



## Masterkurs Rechnernetze / Master Lecture on Computer Networks (IN2907) — Tutorial

### Class Assignment No. 3, WS 2009/2010

#### Step-by-step tutorial on running tools under Linux / Amazon EC2 virtual machine howto

This sheet serves as a supplement for **assignment 3**. All steps necessary for obtaining a working Linux as well as for running the mentioned tools are explained in detail.

#### Ubuntu Live system

Ubuntu Linux offers the possibility to run without making any change to your system. If you are new to Linux, this is the recommended way to approach the exercises.

First, download the Ubuntu ISO image from <http://www.ubuntu.com/GetUbuntu/download> and burn the file to CD. Detailed instructions on burning ISO images are also provided at this location. Insert the CD into your CD drive and reboot.

Note: your PC has to be configured to boot from CD, which should be the default case. If not, try to press F8 during startup or consult the manual.

When prompted, select your language and choose *<Try Ubuntu without any change to your computer>*. After a few moments, you will have a fully working Linux at hand.

#### Obtaining tools

It is necessary to install additional software packages in order to complete the exercises. For this, open a terminal (*Applications*→*Accessories*→*Terminal*) and type in the following commands:

```
ubuntu@ubuntu:~$ sudo apt-get update
ubuntu@ubuntu:~$ sudo apt-get install traceroute
ubuntu@ubuntu:~$ sudo apt-get install tcpdump tcpreplay python-scapy
```

Furthermore, you have to download and compile pchar as well as the Python script for packet pair probing:

```
ubuntu@ubuntu:~$ sudo apt-get install build-essential
ubuntu@ubuntu:~$ wget http://www.net.in.tum.de/fileadmin/TUM/teaching/masterkurs_rechnernetze/ws0910/pchar.tar.gz
ubuntu@ubuntu:~$ wget http://www.net.in.tum.de/fileadmin/TUM/teaching/masterkurs_rechnernetze/ws0910/PP.py
ubuntu@ubuntu:~$ tar -xvzf pchar.tar.gz
ubuntu@ubuntu:~$ cd pchar-1.5/
ubuntu@ubuntu:~/pchar-1.5$ ./configure
ubuntu@ubuntu:~/pchar-1.5$ make
```

Now try out the following commands and deal with the exercises:

```
ubuntu@ubuntu:~/pchar-1.5$ traceroute --help
ubuntu@ubuntu:~/pchar-1.5$ sudo ./pchar -h
ubuntu@ubuntu:~/pchar-1.5$ sudo python ../PP.py
```

If you want to edit the file `PP.py`, you should browse to the folder (*Places*→*Home Folder*), doubleclick the file and select *Display*.

For further questions reference is made to <https://help.ubuntu.com> for a general introduction as well as to <http://ubuntuforums.org/> for specific help topics.

### **Amazon EC2 VMs**

*Amazon* offers a convenient way of leasing virtual machines. If you choose to approach the exercises from within another country, you should follow the next steps.

Go to <http://aws.amazon.com/>, and click on *Amazon Elastic Compute Cloud (Amazon EC2)* on the left column. Get information on service and pricing (which is about 8 cent per hour), and click *Sign Up For Amazon EC2* if you are willing. Note: you will need a credit card for leasing virtual machines.

If you already have purchased from *Amazon*, you can sign in with your default credentials. Otherwise create a new account and register for *Amazon EC2*.

After successful registration, you have to create a X.509 certificate in order to login to virtual machines. Click on *Your Account*→*Security Credentials*→*Access Credentials*→*X.509 Certificates*, and create and download your certificate.

Go to the *AWS Management Console*, click on *Images*→*AMIs* and select your OS (e.g. Ubuntu 9.10). Click *Launch* to start the virtual machine. You can connect with the following command:

```
ubuntu@ubuntu:~$ ssh -i /path/to/ec2-keypair.pem ubuntu@<external-host-name>
```

For a manual launch without using the web interface you may consult <https://help.ubuntu.com/community/EC2StartersGuide>.