This tutorial requires you to work with the Lab-VM provided by us.

6.1 Telnet

- Send a mail using the SMTP protocol by using a Telnet client that connects to the University's mail server (`smtp.uni-saarland.de`). The mail should be sent from `hon-unit06@nt.uni-saarland.de` to your `s8XXXX@stud.uni-saarland.de` address. Please do not excessively use this service, as the mail server is also used by other parties. You are responsible for what you do!
- *HONour Task: Add proper From, and Subject headers to your mail so that your mail client displays it nicely.*

Solution:

```
$ telnet smtp.uni-saarland.de 25
HELO hon.nt.uni-saarland.de
MAIL FROM: <hon-unit06@nt.uni-saarland.de>
RCPT TO: <s8savime@stud.uni-saarland.de>
DATA
From: HON Unit 06 <hon-unit06@nt.uni-saarland.de>
Subject: HON Telnet Test
Hey Sam,

this is a test.

Bye,
The HON Team
.
QUIT
```

6.2 SSH

This task has to be completely executed inside the VM. It might be a bit confusing that your remotely login to the very same system, but the concepts are the same and when you log into another system later, you will have to do the same steps.

a) Generate a local public-private keypair, keeping the default name.

b) Login to the SSH server on the HON VM using the default credentials.

c) Play around (e.g. create a file on the desktop and see it appear on the GUI). Type `exit` to logout again.

d) As a login using the credentials is tedious, configure key-based authentication.

e) Validate your setup by logging in without entering credentials.

f) Check the files in `~/.ssh/` and see what you have generated and how the keys got distributed. You might also checkout `/etc/ssh/` to see how the SSH server is configured and which keys are used.

Solution:

```
# a)
ssh-keygen # enter, no
# b)
ssh localhost # accept key; enter password
# c)
touch ~/Desktop/foo.txt
exit
# d)
ssh-copy-id localhost # enter password
# e)
ssh localhost # no password needed at this time
# f)
ls ~/.ssh/
ls /etc/ssh/
```

6.3 DNS

Imagine you are responsible for the domain `hon.de` and have the namespace server `dns1.hon.de`. The domain has a web server (IP 10.5.1.7) with internal name `vimes` that is reachable via the `www` subdomain. Furthermore the domain has a mail server (IP 10.5.1.6) with internal name `moist`.

- Setup `dnsmasq` by editing the file `~/dnsmasq.conf` as follows:

```
interface=lo
bind-interfaces
log-queries

auth-server=dns1.hon.de,lo
auth-soa=2017030101,hostmaster.hon.de,21600,3600,604800
auth-ttl=86400
auth-zone=hon.de,10.5.1.0/24
```

- Start dnsmasq in a terminal by running `dnsmasq -kd -C ~/dnsmasq.conf`.
- Add your first host entries for the webserver and check if it resolves:

```
dig @localhost A hon.de
```

- Add an entry that makes `www.hon.de` point to the right server and check with `dig`.
- Add the mail configuration and check using:

```
dig @localhost MX mail.hon.de
```

- *Note: You have to restart `dsnmasq` after editing its configuration file. You can stop the running dnsmasq with Ctrl+C.*

Solution: `/etc/dnsmasq.d/hon.conf`

```
interface=lo
```

```
bind-interfaces
log-queries

auth-server=dns1.hon.de,lo
auth-soa=2017030101,hostmaster.hon.de,21600,3600,604800
auth-ttl=86400
auth-zone=hon.de,10.5.1.0/24

mx-host=hon.de,mail.hon.de,10

host-record=dns1.hon.de,10.5.1.1
host-record=dns2.hon.de,10.5.1.2

host-record=vimes.hon.de,10.5.1.7
host-record=moist.hon.de,10.5.1.6

cname=mail.hon.de,moist

cname=www.hon.de,vimes
```