Safe Exam Browser
A Modular Tool for Secure E-Assessments

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Introduction
What is Safe Exam Browser (SEB)
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- Secured web browser application

- For conducting exams on computers (Windows/Mac OS X) using web-based
  - exam systems
  - quiz modules of learning management systems

- Exams using third party applications
SEB: A Modular Tool for Secure E-Assessments
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Diagram:
- SEB
  - Safe Exam Browser
- Kiosk Application starts
- Browser
SEB: A Modular Tool for Secure E-Assessments
SEB: A Modular Tool for Secure E-Assessments

- SEB
  - Safe Exam Browser

- Kiosk Application
- Browser
- Exam Server
- Third Party Application

- Exam URL
- Exam Content
Safe Exam Browser is …

- **Open**: Compatible with any computer based exam system
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- **Flexible**: Computer labs, BYOD, desktop, tablets
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- **Flexible**: Computer labs, BYOD, desktop, tablets
- **Modular**: Third party applications, VDI, SEB Server
- **Free**: Open source, freeware, no centralized cloud service
History: Safe Exam Browser Project

- Idea by Stefan Schneider at University of Giessen, our Windows browser developer
- Developed since 2008 mainly at ETH Zurich
- Partly publicly funded (2010-2014) by national Swiss e-learning programs
- Open for community suggestions and contributions
- Global user base
Online Exams at ETH Zurich
Swiss Federal Institute of Technology

- 2007 first pilots, 2010 regular service
- >50 exams with ~5’000 students in spring semester 2015
- Large percentage of selective, high-stakes examinations
- Summative exams designed by lecturers
- Important role of first year university exams in Switzerland
Safe Exam Browser – Future of the Project
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The options we examined in the last 7 months:

1. SEB Consortium
2. Spin off company
3. Something small and inside ETH

In all cases SEB shall remain open source/freeware
SEB Consortium - Vision

- SEB is under the Mozilla Public License and freely available
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- SEB is under the Mozilla Public License and freely available
- Deliver, enhance and support SEB for organizations wishing to perform e-assessments
SEB Consortium - Tasks

- Foster the development of a flexible lockdown browser for educational and commercial use
- Provide financial and infrastructural support for at least two SEB-developers to allow ongoing development of SEB within the consortium
- Sustain and develop the existing community of interest for the SEB project
- Support the use and adoption of SEB software
<table>
<thead>
<tr>
<th>Category</th>
<th>Membership Fee</th>
<th>Who should join?</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principal Members</td>
<td>€ 50,000 / US$ 60,000</td>
<td>Educational Institutions, Companies</td>
<td>Prioritize SEB development goals, get direct, personal development support and consultancy by the SEB developers. Logo of institution/company is placed on consortium website</td>
</tr>
<tr>
<td>Gold Members</td>
<td>€ 10,000 / US$ 12,000</td>
<td>Educational Institutions, Companies</td>
<td>Suggest SEB development goals, build a feature list for SEB, Get direct, personal development support and consultancy by the SEB developers. Logo of institution/company is placed on consortium website</td>
</tr>
<tr>
<td>Silver Members</td>
<td>€ 5,000 / US$ 6,000</td>
<td>Educational Institutions, Small Companies, public authorities</td>
<td>Suggest SEB development goals, logo of institution/company is placed on consortium website</td>
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<tr>
<td>Bronze Members</td>
<td>€ 2,500 / US$ 3,000</td>
<td>Small Educational Institutions, Small Companies</td>
<td>Logo of institution or company is placed on consortium website</td>
</tr>
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What’s New in Safe Exam Browser
What‘s New: SEB 2.1 for Windows and Mac OS X

- Touch optimized mode for Windows tablet computers
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- Re-engineered SEB Config Tool now allows comfortable editing and testing of SEB configuration files
Future Roadmap

- SEB 2.2
- SEB for iOS (iPad, iPhone, iPod Touch)
- New browser engine in SEB for Windows
- SEB Server
SEB 2.2

- Release for Windows, Mac OS X, iOS
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- Opening of permitted resources in additional browser windows, accessible via individual icons and popup menus placed in the SEB task bar (configurable per exam).
- Improved handling of downloads, allows restricting access to particular file types, which may then be opened with associated permitted third party applications.
- Improved URL filter also in SEB for Windows
- New settings for language dictionaries (spell check)
SEB for iOS/iPad

- Works on managed iOS devices and with BYOD
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- Compatible configuration files/links
- Supporting most setting options of the SEB desktop versions
SEB Server

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- Clients receive exam settings automatically from the SEB Server.
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- Improved security with automatic three-way authentication between SEB clients, exam system and SEB Server which drastically eases configuration.
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- Clients receive exam settings automatically from the SEB Server.
- Improved security with automatic three-way authentication between SEB clients, exam system and SEB Server which drastically eases configuration.
- Easy to operate remote supervising/proctoring functionality such as screen recording and logging of user activity without requiring third party software solutions.
SEB Server

Keeping the SEB exam solution modular and compatible with a wide range of exam systems

- Open source and freely available
- API to connect to exam system
- Installation on common open source servers
- Scalable: A centralized SEB Server for a large number of institutions will be possible
Links

- www.let.ethz.ch/pruefungen/onlinepruefungen/index_EN
- www.safeexambrowser.org
Thank you for your attention. Please discuss...

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Using Virtual Desktop Infrastructure with SEB
Competency oriented exams using third party applications
Exam tasks today

learning  exam  application / competence
Example: Programming

- learning
- exam
- target competence
The goal: authentic, competence oriented exam tasks

learning  exam  application / competence
Technology: Requirements

- Secure, fraud-proof
- Reliable, robust
- Easy to use, familiar (for students)
- Easy to customize and manage (for administrators & examiners)
SEB with VDI
SEB with VDI

SEB
Safe Exam Browser

Kiosk Application

starts

VDI Client
VMware View

Browser
SEB with VDI

Exam Client

Individual Configuration
SEB with VDI

Exam Client

- Exam Client
- VDI Client (VMware View)
- Kiosk Application

Virtual Desktop

- Exam Server
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Individual Configuration

Secure Configuration