Safe Exam Browser
News and Future Roadmap

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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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Kiosk Application starts Browser
SEB: A Modular Tool for Secure E-Assessments

Kiosk Application starts Browser

Exam Server

exam URL

exam content
SEB: A Modular Tool for Secure E-Assessments

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

The process starts with the Kiosk Application, which initiates the Browser. The Browser then requests an exam URL from the Exam Server. The Exam Server provides the exam content, which is then accessed by the Browser. Additionally, the Third Party Application also starts, connecting to the Exam Server for exam content.
Safe Exam Browser is …
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- **Modular**: Third party applications, VDI, SEB Server
- **Free**: Open source, freeware, no centralized cloud service
History: Safe Exam Browser Project
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- Open for community suggestions and contributions
- Global user base
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
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- SEB is under the Mozilla Public License and freely available
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- Deliver, enhance and support SEB for organizations wishing to perform e-assessments
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- SEB shall be recognized for its quality of software, its security and data privacy as well as its engagement with the user, standards and development communities.
SEB Consortium - Vision

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- Deliver, enhance and support SEB for organizations wishing to perform e-assessments
- SEB shall be recognized for its quality of software, its security and data privacy as well as its engagement with the user, standards and development communities.
- The SEB Consortium is established to provide a structure whereby the Community can support the direction and development of the SEB project through financial and other contributions
SEB Consortium - Tasks
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- 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
# SEB Consortium – Benefits & Membership Fees

<table>
<thead>
<tr>
<th>Category</th>
<th>Membership Fee</th>
<th>Who should join?</th>
<th>Benefits</th>
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</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>
</tr>
<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>
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What’s New in Safe Exam Browser
What’s New: SEB 2.1 for Windows and Mac OS X
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- Re-enginedered SEB Config Tool now allows comfortable editing and testing of SEB configuration files
Live Demo
Using Virtual Desktop Infrastructure with SEB
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
Competency oriented exams using third party applications
Exam tasks today

learning

exam

application / competence
Example: Programming

function zahlenmittel
% Dies ist ein Zahlenmittel
% Ziel ist es ein % möglichst weit
% aus 10
real = randi(10)
test = -1;
while (test > real)
    test = input('Bitte versuche wieder: ');
    if (test < real)
        disp ('zu klein');
    elseif (test > real)
        disp ('zu groß');
    end
end
The goal: authentic, competence oriented exam tasks

learning

exam

application / competence
How does it work?
Technology: Requirements

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

Kiosk Application

Browser
SEB with VDI

- SEB
- Safe Exam Browser
- Kiosk Application
- Browser
- VDI Client
- VMware View

starts
SEB with VDI

Exam Client

Individual Configuration
SEB with VDI

**Exam Client**

- **SEB** Safe Exam Browser
  - Kiosk Application
  - Browser
  - VDI Client VMware View

**Virtual Desktop**

- **SEB** Safe Exam Browser
  - Kiosk Application
  - Browser
  - Third Party Application

**Exam Server**

Exam client connects to VDI. VDI client starts Kiosk Application, which starts the exam content from the Exam Server. Secure Configuration.
Future Roadmap
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- SEB 2.2
- SEB for iPad
- New browser engine in SEB for Windows
- SEB Server
SEB 2.2
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- Release for Windows, Mac OS X, iOS
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- Improved handling of downloads, allows restricting access to particular file types, which may then be opened with associated permitted third party applications.
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- Improved URL filter also in SEB for Windows
- New settings for language dictionaries (spell check)
SEB for iPad
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- Works on managed iOS devices and with BYOD
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- With embedded permitted resources offline exams are possible
- Built-in support for hand drawings
- Supporting most setting options of the SEB desktop versions
SEB Server
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- Central management of SEB clients for exams: Configuration of client settings for different exams in a web backend.
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- Clients receive exam settings automatically from the SEB Server.
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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
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Keeping the SEB exam solution modular and compatible with a wide range of exam systems
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- 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](http://www.let.ethz.ch/pruefungen/onlinepruefungen/index_EN)
- [www.safeexambrowser.org](http://www.safeexambrowser.org)
Thank you for your attention. Please discuss…

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