Workstation maintenance

supermicro02 maintenance, user and data management

IP and network mounts

- there are 3 active network interfaces on the workstation, configured manually
    - **`10.24.11.83`** - optic fiber external IP
    - **`169.254.24.83`** - optic fiber link to prom computer
    - **`169.254.9.244`** - RJ45 link to the RAID backup system
- the external IP can be used to login into the machine using ssh, rdp, etc. from within the clinic network
- on the workstation there are several mounts, which are connected like this:

```
/mnt/illumina - cifs mount for 10.203.68.36/vol_mk_01/illumina
# ln to /home/sysgen/illuminadata, this is where our Illumina sequencers save raw
data, folders are organized by machine, managed by GBIT, Erik Lemke und Peter
Kühnel

/mnt/novaseq - cifs mount for 10.203.68.36/vol_mk02/NovaSeqIMGAG
# ln to /home/sysgen/novaseqdata, this is where IMGAG sends NovaSeq data, managed
by GBIT, Erik Lemke und Peter Kühnel

/mnt/promdata - nfs mount for prom at 169.254.24.35:/data
# ln to /home/sysgen/promdata, this is where PromethION (next to the workstation)
saves runs by default

/nfs/home - nfs mount for backup RAID server at 169.254.9.245:/homes
```

- the prom computer is connected with a manual subnetwork to the workstation. The MAC address of the prom network card used for this is EC:0D:9A:D9:9C:CE
- for the prom mount to work, nfs-kernel-server has to be installed and the service must be running on the prom computer
- for the prom mount to work, edit the `/etc/exports` on the prom computer, backup under `/home/sysgen/Desktop/ncct-projects`
- the above mounts are performed via `/etc/fstab`, a backup of the `/etc/fstab` file is available at `/home/sysgen/Desktop/ncct-projects`

Proxy settings - all users use the mk1ubun1 account

- All internet connections go through a proxy server

```
httpproxy.zit.med.uni-tuebingen.de:88
```

- The environment variables (HTTP_PROXY, HTTPS_PROXY, FTP_PROXY) for the proxy are set in the /etc/profile file. All of these variables point to the same proxy server: http://user:pass@httpproxy.zit.med.uni-tuebingen.de:88
- Ask Peter Kühnel or Erik Lemke for user:password
- for apt to work , edit the /etc/apt/apt.conf.d/proxy.conf to add these lines:

```
Acquire::http::Proxy "http://user:password@proxy.server:port/";
Acquire::https::Proxy "http://user:password@proxy.server:port/";
```

In addition, the following files have to be changed per user (do not set proxy variables in .bashrc or .zshrc):

```
~/.docker/config.json
~/.gitconfig
~/.condarc
~/.Renviron
```

For Docker maybe this instead of ~/.docker/config.json works:

```
$ sudo mkdir -p /etc/systemd/system/docker.service.d
$ sudo vi /etc/systemd/system/docker.service.d/http_proxy.conf
[Service]
Environment="HTTP_PROXY=http://<your_proxy_ip>:<your_proxy_port>/"
$ sudo vi /etc/systemd/system/docker.service.d/https_proxy.conf
[Service]
Environment="HTTPS_PROXY=http://<your_proxy_ip>:<your_proxy_port>/"
$ sudo systemctl daemon-reload
$ sudo systemctl restart docker
```

Conda proxy settings

- Edit /home/sysgen/.condarc

```
proxy_servers:
http: http://mk1ubun1:Mk190206@httpproxy.zit.med.uni-tuebingen.de:88
https: http://mk1ubun1:Mk190206@httpproxy.zit.med.uni-tuebingen.de:88
```

- Error: ResolvePackageNotFound, try:

```
conda config --set restore_free_channel true
```

R and RStudio settings

When under Windows, contact Erik Lemke and Peter Kühnel

User management and permission settings

Each user should log in with his/her username, sysgen should be used only for administration purposes.

User niceness - not used now
sysgen has highest priority, all other users are set with lower priority by editing the file `/etc/security/limits.conf`. See example for philipp in this file.

Directory access management and group memberships
Access to directories used by more than one person is managed by using setgid on these directories. In this way, all members of a group will have read/write access to such a directory and its children. To see which users are members of a group:

```
getent group ncct
```

The important groups on the workstation are **`ncct`** and **`docker`** - all users that want to work under `ncct-projects` should be members of these two groups. To add a user to a group:

```
sudo usermod -a -G ncct baris
```

To check if the user has been added to the group correctly you can use the command:
`id username`
which will return the groups the provided username is assigned to.

Depending on the system a relogging of the user could be necessary so the changed permissions take effect.
This can be done manually by closing and opening the terminal and reconnecting or via the command:
`su $(whoami)`

To set the setgid bit on a directory

```
# set ncct group setgid bit on directory test
sudo chmod g+s ncct test

# check that test has the setgit bit, note the s in place of the executable bit for the group
ls -ld test
drwxrwsr-x. 2 sysgen ncct 4096 Nov 1 17:25 test
```

When used on a directory, the `setgid` bit alters the standard behaviour so that the group of the files created inside that directory will NOT be that of the user who created them, but that of the parent directory itself.

change a user password:
you have to login with sysgen account
`sudo passwd username`
then you can enter a new password

Permission Settings

More information about permissions and the setgid command can be found on the linuxhandbook homepage.

Mount folders under Windows
Some workstation folders can be mounted via `samba` under Windows. See `/etc/samba/smb.conf` for the details

To mount a **user home** (e.g. `/home/sysgen/user`) on Windows: - not working now

- click on your mkxxx username,
- Netzlaufwerk verbinden
- use **`\\10.24.11.83\username`** as network location
- use your workstation credentials

To mount the **ncct-projects** folder under Windows:

- click on your mkxxx username,
- Netzlaufwerk verbinden
- use **`\\10.24.11.83\NCCTprojects`** as network location
- use your samba credentials (different than your workstation credentials)

The following samba users are allowed to mount the **ncct-projects** folder:
`baris, janina, kschmauder, mkangea1, mksonnm1, sysgen, ulrich, jmueller`

Walkthrough setup a new user with access to ncct-projects

- add user
- add user to **`ncct`** and **`docker`** groups (siehe vorherige Seite)
- add user to samba: sudo smbpasswd -a username (see user management metagenome cluster)
- restart samba to activate the changes: sudo systemctl restart smbd.service
- edit `/etc/samba/smb.conf` to add user to valid users under NCCTprojects share
- edit proxy settings in `~/.docker/config.json, ~/.gitconfig, ~/.condarc` and `~/.Renviron` (not necessary for users only for sysgen)
- change default shell to zsh (optional) - `usermod -s /bin/zsh username`

Backup concept

- These folders are backed up with rsync to /nfs/home once a week, using cron jobs:

```
/home/sysgen/Desktop/ncct-projects
/mnt/promdata
```

- The crontab entries are:

```
0 23 * * * rsync --progress --size-only -av ~/Desktop/ncct-projects/
/nfs/home/ncct-projects >crontab-ncctprojects-last.log 2>&1
0 03 * * * rsync --progress --size-only -av ~/promdata/ /nfs/home/promdata
>crontab-promdata-last.log 2>&1
```

- The `/nfs/home` is the mount for the nfs RAID6 backup system (109 TB effective), up to two hard disks can fail without compromising data.

Hard disks - check disk health once per month!

- The hard disks on the workstation are organized in two RAID clusters, using AVAGO MegaRAID SAS 9460-16i. To get info on the status etc.:

```
sudo /opt/MegaRAID/storcli/storcli64 /c0 show
```

- The `storcli` command can also be used to turn off sound alarm when a drive fails:

```
sudo /opt/MegaRAID/storcli/storcli64 /c0 set alarm=off
```

Where is the project data and data flow

- All sequencing data (except big prom projects) is under:

```
/home/sysgen/Desktop/ncct-projects
```

- Each project folder has the structure yymm-zz, e.g. 2006-mw for Matthias Willmann project from June 2020. In case of possible duplications, additional info can be given, e.g. **2006-mw-wgs**
- In case there is a QBiC barcode for a project, it is also appended, e.g. **2006-mw-QNANO**
- The original prom data is mounted under /mnt/promdata, the passed fastq files are also copied to /home/sysgen/Desktop/ncct-projects

If 'ls' freezes in the /home folder

- Try:

```
sudo umount -l /mnt/promdata
```

Enter BIOS

- Press "**ESC**" and " **-**" at the same time. (https://www.supermicro.com/support/faqs/faq.cfm?faq=14029)