

1 Assignment 1 (10 Points)

Hinweis: Dieses Blatt bitte **einzel**n bearbeiten und abgeben.
(Vgl. die Ankündigung in den Übungen am 24.04. bzw. 26.04.)
Abgabe: **29.04.2017, 23.59** (siehe erste Aufgabe)

Exercise 1 (Setting up a playground (**12 Points**)).

There will be a few hands-on exercises during this course. This first exercise serves as introduction and preparation. I will give you a brief walk-through in the tutorials next week, but you will have to discover most of it (and how to get it running) on your own. Take your time. Read the documentation. Be patient. Please, do not skip this exercise.

If you experience technical difficulties ("it won't install" or "is not supported on my system"), don't hesitate to ask me for help in the tutorials or by email.

The goal of this exercise is to set up two networked virtual machines, one running the Debian Linux distribution and one running OpenBSD.

Preparation I suggest you use VirtualBox ¹ for virtualization. You may use something different - but keep in mind that I may not be able to help you with other virtualization tools if something doesn't work. Download a VirtualBox installer ² as well as **x86/i386** installer images for the Debian Linux 8.7.1 operating system ³ and the OpenBSD 6.1 operating system ⁴.

Installation I suggest you install OpenBSD first. Follow the onscreen instructions (especially: read your mail after the first reboot and the `afterboot(8)` man page). Then continue with Debian. Note that we want remote access later, so select the "SSH Server" option. (You may want to unselect the "print server" option).

After the installation: have a look at disk usage and which programs and libraries are installed by default on both system. Which processes are running? Do you know what each one does? Can you figure out what is inside the **Trusted Computing Base**?

¹VirtualBox won't boot OpenBSD on some older hardware. If that is the case for you, try qemu instead.

²<https://www.virtualbox.org>

³<https://www.debian.org>

⁴<http://www.openbsd.org>

Networking and remote access Configure networking in VirtualBox and on both machines. You want both virtual machines to be able to talk to each other, have remote access from your host to each machine and give both machines internet access. I use two separate network interfaces in each machine for this purpose: one is connected by NAT with the internet and one is a "host-only adapter".

Finally, configure your virtual machines (if necessary) so you can access them via SSH from your host OS.

Compiler, Debugger, Disassembler Install a compiler (`gcc`) and a debugger (`gdb`) on both machines where necessary. If you have never used `gcc` and `gdb` before: Write and compile a simple "hello world" C-program. Then fire up `gdb` and step through your program. Can you disassemble the executable as well?

Signify and Hand-in (10 points) Use the tool `signify` on your OpenBSD machine to create a public/private key pair. In the future, you will need to sign the source code you submit using this key pair, so I suggest you create a reasonably safe backup (e.g. by copying it to your home folder at one of our terminal servers ⁵).

Now run the `uname -a` command on both machines and put the results in a file `<matricl_id>.txt` on your OpenBSD machine, where `<matricl_id>` denotes your matriculation number. Use your key pair from above to create a signature `<matricl_id>.txt.sig`, copy your public key to a file called `<matricl_id>.pub` and create a bzip2 compressed tarball `<matricl_id>.tar.bz2` containing all three files. Finally, attach this tarball to an email with the subject

[Compsec] Ex1: `<matricl_id>`

and send it (together with your solution to the other exercise below) to

`benjamin.gueldenring@fu-berlin.de`

until **Saturday, 29.04.2017 at 23.59**.

Exercise 2 (Keeping your systems secure (2 Points)).

After you set up your freshly installed Debian and OpenBSD systems, you might want to keep track of vulnerabilities your systems might have.

Where can you find up-to-date information about current vulnerabilities, whether your system is affected and if there is a patch or a workaround? **Note:** we are only interested in *security issues*.

⁵see the web sites <http://www.mi.fu-berlin.de/w/IT/ItServicesTerminalserver> and <http://www.mi.fu-berlin.de/w/IT/ServicesFile> for further information.