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Safe Exam Browser 2.0 How To

SEB Safe Exam Browser

How to Install, Configure, Deploy and Use SEB 2.0

Daniel R. Schneider (schneider@let.ethz.ch)

SEB 2.0 for Windows and Mac OS X

- Secure examinations on students' computers, BYOD
- Encrypted and signed individual configuration for each exam: .seb configuration files
- Easier deployment and initial configuration
- Securing integrity of the SEB application and settings used for an exam: Browser Exam Key
- Automated quitting of SEB after exam submission: Quit Link
- New unified (Mac/Windows) user interface (UI)
- New browser UI options

.seb Configuration Files

- SEB's configuration can be changed on-the-fly by opening another .seb file
  > Individual configuration per exam

- Easier deployment and initial configuration
  > Copying .ini or .plist settings files to system directories no longer necessary (important for BYOD)

- Encrypted and signed configuration files
  > Cannot be altered/manipulated

Change configuration on-the-fly

- .seb is registered as SEB's file type

- When you double-click a .seb file, SEB is started and opens the .seb file

- When SEB reads the file, it changes its configuration to the settings stored in this .seb file

- SEB "restarts" itself with the new settings, loads and displays the new start URL webpage

Easier deployment and initial configuration

How to configure your exam clients after downloading and installing SEB? There are basically two ways:

- Don't configure the SEB client permanently, just start an exam by opening a .seb file with the exam's configuration. This .seb file could be opened by loading it in any standard web browser.

- Configure the SEB client permanently to open an exam portal page. Place links to .seb files containing the URL and configuration of current exams on the portal page.

Easier deployment and initial configuration

Deployment and permanent configuration of SEB 2.0 on exam clients managed by the university/institution:

▸ Similar like in former versions: SEB is installed by a deployment system on all exam computers

▸ A Config file named `SebClientSettings.seb` is copied into one of the following directories:

```
C:\ProgramData\SafeExamBrowser\
```
(writable only with administrator rights, has first priority)

```
C:\Users\<username>\AppData\Roaming\SafeExamBrowser\
```
(writable with user rights, second priority)

```
/Users/<username>/Library/Preferences/
```
(Mac OS X final SEB 2.0 release)

Easier deployment and initial configuration

Deployment and permanent configuration of SEB 2.0 on unmanaged exam clients (student computers, BYOD):

- Admin creates configuration file for exam clients:
  - Create a .seb settings file with your desired configuration and save it with the option *"use for configuring clients"*
  - Send this .seb file to your students together with the download link for SEB 2.0

- Students install and configure SEB on their computers:
  - Students download and install SEB
  - They double-click on the .seb settings file. SEB is started and configured

.seb config files for starting exam

Initial configuration of SEB clients vs. **starting exam**:

- **Initial client configuration** changes settings of the installed SEB permanently (saved persistently on drive)

- Configuration for **starting an exam** changes settings only while the exam is running (saved temporary in memory)

How to use .seb config files for starting exam

- Create a .seb settings file with your desired exam configuration and save it with the option
"use for starting an exam"

  ‣ Use a password or a cryptographic identity (certificate/key) to encrypt the .seb file.

  ‣ You can copy - paste the Browser Exam Key of this .seb settings which is displayed in the „Exam" settings pane after saving into the quiz settings in Moodle or ILIAS (with the according SEB plugin installed).

  ‣ If you want to use SEB on Windows and Mac OS X exam clients, you can use one .seb file, but have to copy the two different Browser Exam Key's (from each version) into the quiz settings.

How to use .seb config files for starting exam

- Provide examinees with the .seb file for starting the exam:
    - Upload the .seb file on a web server and put a link on the file on a simple HTML exam portal page (see next page)
    - Add the .seb file in your LMS as a resource that can be downloaded (to the course materials section or similar)
    - Use a web content management system (CMS) to provide the .seb file on a exam portal page for download
    - Put the .seb file on a network drive which gets mounted on all exam computers
    - E-mail it to the students. This can make sense for trial exams which students can complete individually on their own computers.

Using an exam portal page:
Preparations for exam administrator

An exam portal page which shows links to your current exams and is set up as the start URL in SEB on your exam clients is the recommended way how to use SEB 2.0 for centralized exams which students take at the same time:

- Create a web page where you will put links to current exams
  ‣ This web page can be a simple HTML page, you can use a CMS or the LMS for the portal page too
  ‣ You can activate the exam link just before the exam and deactivate it afterwards

Using an exam portal page:
Preparations for exam administrator

- Create a .seb file "*for configuring clients*"

- Use the address of the exam portal page as *Start URL* for SEB.

  - You can configure SEB to be "insecure" while displaying the exam portal page: *Allow user to quit SEB* and don't use any *Quit Password*.
  - If users start SEB accidentally, they will be able to quit it, their computer will not be locked.

Using an exam portal page:
Preparations for exam administrator

- Create a .seb file "*for starting an exam*" for each exam and use the direct URL to the exam as *Start URL* in SEB
  - Configure SEB to be "secure" while displaying the exam:
  - Use a *Quit Password* and set a *Quit Link* (then examinees can quit SEB automatically, but only after submitting their exam);
  - don't "*allow browsing back/forward*";
  - allow using only the *third party applications* which are needed for the exam (if any);
  - use the "*send Browser Exam Key in HTTP header*" feature in SEB and the request header check in your LMS (if it supports it);
  - and use all additional platform-specific security features of SEB which makes sense.

Using an exam portal page:
Preparations for exam administrator

- Upload the .seb file "*for starting an exam*" for each exam to your exam portal server

- Put links to the .seb files for each exam on the portal page

- Change http:// link to the .seb file to seb://
  - Custom seb:// protocol opens URL in SEB
  - If clicked from another browser, SEB is started and opens
  - If the seb:// link is clicked in SEB, then the according .seb settings are seamlessly downloaded and opened. Other browsers will usually ask to confirm if it's safe to open the link or a downloaded .seb file. This is one reason for using an exam portal page which allows to open .seb files hassle-free inside SEB.

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Using an exam portal page:
Preparations for students

- Send the .seb file "*for configuring clients*" containing the initial SEB client configuration together with a download link for SEB to the students.

- Students download and install SEB on their machines, then double-click the .seb file. Their SEB clients are now configured to display the exam portal page.

- This can be done once before the exam session starts and doesn't have to be repeated for every exam.

Using an exam portal page:
Start the exam

- Activate the link for the .seb file for starting the exam on the exam portal page.

- When all students have their computers ready and SEB displaying the exam portal page, they can click the link and start the exam.

  - If you used a password for encrypting the .seb file for the exam, students will only be able to enter the exam after you told them the password.

  - Without knowing the password students cannot lock themselves into SEB accidentally.

Encryption of .seb Configuration Files

Encryption using a password:

- Decryption of settings is not possible before password is communicated (just before exam starts)

- Best when using student computers

Encryption using a cryptographic certificate/key (identity):

- Decryption of settings is only possible if the certificate has been securely stored on the exam computer beforehand

- Best on managed computers

- No password has to be entered

Browser Exam Key

- Securing integrity of the SEB application and settings used for an exam.

- The exam system can verify that a particular, unaltered SEB version and the correct exam settings are used for an examination.

- Needs support/a plugin in the LMS/exam system. Such plugins are already available for Moodle and ILIAS.

How to use the Browser Exam Key

- Configure SEB for your exam. In the *Exam* settings pane you have to activate the option "*Send Browser Exam Key in HTTP header*".

- Save your final exam settings in a .seb settings file.

- Copy the Browser Exam Key string from the *Exam* settings pane to the according field in your quiz settings (in an LMS or exam system having support for SEB 2.0 built in).

- Use the saved .seb file for starting the exam.

How to use the Browser Exam Key

- The Browser Exam Key depends on your SEB configuration and the SEB version (the application's code signature)

- Therefore, whenever you change any setting for an exam, you have to copy the new Browser Exam Key into your quiz settings (after saving the changes in the .seb file)

- If several different versions of SEB are used for an exam (e.g. Windows and Mac clients), you have to generate a Browser Exam Key in each used SEB version and copy those two or more keys into the quiz settings

Browser Exam Key

Quit Link

- Automated quitting of SEB after exam submission without having to enter a quit password or pressing a secret key combination
  - In the SEB exam settings define an arbitrary hyperlink in the *Quit Link* field
  - Put the same hyperlink on the feedback page (which is displayed after the exam has been submitted) in your exam system/quiz module
  - This is possible at least in Moodle and ILIAS (without LMS plugins) and will work with all other exam systems which allow to enter a feedback text containing html code/a hyperlink for a quiz

Future development:
Planed new features for SEB 2.x

- Change kiosk mode: Without create new desktop
- Improve handling of SSL server certificates
- Improve handling of proxy settings
- URL Filter, open additional web resources
- Monitor processes while SEB is running
- Windows 8 tablet support
- Improve setting/reseting of registry settings in Windows Security Screen (Ctrl-Alt-Del)
- Improve SEB Windows Service

URL Filter

- With the URL filter you can prevent that specific websites, subdomains, directories or even single resources (like images) are displayed in the SEB browser.

- Thanks to the URL filter you can open some allowed resources in additional browser windows during the exam. The filter prevents examinees to reach other pages than those which have been allowed.

URL Filter
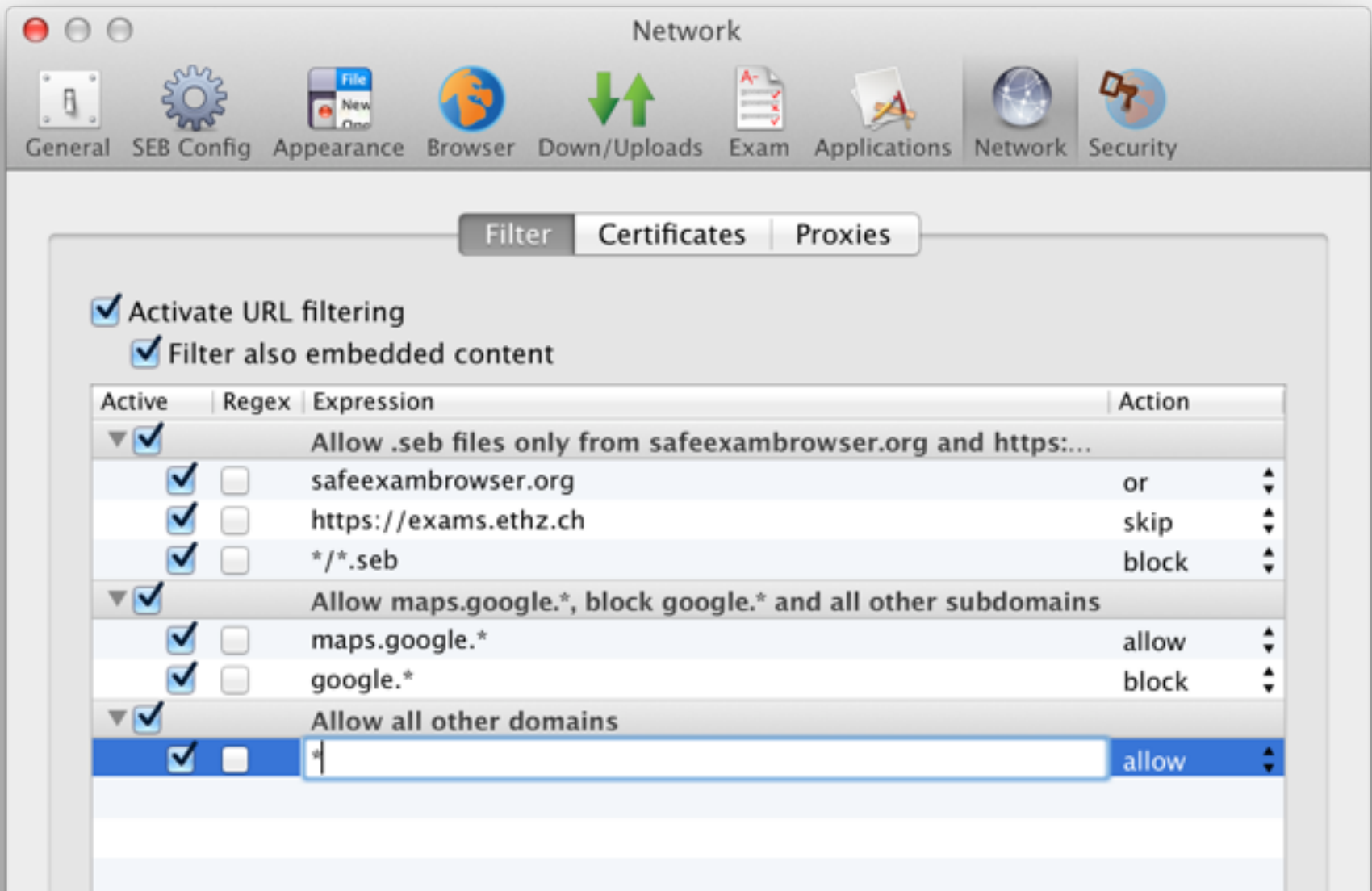
Thank you!

More information and download at
www.safeexambrowser.org