

METU, Department Of Computer Engineering

Graduation Project

Proposal Form

(Please read carefully, and follow the instructions to prepare the project proposal form.)

(Instructions to fill in this form are given in italic fonts and in parentheses.)

(To provide an input for a section of the form, delete the instruction and provide your input in place of the deleted instruction. In the final form that you will submit, there shouldn't be any instructions left over, including this section of the form.)

(If you feel that a particular instruction is not relevant to your project proposal, please use a proper explanation for this, rather than ignoring the instruction.)

(The final form should not exceed 4 pages, excluding this page and including the References section. Please use Arial, Normal, 10pt fonts and single line spacing.)

Important Notes

A project could be proposed by (i) a student group, (ii) a company, or (iii) a faculty member of the department by filling in this form and submitting it to 49x-proposal@ceng.metu.edu.tr by e-mail. For a project proposal, there might be a sponsoring company supporting the project and providing some form(s) of resources for the project.

If your proposal might contain a patentable idea or any type of intellectual property, please first make sure to follow appropriate steps (apply for a patent, etc.) before sending your idea to us. Once this form is received from you, the instructor(s) and the department has no responsibility regarding to intellectual properties of your project/idea.

All sources and documentation developed for this course are assumed to be public domain (GPL, CC or similar license) by default. If you need any exception for license and disclosure of project work, please specify this in detail in IP section of the form.

Please note that source codes, documents and issue tracking should be kept in department servers. No restrictions can be requested for limiting faculty and assistants access to student work.

Project Information

Title

Linux Password Vault

Target

Public Restricted

(If you would like to restrict your project idea to one or more groups, please mark "Restricted" and state the group or groups eligible for the project.)

Proposer Information

Name(s)	Özgür Yazılım A.Ş.
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IP (Intellectual Property) Information

The end product will be a free software project licensed with GPL.

Project Description and Background Information

Description

The project aims to create a service where all passwords can be stored securely, accessed by the authorized personnel only on a need-to-know basis, reset when needed. All activities will be logged.

Similar Products/Projects

- * Password Vault Manager [1]
- * Keepass [2]
- * Lastpass [3]
- * Password Genie [4]
- * Zoho Vault [5]

Justification of the proposal

Sustainable and secure internal password management can pose a real security threat for corporations. Corporations that use 3rd party services and have access to customer systems via these passwords are at an even greater risk. Passwords should be on a need-to-know basis. However they are also needed to be accessible at all times. As role of personnel change, their password clearance also can change. People can also leave their jobs, meaning the passwords they had access to should also be changed.

Contributions, Innovation and Originality Aspects of the Project

There are no public domain software projects providing this functionality. Most free software password managers run on a single-user environment.

Most software don't provide a Linux console client, which is the primary work environment of Linux system administrators over slow connections (like GSM data).

Current similar software also don't provide the password reset functionality without an extra piece of software (e.g. agents) installed on the target servers, which is usually not preferred in enterprise systems.

Technical Aspects of the Project

The project is to create a console-based application that can be run on a Linux server. The application can be run by multiple shell users, all accessing the same password vault.

The vault should provide the following functionality:

- * Support for multiple users and groups*
- * Support for grouping of passwords (according to customer, type, etc)*
- * Support for limiting access to configured user / password group pairs*
- * Passwords should be encrypted for storage*
- * Passwords can be for different services (SSH, LDAP, web application, etc), may require additional fields (e.g.: phone number, e-mail, domain, etc). The user should be able to store these attributes as well.*
- * Logging in*
- ** Two-factor authentication for logging in (password + SMS to a mobile phone)*
- ** Request re-login after a configured period of time*
- ** Request re-login after a configure number of actions*
- * Logging of all actions (logging in, retrieval of password, password change, password store, etc)*

Optional but recommended extendable features:

- * A server-client architecture (a daemon and a console-based client), enabling extending to different platforms with new client software*
- * Ability to reset all or selected passwords in the vault (requires logging in to the relevant services and changing the password) if possible*

Targeted Output, Targeted User/Domain Profile

The end-product appeals to all corporations using computer-based services, especially the ones providing other corporations computer-based services.

For end-users, the product may be hard to setup and maintain. There are simpler products on the market. However the product may be extendable to end-users via an SaaS service.

Project Development Environment

Planned hardware / software technologies and programming languages: Linux, SSH, GPG, password storage, ncurses, Rest API, logging.

Planned methods, tools and techniques: Issue tracking, GIT, Agile development

External Support

The project development environment (issue tracker, code repository), (if needed) virtual Linux servers, SMS gateway services needed for testing and development can be provided by our firm.

References

[1] <http://passwordvaultmanager.com/>

[2] <http://keepass.info/>

[3] <https://lastpass.com/>

[4] <http://www.securitycoverage.com/passwordgenie/>

[5] <https://www.zoho.com/vault/>