Documentation utilisateur

Data retention

NB, part of the following instructions come from [1].

Snapshots

First of all, which snapshots do we keep?

- **4hourly** : 1 snapshot chaque 4 heures, avec une queue de **42**. Nous conservons donc un historique d'une semaine.

In the middle of the current week, the **4hourly** snapshots will span two weeks (the previous one and the current one)!

- **weekly** : 1 snapshot par semaine (le dimanche) avec une queue de **6**. Nous conservons donc un historique d'un mois et demi (6 semaines).

This is not a **consolidation** of the **4hourly** snapshots, but a completely independent process!

Then, how to access them?

- *Windows*: in the `File Explorer`:
  ⇒ right-click on the folder (either at the share root or at any sub-folder), then `Properties → Previous Versions`
- *Mac or Linux*:
  ⇒ enter the `.snapshot` **hidden** folder

Backups

NB, this originates from [2].

For anti-ransomware reasons, we also have a backup on tape of each NAS share, thus completely independent from the NAS infrastructure.

Some notes:

1. while our goal is to have **3day** backups, we assure only at least a **weekly** backup.
2. data that has been deleted from the NAS share is kept up to **2 years** after the deletion date.

Then, how to access them?

These backups are not (and will never be) directly accessible to the end-user, but you need to contact storage@unige.ch to have more information about the date availability and to recover data!

Data transfer

rsync

NB, the following instructions come from [3)]

If you need to synchronize data to another folder, you can let `rsync` **3.1.0+** saves in the log file the MD5 checksum of any transferred file (cf. https://stackoverflow.com/questions/29624524/how-can-i-print-log-the-checksum-calculated-by-rsync#45053057):

```
$ rsync \
      --log-file=/path/to/file.log \
      --log-file-format="%C  %f" \
      [...] \
      "${SOURCE_FOLDER}" \
      "${TARGET_FOLDER}"
$ grep -e "${SOURCE_FOLDER}" /path/to/file.log | \
      cut -c 29- | \
      awk '{if ($2 != "") {print $0}}' | \
      sed -e "s, ${SOURCE_FOLDER}/, ,g" \
      >"/path/to/${SOURCE_FOLDER}.md5"
$ cd "${TARGET_FOLDER}"
$ md5sum -c "/path/to/${SOURCE_FOLDER}.md5"
```

Statistiques utilisation

TreeSize est lancé sur certains share de manière périodique.

https://plone.unige.ch/distic/acteurs-du-si/distic/prods/pole-environnement-de-travail-et-integration/serveurs/serveur-de-statistique/liste-des-partages-scanner

Utilisation d'un partage SMB

NB, this partly originate from [4)].

Lorsqu'un partage a été crée et que votre CI vous a donné les droits d'accès, suivez la procédure ci-dessous pour vous connecter à votre partage. A noter que pour vous connecter à un partage depuis l'extérieur de l'université, vous devez configurer et lancer votre VPN. Veuillez vous référer à la documentation du VPN de l'unige pour ce faire.

If you experience problems connecting from a Mac, you can test **SMB browsing** via the `ug-nas-test-smb-browsing.sh` script!

Allocated space for an SMB share

First of all, you need to mount the **share root** (thus, not a super/sub-folder).

Then

- *Windows*: in the `File Explorer`:
  ⇒ right-click on the folder (either at the share root or at any sub-folder), then `General → Capacity`
- *Mac or Linux*:
  ⇒ in a terminal

```
df -h /path/to/the/mounted/share
```

List all the shares you have access

NB, part of the following instructions come from [5].

Here the commands to get the list of all the shares you have access on a specific server:

1. Windows [6]:

```
PS C:\WINDOWS\system32> net view \\nasac-faculty.unige.ch /all |
 Select-String Disk
[...]
PS C:\WINDOWS\system32> (net view \\nasac-faculty.unige.ch /all |
 Select-String Disk).length
107
PS C:\WINDOWS\system32>
```

2. GNU/Linux:
   ATTENTION, unfortunately `'smbclient -L'` does not allow “grep-piping” if interactive!

```
capello@harlock:~$ smbclient -L nasac-faculty.unige.ch -W ISIS -U
capello
Enter ISIS\capello's password:

    Sharename       Type      Comment
    ---------       ----      -------
[...]
SMB1 disabled -- no workgroup available
capello@harlock:~$ cat <<EOF >~/.smbclient
username = capello
password = ${ISIS}
domain   = ISIs
```

```
EOF
capello@harlock:~$ smbclient -L nasac-faculty.unige.ch -W ISIS -A
~/.smbclient | grep -c Disk
107
capello@harlock:~$
```

Connection depuis linux

La procédure est sensiblement la même pour d'autres variantes de Linux.

The official DiSTIC documentation for the personal space provided by the UNIGE is available at https://plone.unige.ch/distic/pub/nas-bureautique/comment-configurer-les-repertoires-personnels-et-partages-sous-ubuntu !

Command line

1. via plain old `mount` command, which however requires **superuser** privileges:

```
root@harlock:~# findmnt /mnt
root@harlock:~# mount \
    -t cifs \
    -o vers=3,sec=ntlmsspi,domainauto,username=capello \
    //nasac-faculty.isis.unige.ch/ADM_HOME/DISTIC/capello \
    /mnt/
Password for capello@//nasac-
faculty.isis.unige.ch/ADM_HOME/DISTIC/capello:
root@harlock:~# findmnt /mnt
TARGET SOURCE                                                FSTYPE
OPTIONS
/mnt   //nasac-faculty.isis.unige.ch/ADM_HOME/DISTIC/capello cifs
rw,relatime,vers=3,sec=ntlmsspi,cache=strict,username=capello,domain=IS
IS,uid=0,noforceuid,gid=0,noforcegi
root@harlock:~#
```

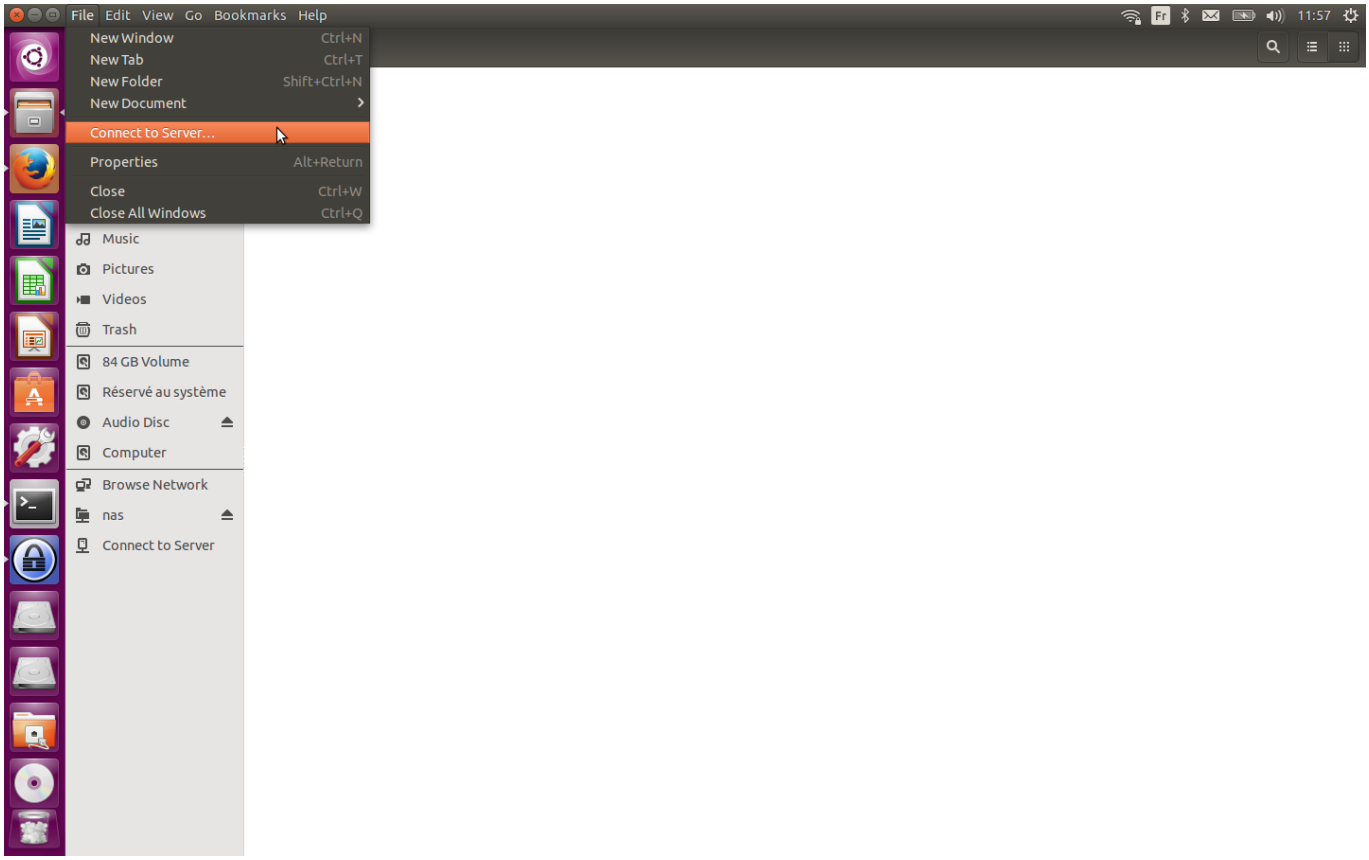
2. via GVfs/Gio (*i.e.* the same “helper” framework used by most of the graphical tools including the default Ubuntu desktop), which is an unprivileged action:

```
capello@harlock:~$ gio mount smb://nasac-
faculty.isis.unige.ch/ADM_HOME/DISTIC/capello
Password required for share adm_home on nasac-faculty.isis.unige.ch
User [capello]:
Domain [WORKGROUP]: ISIs
Password:
capello@harlock:~$ ls -l /run/user/$(id -u)/gvfs/
total 2
drwx------ 1 capello capello 2048 Nov 30 11:50 smb-share:server=nasac-
```

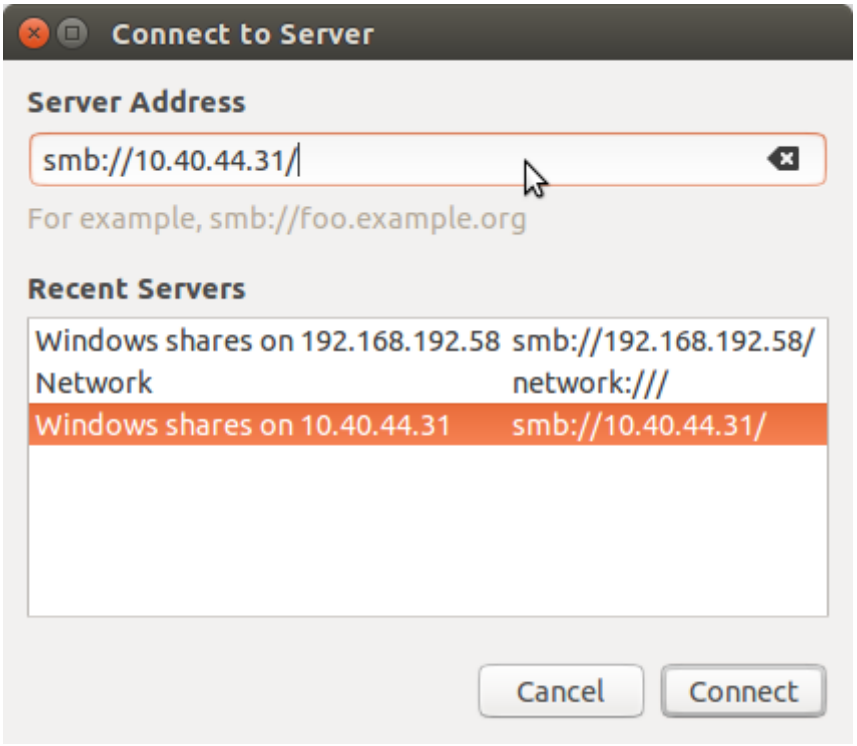
```
faculty.isis.unige.ch,share=adm_home
capello@harlock:~$
```

Graphical interface

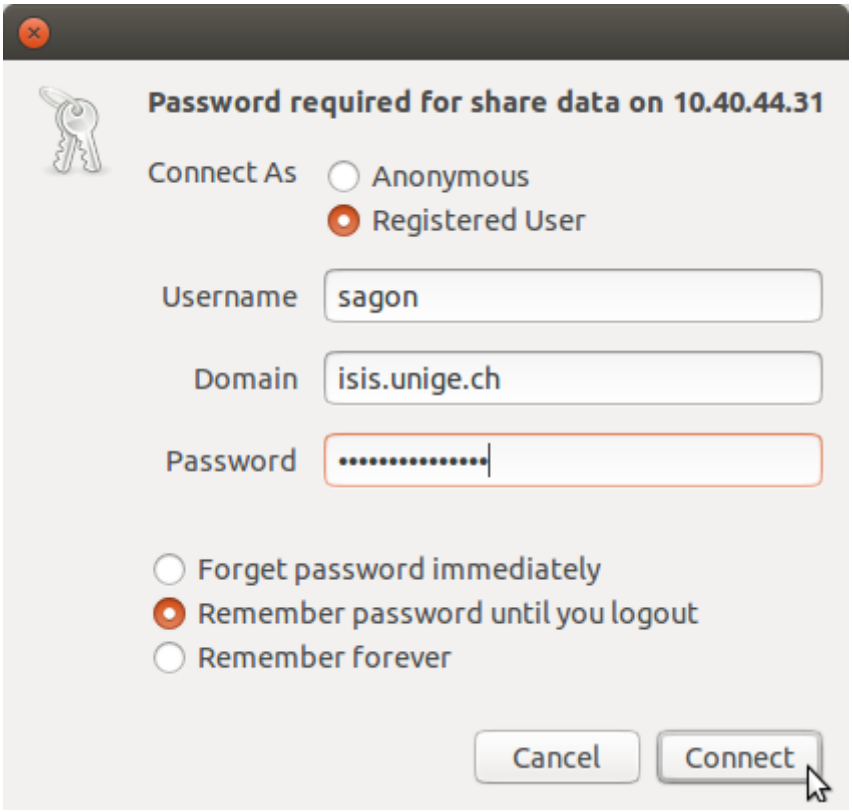
Se connecter à un serveur:



Choisir l'ip ou le nom de votre EVS (transmis par votre CI):



Entrer vos identifiants ISIS:



Linux and SMB3+

NB , the following instructions come from <https://gitlab.unige.ch/prods/ies/recherche/hpc/issues/925>

SMB3+ requires packet signing, thus if you encounter the following error…

```
CIFS VFS: validate protocol negotiate failed: -13
CIFS VFS: failed to connect to IPC (rc=-5)
CIFS VFS: validate protocol negotiate failed: -13
CIFS VFS: session ffff962f7cd42400 has no tcon available for a dfs referral
request
CIFS VFS: cifs_mount failed w/return code = -5
```

...you have to specify that you want packet signing via a mount option, either sec=ntlmsspi (preferred) or sec=ntlmv2.

Linux and symlinks on SMB shares

NB , the following instructions come from <https://gitlab.unige.ch/prods/ies/recherche/hpc/issues/873>

Starting from Windows 10, symlinks (AKA symbolic links) are fully supported (cf. https://blogs.windows.com/windowsdeveloper/2016/12/02/symlinks-windows-10/). However, while Linux can make use of symlinks on a SMB share created on Windows 10, there is no way to create them on Linux.

On the other hand, Linux-only symlinks on SMB shares are still possible, no more via the SMB1-only CIFS Unix Extensions (cf. https://www.samba.org/samba/CIFS_POSIX_extensions.html), but via the new SMB3 POSIX Extensions (cf. https://wiki.samba.org/index.php/SMB3-Linux#Symbolic_links).

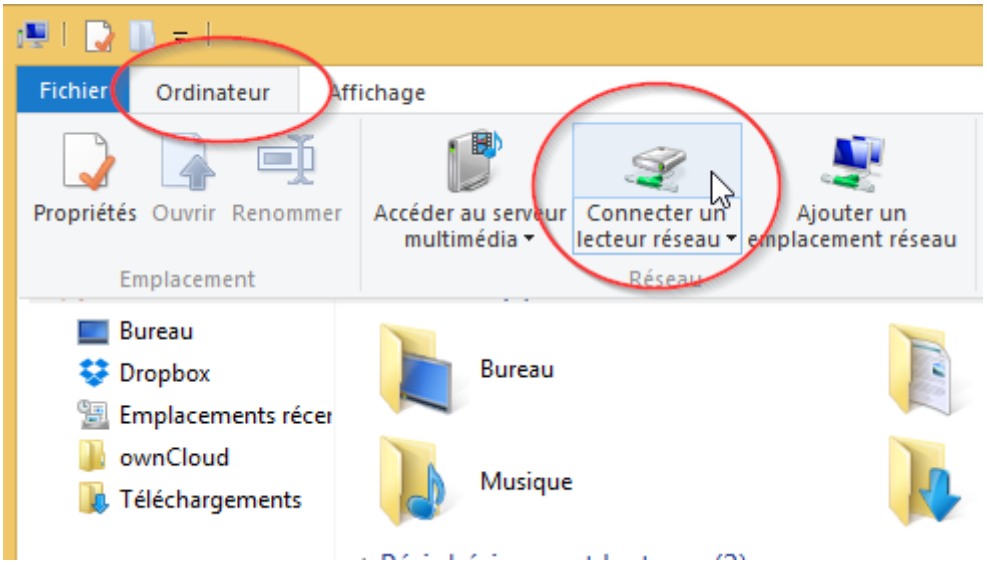
Specyfing the mount option mfsymlinks will allow symlink creation on Linux using the Minshall+French file format, which means that they will be seen on Windows as a plain text file (cf. https://wiki.samba.org/index.php/UNIX_Extensions#Storing_symlinks_on_Windows_servers).

ATTENTION , while the mount option mfsymlinks is available from SMB2+, it is preferable to use it together with SMB3+ (see Linux and SMB3+).

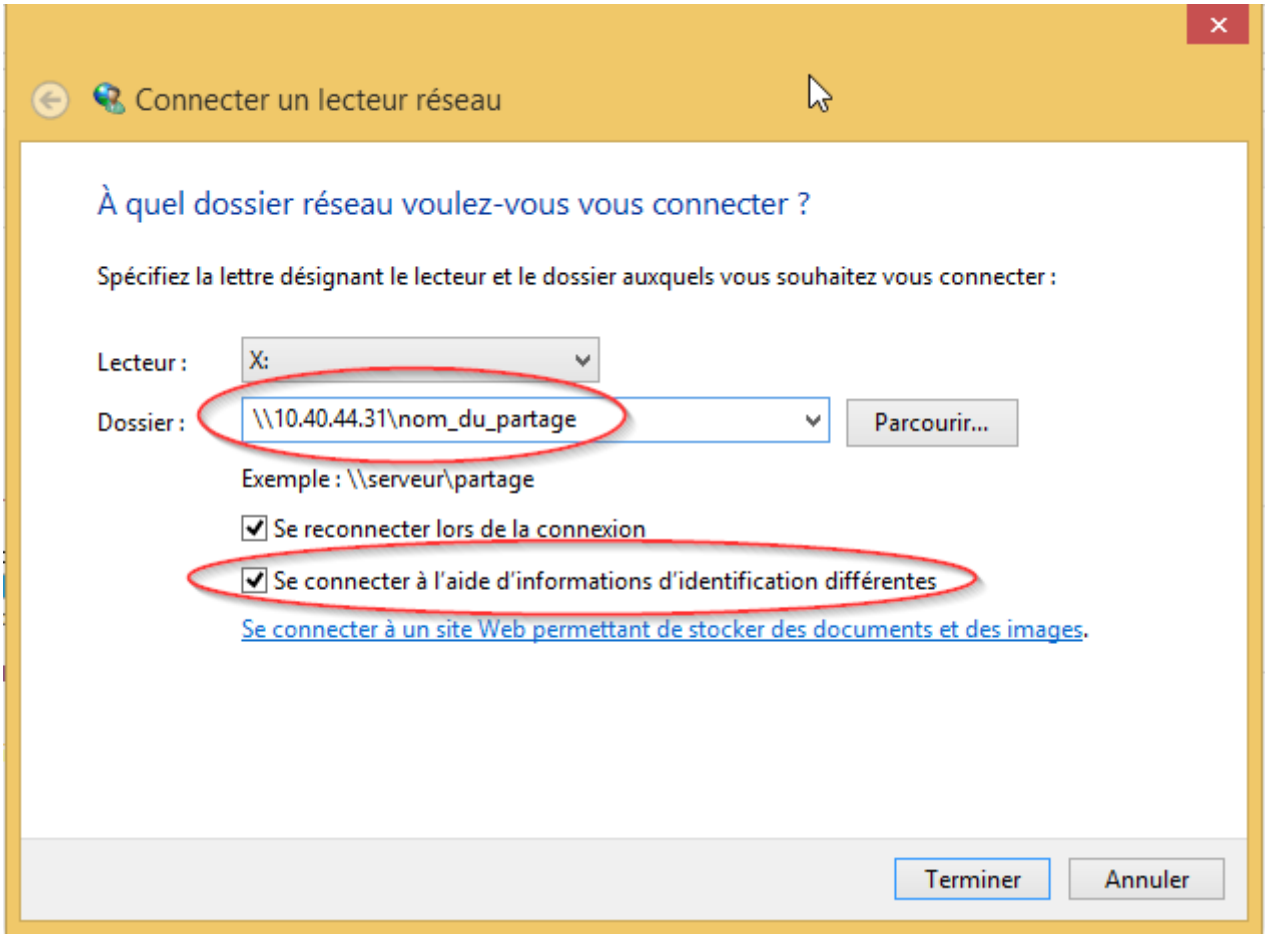
Connection depuis un poste windows ne faisant pas partie du domaine

Connectez un lecteur réseau pour y accéder à partir de l’Explorateur de fichiers dans Windows sans avoir à le rechercher ou à saisir son adresse réseau à chaque fois.

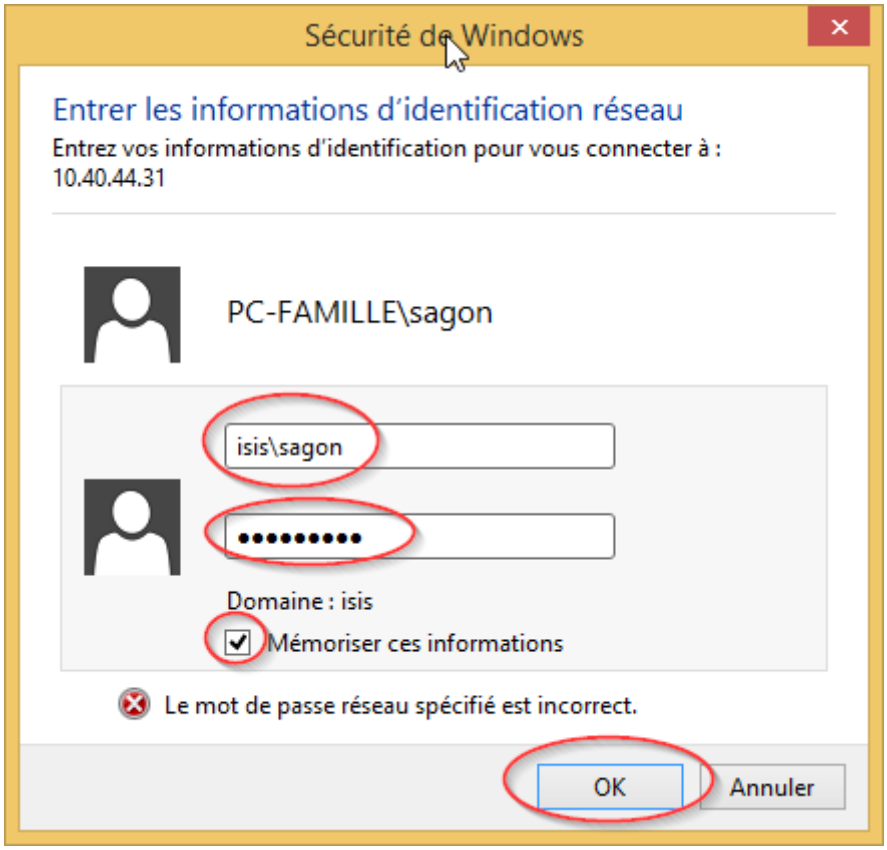
1. Ouvrez l'Explorateur de fichiers à partir de la barre des tâches ou du menu Démarrer, ou appuyez sur la Touche de logo Windows + e.
2. Sélectionnez Ce PC dans le volet de gauche. Puis, dans l'onglet Ordinateur, sélectionnez Connecter un lecteur réseau



Sélection du disque et du nom du partage:



Saisie de vos identifiants ISIS:



Connection refused after successful login

NB, this originates from [7) 8) 9)]

If you still get **connection refused** messages and you are sure your ISIs credentials are right, the IP address your computer got could have been blacklisted **in the last 15 minutes** on the NAS side because of too many SMB NTLM authentication failures.

Here how to find out if you are impacted:

1. find out your current IP address:
    1. Windows: `Start → PowerShell → ipconfig → IPv4 Address`
    2. Mac: `Applications → Terminal → ifconfig | grep -e “inet ”`
    3. Linux: `Applications → Terminal → ip addr show | grep -e “inet ”`
2. check if your IP is listed in the last-unblocked-IP on https://luninasadm1.unige.ch/nas-smb-barred-clients-list.txt

IPs are automatically unblocked every 15 minutes, to avoid continuous blocking please check your Windows Credential Manager for old-and-no-more-valid passwords (cf. https://support.microsoft.com/en-us/windows/accessing-credential-manager-1b5c916a-6a16-889f-8581-fc16e8165ac0)!

How to manage SMB ACLs (AKA permissions)

NB, part of the following instructions come from [10)].

You must set the access rights directly from Windows, please check the “Affectation des droits” paragraph in the “Gestion des postes de travail avec l'Active Directory (AD)” guide available on Plone.

If you simply want to **check** the existing ACLs from a Linux machine, you can do it via `smbcacls` (usually shipped by the `smbclient` package)!

rsync

If you are encountering network errors when copying a gvfs mount, you should use a tool dedicated to network copy such as rsync, gio copy or scp.

When copying CIFS data from and to linux using Rsync, you can use this rsync example

```
rsync --partial --stats --progress –A –a –r –v --no-perms src dest
```

How to manage an NFS share

NB , the following instructions come from <https://gitlab.unige.ch/prods/ies/recherche/hpc/issues/716>

Nowadays most of the GNU/Linux distribution defaults to NFSv4, which is a big step forward and differs quite a lot from NFSv3 (cf. http://www.citi.umich.edu/projects/nfsv4/). One of the main advantages of NFSv4 is the ACLs support into the protocol itself (cf. http://wiki.linux-nfs.org/wiki/index.php/ACLs), ACLs that resemble very much the Windows ones.

The NASAC, being based on a Unix system, natively supports NFSv4 ACLs. Actually, given that it is connected to the UniGE's Active Directory, the NFSv4 ACLs are the same as the Windows ones.

Here the instructions to manage the NFSv4 ACLs for a share:

1. client mapping does not matter, knowing that when no local mapping is possible everything is nobody:nobody (cf. https://www.thegeekdiary.com/nfsv4-mountpoint-shows-incorrect-ownerships-as-nobodynobody-in-centos-rhel/).
   ATTENTION :
   - on RHEL 6.3+ NFS ID mapping is disabled by default, _i.e._ /sys/module/nfs/parameters/nfs4_disable_idmapping is set to Y (cf. https://access.redhat.com/articles/2252881), thus numeric UIDs/GIDs are sent over the wire.
   - NFSv4 ID mapping on clients is now managed by a separate process, nfsidmap (which does not run as a daemon), thus you no more need rpm.idmapd . Nevertheless, they share the same configuration file, _i.e._ /etc/idmapd.conf .
2. server mapping is mandatory, thus ask the NASAC administrator to map the needed users/groups via support-si .
3. please DO NOT USE chmod to set any POSIX permissions, given that this actually interacts with the NFS4 ACLs, setting the latter to reflect the POSIX permissions just set (cf. http://wiki.linux-nfs.org/wiki/index.php/ACLs#Server and

http://wiki.linux-nfs.org/wiki/index.php/ACLs#Strict_Mapping).
4. it is thus not possible to combine both, POSIX permissions and NFS4 ACLs, but you can combine POSIX ownership and NFSv4 ACLs.
5. the NFSv4 ACLs order matters and try to avoid DENY ACLs, they are evaluated before ALLOW ones (cf. https://docs.microsoft.com/en-us/windows/win32/secauthz/dacls-and-aces and https://docs.microsoft.com/en-us/windows/win32/secauthz/order-of-aces-in-a-dacl).
6. special care must be taken if the NFSv4 share is also available via CIFS, given that the NFSv4 ACLs are also the Windows ones and thus errors done on the CIFS share have an impact on the NFSv4 share as well.
7. posixuser:root is now able to access the NFSv4 share in read/write mode without any server modification (_i.e._ the NFSv3 rootsquash option is no more available).
8. the nfs4-acl-tools package (both .deb and .rpm) provides the nfs4_[edit|get|set]facl programs to manage the NFSv4 ACLs (cf. their manpages, man 5 nfs4_acl or https://www.osc.edu/book/export/html/4523 for an overview).

1) https://doc.eresearch.unige.ch/nasac-admin/nasac_administration?rev=1663845916#snapshot
2) https://support-si.unige.ch/openentry.html?tid=WO0000000225023
3) https://gitlab.unige.ch/prods/ies/recherche/hpc/issues/900#note_32016
4) https://gitlab.unige.ch/storage/tickets/-/issues/577
5) <mid:storage/de4cfeda-5154-a1dc-cc06-37ad98727cd3@unige.ch>
6) https://superuser.com/questions/274640/list-network-shares-from-command-prompt#274641
7) https://gitlab.unige.ch/storage/tickets/-/issues/280
8) https://support-si.unige.ch/openentry.html?tid=WO0000000207049
9) https://gitlab.unige.ch/storage/tickets/-/issues/442
10) https://gitlab.unige.ch/storage/tickets/-/issues/432