Computers at Theorie III

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1 Introduction

The purpose of this document is to give an introduction to the available computer equipment at our institute and to provide some guidelines concerning its use. It is *not* intended as an introduction to Unix. If you have any questions, contact one of the system adminstrators (see figure 1).

Name	Location	Phone
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Figure 1: System administrators at Theorie III

2 Computers

2.1 Available equipment

We currently have a number of Linux PCs and a couple of PCs for exclusive use for staff members (see Figure 2). Our main server is `alk`, also known as `theorie3.physik.uni-erlangen.de`. It carries the home directories, World Wide Web and ssh services etc.
Please do **not** run applications on this computer.

Name	Processor	Location
alk	Dual Xeon 3GHz	Server room
manfred	Pentium 200MHz	02.505
wein	Athlon 1800	02.506
kakao	Pentium 2.8GHz	02.532
tee	Pentium 2.8GHz	02.533
hartmut	Pentium 2.8GHz	02.534
wasser	Pentium 2.8GHz	02.535
cognac	Pentium 200MHz	02.702
absinth	Celeron 333	02.704
frieder	Pentium 2.4GHz	02.704
cola	Pentium 2.8GHz	02.706
limo	Pentium 2.8GHz	02.706
milch	Pentium 2.8GHz	02.732
bier	Pentium 166MHz	02.732
kaffee	Pentium 2.8GHz	02.733
saft	Pentium 2.8GHz	02.734
obstler	Athlon 1500	U1.526
vodka	Pentium 200MHz	U1.526
spiritus	Athlon 1500	U1.527
ouzo	Athlon 700MHz	U1.528

Figure 2: Computers at Theorie III

2.2 Using the computers

2.2.1 Linux workstations

Our PC's will present you with an `xdm` login screen asking for your username and password. After login, a default environment will appear where you can start shell windows, mozilla, or read and write e-mail using `pine` or `mutt` (we suggest to use `mutt` for reasons of security and convenience). If you want to start programs on a different computer, open a shell and then type the command `ssh hostname` (see also section 8). This starts a shell prompt on the other computer.

2.2.2 Turning off computers

In general, our computers should *never* be turned off.
It is **not allowed** to boot any of our computers from a floppy disk or CD-ROM.
However, if for some reason you have to reboot or shutdown a computer, make sure there is no floppy or CD-ROM in the drive. Then switch to the console by pressing `Strg`, `Alt` and `F1` simultaneously (`Ctrl` instead of `Strg`, if you use an English keyboard), and then shut the computer down by pressing `Strg`, `Alt` and `Entf` simultaneously (`Crtl`, `Alt`, `Delete` on an English keyboard). Switch the computer off, when the `Rebooting...` message appears)[1].
The *monitors* should be turned off when the computer will not be used for some time, e.g. during lunch or overnight.

2.3 Useful mail aliases

In order to reach certain groups of people at our institute, several mail aliases have been created:

- `alle` – send mail to *all* members of the institute
- `diplomanden` – send mail to all diploma students
- `doktoranden` – send mail to all PhD students
- `postdocs` – send mail to all postdocs
- `profs` – send mail to all professors
- `personal` – send mail to the non-scientific employees
- `sysadm` – send mail to the system administrators

If you want to reach one of these groups, just send an e-mail to
`alias@theorie3.physik.uni-erlangen.de`, where `alias` is one of the names listed above.

3 File systems

3.1 Home directories

We have 15 GB reserved for home directories. Each user of our computers has a quota[2] of 128MB (300MB for a short period). If you need more for plausible reasons, please contact the system

[1] On some of the newer machines, it may be necessary to press the power button for at least 5 seconds, until the computer goes off.

[2] The amount of data she/he can store in her/his home directory

administrators.
Home directories are located [3] at `/home/login`, where `login` is the user name. The home directories are backed up regularly.

3.2 Temporary storage

Due to the limited capacity of the home file systems and the backup media, the home directories should not be used for large files that can easily be regenerated or obtained from elsewhere on the network. There are several locations available for such files. Each of the Linux workstations has disc space available locally in `/net/<name_of_the_computer>`. These file systems can be accessed from any other computer using the path `/net/hostname`, where `hostname` is the name of the computer the file system is on.
Additionally, there is about 128GB free space on alk in `/raid`.
To get access to these directories, please contact the system administrators.

3.3 CD- / DVD-burner

There is a CD- or often even a DVD-burner available in most of the newer computers. We recommend to use `xcdroast` as burning software. When using rewriteable media, you can delete old data with the command `cdrecord dev=0,0,0 blank=<type>`. `type` may take the values `all` or `fast`, where `all` removes all data physically, which may take very long, and `fast` just removes information about existing data.

4 Printers

4.1 Available equipment

We have several printers available, some of them are black/white, some are color printers (see figure 3). If you want to print on a private printer (like frieder, hartmut or jutta) you must ask the owner first. If a printer runs out of ink or toner, if you need transparencies or if you notice any other problems concerning the printers, please contact Jutta Geithner.

Name	Type	Location
default printers		
lj2300	LaserJet	Server room
dj690c	Color Inkjet	02.732
keller	LaserJet	U1.526
PRIVATE printers		
frieder	Inkjet	02.704
hartmut	Color Inkjet	02.534
hpdj5550	Color Inkjet	02.733
jutta	LaserJet	02.532

Figure 3: Printers at Theorie III

[3] The path to your home directory is the same no matter which disk it is on physically or which computer you are working on.

4.2 Using the printers

The printers can be accessed using the standard Unix command `lpr`. They will automatically determine wether a file is ASCII or PostScript. So, to print a file named `filename` on the printer named `printer`, use the command

```
lpr -Pprinter filename
```

Examples:

```
lpr -Plj2300 9610056.ps
lpr -Plj1200 quaf.f
lpr -Pdj690c phd.ps
```

To check which jobs are currently in the print queue, you can use `lpq -Pprinter`. To remove a job, use `lprm -Pprinter id`, where `id` is the job id as reported by `lpq`.
Example:

```
cognac:~/sys/adm> lpr -Plj2300 tp3-computers.ps
cognac:~/sys/adm> lpr -Plj2300 tp3-computers.ps
cognac:~/sys/adm> lpq -Plj2300
Printer: lj2300@rum 'HP DeskJet 500 (mono)'
  Queue: 2 printable jobs
  Server: pid 18589 active, Unspooler: pid 18590 active
  Status: printed all 118218 bytes at 14:05:09
 Rank    Owner/ID                  Class Job  Files              Size Time
active  aoppelt@cognac+952             A  952 tp3-computers.ps  118218 14:05:08
2       aoppelt@cognac+953             A  953 tp3-computers.ps  118218 14:05:09

cognac:~/sys/adm> lprm -Plj2300 953
Printer lj2300@rum:
checking 'cfA952cognac.physik.uni-erlangen.de'
  checking perms 'cfA952cognac.physik.uni-erlangen.de'
  not selecting 'cfA952cognac.physik.uni-erlangen.de'
checking 'cfA953cognac.physik.uni-erlangen.de'
  checking perms 'cfA953cognac.physik.uni-erlangen.de'
  removing 'aoppelt@cognac+953'
cognac:~/sys/adm>
```

5 e-mail

Your e-mail address is `login@theorie3.physik.uni-erlangen.de`, where `login` is your user name, or `First.Last@theorie3.physik.uni-erlangen.de`, where `First` and `Last` are your first and last name. The recommended mail reader is `mutt`, or you can use Mozilla. Other mail readers `pine`, Emacs, XEmacs) are also available.
If you want your mail to be forwarded to another e-mail account, you can do this by creating a text file `.forward` in your home directory and write the destination address into this file. If you also want to keep your mails here, you have to add your `loginname` as first line.

6 World Wide Web

6.1 WWW browsers

We have installed Mozilla and Opera as WWW browser. If you need a text mode browser, lynx is also available. Alternatively, you can use XEmacs.

6.2 WWW server

The WWW server of our institute is located at

`http://theorie3.physik.uni-erlangen.de`

You can host a personal homepage on our WWW server by putting all relevant files into the directory `public_html` in your home directory. Your homepage will then be accesible at

`http://theorie3.physik.uni-erlangen.de/~<your_account>`

7 Mathematical software

7.1 Maple

Maple is available on milch and kakao. It can be used by logging into one of those two and enter the command `maple` (for the shell version) or `xmaple` (for the graphical version). Don't forget the `-X` switch, when trying to use the graphical version (see section 8.2).
Please note, that, altough the maple binary is visible on all machines, the program can be startet on milch and kakao only, due to license issues.

7.2 Mathematica

Mathematica is also available on milch and kakao. Like maple it can be used by logging into the machine and enter `/usr/sbin/mathematica`. Since there is no non-graphical version, you have to use the `-X`-switch when logging on (see section 8.2).

8 Security

8.1 Passwords

Your password is the primary security mechanism of our Unix machines. A hacker who manages to obtain your password can gain access to our systems and either destroy/damage our data or abuse our systems for illegal purposes. So, it is important that your password is difficult to break. Here are some guidelines for good passwords; a longer excerpt is attached to this document: A good password

- should have both uppercase and lowercase letters.
- should have digits and/or punctuation characters as well as letters.
- should be easy to remember, so it does not have to be written down.
- should be seven or eight characters long.
- can be typed quickly so someone looking over your shoulder cannot determine your password – so practice typing your password!

Another rule to keep in mind: Don't use the same password at different institutions. That way, if one of your passwords is cracked, the security of only one institution is compromised.
Also, whenever you use `telnet`, `rsh` or `rlogin` to log into a remote system and have to type your password, any computer between you and the remote system has the potential to capture

your password. With `rsh/rlogin`, you can use the `~/.rhosts` file to avoid having to type your password. However, the best security is gained by using `ssh` (if available) since then the password is transmitted in an encrypted form.

How to change your password

You can change your password at any time using the command `yppasswd`. It will first prompt you for your old password and then ask you to enter the new password twice. It will also do some checks to see whether your new password is "secure enough" and may refuse to change it if the new password is too simple.

8.2 Logging in from outside

The usual methods of logging into remote computers (i. e. `telnet, ftp, rlogin`) are rather insecure. These programs will transmit everything unencoded – your password is transmitted as plain text. Everyone with access to the network between your computer and the remote machine can just read off your login name and password without anyone noticing. Due to the weaknesses of these protocols, we do not allow access to our computers from outside with these programs using the user password. There are several secure ways to access our computers:

- `ssh` (secure shell): `ssh` is a program for logging into a remote machine and for executing commands in a remote machine. It provides secure encrypted communications between two untrusted hosts over an insecure network. X11 connections can also be forwarded over the secure channel (you don't have to set `$DISPLAY` in that case, instead you have to login using the `-X` option of ssh, for example: `ssh -X -l trini theorie3.physik.uni-erlangen.de`). You can access all our computers using `ssh`, all the communications between the two computers will be encrypted.

  Usage:
  `ssh` <user name>`@hostname`
  Example:
  cssun:~> `ssh trini@theorie3.physik.uni-erlangen.de`
  `trini's password:`
  alk:~>

- `scp` (secure copy): `scp` copies files between hosts on a network. It uses `ssh` for data transfer, and uses the same authentication and provides the same security as `ssh`. `scp` will ask for passwords or passphrases if they are needed for authentication.

  Usage:
  `scp` [[user@]host1:]`filename1` [[user@]host2:]`filename2`
  Example:
  cssun:~> `scp * trini@alk.physik.uni-erlangen.de:~/`
  `trini's password:`
  cssun:~>

Please note, that for reasons of security, access from outside the institutes network is possible to alk only!

For `ssh` and `scp` to work, they must be installed on the computer. If you are unsure where they might be located or whether they are installed at all, please ask the local system administrator. You can find out more about the commands by reading the manual pages (`man ssh`). Enabling verbose mode (by using the command line option `-v` when you invoke `ssh`) might help you in case of difficulties.

9 Usage Notes

While we do not currently require you to sign any document when you receive an account on our computer systems, you implicitly agree to obey the rules specified in this section. If you break these rules, the system administrators reserve the right to implement appropriate penalties and/or counter-measures, including disabling your account or reducing it in functionality.

9.1 User guidelines for all computers at the University

The Senate of the University has created a document specifying user guidelines that apply to all computer systems at the University, including our computers. These user guidelines, as well as an unofficial translation into English (see appendix A), are attached to this document.

9.2 Personal data

Altough we backup your home directory each night, we do not take any responsibilities for lost or damaged files! Please take care for the consistency of your files yourself.
Furtheron, it is sometimes (although rarely) absolutely necessary to reboot computers or to shut down the internet connection (e.g. if the machines have to be updated due to a new security issue). Please make sure, that your software will continue to function correctly, even if it is interrupted unexpectedly. We do not take any responsibilities for damages caused by an emergency shutdown!

9.3 Printing

The printers are to be used for research purposes. Please only print out preprints that you actually intend to read. Please make sure that there is enough paper in the printer, and pick up your printout.

9.4 World Wide Web

The world wide web has lots of interesting offers, both informative and entertaining. Nobody objects to moderate use for private entertainment, but certain rules of good taste should be followed. In particular, there is a consensus that pornography is not acceptable (see also the usage guidelines of the University). The same applies to material involving racial discrimination, excessive violence etc. This issue has been addressed several times in the last few months; however, there are still incidents of people downloading graphics and/or movies with pornographic content.

Private homepages: The usage guidelines also apply to the content of users' private homepages. In particular, commercial use is prohibited. Private content is tolerated within reasonable limits of size and usage. Bear in mind that while your homepage is not an official part of the university's web servers, it nevertheless can influence the public image of the university. It is not allowed to use the official icons of the university or otherwise try to give the impression that a private page is part of the official web presentation of the university. Obviously, it is not permitted to offer any possibly offending material (as described above) or links to such material.

A Translation of the user guidelines of the University

Note: This incomplete translation is provided for informational purposes only. In all cases, the text of the official German version applies. Passages that have been left out or are incomplete are marked by [...].

University of Erlangen-Nrnberg
–Senate commission for computing systems–
Usage guidelines

for information processing systems of the University of Erlangen-Nrnberg
June 2, 1995

1. Range of application of the usage guidelines
These usage guidelines apply to computing systems (computers), communication networks (networks) and further auxiliary systems for information processing [...]. They regulate the modalities for use of these systems, in particular the users' rights and duties and the tasks of the system operators.

[...]

4. Formal usage entitlement

1. For use of systems according to no. 1, a formal usage entitlement provided by the responsible system operator is required, with the exception of anonymous services.
2. System operators for
   (a) central systems are the RRZE (regional computing center),
   (b) decentral systems the appropriate organisatorial units, such as faculties, institutes, chairs and further sub-units of the University of Erlangen-Nrnberg.

[...]

5. User's general duties

1. The systems according to no. 1 may only be used for the purposes determined by law. Use for different purposes, in particular private or commercial purposes, can only be allowed at request and for a fee.
2. The user is commited to
   (a) ensuring a responsible use of the existing resources (workstations, CPU capacity, hard disk storage, network capacity), since these are limited.
   (b) working only under his own user id.
   (c) protecting access to the systems using a secret password or equivalent means.
   (d) taking measures to prevent unauthorized other parties from accessing the systems; in particular, this means not using primitive, obvious passwords, changing the passwords often and not forgetting to log out..

(e) when using systems of other providers, following their respective usage and access guidelines.

The user bears the full responsibility for all actions performed under his user id.

6. User's further duties

1. The user is commited to

   (a) in principle not using software except if developed by himself or provided by the system operators;

   (b) respecting the conditions under which licensed software is provided,

   (c) in particular not copying, passing on, or using for purposes other than allowed, in particular commercial or private purposes, software that is not marked as freeware.

2. The user is prohibited from

   (a) installing software that has not been provided,

   (b) modifying the hardware installation,

   (c) changing the configuration of operating systems or the network

   without permission by the appropriate system operator.

   [...]

4. The user is commited to respecting relevant documents for usage, such as those relating to the usage of networks and to ethical and legal questions of software use.

5. Each and every user is responsible for the consequences of the programs he executes. He has to inform himself in advance sufficiently about the consequences.

7. System operator's liability / Exclusion of liability

1. The system operator offers no guarantee that the system functions according to the user's specific needs or that the system operates without errors or interrruptions.

2. The system operator is not liable for damages of any kind that the user suffers from use of the systems according to no. 1, except for wilful conduct of the system operator or the persons responsible for the system operator's tasks.

8. Consequences of improper or illegal use

1. In case of violations of legal regulations or the rules of these usage guidelines, in particular

   - improper use of the systems according to no. 1 for purposes other than those allowed,
   - determination of someone else's passwords,
   - attempts to break into other systems, data or computer networks, or
   - violation of copyrights,

   the system operator may limit or withdraw the usage entitlement as long as proper use by the user does not seem to be ensured. In the process, it is irrelevant whether the violation caused material damage or not.

2. In the case of serious and repeated violations, a user [...] can be permanently excluded from use of all systems according to no. 1. The decision is taken by the RRZE for the entire range of application of these usage guidelines.

3. Regardless of decisions according to items 1 and 2, steps according to criminal law and claims according to civil law need to be considered. The system operators are commited to reporting facts that are significant, either criminally or according to civil law, to the law division of the ZUV (central university administration) which will consider the initiation of further appropriate steps.

9. System operators' tasks

1. Each system operator maintains documents about the usage entitlements and resource allocations he provided. These documents need to be kept for at least two years after the expiration of the entitlement. The system operator is commited to confidentiality.

2. Before installing additional software asked for by a user, the system operator needs to check its harmlessness considering protection of the systems and whether the user may rightfully use it considering copyrights.

3. The system operator may

   (a) document a user's activities as far as this seems necessary for tracking errors or abuse;

   (b) examine a user's data in case of concrete suspicions of improper use of the systems.

   Further, the system operator has the right to carry out spot checks to determine whether the systems are being used improperly.

4. The system operator announces the contact persons in charge of his users and issues further additional usage guidelines when necessary.