

```
{  
  "id": "a2286ebd-4cca-4a3d-a5f5-a0996db0b30f",  
  "actor": {  
    "objectType": "Agent",  
    "mbox": "mailto:user@using.com",  
    "name": "User Test"  
  },  
  "verb": {  
    "id": "http://adlnet.gov/expapi/verbs/launched",  
    "display": {  
      "en-US": "launched"  
    }  
  },  
  "timestamp": "2017-10-20T20:29:28.785Z",  
  "stored": "2017-10-20T20:29:29.868Z",  
  "authority": {  
    "objectType": "Agent",  
    "mbox": "mailto:sarah@melearningsolutions.com",  
    "name": "Sarah Gilbert"  
  }  
}
```

# CUSTOM LEARNING SOLUTIONS

*with xAPI*

```
}  
}
```



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[WWW.MELEARNINGSOLUTIONS.COM](http://WWW.MELEARNINGSOLUTIONS.COM)

---

# SARAH MERCIER

```
"version": "1.0.0",
"id": "af4a596b-3476-4973-8e30-e8848c8796f4",
"actor": {
  "objectType": "Agent",
  "name": "Werkenthin,+Art",
  "account": {
    "homePage": "https://www.informaticssacademy.org/LearnerConnectio",
    "name": "0000100087"
  }
},
"verb": {
  "id": "http://adlnet.gov/expapi/verbs/answered",
  "display": {
    "en-US": "answered"
  }
},
"object": {
  "objectType": "Activity",
  "id": "http://www.phii.org/leadershipq1",
  "definition": {
    "name": {
      "en-US": "Leadership Q1"
    }
  }
},
"result": {
  "response": "Not Started"
},
"context": {
  "registration": "46e3bb5a-7ad2-49a9-9363-443019003c81",
  "contextActivities": {
    "grouping": [{
      "objectType": "Activity",
      "id": "https://www.informaticssacademy.org/activities/csf/v1/"
    }]
  },
  "extensions": {
    "https://w3id.org/xapi/cmi5/context/extensions/sessionid": "71"
  }
},
"timestamp": "2017-07-13T14:39:42.659Z",
"stored": "2017-07-13T14:39:42.659Z",
"authority": {
  "objectType": "Agent",
  "account": {
    "homePage": "https://www.informaticssacademy.org/phii/",
    "name": "591c809b-574a-44df-b205-d6882c49a4c5"
  }
}
```

## LET'S TALK ABOUT...

- Building an xAPI-enabled interactive ebook
- Building an xAPI-enabled mobile learning/self assessment
- Lessons learned

# xAPI for Interactive eBooks



## EXAMPLE 1

.....

- Interactive eBooks are easily accessible, native mobile learning solutions
- How can we learn more about how a user interacts with eBook content?



## eBooks

xAPI for Interactive eBooks ([EPUB](#))

From Print to Screen: Create Your own Interactive eBook ([EPUB](#) | [MOBI](#))

Creating Interactive eBooks in Adobe InDesign ([Handout](#))

## Other Session Recordings & Resources

Learning Technology Strategy [Download](#)

Flipped Classrooms ([Handout](#))([Recording](#))

What is a Credit Score? ([Launch eLearning](#))

# INTERACTIVE EBOOKS AND XAPI

---

Create an ebook that generates statements for certain activities, such as:



Book Launch



Page Entry



Link Click



Video Play

# TOOLS

---



iBooks Author and/or Sigil EPUB Editor



Rustici xAPI JavaScript Library &  
SCORM Cloud LRS



iBooks, Kobo, or Overdrive e-Reader

# CREATE THE EBOOK (EPUB) IN SIGIL

The screenshot displays the Sigil EPUB editor interface. The title bar reads "xAPI for Interactive eBooks\_xapienabled.epub - epub2.0 - Sigil". The top toolbar includes various editing tools like undo, redo, copy, paste, and text alignment. Below the toolbar is a rich text editor with a menu for heading levels (h1-h6) and text formatting options (bold, italic, underline, link, etc.).

The main editing area shows the content of the chapter "Testing the Statements". The text reads:

## Testing the Statements

After setting up the files, test your statements. Go to your LRS and log in to view the statements. Launch your interactive ebook. Statements should report to the LRS almost immediately, depending on the speed of your connection.

Here is an example of statements being reported from this ebook.

### xAPI Statement View

**LRS Basic Auth Setup**

**Endpoint**

<https://www.informaticssacademy.org/PHII/Sc>

The left sidebar shows a "Book Browser" with a tree view of the ebook's structure. The "Text" folder is expanded, showing files like "Cover.xhtml", "xAPI for Interactive eBooks.xhtml", "Designing for Data.xhtml", "Getting Started.xhtml", "Linked JS Files.xhtml", "Code Actor.xhtml", "Code Book Launch.xhtml", "Statement Book Launch.xhtml", "Code Page Open.xhtml", "Statement Page Open.xhtml", "Code Video Play.xhtml", "Statement Video Play.xhtml", "Code Click Link.xhtml", "Statement Link Click.xhtml", "Testing the Statements.xhtml" (which is highlighted), and "Limitations and Lessons Learne...". Below the text files are folders for "Styles", "Images", "Fonts", "Audio", "Video", and "Misc", along with "content.opf" and "toc.ncx".

The right sidebar shows a "Table Of Contents" with the following items:

- Why is Designing for Data Important?
- Getting Started
- Linked JS Files
- Code: Actor
- Code: Book Launch
- Statement: Book Launch
- Code: Page Open
- Statement: Page Open
- Code: Video Play
- Statement: Video Play
- Code: Click Link
- Statement: Link Click
- Testing the Statements
- Limitations and Lessons Learned

The bottom status bar shows a zoom level of 100% and a scroll bar.

# CREATE THE EBOOK (EPUB) IN SIGIL

The screenshot shows the Sigil software interface for editing an EPUB file. The main window displays the HTML code for the selected file, 'Testing the Statements.xhtml'. The code includes XML headers, a head section with JavaScript files, and a body section with an h2 tag and a paragraph. The left sidebar shows a file tree with 'Testing the Statements.xhtml' selected. The right sidebar shows a table of contents. The status bar at the bottom indicates 'Line: 37, Col: 5 160%'.

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.1//EN"
3   "http://www.w3.org/TR/xhtml11/DTD/xhtml11.dtd">
4
5 <html xmlns="http://www.w3.org/1999/xhtml">
6 <head>
7 <script type="text/javascript" src="../Misc/tincan.js"></script>
8 <script type="text/javascript" src="../Misc/common.js"></script>
9 <script type="text/javascript">
10     var actor = {
11         "mbox": 'user@using.com',
12         "name": 'User Test'
13     }
14
15     var pageLaunchStatement = {
16         actor: actor,
17         verb: {
18             id: "http://activitystrea.ms/schema/1.0/open",
19             display: {"en-US": "opened"}
20         },
21         target: {
22             id: "http://www.testing.com",
23             definition: {
24                 name: {"en-US": "Testing the Statements Page"},
25                 description: {"en-US": "testing the statements page"}
26             }
27         }
28     }
29     tincan.sendStatement(pageLaunchStatement);
30
31
32 </script>
33
34 <title></title>
35 </head>
36 <body>
37 <h2>Testing the Statements</h2>
38 <p>After setting up the files, test your statements. Go to your LRS and log in to
```

Table Of Contents

- Why is Designing for Data Important?
- Getting Started
- Linked JS Files
- Code: Actor
- Code: Book Launch
- Statement: Book Launch
- Code: Page Open
- Statement: Page Open
- Code: Video Play
- Statement: Video Play
- Code: Click Link
- Statement: Link Click
- Testing the Statements
- Limitations and Lessons Learned

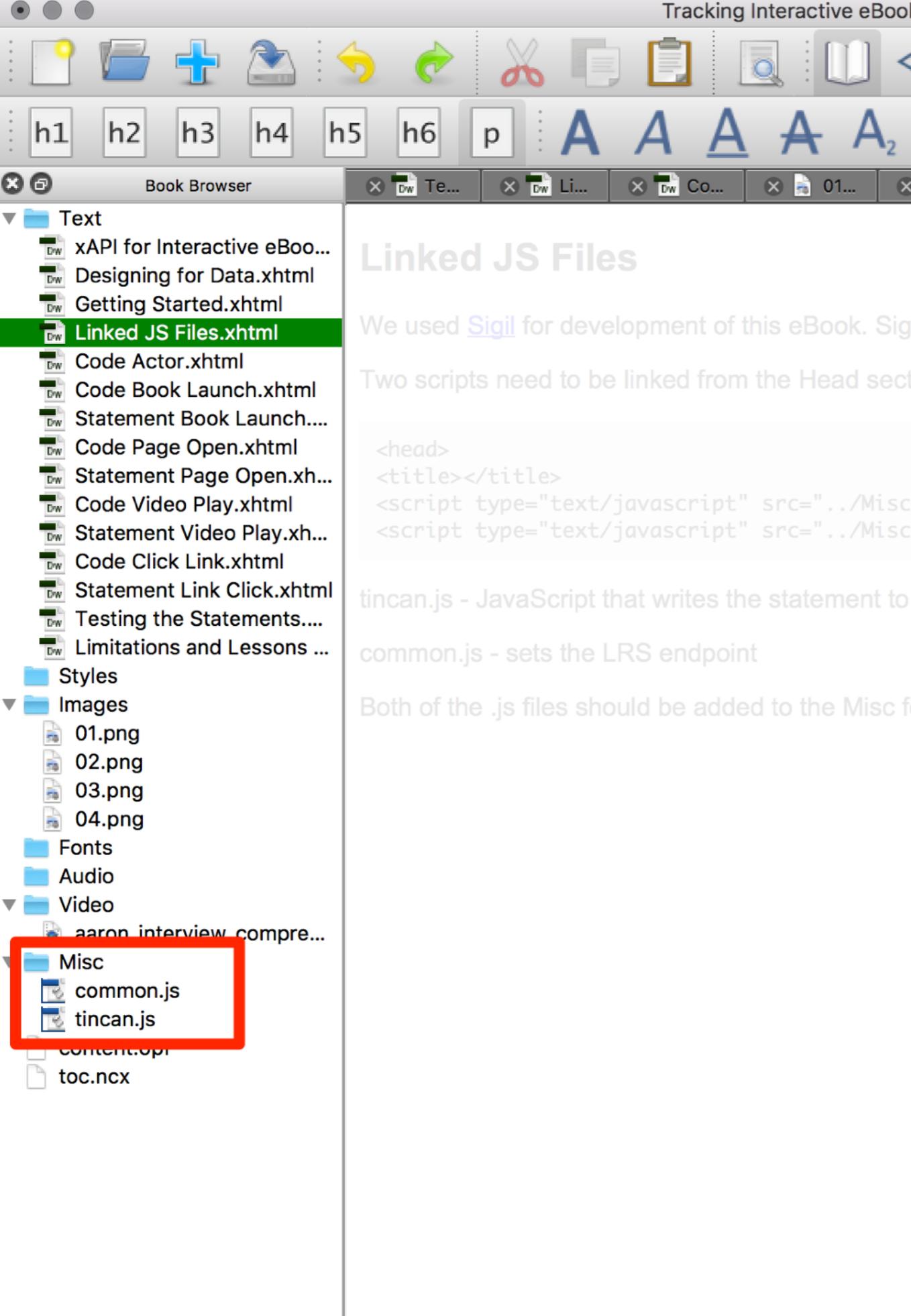
Line: 37, Col: 5 160%

# LINK JAVASCRIPT FILES

---

Two scripts need to be linked from the head section

```
<head>  
<title></title>  
<script type="text/javascript" src="../Misc/tincan.js"></script>  
<script type="text/javascript" src="../Misc/common.js"></script>
```



# LINK JAVASCRIPT FILES

- tincan.js - JavaScript that writes the statement to the LRS
- common.js - sets the endpoint

# CODE – ACTOR

---

Actor was hard-coded (remember this for later)

```
var actor = {  
    "mbox": 'user@using.com',  
    "name": 'User Test'  
}
```

# CODE – XAPI STATEMENTS

---

## Example: book launch code

```
var pageLaunchStatement = {  
    actor: actor,  
    verb: {  
        id: "http://adlnet.gov/expapi/verbs/launched",  
        display: {"en-US": "launched"}  
    },  
    target: {  
        id: "http://www.testing.com",  
        definition: {  
            name: {"en-US": "Tracking Interactive E-Books with xAPI"},  
            description: {"en-US": "xAPI for Interactive eBooks ebook"}  
        }  
    }  
}  
  
tincan.sendStatement(pageLaunchStatement);
```

# STATEMENTS IN LRS



Sarah Gilbert

- Settings
- Logout

Sarah's Realm

Change Realm | Your Realms

Home

Library

People

Dispatch

Invitations

History

xAPI LRS

## xAPI Learning Record Store

- LRS Endpoints
- Activity Providers
- LRS Viewer**
- Statement Forwarding

View Statements In:

SCORM Cloud

TCAPI Version:

1.0.0

Agent Property

Agent Value

Verb ID

Activity ID

mbox

Email Address

Verb

Activity ID

Refresh

Show Advanced Options

Show TCAPI Query

2017-10-20T20:52:25.630	User Test <b>opened</b> 'xAPI for Interactive eBooks Page'
2017-10-20T20:52:25.609	User Test <b>launched</b> 'Tracking Interactive E-Books with xAPI'
2017-10-20T20:52:20.968	User Test <b>opened</b> 'Statement Book Launch Page'
2017-10-20T20:52:20.908	User Test <b>opened</b> 'The Code Book Launch Page'
2017-10-20T20:52:20.662	User Test <b>opened</b> 'The Code Page Open Page'
2017-10-20T20:52:20.656	User Test <b>opened</b> 'Designing for Data Page'
2017-10-20T20:52:20.605	User Test <b>opened</b> 'Getting Started Page'
2017-10-20T20:52:19.042	User Test <b>opened</b> 'The Code Actor Page'

# STATEMENT IN LRS

---

## Example: book launch statement in LRS

```
2017-10-20T20:29:29.868 User Test launched 'Tracking Interactive E-Books with xAPI'  
{  
  "id": "a2286ebd-4cca-4a3d-a5f5-a0996db0b30f",  
  "actor": {  
    "objectType": "Agent",  
    "mbox": "mailto:user@using.com",  
    "name": "User Test"  
  },  
  "verb": {  
    "id": "http://adlnet.gov/expapi/verbs/launched",  
    "display": {  
      "en-US": "launched"  
    }  
  },  
  "timestamp": "2017-10-20T20:29:28.785Z",  
  "stored": "2017-10-20T20:29:29.868Z",  
  "authority": {  
    "objectType": "Agent",  
    "mbox": "mailto:sarah@melearningsolutions.com",  
    "name": "Sarah Gilbert"  
  },  
  "version": "1.0.0",  
  "object": {  
    "id": "http://www.testing.com",  
    "definition": {  
      "name": {  
        "en-US": "Tracking Interactive E-Books with xAPI"  
      },  
      "description": {  
        "en-US": "xAPI for Interactive eBooks ebook"  
      }  
    },  
    "objectType": "Activity"  
  }  
}
```

# OUTCOMES ACHIEVED

---

1. Can easily implement an interactive ebook with xAPI using this existing framework
2. Tools to develop and deploy an interactive ebook with xAPI are free and well-supported
3. Visibility to how individuals interact with the content - can use that to improve the solution and better support learners

**CSF**

# Critical Success Factors

For Informatics Projects

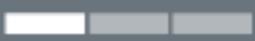


## Self-Assessment Tool



Leadership

Not Started



Governance &  
Stakeholder Involvement

In Progress



Organizational Alignment

Not Visited



Lifecycle Planning

Achieved



Project Management

Not Started



Communications Planning

Not Started



Policy Alignment

Not Started



Evaluation

Not Started



<< Back

informatics  
ACADEMY

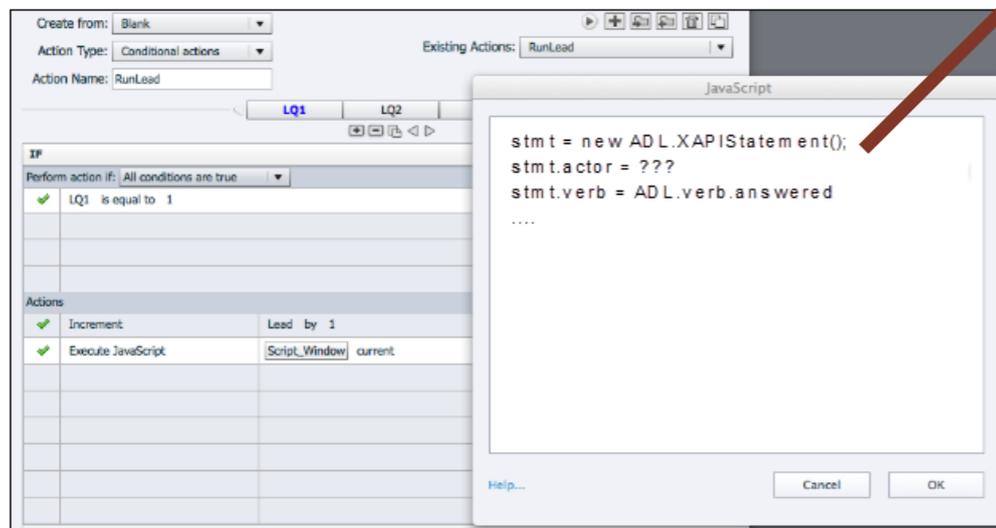
## EXAMPLE 2

- Training on the critical success factors of public health informatics projects
- Readiness self-assessment
- External audience: state and local public health agencies
- Collect data to identify areas for additional support
- Mobile-first, but multi-screen

# SEND API STATEMENT

---

```
stmt = new ADL.XAPIStatement();  
stmt.actor = ???;  
stmt.verb = ADL.verb.answered;  
stmt.object = new ADL.XAPIStatement.Activity('http://www.phii.org/leadershipq1', 'Leadership Q1');  
stmt.result = { 'response': 'Not Started' };  
var resp_obj = ADL.XAPIWrapper.sendStatement(stmt);
```



# OUTCOMES ACHIEVED

---

1. Self-assessment responses provide data points to guide future training needs/opportunities
2. Collect data on most frequently accessed resources
3. Identify user paths - Did they access the training, assessment, and resources?

# LESSONS LEARNED

---

copy to clipboard print ?

```
ersion": "1.0.0",
id": "af4a596b-3476-4973-8e30-e8848c8796f4",
actor": {
  "objectType": "Agent",
  "name": "Werkenthin,+Art",
  "account": {
    "homePage": "https://www.informaticssacademy.org/LearnerCon",
    "name": "0000100087"
  }
}

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

object": {
  "objectType": "Activity",
  "id": "http://www.phii.org/leadershipq1",
  "definition": {
    "name": {
      "en-US": "Leadership Q1"
    }
  }
}

result": {
  "response": "Not Started"
}

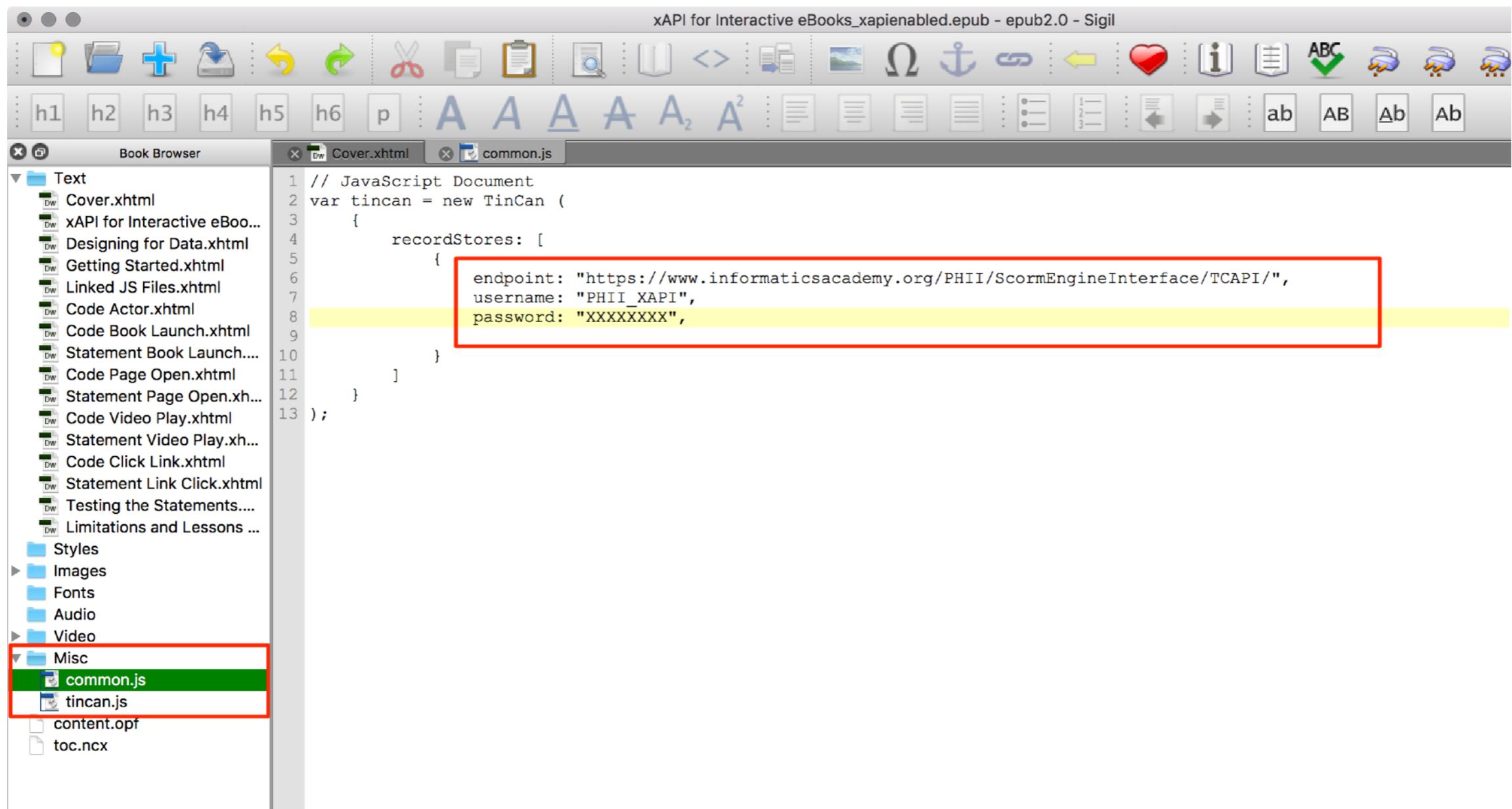
context": {
  "registration": "46e3bb5a-7ad2-49a9-9363-443019003c81",
  "contextActivities": {
    "grouping": [{
      "objectType": "Activity",
      "id": "https://www.informaticssacademy.org/activities/c"
    }]
  },
  "extensions": {
    "https://w3id.org/xapi/cmi5/context/extensions/sessionid":
  }
}

timestamp": "2017-07-13T14:39:42.659Z",
started": "2017-07-13T14:39:42.659Z",
authority": {
  "objectType": "Agent",
  "account": {
    "homePage": "https://www.informaticssacademy.org/phii/",
    "name": "591c809b-574a-44df-b205-d6882c49a4c5"
  }
}
```

# AVOID HARD-CODED LRS INFORMATION

---

- Not portable without modifying code
- Endpoint & security credentials are in JavaScript, which can be hacked



```
1 // JavaScript Document
2 var tincan = new TinCan (
3   {
4     recordStores: [
5       {
6         endpoint: "https://www.informaticsacademy.org/PHII/ScormEngineInterface/TCAPI/",
7         username: "PHII_XAPI",
8         password: "XXXXXXXXX",
9       }
10    ]
11  }
12 );
13
```

# TESTING & DEPLOYMENT STRATEGY

---

- Be strategic about what activities you choose to report statements
- Make individuals aware of what eReader applications they should use to launch the interactive ebook - some eReaders block statements
- Data collected is a single point of context - cross data with other relevant information for decision-making

```
"version": "1.0.0",
"id": "af4a596b-3476-4973-8e30-e8848c8796f4",
"actor": {
  "objectType": "Agent",
  "name": "Werkenthin,+Art",
  "account": {
    "homePage": "https://www.informaticssacademy.org/LearnerConnectio",
    "name": "0000100087"
  }
},
"verb": {
  "id": "http://adlnet.gov/expapi/verbs/answered",
  "display": {
    "en-US": "answered"
  }
},
"object": {
  "objectType": "Activity",
  "id": "http://www.phii.org/leadershipq1",
  "definition": {
    "name": {
      "en-US": "Leadership Q1"
    }
  }
},
"result": {
  "response": "Not Started"
},
"context": {
  "registration": "46e3bb5a-7ad2-49a9-9363-443019003c81",
  "contextActivities": {
    "grouping": [{
      "objectType": "Activity",
      "id": "https://www.informaticssacademy.org/activities/csf/v1/"
    }]
  },
  "extensions": {
    "https://w3id.org/xapi/cmi5/context/extensions/sessionid": "71"
  }
},
"timestamp": "2017-07-13T14:39:42.659Z",
"stored": "2017-07-13T14:39:42.659Z",
"authority": {
  "objectType": "Agent",
  "account": {
    "homePage": "https://www.informaticssacademy.org/phii/",
    "name": "591c809b-574a-44df-b205-d6882c49a4c5"
  }
}
```

# RESOURCES

.....

- [Make any HTML File cmi5-Conformant](#) (Gilbert, Putman, Werkenthin)
- [Captivate JavaScript xAPI Customization](#) (Putman)
- [xAPI for Interactive eBooks](#) (Gilbert)
- xAPI-enabled eBook: <http://melearningsolutions.com/resources>



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[WWW.MELEARNINGSOLUTIONS.COM](http://WWW.MELEARNINGSOLUTIONS.COM)

---

# SARAH MERCIER