Proctoring Service API

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Introduction

- Increasing interest in proctoring of exams delivered electronically
- A number of proctoring services to choose between
- Proctoring service typically separate from the Assessment Management System
  - Sometimes referred to as the ‘Test Driver’
- The Proctoring Service API aims to standardize the touch-points
Proctoring Service
Example Service Types

- Photo Capture and Compare
  - The proctoring service captures one or more photos of the candidate during the exam
  - Photos are compared with registration photos on file
  - Photos are available for later review

- Record and Review
  - The proctoring service captures a continuous audio and video stream of the candidate during the exam
  - Data is processed and flagged automatically for anomalies
  - Summary data and full streams are available for later review

- Online Proctoring
  - The candidate is connected with a remote human proctor at the start of the exam
  - The proctor monitors the candidate throughout the exam and records any anomalies
  - Summary data from proctor and sample frames are available for later review
Launching into an Assessment from the Proctoring Platform

What we’ve learned at ProctorExam
What are we trying to achieve?

1. Security
   a. The exam should only be accessible through the exam platform
   b. The exam attempt should always be correlated with the proctoring session
   c. The exam should not be accessible after the attempt

2. Ease of Use
   a. The student should take the least amount of steps to access the exam
   b. The student should have explicit instructions to follow

3. Universality
   a. The exam access procedure should be the same across exam platforms
The “Download Your Exam as a Document” method

- Student can keep a copy of the exam in any number of ways
- Teacher has to download exam document
- This isn’t our core competency!
The “Sign in to Blackboard” method

- The student can access the exam if they poke around Blackboard enough.
- The student can share their credentials with anyone.
- Way too many steps!
The “Global Exam Password” method

- Once the password leaks, anyone can access the exam
- Exam session isn’t automatically linked to the proctoring session

In order to access your exam please click the link below
https://www.myschool.examplatform.com/history/final2017

When prompted for the password, enter xCV8797bKR
The “Individual Password” method

- Student can share their individual credentials out of band if they are sneaky enough
The “Signed Exam Link” method

- More difficult to communicate through a side channel, as the link is fairly long
- Technically minded students can access credentials to use if there is also a login page
- Requires exam platform to provide mechanism to sign links
The famous “LTI Launch” method

- Link points to url on proctoring platform, which then redirects to a time limited(single use) signed LTI launch
- We can ensure that the student is sharing all streams before launching exam platform
## Performance Data vs Exam Session Evidence

<table>
<thead>
<tr>
<th>Performance Data</th>
<th>Exam Session Evidence</th>
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</thead>
<tbody>
<tr>
<td>Exam and Question content</td>
<td>Photos taken during the exam</td>
</tr>
<tr>
<td>Candidate responses</td>
<td>Audio/Video captured during the exam</td>
</tr>
<tr>
<td>Detailed navigation paths</td>
<td>Screen captures</td>
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<tr>
<td>Timing information</td>
<td>Application usage information captured from operating system</td>
</tr>
<tr>
<td></td>
<td>Proctor incident reports</td>
</tr>
<tr>
<td></td>
<td>Flags from automated detection of anomalies</td>
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</table>
Roles

Program Administrator
- Registers Candidates for the Exam
- Sets Proctoring Requirements

Candidate
- Takes the exam

Proctor
- Oversees Exam Session
- Helps collect Exam Session Evidence

Reviewer
- Reviews Exam Session Evidence
- Makes decisions about outcomes
Use Cases: Pre-exam

- Site-wide Proctoring Options
  - Configuring proctoring options that will apply to all assessments delivered within the institution
- Add Proctoring Requirement
  - Add proctoring requirement to an assessment
- Assessment Specific Proctoring Options
  - Modify default proctoring options for an individual assessment
- Schedule an Appointment
  - Pre-register and/or schedule an appointment with a live proctor or other type of resource-limited proctoring service
- Schedule Blocking
  - Request a booking from proctoring system for a given number of candidates and time slot
Use Cases: In-Session

- Validate User System
  - Check technology requirement for a specific PC, laptop or other device
- Launch the Exam
  - Launch the exam through the proctoring service
- Proctor Intervenes
  - Control a running exam to protect integrity of the process
- External Proctor Launch of Proctoring System
  - Users in the consumer system act as live-online proctors in the proctoring tool (agent provided own proctors)
Use Cases: Post-Exam

- External Reviewer Launch of Proctoring System
  - Review exceptions for an individual assessment
  - Review audit information for entire assessment program
Anatomy of a Proctoring Solution

Proctoring API

Candidate’s Browser

Candidate Check-in → AMS Candidate Exam Delivery

Proctor/Reviewer Application

AMS Proctor Controls

Proctor’s web browser
API Details
IMS Learning Tools Interoperability (LTI)

https://www.imsglobal.org/activity/learning-tools-interoperability
Why LTI?

- Already used by LMS community
- Designed to solve the problem of ‘launching’ one web app from another
  - *Tool Consumer* launches *Tool Provider*
- One stop-shop:
  - User, context and role information
  - Resource placement (e.g., multiple exams to same group)
  - Authentication via OAuth signing
  - Return links for smooth hand-back
- What’s missing?
  - Communication of workflow information:
    - Time constraints on resource (exam) availability set by AMS
    - State of proctoring service, e.g., appointment booking phase, appointment readiness
  - Safe way to communicate the Exam Launch information
Proctoring Solution
Candidate flow in Web Browser

1. Candidate's Browser
2. AMS Candidate Portal
   - LTI Launch
3. Candidate Check-in to Proctoring Service
   - Redirect
4. AMS Candidate Exam Delivery
5. Proctoring Service WS
Proctoring Solution
Candidate flow with Special Proctored App

Candidate’s Browser
- AMS Candidate Portal
- LTI Launch
- AMS Candidate Check-in to Proctoring Service
- App Launch
- App Landing Page
- Redirect
- AMS Candidate Exam Delivery

Proctoring App

Candidate’s Browser

Proctoring Service WS

AMS Candidate Exam Delivery
Proctoring Solution

Proctors registered with Proctoring Solution

Candidate’s Browser

AMS Candidate Portal

LTI Launch

Candidate Check-in to Proctoring Service

Redirect

AMS Candidate Exam Delivery

Proctoring Service Proctor Page

Proctor Controls link received from Candidate launch

iframe or window

AMS Proctor Controls

Proctor’s Browser
Proctoring Solution
Proctors registered with AMS

AMS Proctor Portal
LTI Launch
AMS Proctor Portal
Proctor’s Browser
Proctoring Service Proctor Page
iFrame or Pop-up
AMS Proctor Controls
Proctoring Service WS

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Proctoring Solution
Reviewer flow

Reviewer’s Browser

AMS Reviewer Portal

LTI Launch

Proctoring Service Review Page

Proctoring Service WS

AMS Reviewer Portal
What next?

- Review use-case document:
  - https://drive.google.com/file/d/0B-xMrCxugbJxUDJHaHVXaUtoRmM/view

- Fill in your priorities:
  - https://docs.google.com/spreadsheets/d/1I6Dg6sqysumQk1XVGaX6FPfu2ramAsi804B2hGPbu1Q/edit?usp=sharing
Join the team...

Proctoring Task Force - Minutes and Agendas

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<th>Topic</th>
<th>Replies</th>
<th>Last reply</th>
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