

Account Primer

Faculty of Mathematics, TU Dortmund

Mathematikrechner-Betriebsgruppe (MRB)
mrb@mathematik.tu-dortmund.de

September 22, 2016

This document is intended to provide a kick start for anyone who recently acquired an account for the heterogeneous computer system of the Faculty of Mathematics at TU Dortmund University. It briefly describes the main services available at the faculty and how to connect to its network.

If you have never worked with Unix based operating systems before, i.e. you have no experience with either one of Linux, Solaris, Irix, HP UX, Mac OS X and/or you have never used with a command prompt, you will most likely want to follow a short introductory course on Unix in general to get at least a basic grasp of its concepts and possibilities. You will find many books on the topic as well as online resources. We recommend, e.g.:

- The Unix command line - beginner's and advanced level, <http://www.mathematik.uni-dortmund.de/~buijssen/unix-command-line/unix-command-line.html>
- UNIX Tutorial for Beginners, <http://www.ee.surrey.ac.uk/Teaching/Unix/index.html>
- Introduction to UNIX and Linux: Tutorial lectures and exercise sheets, <http://www.doc.ic.ac.uk/~wjk/UnixIntro/index.html>
- Linux-Einführung, presentation by Compute Centre Hannover (in German only), <http://www.rrzn.uni-hannover.de/fileadmin/kurse/material/UnixGK/UnixGK.pdf>¹
- The Linux Command Line, <http://linuxcommand.org/tlcl.php>
- More tutorials are available at <http://www.unixtools.com/tutorials.html> or via any search engine.

¹Additionally available: Linux course exercise plus solutions, <http://www.rrzn.uni-hannover.de/fileadmin/kurse/material/UnixGK/Uebung.pdf> and <http://www.rrzn.uni-hannover.de/fileadmin/kurse/material/UnixGK/Loesungen.pdf>.

Contents

1	IGEL thin-clients / Linux terminal service	3
1.1	USB pen drives (new IGEL firmware)	4
1.2	USB pen drives (old IGEL firmware)	5
2	Home and data directory	5
2.1	Backup	6
3	Printing	6
4	Software	7
4.1	Editors	10
4.2	Browsers	11
4.3	E-mail client	12
4.4	PDF viewer	12
4.5	OpenGL software	12
5	Windows server	12
6	Mail server	13
6.1	Signature	14
6.2	Spam	14
6.3	Limitations imposed by mail server	14
6.4	Hints	14
7	Web server	15
8	Setting up a web presence for a lecture (a.k.a. mini websites)	16
8.1	Formatting	16
8.1.1	Paragraphs	16
8.1.2	Text formatting	17
8.1.3	Links	17
8.2	File upload	17
8.3	Password protection and publishing date	17
8.4	Responsibility	17
8.5	Lifetime	17
8.6	Examples	18
9	Compute servers	18
10	SSH, SFTP and FTP access	18
10.1	Chain logins	19
10.2	Remote desktop	19
11	Changing user password and mail forwarding	20
12	Reporting problems a.k.a. Ticket system	20
12.1	Overview of your tickets	20
12.2	Creating a new ticket	20
12.3	Information regarding a specific ticket	21

1 IGEL thin-clients / Linux terminal service

Typically, professors, research assistants and student workers get an “IGEL UD5 Universal Desktop Thin Client” for accessing the computer systems of the Faculty of Mathematics at TU Dortmund, Germany. An IGEL terminal is a stateless thin-client, i.e. it features a display, keyboard and mouse and USB ports² running a small Linux environment. Using the ThinLinc client software³, a user connects to one of the Linux terminal servers where the actual desktop session runs. Since summer 2014, these are one of two Linux terminal servers running CentOS 6 named

- `greenhouse1`
- `greenhouse2`

They offer Gnome⁴ as window manager.

Relying on thin clients as standard workstations may seem uncomfortable at first, but it does provide several advantages:

1. One can re-connect to a previously started and later suspended ThinLinc session running on the Linux terminal servers from any device that runs the ThinLinc client software. This can be the very same IGEL thin-client terminal used to start the session, but also an IGEL thin-client terminal in another office and even a private notebook/laptop or personal computer at home. This way it is possible to pick up the desktop session at home exactly where you left it in your office and vice versa.
2. If an IGEL thin-client terminal malfunctions, it is very easy to replace it. There is no need to re-install software or transfer data from the old device to the new one.
3. In case of power fluctuations, the IGEL thin-client terminal may reboot, but the desktop session running on the Linux terminal servers typically keeps running due to their having a more robust power supply. This helps to minimise events of inadvertently interrupting long-running calculations due to power malfunctions.
4. Total hardware cost of IGEL thin-client terminals plus the few central Linux terminal and file servers is lower and their administration requires less manpower than acquiring and administrating approximately 100 individual workstations which typically have – given that experience has shown that they are not bought at the same time, but when needed – varying hardware and hardware defects.

A user account is by default valid on all terminal and compute servers (get an overview over all available servers on the server load web page <http://www.mathematik.tu-dortmund.de/~{mrb}/serverload.html>) and allows log in to all of them except

- the mail server `smtpl` (also known as `hermes`). Users are only able to access their e-mails via the (SSL-encrypted) IMAPS protocol (port 993) and send e-mails via the (SSL-encrypted) SMTPS protocol (port 587). For security reasons, they are not permitted shell access.⁵
- the web server `euler`. Access is granted on request, see section 7.
- the Microsoft Windows terminal servers. Access is granted on request, see section 5..

²Please note that the USB ports of an IGEL thin-client terminal do not provide enough power to operate external hard drives, CD/DVD/BluRay burners, scanners etc. USB sticks (also known as pendrives), keyboards, mice, smartphones should work, though - if and if only the ThinLinc session was started from an IGEL terminal!

³The client software is freely available from <http://www.cendio.com/ThinLinc/download> for Windows, Mac OS X and Linux.

⁴See <https://en.wikipedia.org/wiki/GNOME>.

⁵See section 6 for details on accessing e-mail.


Please consider that the Linux terminal servers `greenhouse1/2` are general purpose servers aiming to deliver an office infrastructure! It is severely frowned upon to start highly resource consuming compute jobs on them. If noticed, such processes are typically terminated by an administrator. A number of Linux-based compute server exist that are dedicated to computing purposes, see section 9. For tasks that require a large number of compute cores for a considerable time (e.g. large parameter studies or parallel runs involving more than a dozen compute cores), users are advised to apply for an account on LiDOng, the Linux compute cluster at TU Dortmund.⁶

1.1 USB pen drives (new IGEL firmware)

Recent IGEL firmwares (version 5.08.100 and above, release dates in 2016) do not support an automount feature any more, unfortunately.⁷ Meaning that one needs to explicitly unmount the USB pen drive before pulling it out of the IGEL terminal, as traditionally the case with operating systems like Linux, Windows and MacOS.

When plugging a USB pen drive into an IGEL thin-client terminal, it gets automatically mounted and its content appears under `$HOME/thindrives/media/[DRIVE NAME]`, if and if only the following conditions are met:

- the USB pen drive has a suitable file system, i.e. FAT16/FAT32/vfat or NTFS
- the **ThinLinc session** was **started from an IGEL** thin-client terminal. Having merely resumed an existing ThinLinc session that did not get started from an IGEL thin-client terminal is not sufficient.

Before removing the USB pen drive from the IGEL terminal, the user needs to explicitly unmount it. The unmount option is only available on the IGEL desktop and involves click in the lower right corner on the eject icon . To access the IGEL desktop when a ThinLinc session is running

- press F8 within the ThinLinc session (or in case you customised the popup menu key in the ThinLinc client's options menu your custom key)
- deactivate the option **Full screen**,
- clickin on the eject icon in the lower right corner, select the option **Safely Remove Hardware**, then choose the corresponding drive
- press F8 within the ThinLinc session,
- activate the option **Full screen**,
- unplug the drive.

Obviously, one can also choose **Disconnect Session** instead of deactivating **Full screen** to access the IGEL desktop, but would need to re-login afterwards to resume the then suspended ThinLinc session.

⁶See <http://www.itmc.tu-dortmund.de/dienste/hochleistungsrechnen/lido.html>.

The cluster is currently administrated by staff that is also part of MRB and as such working on LiDOng is very similar to working on our compute servers. Admission is rather low level, regular progress report as required at other compute facilities is currently not requested nor are there currently financial obligations for LiDOng usage for TU Dortmund employees.

⁷You can check your firmware version by returning to the IGEL terminal desktop, clicking on the icon with yellow background in the lower left corner of the desktop that depicts the outline of a hedgehog's snout and subsequently selecting the "About" menu entry.

1.2 USB pen drives (old IGEL firmware)

When plugging a USB pen drive into an IGEL thin-client terminal running a firmware before 5.08.100⁸, it gets automatically mounted, is accessible under `$HOME/thindrives/autofs/storageX` and automatically unmounted after 2 seconds of inactivity, if and if only the following conditions are met:

- the USB pen drive has a suitable file system, i.e. FAT16/FAT32/vfat or NTFS
- the **ThinLinc session** was **started from an IGEL** thin-client terminal

The `X` in `$HOME/thindrives/autofs/storageX` is a automatically incremented number, starting from zero. If merely a single USB pen drive with a single partition is connected, its content is accessible in subdirectory `storage0`. Two USB pen drives with 4 and 2 partitions, respectively, would be mounted as `storage0` up to `storage5`.⁹

The IGEL terminals are configured to automatically trigger unmounting a connected USB pen drive if no process has asked access to `$HOME/thindrives/autofs/storageX` for more than 2 seconds. So, if no file manager accesses `$HOME/thindrives/autofs/storageX` any more and there is no terminal window still running with a working directory `$HOME/thindrives/autofs/storageX` or a subdirectory thereof, a connected and mounted USB pen drive gets disconnected, the subdirectory `storageX` will get removed and it is safe to remove the pen drive from the USB port. Any attempt to access an automatically unmounted USB pen drive later on inside the ThinLinc session (e.g. by invoking

```
ls $HOME/thindrives/autofs/storageX
```

or via a graphical file manager) will cause the IGEL terminal to immediately trigger a re-mount.

2 Home and data directory

Every user gets a quota (size) restricted home directory which is subject to automatic backups every workday and a file space that is not quota restricted, but also not backed up.

Regardless to which terminal or compute server, the home and nobackup file space is always the same. A user's home directory is accessible on all Unix based servers via `/home/user/<account>`. As usual in a Unix environment, an environment variable named `$HOME` points to it.

For user convenience, there typically exists a symbolic link in a user's home directory to the not quota restricted file space. The symbolic link is strikingly named `nobackup`. In other words, the paths `/home/user/<account>/nobackup` and `/data/<fileserver>/<account>` can be used interchangeably. As indicated by the name of the symbolic link any data stored in `/data/<fileserver>/<account>` will be definitely lost if one accidentally deletes or overwrites it.¹⁰

Quota limitation for the home directory is typically around 10 GiB. This quota restriction needs, unfortunately, to be deployed for two reasons: Firstly, to avoid single users from being able to overflow the available disk space and by this derogate the work environment of all other users. Secondly, to prevent a too big strain on the ITMC's backup resources which would lead to the backup procedure not finishing within the 24 hour window.

The data or nobackup file space comprises approximately 10 TB shared among all users. A user is kindly requested to keep disk usage within reasonable limits to not inhibit the work of others by causing this file

⁸To check firmware version, please refer to footnote 7 on page 4

⁹If the ThinLinc session was, however, started from a non-IGEL device, e.g. a personal computer or laptop, the session subsequently suspended and then resumed again from an IGEL thin-client terminal, an USB pen drive will **not** get mounted automatically! A symptom is that the directory `$HOME/thindrives/autofs` did not get created automatically. In some cases, a file system object named `$HOME/thindrives/cdrom` is shown instead which is inaccessible, i.e. can not be read from nor written to.

¹⁰The files are protected by a reasonably powerful RAID solution, though, to deal with most events of *hardware* failure.

system to overflow. Being purposely not quota restricted this file space can overflow and has done so in the past which led to untimely ending of simulations that had been running for days and weeks. A top twenty list of users that occupy most disk space in the data file space is available at

```
http://www.mathematik.tu-dortmund.de/~mrb/misc/filespaceusagepillory.php
```

To reduce file space consumption, users are encouraged to delete or archive and compress old files using compression tools like `gzip`, `bzip2` etc.

2.1 Backup

All data in a user's home directory except for anything stored underneath `$HOME/nobackup` is backed up automatically by the ITMC. The time the backup robot starts the backup can not be configured by the MRB and depends on how long it takes to back up other compute resources at other faculties of TU Dortmund. Having said that experience has shown that backup typically starts between 5.15pm and 5.45pm on weekdays. There is no backup on weekends.

The backup stores the latest version of a file system object (file, directory, symbolic link, etc.) as well as its previous version. Such a previous version, if any, is kept for 30 days. If a file system object is deleted from a user's file space, it can be restored from backup up to 60 days after deletion.

The backup server merely talks to the file servers hosting the home directories – `doncamillo`, `warehouse13` and `warehouse15` –, both for backup and restore operations. Given that direct user login to the file servers is restricted for security reasons a user that needs some files or directories to be restored from backup needs to contact the MRB to perform this task. A user is kindly requested to be as precise as possible which files and/or directories need to be restored if it comes to the pinch.

3 Printing

Every chair at the Faculty of Mathematics has on average two printers that are connected to the network. They are named according to their features and the room number where they are physically installed. If you are a new user, ask a colleague for the printer names and their location.

The printers are administered through a CUPS print service.

The default printer can be set by means of the environment variable `$PRINTER`. To set the default printer to, e.g., `ps635`, `tssh` users invoke¹¹

```
setenv PRINTER ps635
```

and `bash` users

```
export PRINTER=ps635
```

Typically, the system already sets the `$PRINTER` environment variable at login time correctly based on the chair a user belongs to. To overwrite this setting permanently, `tssh` users are required to add the abovementioned command to `$HOME/.cshrc` and `bash` users to `$HOME/.bashrc`, both being files that are parsed automatically at login time after the system settings file have been parsed.

To actually print a postscript or PDF document from the command line, use

```
lpr <file>
```

or specify the printer queue specifically (overriding the `$PRINTER` setting) via

¹¹To determine whether your login shell is set to `tssh` or `bash`, please check the environment variable `$SHELL`. It can be queried, e.g., by `echo $SHELL`.

```
lpr -P<printer> <file>
```

Example: `lpr -Pps635 <file>`

4 Software

Software requirements vary greatly among different chairs and users. In order to cater for those varying needs, all servers rely on a software package called “Environment Modules”¹². It facilitates the process of adapting environment variables (i.e. search paths) in order to be able to locate and start a specific software package in a certain version. Example: The GNU Compiler Collection (`gcc`) is installed in a variety of versions on the various Linux servers. Older software packages typically require older GCC releases while newer prefer more recent releases. By means of the command

```
module avail gcc
```

a list of all installed `gcc` versions can be retrieved. To learn more about a specific module, issue its fully qualified name (excluding any string contained in parenthesis, if any)

```
module help cmake/2.8.2
```

This will print a small help screen giving away details about this module. A dedicated software version can be made available by invoking

```
module load cmake/2.8.2
```

To switch from a previously loaded CMake version to another one issue

```
module switch cmake/2.8.2 cmake/2.8.10.2
```

A module can be explicitly made unavailable by means of

```
module unload cmake/2.8.10.2
```

Please continue reading <http://www2.hlrn.de/doc/modules/> for a comprehensive tutorial about the “Environment Modules”.

If a user finds himself/herself to frequently load the same number of modules, it is advisable to add the relevant commands to a user’s personal initialisation file. For `tsh` users this is `$HOME/.cshrc` and for `bash` users `$HOME/.bashrc`. A sample `$HOME/.cshrc` that distinguishes between different Unix operating systems is

```
set operatingSystemAndKernel='uname -a'

# Show a welcome message to the user to inform him what is being done here
# automagically on login - BUT only in case of an interactive login. For
# non-interactive logins - think about scp and sftp connections - any output on
# standard output or standard error must be avoided. Otherwise the connecting
# scp/sftp client is very likely to immediately hang up after connecting to the
# server!
set allowMessages=0
if ($?tcsh && $?loginsh) then
    set allowMessages=1
endif

switch ( "$operatingSystemAndKernel" )
```

¹²See https://en.wikipedia.org/wiki/Environment_Modules_%28software%29.

```
case Linux*:
  # Check whether /etc/issue exists. If it does, it contains the name of
  # the Linux distribution and allows this way a finer grained control
  # than simply comparing Linux kernel numbers
  if ( -e /etc/issue ) then
    switch ( "'cat /etc/issue'" )
      case CentOS*release*6*:
        if ($allowMessages) then
          echo "# (~/.cshrc:) Automatically loading modules for CentOS 6.x system"
        endif

        # Load Intel C/C++ and Fortran compiler and GotoBLAS1 - to
        # be able to compile Featflow2 (relying on the requirements
        # of the default build ID)
        module load intel/cce/14.0.3.174 intel/fce/14.0.3.174
        module load intel/mkl
        module load paraview
        breaksw

      case Ubuntu*12.04*:
        if ($allowMessages) then
          echo "# (~/.cshrc:) Automatically loading modules for Ubuntu 12.04 system"
        endif

        breaksw

      case default:
        # unconfigured operating system
        if ($allowMessages) then
          echo "# (~/.cshrc:) Please note that ~/.cshrc has not been set up yet"
          echo "#           for this operating system!"
        endif
        breaksw
    endsw
  endif

  # Put settings here that hold for all Linux systems, e.g. alias definitions

  breaksw

case SunOS*:
  if ($allowMessages) then
    echo "# (~/.cshrc:) Automatically loading modules for Sun Solaris SPARC system"
  endif

  # Do not load/unload any module file automatically on login, currently
  breaksw

case default:
  # unconfigured operating system
  if ($allowMessages) then
    echo "# (~/.cshrc:) Please note that ~/.cshrc has not been set up yet"
```



```

        echo "#           for this operating system!"
    endif
    breaksw
endsw

# Have tab completion be silent, if it can not complete a file name.
set no beep

# Shortcut aliases
alias matlab 'module add matlab; \matlab'
```

Bash shell users have to edit a different startup file, namely `$HOME/.bashrc`. Equivalent instructions for them read like

```

operatingSystemAndKernel='uname -a'

# Show a welcome message to the user to inform him what is being done here
# automagically on login - BUT only in case of an interactive login. For
# non-interactive logins - think about scp and sftp connections - any output on
# standard output or standard error must be avoided. Otherwise the connecting
# scp/sftp client is very likely to immediately hang up after connecting to the
# server!
# Detect a non-interactive session by trying to remove 'i' from environment
# variable $-.
if [ "${-}" != "${-/i/}" ]; then
    allowMessages=1
else
    allowMessages=0
fi

case "$operatingSystemAndKernel" in

Linux*)
    # Check whether /etc/issue exists. If it does, it contains the name of
    # the Linux distribution and allows this way a finer grained control
    # than simply comparing Linux kernel numbers
    if [ -e /etc/issue ]; then
        case "$(cat /etc/issue)" in
            CentOS*release*6*)
                if [ $allowMessages -eq 1 ]; then
                    echo "# (~/.bashrc:) Automatically loading modules for CentOS 6.x system"
                fi

                # Load Intel C/C++ and Fortran compiler, Math Kernel library and Maple
                module load intel/cce/14.0.3.174 intel/fce/14.0.3.174
                module load intel/mkl
                module load maple
                ;;

            Ubuntu*12.04*)
                if [ $allowMessages -eq 1 ]; then
                    echo "# (~/.bashrc:) Automatically loading modules for Ubuntu 12.04 system"
```

```
        fi
        ;;

    default)
        # unconfigured operating system
        if [ $allowMessages -eq 1 ]; then
            echo "# (~/.bashrc:) Please note that ~/.bashrc has not been set up yet"
            echo "#             for this Linux system!"
        fi
        ;;
    esac
fi

# Put settings here that hold for all Linux systems, e.g. alias definitions

;;

SunOS*)
    if [ $allowMessages -eq 1 ]; then
        echo "# (~/.bashrc:) Automatically loading modules for Sun Solaris SPARC system"
    fi

    # Do not load/unload any module file automatically on login, currently
    ;;

default)
    # unconfigured operating system
    if [ $allowMessages -eq 1 ]; then
        echo "# (~/.bashrc:) Please note that ~/.bashrc has not been set up yet"
        echo "#             for this operating system!"
    fi
    ;;
esac

# Have tab completion be silent, if it can not complete a file name.
set bell-style visible

# Shortcut aliases
alias matlab='module add matlab; \matlab'
```

4.1 Editors

List of available editors on the Linux terminal servers `greenhouse1/2`:

- `soffice/libreoffice` (= Libre Office in version 4.x)
- `emacs`
- `vi`
- `vim`

- `gedit`
- `kate`
- `kwrite`
- `lyx`
- `nedit`

Via a terminal session on the Windows server¹³ or an encrypted console session (`ssh`) on one of the other Linux servers additional editors are available for terminal users:

- Open Office 4.1.1 (from within a windows terminal session, see section 5)
- Microsoft Office Professional Plus 2010 (from within a windows terminal session, see section 5)
- Notepad/Write (from within a windows terminal session, see section 5)
- TeXmaker (from within a windows terminal session, see section 5)
- PSPad editor (from within a windows terminal session, see section 5)
- `kate/kwrite` (from within a `ssh` session to a Linux server)
- LibreOffice 4.x (from within a `ssh` session to a Linux server)
- `vi`
- `vim`
- `gedit`
- `kate`
- `kwrite`
- `nedit`

4.2 Browsers

List of available browsers on the Linux terminal servers:

- `firefox`
- `konqueror`

Via a terminal session on the Windows server or an encrypted console session (`ssh`) on one of the Linux servers additional browsers are available for Linux terminal users:

- Internet Explorer (from within a windows terminal session, see section 5)
- Mozilla Firefox (from within a windows terminal session, see section 5, or a `ssh` session to a Linux server))
- Opera (from within a `ssh` session to a Linux server running Ubuntu 12.04, see output of `getubuntu12.04`)
- Google Chrome (from within a `ssh` session to a Linux server running Ubuntu 12.04, see output of `getubuntu12.04`)

¹³Which can be started by issuing the command `win.alpha --no-fullscreen`. Remember to contact the MRB to request account setup on the Windows terminal server before trying to connect to it for the first time.

4.3 E-mail client

List of available e-mail clients on the Linux terminal servers:

- `thunderbird`

Via a terminal session on the Windows server or an encrypted console session (`ssh`) on one of the Linux servers additional editors are available for Linux terminal users:

- Mozilla Thunderbird (from within a windows terminal session, see section 5, or a `ssh` session to a Linux server)
- `konqueror` (from within a `ssh` session to a Linux server)
- `kmail` (from within a `ssh` session to a Linux server running Ubuntu 12.04, see output of `getubuntu12.04`)
- `alpine` (text-based, from within a `ssh` session to a Linux server)
- `emacs` (text-based, from within a `ssh` session to a Linux server)

4.4 PDF viewer

List of available PDF viewers on the Linux terminal servers:

- Adobe Reader `acroread` (via `module` command)
- `evince`
- `ghostview`
- `gv`
- `okular`

4.5 OpenGL software

A word of advice for those who want to use OpenGL based visualisation software, e.g. GMV or ParaView: The IGEL thin-client terminals inherently can not provide hardware rendering. OpenGL commands that are typically interpreted by graphic chips (GPUs) need to be translated into software commands, i.e. realised in software rendering. This translation is supposed to happen transparently and works more stable than on the old Sun Ray servers the faculty had in use until summer 2014. But due to software bugs, the translation might not go smoothly and as a result a user's desktop session might crash (resulting in an immediate logout and the loss of unsaved data) when trying to use hardware rendering. Terminal users are hence advised to not use the command `gmvg1` or any of the official ParaView binaries, but their Mesa based counterparts instead: the command line program `gmv` instead of `gmvg1` and ParaView modules that clearly state having been built against Mesa – this holds for any of ThinLinc user, regardless whether he/she connects from an IGEL thin-client terminal or a private computer.

5 Windows server

A user account can be, but is not by default, granted access to the terminal servers running Microsoft Windows Server 2008. To access them, the user needs to invoke the command

```
win.alpha
```

on the command line when logged in to one of Linux terminal servers. There is only a limited number of terminal licenses available, so accessing the terminal servers may not be possible at all times.

6 Mail server

Along with a user account¹⁴ a mail account is automatically set up following the scheme¹⁵

```
<forename>.<surname>@math.tu-dortmund.de
```

By default, every user gets several e-mail aliases as well, all of which redirect to the very same mail account. The aliases are:

```
<forename>.<surname>@mathematik.tu-dortmund.de    <account name>@mathematik.tu-dortmund.de
```

For historic reasons, the `.tu-dortmund.de` suffix can be substituted with `.uni-dortmund.de`, too.

This mail account is *not related to UniMail* service provided by the ITMC¹⁶. A user is free to set up mail forwarding from UniMail to the Math Faculty mail server or vice versa. Mail forwarding from the Math Faculty mail server to other addresses can be enabled by logging into the web interface `https://admin.mathematik.tu-dortmund.de:11271/` using a user's math account and password.¹⁷

The mail server provides a webmail interface at

```
https://www.mathematik.tu-dortmund.de/
```

and an SSL/TLS-secured IMAP interface:

```
incoming server name:  smtp.mathematik.tu-dortmund.de
port:                  993
protocol:              IMAP(S)
user name:             <math account>
connection security:  SSL/TLS
authentication method: normal password
```

The SSL certificate for the mail server should not raise any warnings with current e-mail clients any more! It is signed by the ITMC TU-Dortmund whose certificate's authority is in turn acknowledged by the certificate of Deutsches Forschungsnetz ("German Research Network"), usually abbreviated to DFN whose certificate's authority is in turn acknowledged by the certificate of "Deutsche Telekom Root CA 2". The latter is known by most current e-mail clients and/or operating systems such that the certificate chain will get trusted by your e-mail client. If not, visit `http://www.pki.tu-dortmund.de/` to get a copy of the root certificate "Deutsche Telekom Root CA 2" and follow the instructions given there to install it.

From inside and outside the Faculty of Mathematics network, it is possible to send e-mails using this mail server:

```
outgoing server name:  smtp.mathematik.tu-dortmund.de
port:                  587
protocol:              SMTP(S)
user name:             <math account>
connection security:  SSL/TLS
authentication method: normal password
```

¹⁴A user account typically consists of up to 8 characters and is in general made up using the first letter of the forename of a person and up to the first seven letters of his/her surname. In case of account name conflicts trailing letters are substituted by numbers, e.g. there `hmueller`, `hmuelle0` etc.

¹⁵The e-mail address is case insensitive.

¹⁶`http://unimail.tu-dortmund.de/`

¹⁷This web site is only available from within the university network. When using an external access provider, you will need to establish a VPN or SSH connection first. Otherwise the math firewall will not let you connect to this website.

Alternatively, a user can use the ITMC's UniMail service as a mail relay host:

```
outgoing server:    unimail.uni-dortmund.de
port:              465
protocol:          SMTP(S)
user name:         <unimail account>
connection security: SSL/TLS
authentication method: encrypted password
```

6.1 Signature

Please be aware that the TU Dortmund – for corporate design and legal reasons – obliges its employees to use a standardised signature, followed by a disclaimer. Please refer to

https://service.tu-dortmund.de/en_GB/group/intra/e-mail-signatur¹⁸

for details and a sample signature.

6.2 Spam

The mail server does not provide a spam detection service on its own. Instead, it relies on the same content security anti-spam software solution the ITMC uses for its separate e-mail service, UniMail¹⁹. Any e-mail addressed to a mailbox hosted on our mailserver has to first pass through Cisco Ironport servers before being eventually delivered to our server. The ITMC assures that no e-mails get deleted or are withheld there. But mails can get rejected if the sending host is not properly set up as a mail host²⁰ or is (temporarily) blacklisted due to a bad reputation (for sending massive amounts of spam or malware).

Every e-mail is scanned by Cisco Ironport and a spam score is calculated. For e-mails with a spam score larger than 90 the subject is rewritten: it gets the prefix “[SPAM]”. “SUSPECTED SPAM” is prepended to the subject for e-mails with a spam score larger than 50.

6.3 Limitations imposed by mail server

Please note (and keep in mind) that the mail server imposes one restriction on your mail client's settings: The server does not support folders that contain **both** sub-folders **and** messages. Just either one. Make sure to adjust your mail client accordingly! For Mozilla Thunderbird the setting is done in a dialog that can be reached via the menus **Edit - Account Settings - Server Settings - Advanced**. The option is named **Server supports folders that contain sub-folders and messages**, see figure 1.

6.4 Hints

Depending on your mail client you may observe folders to be listed with obscure names. Names like

¹⁸At the time of writing this, that web page is only available in German, despite the fact that it is listed as English version.

¹⁹<http://unimail.tu-dortmund.de/>

²⁰Technical details: according to ITMC representatives mails are rejected by Cisco Ironport for sending hosts without a fully qualified name or for which a reverse mapping via DNS fails. Additionally, mail receipt is throttled by Cisco Ironport for those servers that send out mails to too many invalid recipients (“Directory Harvest Attack Prevention”).

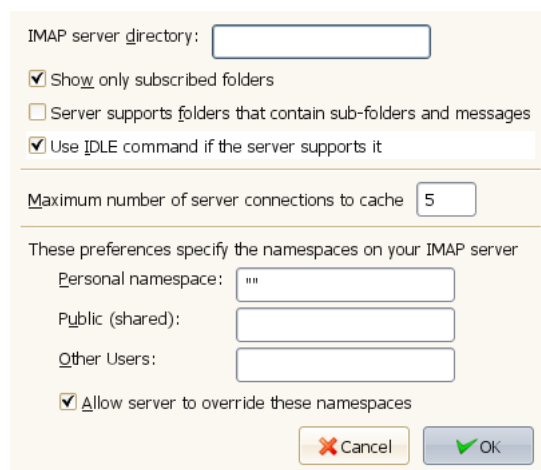


Figure 1: Mozilla Thunderbird dialog to configure mail server settings

```
.forward
.history
.profile
.procmailrc
.spamassassin
.subscriptions
```

These files are not supposed to be listed as mail folders as they are system files, but sometimes they are nonetheless displayed in a mail client. There are two possible workarounds: Either explicitly unsubscribe those “mail folders”²¹. Or organise all your mail folders as sub-folders of a single one. For this purpose

1. create a single mail folder, e.g. named `mailfolders`, and move all existing mail folders into this folder. Then,
2. tell your mail client that all e-mails are located in a directory with the name you just chose. In Mozilla Thunderbird, the option is named `IMAP server directory` and can be located via the menus `Edit - Account Settings - Server Settings - Advanced`, see figure 1. Because all system files will remain in their default location, which is not underneath the custom e-mail folder you just created, they will never be displayed again.

7 Web server

A user’s default web page

```
www.mathematik.tu-dortmund.de/de/personen/person/<firstname>+<familyname>.html
```

is automatically generated at night from data stored in the Faculty of Mathematics database. A user can change his/her personal settings like research interests and research tasks, e-mail forward, specify a link to a separate private web site (as well as the account password) via the aforementioned web interface at

```
https://admin.mathematik.tu-dortmund.de:11271/
```

using the math account and password. A dedicated login to the web server is not required for this.

²¹In Mozilla Thunderbird, from the context menu choose `Subscribe` and remove the tick from the check-box behind any “mail folder” you do not want to be displayed any more. Then click `Ok` or `Apply`.

Sometimes it is necessary to add custom web pages and/or upload material to the web server. One way to accomplish this is the mini website system (see next section). Another – providing more freedom, but entailing a greater security risk for the server – is to grant a user account access to the web server (euler) for this matter. Please contact the MRB for that.

8 Setting up a web presence for a lecture (a.k.a. mini websites)

The mini website system was developed to cope with the rising demand for temporary websites. Most lecturers would like to have a website accompanying their current lectures on which they can easily offer exercise sheets and additional materials.

All users with access to our local machines can create mini websites on this page:

<https://www.mathematik.uni-dortmund.de/sites/>

To use the interface, you have to log in first (using your standard faculty account, **not** our Unimail account). Afterwards you can create a new website by clicking on "Neue Webseite anlegen".

For a new website you need to provide the following information

- "Kategorie": type of the website, i.e. website for a lecture or a personal homepage
- "Layout": look of the website (this can be changed at any time, so just try which one you like most).
- "Titel": title for the website; this is also used to determine the URL of the website, e.g. "Meine persnliche Seite" can be found at

<http://mathematik.tu-dortmund.de/meine-persoenliche-seite/>

- "Veröffentlichungsdatum": date and time from which onwards the website should be accessible as well for users who are not logged in
- "Inhalt": text for the welcome page.

For new pages you can build a hierarchy by specifying a parent page ("Elternseite"). The title is also used for the URL: "Eine Seite" generates

<http://mathematik.tu-dortmund.de/meine-persoenliche-seite/eine-seite/>

8.1 Formatting

The markup formatting language is used for all page text:

8.1.1 Paragraphs

- Use empty lines to separate paragraphs
- 1., 2., 3. at the beginning of the lines for enumerations
- - or * at the beginning of the line to itemize
- > at the beginning of the line for quotes
- 4 spaces at the beginning of the line for source code block (alternatively you can use 4 or more tildes (~~~~) in the lines before and after a block to fence a source code block

8.1.2 Text formatting

- `*text*` for italics
- `**text**` for bold
- `***text***` for bold and italic
- ````code```` for verbatim text (monospace font, i.e. all letters have the same width)

8.1.3 Links

- `[link text](eine-seite)` to create a link to “eine-seite” with the given text
- `[link text](.)` to link to the welcome page

You can preview the formatted text by clicking on the checkmark button above the text area.

8.2 File upload

Uploaded files keep their original name. Existing files will be overwritten without warning. Additionally you can give a title which will be shown in the files list.

If you uploaded at least one file, a list of files will automatically be included on the page.

You can link to uploaded files by means of

`[my file](download/filename.ext)`

8.3 Password protection and publishing date

For all pages and files a publishing date and a password can be specified. Files are only listed publicly from the given time onwards. Nonetheless you can access them earlier if you know the direct link to the file.

You can specify one or more name:password pairs for pages, e.g.

`ws1213:secretpassword ss13:donttell`

8.4 Responsibility

We reserve the right to take websites offline without further notice, if they are abused in any way.

Only the original creator can change the content of the pages and is therefore fully responsible for it.

Mini websites are reserved for work related content only. So creating a page for your curriculum vitae is ok, creating one about your holiday location(s) is not.

Be careful not to upload any copyrighted works!

8.5 Lifetime

The general idea is that the mini websites have a limited lifetime. They generally are only important during a lecture cycle.

From time to time we will remove old mini websites. Generally, we will delete nothing without contacting the site owner first.

8.6 Examples

The following URLs illustrate what can be achieved using the mini website system:

<http://www.mathematik.uni-dortmund.de/sites/lehrstuhl-funktionentheorie>

<http://www.mathematik.uni-dortmund.de/sites/latex-kurs-september-2012>

<http://www.mathematik.uni-dortmund.de/sites/demo>

9 Compute servers

A number of Linux based compute servers is available at the Faculty of Mathematics. Their usage, though, is typically restricted to the members of a particular chair because the servers were project based provided to solve dedicated research problems. For a complete list of compute servers and the mapping compute server to chair see the web site www.mathematik.tu-dortmund.de/~mrb/serverload.html.²² The web site also lists the number of resources per compute server. The colours green, yellow and red are intended to indicate how many of the resources of a compute server are already in use. To start a computation on a compute server that exhibits already red load levels is considered imprudent and reckless behaviour and strongly discouraged. If you choose to do so nonetheless, you basically would be penalising yourself as your job is likely to run longer than on a compute server less crowded.

Please, contact the server owning chair (resp. MRB) if you are not a member of that chair and need to allocate its resources (cpu, memory) permanently. Acquirements of new servers must to be discussed with MRB.

10 SSH, SFTP and FTP access

The only means to connect to the network of the Faculty of Mathematics is the SSH protocol. FTP access is purposely not available. Because of abuse in the past, the default SSH port of 22 is blocked by the firewall and hence not accessible from outside the math network. Use the port 22122 instead.

Free and commercial SSH/SCP/SFTP clients are available for all operating systems. Prominent examples for Microsoft Windows platforms are

- SSH access
 - KiTTY, <http://www.9bis.net/kitty/>
 - PuTTY, <http://www.chiark.greenend.org.uk/~sgtatham/putty/>
 - SSH client shipped with Cygwin
- for SCP/SFTP access
 - WinSCP, <http://winscp.net>
 - FileZilla, <http://filezilla-project.org>

²²There is a custom command line program available to query all compute servers, `showload.pl`, and another custom command line program to query single compute servers: `askloadserver <host>`. They will display statistics about current load, load average in last 5 and 15 minutes, users logged in and cpu plus main memory details.

Please ask the MRB if you need help choosing a program.

Please note that another popular SSH client for Windows, namely the last non-commercial version of **SSH Secure Shell**²³ got released in 2003 and is now too outdated. It can not be used to access our servers as it does not support the required stronger encryption algorithms.

When trying to log in from a IP address outside of the Math network, you have 3 attempts to log in successfully. After 3 failed attempts, the IP address is banned from further logins for 30 minutes in order to obstruct brute force SSH password attacks.

10.1 Chain logins

SSH and SCP/SFTP are installed on all our servers and workstations permitting a user to log in from a server A to another server B. It is obviously possible on server B to use ssh again to log in to another machine C or even back to A again. This situation is referred to as a “chain login”. Resorting to chain logins is strongly discouraged!

Why is this a bad habit? Firstly, because all data (your keyboard input as well as any screen output) needs to be repeatedly encrypted. Once for every machine you ssh-d through. This obviously slows down response time and is simply a waste of resources and network bandwidth.

Secondly, a chain login heightens the risk of loosing a unsaved changes in an editor running on a remote host or forfeiting a long-running simulation. Obviously, every server in your login chain needs to keep running as long as your editor session or simulation does. Admittedly, servers tend to be online 24/7, but their operating system needs to be patched regularly for security and bug-fixing reasons and some of these patches require a reboot. Beyond that, you might want to keep in mind that even server hardware is not perfect and may fail. For instance due to power fluctuations that last even less than a second which do, on average, occur once or twice a year and might cause a server to be abruptly turned off. Servers with powerful GPUs (ashenvale, azeroth, kalimdor, stonetalon) are reboot prone, too, because the way these GPUs are used at our department regularly reveals bugs in the GPU driver, bugs which are merely remediable by a reboot.

10.2 Remote desktop

Beside plain terminal sessions through the SSH protocol, graphical sessions are possible, too. The terminal servers **greenhouse1/2**, all Linux workstations as well as a few Linux compute servers run a 50-user license of Cendio ThinLinc each. The software enables a user to work from his personal computer or laptop at home on the Faculty of Mathematics servers as if he/she were logged in regularly in his office. The client software is available for most operating systems and downloadable free of charge via

<http://www.cendio.com/downloads/clients/>

A ThinLinc client is configured as follows: As server to connect to give the fully qualified server name

```
<server>.mathematik.tu-dortmund.de
```

as well as your user account name and password in the appropriate fields. There are two non-default settings one needs to specify in the advanced dialog that pops up when hitting the “Options” button. In the “Security” tab set the SSH port to 22122 and in the “Local Devices” tab disable export of the local sound device²⁴. Please note that with ThinLinc one does not need to end a user session by logging out. Such a terminal session can also be suspended and resumed later, even if the re-connect happens from a different hardware, operating system or at a different screen resolution.

²³Search FTP sites for a binary named SSHSecureShellClient-3.2.9.exe

²⁴Note that this option is unavailable in the ThinLinc client for Mac OS X at the time of writing.

11 Changing user password and mail forwarding

A single password for all the servers and IT services at the Faculty of Mathematics (“single sign-on”) is used. A user can change his/her account’s password by logging in to

`https://admin.mathematik.tu-dortmund.de:11271/`

selecting “Benutzer” – “Passwort ändern” and entering and confirming a new one.²⁵ Unlike in previous years, this change takes effect immediately. In other words, from that moment on the new password is required to access the mail server, the web server and all other 70+ compute servers at the Faculty of Mathematics.

Mail forwarding settings can be set and altered using the same URL via the menu “Benutzer” – “Mailumleitung ändern”.

12 Reporting problems a.k.a. Ticket system

Since autumn 2012, the MRB officially employs a ticket system to manage support requests and problem reports. Its main purpose is twofold: to give the users more insight in the work flow of the MRB and to avoid that support requests get overlooked or that issues get resolved without the user learning about this.

To access the ticket system, open the following URL in a browser of your choice:

`https://admin.mathematik.tu-dortmund.de:11272/`

This web page is accessible from the intranet, but also outside of the university network.

12.1 Overview of your tickets

It is necessary to log in using the faculty account information. To view all support requests (a.k.a. tickets) you issued in the past, click on “Support-System der MRB”. Tickets you created are only visible to you and members of the MRB team.

The overview shows the status of a ticket and when it got edited last.

12.2 Creating a new ticket

To file a new support request, go to the overview page and “click on Neues Ticket anlegen”. Please provide for every ticket a short description (as title) and a detailed description. The latter should include all the information that could help the MRB when trying to solve the problem. This comprises

- for software problems: which steps are necessary to reproduce the problem (including the name of the server the problem occurred on, the means by which you are connected to this server (sitting in front of its keyboard or remotely connected by e.g. ssh protocol), the modules you might have loaded etc.)
- for errors on web pages: the URL of the web page
- for orders: a detailed list of your requirements
- for new accounts: name, sex, chair as well as ways to contact new staff members If necessary, you can upload files (e.g. screen shots or files that trigger the error etc.)

²⁵Note that a few Windows installations (with name prefix “unimatrix”) still use their own, separate authentication server. If you have an account there, changing your Math network user password via the mentioned database interface URL will not automatically update the password information on those Windows servers, too, unfortunately.

12.3 Information regarding a specific ticket

Clicking on the title of a ticket listed in the overview page opens up its detail view.

The work flow for a ticket is a such:

- As soon as you create a ticket, it gets assigned the status “New”. The members of the MRB are automatically informed via e-mail that a new ticket has been created. At this very moment, no member of the MRB has been assigned yet to resolve the issue.
- Next, the MRB manually assigns the ticket to a member of the MRB – or declines it. In the event that a ticket gets declined, you will receive an e-mail informing you about the reason. Typically, a ticket gets declined if insufficient information regarding the issue has been given. You may subsequently amend your ticket description and re-open the ticket.
- Having been assigned a particular ticket, the MRB manually accepts the ticket in question. It is appended to his todo list. This is when a working on a ticket actually starts. The ticket status changes to “Open”.
- A ticket gets status “Holding” if there are impeding circumstances. For instance, a new laptop/workstation/server needs to get delivered first before it can be installed and configured.
- Status ”Solved” indicates that the problem described in the ticket has been resolved. Processing of the ticket ends.
- Status ”Closed” indicates that processing of a ticket has been given up upon: the underlying problem could not get properly resolved. This may, e.g., happen
 - if the problem happened only once or can not be reproduced any more,
 - if the solution involves licences that are not available any more²⁶,
 - if the solution would involve a software update, but the vendor is unwilling to provide such a patch, because our service agreement does not cover such a solution (any more).

Whenever a ticket gets changed, you will be informed automatically via e-mail about it.

You have the possibility to add comments to your tickets at all times. This way you can provide additional hints to solve the issue and inform us about changes.

To file a comment, click on the title of your ticket and fill in the comment text box at the lower end of the detail view.

²⁶Example: “Maple 13 does not work any more.” can not be resolved because the ITMC has discontinued the according licence servers and only supports Maple 16.