

Instruction on how to use SSH

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April 2020

1 Introduction

The practical classes require the use of Unix environment for some numerical simulations and analysis. Don't worry, you don't have to be very skillful at it. We would like you to complete the in-class practical exercise on the workstations prepared by the CIP-Pool of the physics faculty, so a connection to the workstation assigned to each of you has to be set up beforehand. You are thus going to need a computer account (contact the CIP-Pool Administrator office of the physics faculty if you do not have one) and an SSH client.

2 How to use an SSH client

X2Go Client appears to be a better choice. Please see the revised version of "Instruction on how to use SSH".

2.1 Windows

There are many alternatives available. One of them that supports X11 forwarding without much prior work is MobaXterm: <https://mobaxterm.mobatek.net/download-home-edition.html>. You can pick either the portable or the installer edition. When you have MobaXterm ready, follow the instructions below.

Please replace 1) username by your own username (e.g. mine is *clam*) and 2) the computer id by the one uniquely assigned to you (e.g. *c215*, check the separate list in case you do not know)

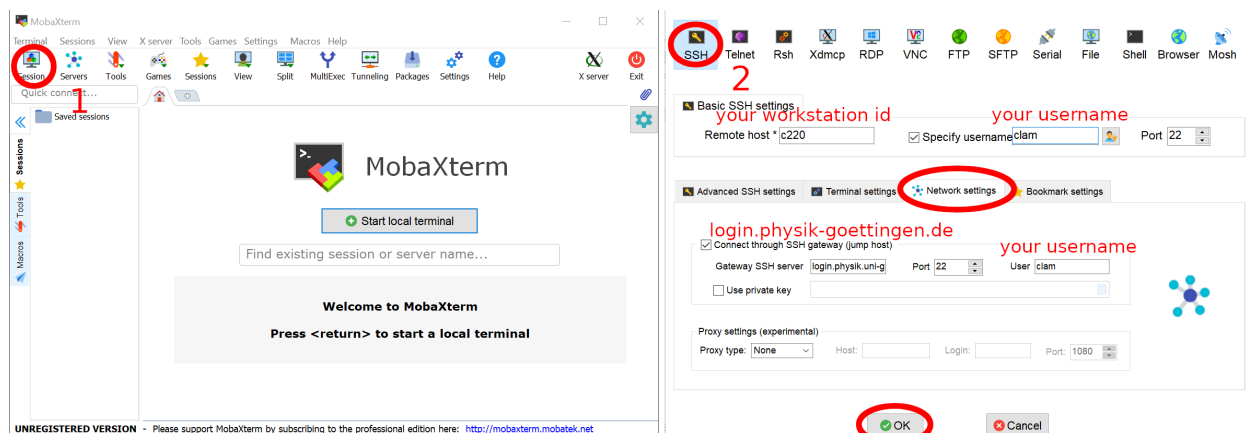


Figure 1: How to log in to the workstation (for Windows): step 1 and 2

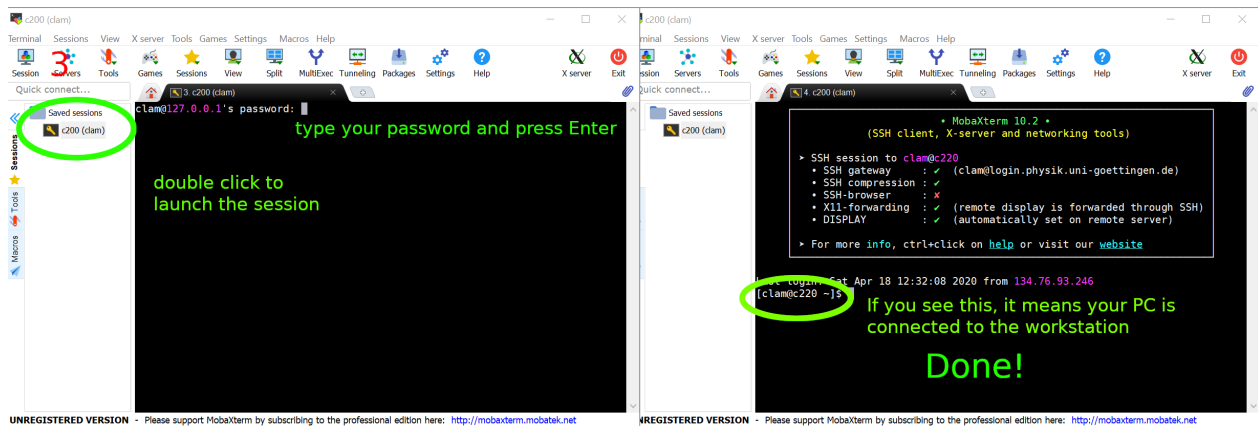


Figure 2: How to log in to the workstation (for Windows): step 3 and 4

2.2 MacOS/Linux

Built-in SSH client: open the terminal before using it. See <https://support.apple.com/guide/terminal/open-or-quit-terminal-apd5265185d-f365-44cb-8b09-71a064a42125/2.10/mac/10.15>. Ubuntu users please see <https://ubuntu.com/tutorials/command-line-for-beginners#3-opening-a-terminal>. Type the following command in the terminal and press ENTER.

```
ssh -J username@login.physik.uni-goettingen.de username@cXXX -XC
```

Please replace 1) username by your own username (e.g. mine is *clam*) and 2) XXX by the computer id uniquely assigned to you (e.g. XXX=220, check the separate list in case you do not know)

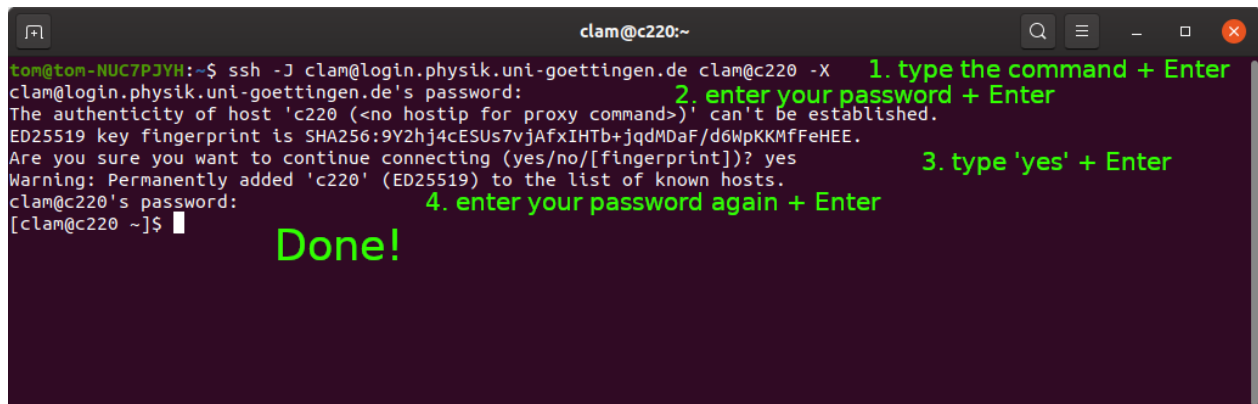


Figure 3: How to log in to the workstation (for MacOS/Linux)

3 Getting fun with Unix shell

Let's make a new directory called **practical1** and put the necessary files for the first practical into it:

```
mkdir practical1
```

Change the current directory to the newly created directory: **practical1**.

```
cd practical1
```

Download and unzip the material:

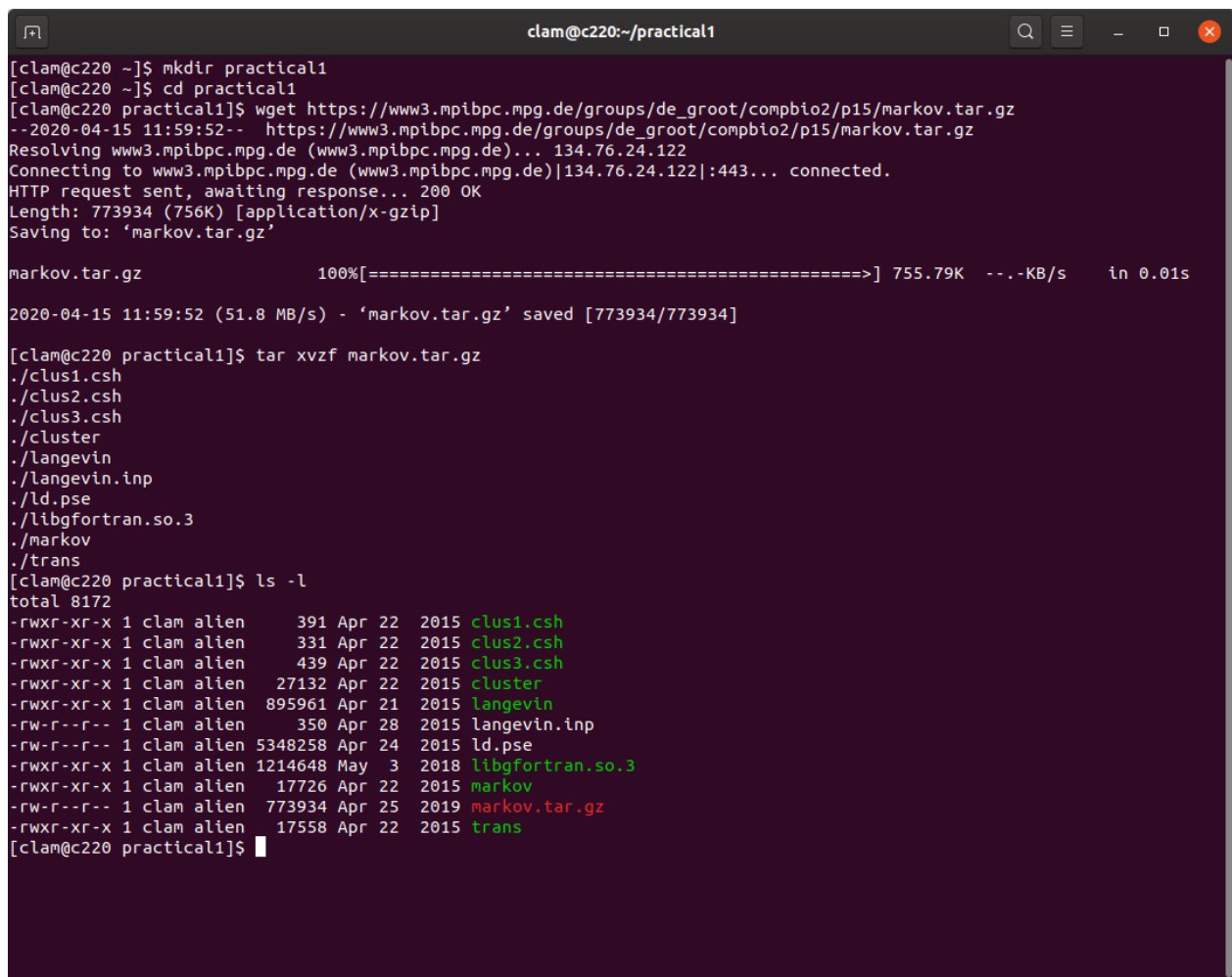
```
wget https://www3.mpibpc.mpg.de/groups/de_groot/compbio2/p15/markov.tar.gz
tar xvzf markov.tar.gz
```

Take a look at what files are extracted:

```
ls -l
```

You can also test the stability of the connection when having a graphical interface remotely:

```
xmgrace
```



```
clam@c220:~/practical1
[clam@c220 ~]$ mkdir practical1
[clam@c220 ~]$ cd practical1
[clam@c220 practical1]$ wget https://www3.mpibpc.mpg.de/groups/de_groot/compbio2/p15/markov.tar.gz
--2020-04-15 11:59:52-- https://www3.mpibpc.mpg.de/groups/de_groot/compbio2/p15/markov.tar.gz
Resolving www3.mpibpc.mpg.de (www3.mpibpc.mpg.de)... 134.76.24.122
Connecting to www3.mpibpc.mpg.de (www3.mpibpc.mpg.de)|134.76.24.122|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 773934 (756K) [application/x-gzip]
Saving to: 'markov.tar.gz'

markov.tar.gz          100%[=====>] 755.79K  --.-KB/s   in 0.01s

2020-04-15 11:59:52 (51.8 MB/s) - 'markov.tar.gz' saved [773934/773934]

[clam@c220 practical1]$ tar xvzf markov.tar.gz
./clus1.csh
./clus2.csh
./clus3.csh
./cluster
./langevin
./langevin.inp
./ld.pse
./libgfortran.so.3
./markov
./trans
[clam@c220 practical1]$ ls -l
total 8172
-rwxr-xr-x 1 clam alien   391 Apr 22  2015 clus1.csh
-rwxr-xr-x 1 clam alien   331 Apr 22  2015 clus2.csh
-rwxr-xr-x 1 clam alien   439 Apr 22  2015 clus3.csh
-rwxr-xr-x 1 clam alien 27132 Apr 22  2015 cluster
-rwxr-xr-x 1 clam alien 895961 Apr 21  2015 langevin
-rw-r--r-- 1 clam alien   350 Apr 28  2015 langevin.inp
-rw-r--r-- 1 clam alien 5348258 Apr 24  2015 ld.pse
-rwxr-xr-x 1 clam alien 1214648 May  3  2018 libgfortran.so.3
-rwxr-xr-x 1 clam alien  17726 Apr 22  2015 markov
-rw-r--r-- 1 clam alien 773934 Apr 25  2019 markov.tar.gz
-rwxr-xr-x 1 clam alien  17558 Apr 22  2015 trans
[clam@c220 practical1]$
```

Figure 4: Some basic Unix/Linux operations

If you can see the above messages, congratulation! It means that you completed the instruction successfully. You are also encouraged to try out the first practical: https://www3.mpibpc.mpg.de/groups/de_groot/compbio2/p15/index.html. Please make sure you can reproduce every step successfully and don't hesitate to ask if anything is unclear to you! My email is **chun-kei.lam@mpibpc.mpg.de**