MASTER IN COMPUTER SCIENCE

UNIVERSITÉ DE NEUCHÂTEL

Assignment 5 - E-mail security (part 2)

Security

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1 Assignment instructions

In this assignment, you will develop an SMTP gateway to filter e-mails before forwarding them to a fully-featured SMTP server. From the perspective of the user, your gateway will be the one acting as his/her SMTP server.

Your server will analyze the e-mails it receives and modify them according to one or many filters. In this assignment, you will develop the second filter, an anti-virus scanner.

1.1 Part 2: anti-virus

This second filter will scan e-mails for viruses using an external anti-virus scanner. If a virus is detected, the enclosing e-mail will be modified to be virus-free. The text `[Virus removed]` will be prepended to its subject, and a short notice explaining that your gateway removed a virus will be appended to the body of the e-mail. Healthy parts of the e-mail should be kept on a best-effort basis.

In order to safely test your assignment, you can use the EICAR test file[1]. All anti-viruses on the market will flag it as a virus.

You can use any locally-installed anti-virus scanner; alternatively, you can use an online virus-scanning service. ClamAV[2] is a multi-platform, open-source anti-virus piece of software. It can be controlled through an API — or linked as a library — making it a good fit for your implementation of this assignment.

[1] https://www.eicar.org/anti_virus_test_file.htm
[2] https://www.clamav.net/

Your program will need to accept the following parameters as command-line flags:

- Filter(s) in use
- Listening port
- SMTP server to relay e-mails to

Depending on the filter(s) in use, there may be additional parameters to be added.

2 Hand-in

The time allotted for this assignment is 1 week. The deadline is on 2017-11-15T13:59:59 local time. Late submissions are not accepted.

- To be submitted to Ilias[3]:
  - Source code of **your** assignment
  - Readme file briefly mentioning how to compile and run your program, which dependencies it requires, etc.
  - All the files have to be packed in an archive in a standard format[4], named following this exact pattern (in lowercase letters only):
    `security17-as<assignment number>-<your family name>.<extension>`.
    For example, if your name were to be *Homer J. Simpson*, you would use the following filename for this assignment: `security17-as5-simpson.tar.gz`
  - Please use the "Upload File" button when handing-in your assignment in Ilias. Do **not** use "Upload Multiple Files as Zip-Archive".
- You have to present a demonstration of the program in class (to the TA).
  - It is **mandatory** for each student to demonstrate his or her submission!
  - The sooner you present your assignment, the better (even before the deadline).

Your grade will depend on both the presentation and the code.

3 Notes

You can use your favorite programming language for the assignments of this course, so long as it is a programming language readily available on the GNU/Linux operating system[5]. The suggested language for this assignment is Python.

Should you have additional questions, please direct them to the TA at sebastien.vaucher@unine.ch.

[3] Or sent by e-mail for external students

[4] `.tar`, `.tar.gz`, `.tar.bz2`, `.tar.xz`, `.zip`

[5] You can use any of the languages in the following list. If you want to use another language, please check with the TA first. List in alphabetical order: Bash, C, C++, Go, Java, Kotlin, Perl, PHP, Python, Ruby, Rust, Scala