ILSB Computer System
Information for Students Using the FE-Lab
Introduction

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Most Important

- **account-sharing is strictly forbidden**

- **never give password to anybody**

- **DO NOT REBOOT**
  - or switch on/off

- **logout when leaving** (more than 20 min.)

- **if problems occur — tell the ILSB-staff**

- **for every lecture a separate ACCOUNT REQUEST FORM has to be filled**

ILSB Computer System

- Information for students who will work
  - in the **FE-Lab** of the ILSB (room BE 02 01)
  - and with the server `student`

- the ILSB FE-Lab is accessible using the Student ID card
  - when requested together with the account

- occasionally closed
  - when classes are given in the FE-Lab
  - for schedule see: `http://www.ilsb.tuwien.ac.at/felab`

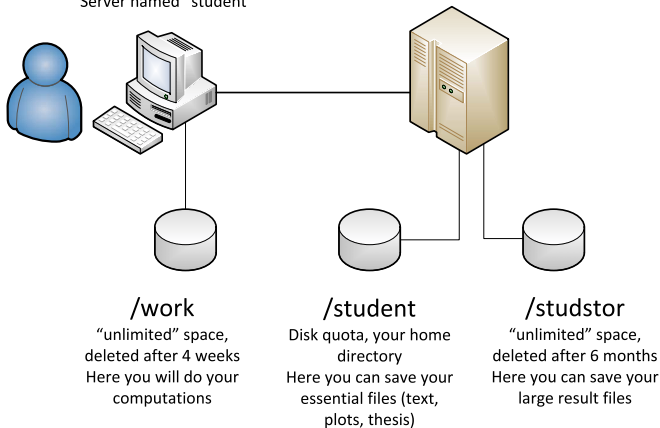# Hardware Components

- ▶ FE-Lab computers `felabXY`
    - ▶ all computers are equal
    - ▶ some of them may be reserved for designated lectures
    - ▶ if your favorite computer is occupied — take another one ...
        - ▶ check *load info* on the screen top right
    - ▶ every user has a `home` directory

        - ▶ it is on a **file server**, not on the local computer
        - ▶ it is unique — the same from each FE-Lab computer!

- ▶ File Server
    - ▶ located in a separate server room
    - ▶ RAID system (redundant data storage in case of disk errors)
    - ▶ regular data back-up

- ▶ Additional Servers
    - ▶ for various, designated services
        - ▶ mid to large size numerics, mail, internet, ...

Hardware Components

Student file space

Desktop PC (FE-Lab),
Server named "student"

/work
"unlimited" space,
deleted after 4 weeks
Here you will do your
computations

/student
Disk quota, your home
directory
Here you can save your
essential files (text,
plots, thesis)

/studstor
"unlimited" space,
deleted after 6 months
Here you can save your
large result files

Server — Terminal — Data

It is not a bunch of Personal Computers ...
but a highly integrated network of computers with different duties.
Users must be aware of three fundamentally different components.

- ▶ Compute Server
  - ▶ that computer who's CPU is crunching the numbers

- ▶ Terminal
  - ▶ the computer you sit in front of with keyboard and mouse

- ▶ Data (storage medium)
  - ▶ hard disk where data is stored, written to, and read from, e.g.
    - ▶ home directory – disk in the file server
    - ▶ **work disk** in the FE-Lab computer
    - ▶ **work disk** in the compute server

These components are connected via the ILSB-intranet.

Typical Usage - Example

Running, e.g., a Finite Element analysis on an FE-Lab computer:
This produces not only an output database with the results
but also a huge amount of temporary data (which will be deleted
by the program when the analysis has been finished).
from what we've learned so far

- ▶ to run the job on `felabXY` (=compute server)
    - ▶ one has to be logged on to `felabXY`
- ▶ typically, one sits in front of `felabXY` (=terminal)
- ▶ data must be on a hard disk of `felabXY`
    - ▶ ... /work
    - ▶ analysis must be started from there

- ▶ If the data is on the *home* directory, all data traffic is transference via the ILSB intranet!
- ▶ This will slow down the ILSB computer system
    - ▶ your work, your colleagues' work, the ILSB staff's work
    - ▶ ... the ILSB sys-admin will tell you ...

First Steps

- all FE-Lab computers are equal
- operating system: LINUX
- every user has one unique `home` directory
  - at file server, not local

- **do not** reboot or switch on/off!
  - jobs may run in the background
  - problems: tell the ILSB staff

- login ...
  - username is your matriculation number (with leading *e*)
  - inital password is printed on your *account info* sheet
    - automatic request to change the initial password
- changing the password (later)
  - open a *TerminalEmulation*
    - *screen* icon in the bottom task bar
  - type `passwd`
    - and follow the instructions ...
- the password is the same on ALL FE-Lab computers
- after three wrong attempts — account is locked for 10 min.

FE-Lab Desktop and File System

- home directory
  - use sub-folders to organize your data
  - data is *safe* (raid system)

- local work disk
  - to run large simulations (e.g. FEM computations)
  - to be found in the `file manager` under `filesystem/work`
  - make sub-folder *yourusername* (*eXXXXXXX*)
    - copy input file there
    - run analysis
    - do post-processing
    - move result files from there to your `home`-directory
    - remove all other files
  - no redundant data storage (disk crash $\rightarrow$ data lost)
  - automatic deletion of data older than 4 weeks

- work disk of other FE-Lab computers
  - `/nfs/felabXY/work`

- logout
  - green *exit* icon (top left)

Some Basics on Linux

- typically, programs are started in a command line
  - open a *TerminalEmulation*
  - type the command and the press *returnkey*
  - follow the instructions ...

- file management
  - graphical *filemanager* can be used, or
  - using Linux commands in a *TerminalEmulation*, see e.g.
    - http://www.tuxfiles.org/linuxhelp/linuxfiles.html
    - http://www.tuxfiles.org/linuxhelp/fileman.html
    - http://www.tuxfiles.org/linuxhelp/dirman.html

- CAUTION - the remove command in Linux `rm`
  - there is NO trash can to restore the removed files
  - **... it's gone!**
  - the same for moving/renaming (`mv`) to existing files

Editing, Printing, Web Browsing, etc.

- ▶ many file editors are available
  - ▶ `gedit` is the default editor
  - ▶ `gvim` is a powerful one, including *syntax highlighting*

- ▶ printing in the FE-Lab - monochrome only
- ▶ printer name: *post3dh*
  - ▶ via the GUI
  - ▶ command line: `lpr -Ppost3dh` *filename*
    - ▶ for PDF, PS, TXT files

- ▶ Documentation on various ILSB topics
  - ▶ http://www.ilsb.tuwien.ac.at/student
  - ▶ other than *USER GUIDES FE - Pre&Post* may be out-dated

Maintaining Economic Data Management

- remove all files which are no longer needed
  - empty trash can, too

- keep only useful input and result files

- files should have headers!
  - which can be understood a few months later, too

- when project/thesis is finished
  - make an archive of the simulation jobs and the report/thesis
    - keep the input files of the runs presented in the report/thesis
    - keep results data bases (if possible)
    - save figures and diagrams (including the data sets)
  - structure the archive in sub-folders
  - add *read.me* files explaining the content
  - clean up!
  - tell you advisor/lecturer

Summary

- distinguish between
    - compute server
    - terminal
    - data (disk)

- reduce stored data

- **do not reboot**
    - nor switch on/off

- this presentation can be found at
    - `http://www.ilsb.tuwien.ac.at/student/`
- additional presentations on related topics are available

ILSB Students' Hompe Page

Hints; Questions ... and Answers

hints:

- file and directory names — **do not** use "blanks", special characters, etc.

- use the default *Xfce session* in the bottom task bar (at the login screen)