

IT Security course

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FWL 1

Sylvain Leroy
sylvain@unmondelibre.fr

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Chapter 1

FWL 1

1.1 Handin

Being late, you'll get the note 0/20. Don't be late!

1.2 Instructions

Here is what you MUST respect about your work:

1. If a list of function is given at the beginning of the exercise, you can ONLY use these for that exercise.
2. If no function name is listed at the beginning of an exercise, you can use any function you want for that exercise.
3. The sign `>`, in the exemples, represents the prompt of your shell. The line where you can write inputs.
4. You can do the work on team of 2 people max if you want. Only one will give a tarball back with both names in the file AUTHORS.
5. You MUST give back a tarball using template name: *your_lastname.tar.bz2*
6. Your tarball must be clean. No binaries, temporary files, ... or any other files than the ones asked.
7. A dirty tarball will give you 0/20.
8. Your solutions to the exercises MUST run on GNU/Linux using Debian-like operating systems.
9. Being late when handing the tarbal will give you 0/20.

The tarball you'll be giving back must looks like this (using *tree* command):

```
> tree your_lastname/
your_lastname
|-- ANSWERS
|-- AUTHORS
|-- ex1
|   --- iptables_ex1
|   --- pf_ex1
|-- ex2
|   --- iptables_ex2
|   --- pf_ex2
|-- ex3
|   --- iptables_ex3
|   --- pf_ex3
|-- ex4
|   --- iptables_ex4
|   --- pf_ex4
|-- ex5
|   --- iptables_ex5
|   --- pf_ex5
|-- ex6
|   --- iptables_ex6
|   --- pf_ex6
--- README
```

6 directories, 15 files

- ANSWERS contains your answers (questions out of exercises).
- AUTHORS contains you firstname + lastname (and the ones of your mates if you work in team).
- README contains comments on how you did the exercises. Short sentences are enough.

Hints:

- Remember to use the *man* command!
- Read the outputs from the computer, it helps!

1.3 Firewalling

Firewalling exists to permit control over network packets going in/out to/from your computer or network equipments. When under an attack, you want to be able to protect your computer by stopping evil/badly formatted packets to enter to system to exploit a vulnerability in it. Even when not under an attack, you want to be sure that no malicious programs are sending information from your account/system/life without your acknowledge.

1.3.1 iptables

Every informations you need are there :

- *man iptables* under a Linux Operating System.
- <http://linux.die.net/man/8/iptables>

1.3.2 Packet Filter

Every informations you need are there :

- <http://www.openbsd.org/faq/pf/>
- http://www.freebsd.org/doc/en_US.ISO8859-1/books/handbook/firewalls-pf.html

1.3.3 Whitelist vs Blacklist

When setting up firewalling rules, you have 2 solutions:

- Whitelist approach
- Blacklist approach

Whitelist

You start by denying every packets from getting inside the computer. After you add every connection you allow to pass through the firewall.

This method is the best method to use when you know exactly which connections you will allow in/out the computer.

Blacklist

You start by allow every packets from coming inside the computer. After you add every connection you deny to pass through the firewall.

1.4 Exercise 0: Learn

Read the manuals.

Be sure to understand how the tools work and how to use them.

1.5 Exercise 1: Blacklist Simple

Using iptables and pf (on their respective operating systems), write the configuration file to block every packets from *192.168.10.0/24*, but allowing every other packets to go trough the system.

Your resulting files will be named *iptables_ex1* and *pf_ex1*.

1.6 Exercise 2: Blacklist Port

Using iptables and pf (on their respective operating systems), write the configuration file to block every packets on TCP port 22222, but allowing every other packets to go trough the system.

Your resulting files will be named *iptables_ex2* and *pf_ex2*.

1.7 Exercise 3: Whitelist Simple

Using iptables and pf (on their respective operating systems), write the configuration file to allow every packets from *192.168.10.0/24*, but denying every other packets to go trough the system.

Your resulting files will be named *iptables_ex3* and *pf_ex3*.

1.8 Exercise 4: Whitelist Port

Using iptables and pf (on their respective operating systems), write the configuration file to allow every packets on TCP port 22222, but denying every other packets to go trough the system.

Your resulting files will be named *iptables_ex4* and *pf_ex4*.

1.9 Exercise 5: Whitelist Connection limits

Using iptables and pf (on their respective operating systems), write the configuration file to block every packets from IP *192.168.10.50* and TCP port *22222* when any computer from that IP try to connect to that port more than 3 times in a 10 seconds timeslot.

You will deny every other packets to go trough the system, except on port 22222 which will be allowed to come in/out for already established connections.

Your resulting files will be named *iptables_ex5* and *pf_ex5*.

1.10 Exercise 6: Port knocking

Using your exercise from tp3, write the rules, for iptables and pf, opening the port 666 for the IP doing the port knocking.

Your resulting files will be named *iptables_ex6* and *pf_ex6*.

Chapter 2

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