapi/verbs/passed",
  "display": {
    "en": "passed"
  }
},
"object": {
  "id": "https://navy.mil/netc/xapi/activities/lessons/9e32f474-af07-11ea-b3de-0242ac130004",
  "definition": {
    "name": {
      "en": "Advanced Airborne Sensor Lesson"
    },
    "description": {
      "en": "An e-learning lesson on the Advanced Airborne Sensor."
    },
    "type": "http://adlnet.gov/expapi/activities/lesson"
  }
},

"context": {
  "contextActivities": {
    "parent": [
      {
        "id":
        "https://navy.mil/netc/xapi/activities/courses/37823A7A-AFEE-42AA-C4EE-3333ACAC402",
        "definition": {
          "name": {
            "en": "P-8A Poseidon Course"
          },
          "description": {

```

```

        "en": "An interactive e-learning course on the Navy's P-8A aircraft."
    },
    "type": "http://adlnet.gov/expapi/activities/course"
}
},
"category": [
{
    "id": "https://w3id.org/xapi/netc/v1.0",
    "definition": {
        "type": "http://adlnet.gov/expapi/activities/profile"
    }
},
{
    "id": "https://w3id.org/xapi/netc-e-learning/v1.0",
    "definition": {
        "type": "http://adlnet.gov/expapi/activities/profile"
    }
}
],
"registration": "d88ca9da-51b1-48eb-ae58-a68d4d3ae994",
"platform": "Moodle 3.8.3",
"extensions": {
    "https://w3id.org/xapi/netc/extensions/school-center": "Center for Naval
Aviation Technical Training (CNATT)",
    "https://w3id.org/xapi/netc/extensions/launch-location": "Ashore"
}
},
"timestamp": "2020-04-29T16:29:41.520Z"
}

```


2.3.3.7. Failing a Lesson

If applicable in a given lesson, learners may pass or fail the success criteria. Failing a lesson is often reserved for e-learning content that contains assessments, measurement, or grading of a learner's performance. However, a Failed Statement could also be used for knowledge checks or practice tests without a scoring requirement. Multiple Failed xAPI Statements can be sent in a given attempt. However, a Terminated Statement that sets `result.success` to `false` is ultimately required for Navy's LRS to recognize the attempt on the lesson as failed. Please review the Terminating a Lesson Section of this document for the requirements and an example of a Terminated Statement with failed results. All of the Navy xAPI requirements for a general Failed Statement are provided below.

2.3.3.7.1. Failed Lesson Statement Requirements

The following are the requirements for an xAPI Statement for failing an e-learning lesson:

- The `actor` SHALL be set according to the requirements in the Navy Core xAPI Profile
- The `verb.id` SHALL be set to `http://adlnet.gov/expapi/verbs/failed`
- The `verb.display.en` SHALL be set to `failed`
- The `object.id` SHALL be set to a unique identifier for the lesson according to the Activity ID requirements in the Navy Core xAPI Profile
- The `object.definition.type` SHALL be set to `http://adlnet.gov/expapi/activities/lesson`
- The `context.contextActivities.parent` array SHALL include the course Activity
- The `context.contextActivities.category` array SHALL include the Navy Core xAPI Profile activity identified in the Context Activities Category section above
- The `context.contextActivities.category` array SHALL include the Navy E-learning Profile activity identified in the Context Activities Category section above
- The `context.registration` SHALL be set to the same attempt UUID established during the last lesson Initialization
- The `context.platform` SHALL be set to the appropriate string value defined in the Navy Core xAPI Profile
- If known, the following Context Extensions requirements apply:
 - Set `https://w3id.org/xapi/netc/extensions/school-center` property SHALL be set to the appropriate predefined value from the Navy Common Reference Profile
 - Set `https://w3id.org/xapi/netc/extensions/launch-location` property SHALL be set to the appropriate predefined value from the Navy Common Reference Profile
- The `timestamp` SHALL be set according to the requirements in the Navy Core xAPI Profile

2.3.3.7.2. Failed Lesson Statement Example

```
{
  "actor": {
    "name": "John Doe",
    "account": {
      "homePage": "https://edipi.navy.mil",
      "name": "0123456789"
    }
  },
  "verb": {
    "id": "http://adlnet.gov/expapi/verbs/failed",
    "display": {
      "en": "failed"
    }
  },
  "object": {
    "id": "https://navy.mil/netc/xapi/activities/lessons/9e32f474-af07-11ea-b3de-0242ac130004",
    "definition": {
      "name": {
        "en": "Advanced Airborne Sensor Lesson"
      },
      "description": {
        "en": "An e-learning lesson on the Advanced Airborne Sensor."
      },
      "type": "http://adlnet.gov/expapi/activities/lesson"
    }
  },
  "context": {
    "contextActivities": {
      "parent": [
        {
          "id":
            "https://navy.mil/netc/xapi/activities/courses/37823A7A-AFEE-42AA-C4EE-3333ACAC402",
```

```

    "definition": {
      "name": {
        "en": "P-8A Poseidon Course"
      },
      "description": {
        "en": "An interactive e-learning course on the Navy's P-8A aircraft."
      },
      "type": "http://adlnet.gov/expapi/activities/course"
    }
  ],
  "category": [
    {
      "id": "https://w3id.org/xapi/netc/v1.0",
      "definition": {
        "type": "http://adlnet.gov/expapi/activities/profile"
      }
    },
    {
      "id": "https://w3id.org/xapi/netc-e-learning/v1.0",
      "definition": {
        "type": "http://adlnet.gov/expapi/activities/profile"
      }
    }
  ],
  "registration": "d88ca9da-51b1-48eb-ae58-a68d4d3ae994",
  "platform": "Moodle 3.8.3",
  "extensions": {
    "https://w3id.org/xapi/netc/extensions/school-center": "Center for Naval Aviation Technical Training (CNATT)",
    "https://w3id.org/xapi/netc/extensions/launch-location": "Ashore"
  }
},

```

```
"timestamp": "2020-04-29T16:29:41.520Z"
}
```

2.3.3.8. Terminating a Lesson

To indicate that an attempt on a lesson has ended, the content **SHALL** send a Terminated Statement. If applicable, the Terminated Statement **SHALL** also contain the overall results associated with the lesson, such as whether it was passed, failed, completed, or if there is a score. All of the Navy xAPI requirements for a Terminated Statement are provided below.

2.3.3.8.1. Terminated Lesson Statement Requirements

The following are the requirements for an xAPI Statement for terminating an e-learning lesson:

- The `actor` **SHALL** be set according to the requirements in the Navy Core xAPI Profile
- The `verb.id` **SHALL** be set to `http://adlnet.gov/expapi/verbs/terminated`
- The `verb.display.en` **SHALL** be set to `terminated`
- The `object.id` **SHALL** be set to a unique identifier for the lesson according to the Activity ID requirements in the Navy Core xAPI Profile
- The `object.definition.type` **SHALL** be set to `http://adlnet.gov/expapi/activities/lesson`
- The `context.contextActivities.parent` array **SHALL** include the course Activity
- The `context.contextActivities.category` array **SHALL** include the Navy Core xAPI Profile activity identified in the Context Activities Category section above
- The `context.contextActivities.category` array **SHALL** include the Navy E-learning Profile activity identified in the Context Activities Category section above
- The `context.registration` **SHALL** be set to the same attempt UUID established during the last lesson Initialization
- The `context.platform` **SHALL** be set to the appropriate string value defined in the Navy Core xAPI Profile
- If known, the following Context Extensions requirements apply:
 - The `https://w3id.org/xapi/netc/extensions/school-center` property **SHALL** be set to the appropriate predefined value from the Navy Common Reference Profile
 - The `https://w3id.org/xapi/netc/extensions/launch-location` property **SHALL** be set to the appropriate predefined value from the Navy Common Reference Profile
- If known, set the following Result Object properties to the overall result values for the lesson using the following requirements:

- The `result.duration` SHALL be set to an ISO 860 formatted duration value representing the total time spent in the lesson under the current attempt
- The `result.success` SHALL be set to `true` if the lesson was passed
- The `result.success` SHALL be set to `false` if the lesson was failed
- The `result.completion` SHALL be set to `true` if the lesson was completed
- The `result.completion` SHALL be set to `false` if the lesson was not completed
- The `result.score.scaled` SHALL be set to a decimal number between `-1` and `1` if there is an overall score associated with the lesson
- The `timestamp` SHALL be set to the time the attempt was terminated using the Timestamp requirements in the Navy Core xAPI Profile

2.3.3.8.2. Terminated Lesson Statement Example

```
{
  "actor": {
    "name": "John Doe",
    "account": {
      "homePage": "https://edipi.navy.mil",
      "name": "0123456789"
    }
  },
  "verb": {
    "id": "http://adlnet.gov/expapi/verbs/terminated",
    "display": {
      "en": "terminated"
    }
  },
  "object": {
    "id": "https://navy.mil/netc/xapi/activities/lessons/9e32f474-af07-11ea-b3de-0242ac130004",
    "definition": {
      "name": {
        "en": "Advanced Airborne Sensor Lesson"
      },
      "description": {
        "en": "An e-learning lesson on the Advanced Airborne Sensor."
      }
    }
  }
}
```

```

    },
    "type": "http://adlnet.gov/expapi/activities/lesson"
  }
},
"context": {
  "contextActivities": {
    "parent": [
      {
        "id":
        "https://navy.mil/netc/xapi/activities/courses/37823A7A-AFEE-42AA-C4EE-
3333ACAC402",
        "definition": {
          "name": {
            "en": "P-8A Poseidon Course"
          },
          "description": {
            "en": "An interactive e-learning course on the Navy's P-8A aircraft."
          },
          "type": "http://adlnet.gov/expapi/activities/course"
        }
      }
    ],
    "category": [
      {
        "id": "https://w3id.org/xapi/netc/v1.0",
        "definition": {
          "type": "http://adlnet.gov/expapi/activities/profile"
        }
      },
      {
        "id": "https://w3id.org/xapi/netc-e-learning/v1.0",
        "definition": {
          "type": "http://adlnet.gov/expapi/activities/profile"
        }
      }
    ]
  }
}

```

```

    ]
  },
  "registration": "d88ca9da-51b1-48eb-ae58-a68d4d3ae994",
  "platform": "Moodle 3.8.3",
  "extensions": {
    "https://w3id.org/xapi/netc/extensions/school-center": "Center for Naval
Aviation Technical Training (CNATT)",
    "https://w3id.org/xapi/netc/extensions/launch-location": "Ashore"
  }
},
"result": {
  "duration": "PT1H10M5S",
  "success": true,
  "completion": true,
  "score": {
    "scaled": 0.95
  }
},
"timestamp": "2020-04-29T16:30:45.520Z"
}

```

2.3.4. Assessment Interactions

The xAPI specification provides a standard way to track assessment data with built-in object definitions for computer managed instruction (CMI) interactions. Additionally, the Navy Assessment Profile adds business and format rules to standardize the way to represent assessments and interactions within the scope of Navy training. This profile extends the Navy Assessment Profile to specify how to record xAPI statements about assessments and interactions within e-learning content.

The Navy Assessment Profile was developed for stand-alone assessments. However, the use of assessments in the context of e-learning requires that the assessment be part of a lesson. As such, some requirements in the Navy Assessment Profile are met by similar requirements on lessons in this profile,

- Initialize, Terminate, Suspend and Resume on the lesson can be used in place of the same statements on an assessment,

- the `context.registration` generated for the lesson can be used for interactions instead of generating a new one,
- the activity and activity definition for the assessment and the lesson are set as the parent activities within the context activities of statements about `cmi.interactions`,
- if there are multiple assessments in a single lesson, the requirements regarding assessment statements may be followed to represent temporal information about the assessment such as attempts, sessions and duration on the assessment.

2.3.4.1. Responding to an Assessment Question

The questions (CMI interaction Activities) SHALL be children of a lesson, and therefore SHALL include an assessment as the parent Context Activity. Each of the interaction Activities have a specific type (defined as the `interactionType`). The learner's response to each interaction is stored in `result.response`. The Navy xAPI requirements for a Responded Statement provided in the next section include additional requirements to, or supersede the requirements in, the Navy Assessment Profile.

2.3.4.1.1. Responded Statement Requirements

An xAPI Statement for responding to an interaction in an assessment as part of an e-learning course SHALL adhere to the requirements in the Assessment Profile and also include the following:

- The `context.contextActivities.grouping` array SHALL include the course Activity
- The `context.contextActivities.parent` array SHALL include the assessment Activity
- The `context.contextActivities.parent` array SHALLto include the lesson Activity
- The `context.contextActivities.category` array SHALL include the Navy E-learning Profile activity identified in the Context Activities Category section above
- The `context.registration` SHALL be set to the same attempt UUID established during the last lesson Initialization

2.3.4.2. Responded Statement Examples

The following Responded Statement example illustrates the correct way to store responses to assessment questions (`cmi.interactions`). The example (True-False) below provides a full xAPI Statement example with the Context Object. For the sake of brevity, refer to the Navy Assessment Profile for additional question types and Statement examples.

2.3.4.2.1. True-False

```
{
  "actor": {
```



```

    "name": "John Doe",
    "account": {
      "homePage": "https://edipi.navy.mil",
      "name": "0123456789"
    }
  },
  "verb": {
    "id": "http://adlnet.gov/expapi/verbs/responded",
    "display": {
      "en": "responded"
    }
  },
  "object": {
    "id": "https://navy.mil/netc/xapi/activities/cmi.interactions/47213bb2-b1f7-420e-9042-952bde6fe72b",
    "definition": {
      "name": {
        "en": "Question 1"
      },
      "description": {
        "en": "The Blue Angels' home base has been located at Naval Air Station Pensacola, Florida since 1954."
      },
      "type": "http://adlnet.gov/expapi/activities/cmi.interaction",
      "interactionType": "true-false",
      "extensions": {
        "https://w3id.org/xapi/netc-assessment/extensions/activity/id-number": "question-001"
      }
    }
  },
  "context": {
    "contextActivities": {
      "parent": [
        {

```

```

      "id": "https://navy.mil/netc/xapi/activities/assessments/c66edc28-aa6b-11ea-bb37-0242ac130002",
      "definition": {
        "name": {
          "en": "Naval Aviation Quiz"
        },
        "description": {
          "en": "This is an example assessment on Naval aviation history."
        },
        "type": "http://adlnet.gov/expapi/activities/assessment"
      }
    },
    {
      "id": "https://navy.mil/netc/xapi/activities/lessons/9e32f474-af07-11ea-b3de-0242ac130004",
      "definition": {
        "name": {
          "en": "Advanced Airborne Sensor Lesson"
        },
        "description": {
          "en": "An e-learning lesson on the Advanced Airborne Sensor."
        },
        "type": "http://adlnet.gov/expapi/activities/lesson"
      }
    }
  ],
  "grouping": [
    {
      "id": "https://navy.mil/netc/xapi/activities/courses/37823A7A-AFEE-42AA-C4EE-3333ACAC402",
      "definition": {
        "name": {
          "en": "P-8A Poseidon Course"
        },

```

```

        "description": {
            "en": "An interactive e-learning course on the Navy's P-8A aircraft."
        },
        "type": "http://adlnet.gov/expapi/activities/course"
    }
}
],
"category": [
    {
        "id": "https://w3id.org/xapi/netc/v1.0",
        "definition": {
            "type": "http://adlnet.gov/expapi/activities/profile"
        }
    },
    {
        "id": "https://w3id.org/xapi/netc-e-learning/v1.0",
        "definition": {
            "type": "http://adlnet.gov/expapi/activities/profile"
        }
    },
    {
        "id": "https://w3id.org/xapi/netc-assessment/v1.0",
        "definition": {
            "type": "http://adlnet.gov/expapi/activities/profile"
        }
    }
]
},
"registration": "d88ca9da-51b1-48eb-ae58-a68d4d3ae994",
"platform": "Moodle 3.8.3",
"extensions": {
    "https://w3id.org/xapi/netc/extensions/school-center": "Center for Naval
Aviation Technical Training (CNATT)",
    "https://w3id.org/xapi/netc/extensions/launch-location": "Ashore"
}

```

```

    }
  },
  "result": {
    "response": "true",
    "success": true
  },
  "timestamp": "2020-04-29T16:12:41.520Z"
}

```

2.3.5. Sections

2.3.5.1. Completing a Section

Sections are activities that provide an optional way to organize parts of a lesson. If sections are used to organize the parts of a lesson, the responsibility falls on the content to generate an xAPI Statement that informs Navy's LRS that the learner has completed a section within a lesson. The final completion of a section SHALL be communicated by using a Completed Statement. All of the Navy xAPI requirements for a Completed Section Statement are provided below.

2.3.5.1.1. Completed Section Statement Requirements

The following are the requirements for an xAPI Statement for completing a section in e-learning content:

- The `actor` SHALL be set according to the requirements in the Navy Core xAPI Profile
- The `verb.id` SHALL be set to `http://adlnet.gov/expapi/verbs/completed`
- The `verb.display.en` SHALL be set to `completed`
- The `object.id` SHALL be set to a unique identifier for the section Activity according to the Activity ID requirements in the Navy Core xAPI Profile
- The `object.definition.type` SHALL be set to `https://w3id.org/xapi/netc-e-learning/activity-types/section`
- The `context.contextActivities.parent` array SHALL include the lesson Activity
- The `context.contextActivities.grouping` array SHALL include the course Activity
- The `context.contextActivities.category` array SHALL include the Navy Core xAPI Profile activity identified in the Context Activities Category section above
- The `context.contextActivities.category` array SHALL include the Navy E-learning Profile activity identified in the Context Activities Category section above

- The `context.registration` SHALL be set to the same attempt UUID established during the last lesson Initialization
- The `context.platform` SHALL be set to the appropriate string value defined in the Navy Core xAPI Profile
- If known, the following Context Extensions requirements apply:
 - The `https://w3id.org/xapi/netc/extensions/school-center` property SHALL be set to the appropriate predefined value from the Navy Common Reference Profile
 - The `https://w3id.org/xapi/netc/extensions/launch-location` property SHALL be set to the appropriate predefined value from the Navy Common Reference Profile
- The `timestamp` SHALL be set according to the requirements in the Navy Core xAPI Profile

2.3.5.1.2. Completed Section Statement Example

```
{
  "actor": {
    "name": "John Doe",
    "account": {
      "homePage": "https://edipi.navy.mil",
      "name": "0123456789"
    }
  },
  "verb": {
    "id": "http://adlnet.gov/expapi/verbs/completed",
    "display": {
      "en": "completed"
    }
  },
  "object": {
    "id": "https://navy.mil/netc/xapi/activities/sections/edcc28de-ac32-11ea-bb37-0242ac130002",
    "definition": {
      "name": {
        "en": "Advanced Airborne Sensor Introduction"
      },
      "description": {
        "en": "The introduction section for the Advanced Airborne Sensor lesson."
      }
    }
  }
}
```

```

    },
    "type": "https://w3id.org/xapi/netc-e-learning/activity-types/section"
  }
},
"context": {
  "contextActivities": {
    "parent": [
      {
        "id":
        "https://navy.mil/netc/xapi/activities/lessons/9e32f474-af07-11ea-b3de-
0242ac130004",
        "definition": {
          "name": {
            "en": "Advanced Airborne Sensor Lesson"
          },
          "description": {
            "en": "An e-learning lesson on the Advanced Airborne Sensor."
          },
          "type": "http://adlnet.gov/expapi/activities/lesson"
        }
      }
    ],
    "grouping": [
      {
        "id":
        "https://navy.mil/netc/xapi/activities/courses/37823A7A-AFEE-42AA-C4EE-
3333ACAC402",
        "definition": {
          "name": {
            "en": "P-8A Poseidon Course"
          },
          "description": {
            "en": "An interactive e-learning course on the Navy's P-8A aircraft."
          },
          "type": "http://adlnet.gov/expapi/activities/course"
        }
      }
    ]
  }
}

```

```

    }
  },
  "category": [
    {
      "id": "https://w3id.org/xapi/netc/v1.0",
      "definition": {
        "type": "http://adlnet.gov/expapi/activities/profile"
      }
    },
    {
      "id": "https://w3id.org/xapi/netc-e-learning/v1.0",
      "definition": {
        "type": "http://adlnet.gov/expapi/activities/profile"
      }
    }
  ],
  "registration": "d88ca9da-51b1-48eb-ae58-a68d4d3ae994",
  "platform": "Moodle 3.8.3",
  "extensions": {
    "https://w3id.org/xapi/netc/extensions/school-center": "Center for Naval
    Aviation Technical Training (CNATT)",
    "https://w3id.org/xapi/netc/extensions/launch-location": "Ashore"
  },
  "timestamp": "2020-04-29T16:30:41.520Z"
}

```

2.3.6. Tracking General Activities

Granular activities such as files, links, and pages can also be tracked within e-learning content. The Navy Common Reference Profile provides several options for tracking a wide variety of general activities. The Navy

E-learning Profile reuses some of these general activities such as interacting with files, links, pages, and videos. A few examples of tracking general activities in an e-learning lesson are provided below.

2.3.6.1. Files, Links, and Pages

The requirements and examples for these types of general activities are defined in the Navy Common Reference Profile. However, there are additional Navy E-learning Profile requirements for the Context of an xAPI Statement when the Object is a granular Activity within an e-learning course, lesson, or section. For the sake of brevity, only one xAPI Statement example with a granular page Activity is provided below. Refer to the Navy Common Reference Profile for more xAPI Statement examples of Verbs that can be used to track with File, Link, and Page activities.

2.3.6.1.1. Viewed Page Statement Example

```
{
  "actor": {
    "name": "John Doe",
    "account": {
      "homePage": "https://edipi.navy.mil",
      "name": "0123456789"
    }
  },
  "verb": {
    "id": "http://id.tincanapi.com/verb/viewed",
    "display": {
      "en": "viewed"
    }
  },
  "object": {
    "id": "https://navy.mil/netc/xapi/activities/pages/a0db418e-961d-416d-9051-49ac3f812bc2",
    "objectType": "Activity",
    "definition": {
      "name": {
        "en": "Page 1"
      },
      "description": {
```



```

        "en":"Page 1 of the Advanced Airborne Sensor Introduction section."
    },
    "type":"https://w3id.org/xapi/acrossx/activities/page"
}
},
"context":{
    "contextActivities":{
        "parent":[
            {
                "id":"https://navy.mil/netc/xapi/activities/lessons/9e32f474-af07-11ea-b3de-0242ac130004",
                "definition":{
                    "name":{
                        "en":"Advanced Airborne Sensor Lesson"
                    },
                    "description":{
                        "en":"An e-learning lesson on the Advanced Airborne Sensor."
                    },
                    "type":"http://adlnet.gov/expapi/activities/lesson"
                }
            }
        ],
        "grouping":[
            {
                "id":"https://navy.mil/netc/xapi/activities/courses/37823A7A-AFEE-42AA-C4EE-3333ACAC402",
                "definition":{
                    "name":{
                        "en":"P-8A Poseidon Course"
                    },
                    "description":{
                        "en":"An interactive e-learning course on the Navy's P-8A
aircraft."
                    },
                    "type":"http://adlnet.gov/expapi/activities/course"
                }
            }
        ]
    }
}

```

```

        }
      }
    ],
    "category":[
      {
        "id":"https://w3id.org/xapi/netc/v1.0",
        "definition":{
          "type":"http://adlnet.gov/expapi/activities/profile"
        }
      },
      {
        "id":"https://w3id.org/xapi/netc-e-learning/v1.0",
        "definition":{
          "type":"http://adlnet.gov/expapi/activities/profile"
        }
      }
    ]
  },
  "registration":"d88ca9da-51b1-48eb-ae58-a68d4d3ae994",
  "platform":"Moodle 3.8.3",
  "extensions":{
    "https://w3id.org/xapi/netc/extensions/school-center":"Center for Naval
    Aviation Technical Training (CNATT)",
    "https://w3id.org/xapi/netc/extensions/launch-location":"Ashore"
  }
},
"timestamp":"2020-04-29T16:30:41.520Z"
}

```

2.3.7.1. Audio & Video

Granular activities such as audio and video files can also be tracked within e-learning content. The requirements and examples for these types of general activities are defined in the Navy Common Reference Profile. However, there are additional Navy E-learning Profile requirements for the Context of an xAPI Statement when including

any audio or video activities within an e-learning course, lesson, or section. For the sake of brevity and eliminating bloat from this document, only one xAPI Statement example with a video Activity is provided below. Refer to the Navy Common Reference Profile for more xAPI Statement examples of video activities and apply the same grouping requirements.

2.3.7.1.1. Initialized Video Statement Example

```
{
  "actor":{
    "name":"John Doe",
    "account":{
      "homePage":"https://edipi.navy.mil",
      "name":"0123456789"
    }
  },
  "verb":{
    "id":"http://adlnet.gov/expapi/verbs/initialized",
    "display":{
      "en":"initialized"
    }
  },
  "object":{
    "id":"https://navy.mil/netc/xapi/activities/videos/60e710ac-aa50-11ea-bb37-0242ac130002",
    "definition":{
      "name":{
        "en":"Advanced Airborne Sensor Overview"
      },
      "description":{
        "en":"An overview video on the Advanced Airborne Sensor."
      },
      "type":"https://w3id.org/xapi/video/activity-type/video"
    }
  },
  "context":{
    "contextActivities":{
```

```

    "parent":[
      {
        "id":"https://navy.mil/netc/xapi/activities/lessons/9e32f474-af07-
11ea-b3de-0242ac130004",
        "definition":{
          "name":{
            "en":"Advanced Airborne Sensor Lesson"
          },
          "description":{
            "en":"An e-learning lesson on the Advanced Airborne Sensor."
          },
          "type":"http://adlnet.gov/expapi/activities/lesson"
        }
      }
    ],
    "grouping":[
      {
        "id":"https://navy.mil/netc/xapi/activities/courses/37823A7A-AFEE-
42AA-C4EE-3333ACAC402",
        "definition":{
          "name":{
            "en":"P-8A Poseidon Course"
          },
          "description":{
            "en":"An interactive e-learning course on the Navy's P-8A
aircraft."
          },
          "type":"http://adlnet.gov/expapi/activities/course"
        }
      }
    ],
    "category":[
      {
        "id":"https://w3id.org/xapi/netc/v1.0",
        "definition":{

```

```

        "type":"http://adlnet.gov/expapi/activities/profile"
    },
    {
        "id":"https://w3id.org/xapi/netc-e-learning/v1.0",
        "definition":{
            "type":"http://adlnet.gov/expapi/activities/profile"
        }
    },
    {
        "id":"https://w3id.org/xapi/video",
        "definition":{
            "type":"http://adlnet.gov/expapi/activities/profile"
        }
    }
]
},
"registration":"d88ca9da-51b1-48eb-ae58-a68d4d3ae994",
"platform":"Moodle 3.8.3",
"extensions":{
    "https://w3id.org/xapi/video/extensions/length":194.937,
    "https://w3id.org/xapi/netc/extensions/school-center":"Center for Naval
Aviation Technical Training (CNATT)",
    "https://w3id.org/xapi/netc/extensions/launch-location":"Ashore"
}
},
"timestamp":"2020-04-29T16:05:41.520Z"
}

```

2.4. xAPI Document Resource Requirements & Examples

2.4.1. Activity State

The xAPI Specification provides an Activity State Resource to store data about the current state of an Activity. This section of the Navy E-learning Profile leverages the mechanism to store state data about an Activity and also state data about the attempts on an Activity.

The Activity State Resource stores a document of state information which is accessible through a unique combination of attribute values. These attributes are the `agent`, `registration`, the `activityId`, and a string called the `stateId` (which represents the identifier of the state document). See the State Resource Section of the xAPI Specification² for more details.

The Navy E-learning Profile defines a specific state document type and a `stateId` to represent that document. The purpose of this document is to hold the list of learner attempts on the Activity, represented by the Registration IDs. This list could be used by the content as a simple way to get the number of attempts on an Activity, but also the list of Registrations, which would enable it to query the LRS for Statements by attempt. Refer to the next sections for how to query the LRS in order to GET the Activity State, or to PUT/POST to the Activity State with a new Registration.

2.4.1.1. Get Activity State

2.4.1.1.1. Requirements

- Construct an HTTP GET Request to retrieve Activity State data from the Activity State Resource IRL provided by the Navy LRS (e.g., <https://lrs.navy.mil/xapi/activities/state>), using the following query parameters:
 - Set `activityId` to the Activity's IRI for the Activity being queried
 - Set the `agent` according to the Actor requirements in the Navy Core xAPI Profile
 - Set `stateId` to this Profile's Activity State IRI,
<https://w3id.org/xapi/netc-e-learning/activity-state>

2.4.1.1.2. Example

GET

² State Resource Section of the xAPI Specification, <https://github.com/adlnet/xAPI-Spec/blob/master/xAPI-Communication.md#stateres>

```
https://lrs.navy.mil/xapi/activities/state
?activityId=https://navy.mil/netc/xapi/activities/lessons/9e32f474-af07-11ea-b3de-
0242ac130004
&agent={"account": {
    "homePage": "http://my.navy.mil/",
    "name": "1625378"}}
&stateId=https://w3id.org/xapi/netc-e-learning/activity-state
```

Response

```
{
  "attempts": ["d88ca9da-51b1-48eb-ae58-a68d4d3ae994"]
}
```

2.4.1.2. Adding an Attempt Registration ID to Activity State Attempts Array

2.4.1.2.1. Requirements

- After an Activity is Initialized, use the response from the previous HTTP GET on Activity State to identify the most current attempt IRI in the attempts array
 - If the response is a 404 Not Found, there is no attempt array - this is the first recorded attempt on this Activity
 - Create a new attempts array and add the current registration UUID to the array. This value SHALL be the same value created and used in the context.registration of the Initialized Lesson Statement.
 - Issue a POST request to the xAPI /activities/state Endpoint and the same agent, activityId and stateId query parameters as used in the GET request
 - If the response is a 200 OK, the response body will contain the array
 - Add the current registration UUID to the attempt array
 - Issue a PUT request to the xAPI /activities/state Endpoint and the same agent, activityId and stateId query parameters as used in the GET request

2.4.1.2.2. Example

POST/PUT

```
https://lrs.navy.mil/xapi/activities/state
?activityId=https://navy.mil/netc/xapi/activities/lessons/9e32f474-af07-11ea-b3de-
0242ac130004
&agent={"account": {
    "homePage": "https://edipi.navy.mil",
    "name": "0123456789"}}
&stateId=https://w3id.org/xapi/netc-e-learning/activity-state
```

Content Body

```
{
  "attempts": ["d88ca9da-51b1-48eb-ae58-a68d4d3ae994", "31b76592-31e6-4e9d-9de5-
afc7038dedd2"]
}
```

2.4.2. Attempt State Information

Using the Activity State Resource as described in the previous section will allow content to create, read, and update documents related to the Activity but not specific to an attempt on the Activity. To create, read, and update a State Document specific to an attempt, the Registration is included in the GET, PUT, and POST request to the xAPI `/activities/state` Endpoint.

The SCORM Profile defines an Attempt State³ Object to represent data for an attempt using the Activity State Resource. This object allows for recording SCORM data model element values that are associated with the state of the Activity during an attempt, such as the `total_time` and current location (used as a bookmark) within the Activity. This object enables content to persist Activity settings across sessions of the same attempt on an Activity.

NOTE: This same process can be used to store arbitrary Activity attempt data and not just bookmarking data. To do this, change the `stateId` to another user-defined string. This new `stateId` string uniquely identifies the attempt data intended to be stored.

³ Attempt State, <https://github.com/adlnet/xAPI-SCORM-Profile/blob/master/xapi-scorm-profile.md#scorm-activity-attempt-state>

2.4.2.1. Using the Activity State to Store a Bookmark and Attempt Specific State

2.4.2.1.1. Requirements

- Construct an HTTP POST/PUT Request to store Attempt State data to the Activity State Resource IRL provided by the Navy LRS (e.g., <https://lrs.navy.mil/xapi/activities/state>), using the following query parameters:
 - Set the `registration` to the `context.registration` of the Initialized Lesson Statement.
 - Set `activityId` to the Activity's IRI for the Activity being queried
 - Set `agent` according to the Actor requirements in the Navy Core xAPI Profile
 - Set `stateId` to the SCORM Profile's Activity State IRI for a specific attempt, <https://w3id.org/xapi/scorm/attempt-state>
- Construct the Attempt State Object with the following properties:
 - Set the `location` property to the string of the bookmarked location
 - Set the `total_time` property. The `total_time` property SHALL be formatted to ISO 8601 Duration
- Set the Attempt State Object as the message body of the HTTP POST/PUT request

2.4.2.1.2. Example

POST/PUT

<https://lrs.navy.mil/xapi/activities/state>

?activityId=<https://navy.mil/netc/xapi/activities/lessons/9e32f474-af07-11ea-b3de-0242ac130004>

&agent={"account": {
 "homePage": "https://edipi.navy.mil",
 "name": "0123456789"}}
&stateId=<https://w3id.org/xapi/scorm/attempt-state>
®istration=31b76592-31e6-4e9d-9de5-afc7038dedd2

Content Body

```
{  
  "location": "page-02"  
  "total_time": "PT0H20M"  
}
```

2.4.2.2. Using the Activity State to Retrieve a Bookmark and Attempt Specific State

2.4.2.2.1. Requirements

- Construct an HTTP GET Request to retrieve Attempt State data from the Activity State Resource IRL provided by the Navy LRS (e.g., <https://lrs.navy.mil/xapi/activities/state>), using the following query parameters:
 - Set the registration to the context.registration of the target Activity attempt
 - Set activityId to the Activity's IRI for the Activity being queried
 - Set agent according to the Actor requirements in the Navy Core xAPI Profile
 - Set stateId to the SCORM Profile's Attempt State IRI, <https://w3id.org/xapi/scorm/attempt-state>
- Check the response.
 - If the response is a 404 Not Found, there is no Attempt State Object for the Activity and learner
 - If the response is a 200 OK, the response body will contain the Attempt State Object
 - For bookmarking, the Attempt State Object's location property will contain the string of the last bookmarked location. Use this value to return the learner to the bookmarked location where they last left off.

2.4.2.2.2. Example

GET

<https://lrs.navy.mil/xapi/activities/state>

?activityId=<https://navy.mil/netc/xapi/activities/lessons/9e32f474-af07-11ea-b3de-0242ac130004>

&agent={"account": {
 "homePage": "https://edipi.navy.mil",
 "name": "1625378"}}
&stateId=<https://w3id.org/xapi/scorm/attempt-state>
®istration=31b76592-31e6-4e9d-9de5-afc7038dedd2

Response

```
{  
  "location": "page-02",  
  "total_time": "PT0H20M"  
}
```

