Geo-CARE LABORATORY

Southern Illinois University Carbondale
School of Civil, Environmental, and Infrastructure Engineering

Standard Operating Procedure IT-01

Storing research data on the Geo-CARE lab NAS

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Quick reference

Lab Resources	`geocare.siu.edu/lab` (lab members only; your own account): open **Lab NAS** for the server address, one-click connect, and copy-ready commands with your NetID
Your folder	`students/<NetID>_<First>_<Last>`, for example `students/siu123456789_First_Last`
Examples	`siu123456789` and `siu123456789_First_Last` are made up: replace them with your NetID and your folder name
Username	your SIU NetID in lower case (`siu` followed by your 9-digit number)
Password	a NAS password (*not* your SIU password): a temporary one from the Lab Director, then your own (Section 3)
Mac	on the Lab NAS page, click **Connect on a Mac** (Section 3, Step 4)
Windows	on the Lab NAS page, copy the address into the File Explorer address bar (Step 5)
Linux	on the Lab NAS page, choose **Linux**: file manager address or a `mount` command (Step 6)
Off campus	connect the SIU VPN first: Cisco Secure Client, server `private.siu.edu`
Space	2 TB per student (more on request)
Deleted a file?	daily snapshots, kept 30 days — Section 6
Help	Nitin Tiwari, Lab Director (nitin.tiwari@siu.edu), in person or by e-mail (never send passwords by e-mail)

1 Purpose and scope

The lab NAS (network-attached storage) is the place to keep the research data of the Geo-CARE Laboratory: raw test data, numerical models and their results, processed data and figures. It is a protected storage system: six disks of which any two may fail without data loss, automatic snapshots every night, and weekly disk checks.

This SOP applies to every student who has an account on the NAS. It explains how to connect, how to store and organise data, how to recover files, and the rules that protect your data and everyone else's. Read it once completely, then keep the quick reference above.

2 What you get

- A **private folder**, named with your NetID and your name (e.g. `siu123456789_First_Last`), with a quota of **2 TB**. Only you and the Lab Director can open it. Other students cannot see it, and you cannot see theirs.
- **Snapshots**: every night at 02:30 the NAS records the state of your folder; each snapshot is

kept for **30 days**. A deleted or overwritten file can be recovered from any of these days.
- On request, a **shared project folder** for a group of students working on the same project.

3 First-time setup

Step 1 — Request access and receive your account

1. **Request Lab Resources access** at `geocare.siu.edu/lab/request` with your SIU e-mail. Click the link in the confirmation e-mail; your request then goes to the Lab Director. When it is approved, you receive an e-mail with a link to set your **Lab Resources password**. Access lasts 2 years for M.S. students and 5 years for Ph.D. students and can be extended.
2. **Receive your NAS account**: the Lab Director gives you, in person, your NAS username (your NetID) and a **temporary NAS password**. The temporary NAS password is only for the first days.

Three different passwords

SIU password	for the VPN and other SIU services. Never used on the NAS.
NAS password	signs you in to your NAS folder; you set your own in Step 2.
Lab Resources password	your own password for `geocare.siu.edu/lab` (sign in with your SIU e-mail); you choose it from the approval e-mail. It opens the lab web pages, not your NAS data.

The server address is not printed in this SOP or on public pages; it is shown on the Lab NAS page after you sign in to Lab Resources.

Step 2 — Set your own password (required)

You must replace the temporary password

Within **7 days** of receiving your account, set your own password at a short meeting with the Lab Director. You type the new password yourself on the Lab Director's computer; it is not shown on the screen and nobody else learns it. Accounts that still use the temporary password after 7 days are disabled until the password is set.

Choose a password that

- has **at least 12 characters**, with letters and digits (a short sentence works well, e.g. four unrelated words with digits);
- is **different from your SIU password** and from any other password you use;
- does not contain your NetID.

Keep it in a password manager (for example macOS Keychain or the password manager of your browser), not on paper or in a text file.

Step 3 — Off campus: install and connect the SIU VPN

The NAS can be reached only from the SIU network. On campus (wired or SIU Wi-Fi) nothing is needed. Off campus:

1. Install **Cisco Secure Client** from SIU Information Technology (Salukitech) if it is not installed.

2. Open it, enter the server below, click **Connect**, and sign in with your *SIU* NetID and password (approve the multi-factor prompt if asked).

VPN server copy & paste

```
private.siu.edu
```

3. Keep the VPN connected while you use the NAS.

Step 4 — Connect from a Mac

1. Sign in at `geocare.siu.edu/lab` and open **Lab NAS**. Your NetID and folder name are already filled in at the top.
2. Click **Connect on a Mac**. Finder opens the server. If nothing happens, click **Copy** next to the `smb://` address, then in Finder choose **Go** → **Connect to Server** (Command-K), paste it and click **Connect**.
3. Choose **Registered User**; Name: your NetID; Password: your NAS password. Tick *Remember this password in my keychain* only on your own computer.
4. The share `students` opens and shows one folder: yours. Work inside it.
5. To reconnect quickly, drag your folder to the Finder sidebar, or add it under System Settings → General → Login Items.

Step 5 — Connect from Windows

1. Sign in at `geocare.siu.edu/lab` and open **Lab NAS**. Your NetID and folder name are already filled in at the top.
2. Click **Copy** next to the Windows share address, paste it into the File Explorer address bar and press Enter. For next time, right-click your folder and choose **Pin to Quick access**.
3. Username: your NetID. If Windows rejects it (common on SIU-managed PCs, which add their own domain), copy the username with the `truenas\` prefix from the Lab NAS page. Password: your NAS password.
4. To get a drive letter: right-click **This PC** → **Map network drive**, choose a letter, and paste the folder address copied from the Lab NAS page. Tick *Reconnect at sign-in* only on your own computer.

Step 6 — Connect from Linux

1. Sign in at `geocare.siu.edu/lab`, open **Lab NAS** and choose **Linux**. Your NetID and folder name are already filled in.
2. **File manager**: in GNOME Files choose *Other Locations* → *Connect to Server*; in KDE Dolphin type into the location bar. Paste the `smb://` address from the Lab NAS page, choose **Registered User**, and sign in with your NetID and NAS password.
3. **Or mount the share** from a terminal (needs the `cifs-utils` package). Copy the command from the Lab NAS page; its form is:

Linux: mount your folder (Terminal) copy & paste

```
sudo mkdir -p /mnt/geocare
sudo mount -t cifs //NAS-ADDRESS/students/siu123456789_First_Last /mnt/geocare \
  -o username=siu123456789,uid=$(id -u),gid=$(id -g),vers=3.0
```

You are asked for your computer password, then your NAS password. Unmount with `sudo umount /mnt/geocare` when you are done.

4 Organising your data

A folder that someone else can understand in five years is part of good research practice. Use this structure:

Recommended layout of your folder

`siu123456789_First_Last/`	
`2026-10_triaxial_sand_A/`	one folder per test series or project, named year-month_topic
`README.txt`	what, who, when, equipment, units, notes
`raw/`	data exactly as recorded — never edit
`processed/`	cleaned or derived data, with the script that made it
`scripts/`	analysis code
`figures/`	plots for reports and papers
`2026-11_abaqus_tunnel_model/`	numerical work: input files, results summaries

- **Names**: letters, digits, - and _ only; no spaces, no `# % & : * ? " < > |`. Keep full paths under 200 characters.
- **README.txt** in every data folder: project, your name, dates, instrument or software and version, units, sample identifiers, anything unusual.
- **Raw data are read-only**: copy, never overwrite. Processing happens in `processed/`.
- Large simulation scratch files (temporary solver files, restart files you will not use) do not belong on the NAS.

5 Copying data to and from the NAS

Speed

- **On campus**, wired: fast (tens of MB/s or more). Do large transfers here.
- **Off campus through the VPN**: limited by your home upload speed; it can be as slow as 0.3 MB/s, about 1 GB per hour. Copy only small files from home.

Small and large amounts

Small amounts: drag and drop in Finder, File Explorer or your Linux file manager. Large amounts (many files or more than a few GB): use a copy program that can be restarted after an interruption and copies only what is missing.

The Lab NAS page shows these commands with the server address and your folder already filled in; copy them from there and replace the example project folder name with yours. Their form is (`NAS-ADDRESS`, `siu123456789` and `siu123456789_First_Last` are placeholders):

Mac (Terminal; the share must be connected, it appears under `/Volumes/students`):

Mac: restartable copy (Terminal) copy & paste

```
rsync -rt --progress ~/Data/2026-10_triaxial_sand_A/ \
  /Volumes/students/siu123456789_First_Last/2026-10_triaxial_sand_A/
```

Windows (Command Prompt, not PowerShell):

Windows: restartable copy (Command Prompt) copy & paste

```
robocopy "C:\Data\2026-10_triaxial_sand_A" ^
  "\\NAS-ADDRESS\students\siu123456789_First_Last\2026-10_triaxial_sand_A" ^
  /E /Z /R:3 /W:10 /MT:8
```

Linux (Terminal; the share mounted at `/mnt/geocare` as in Step 6):

Linux: restartable copy (Terminal) copy & paste

```
rsync -rt --progress ~/Data/2026-10_triaxial_sand_A/ \
  /mnt/geocare/2026-10_triaxial_sand_A/
```

If the copy is interrupted, run the same command again. When a second run copies nothing, the copy is complete. Check the number of files and the total size of the folder on both sides (Get Info on Mac, Properties on Windows).

Good practice

- Do not work on the same file from two computers at the same time.
- Do not run databases, virtual machines or solver jobs directly on the NAS; copy the input locally, run, then copy the results back.
- Eject the share (Mac) or close the files (Windows) before your computer sleeps or leaves the network.

6 Recovering deleted or overwritten files

The NAS takes a snapshot of your folder every night at 02:30 and keeps it for 30 days. A file deleted or overwritten *today* can be recovered as it was at last night's snapshot; work done since then cannot.

- **Windows**: right-click the folder (or file) → **Properties** → **Previous Versions**, choose a date, then **Open** to copy what you need, or **Restore**.
- **Mac and Linux**: snapshots are not shown in Finder or the file manager. E-mail the Lab Director the path of the file and the date you need; it will be restored into your folder.

Deleted files do not go to a recycle bin on the NAS. Delete with care.

7 Space

- Your quota is 2 TB. See how much you use with Get Info (Mac) or Properties (Windows) on your folder.
- When the quota is full, new files cannot be written and copies fail. Clean up before that, or ask for more space with a short justification (project, expected size, duration).
- Snapshots keep deleted data for 30 days, so deleting files does not free space immediately.

8 Rules

Not allowed on the NAS

- personal data of other people, student records (FERPA), health information, or any data covered by a confidentiality agreement, without written approval of the Lab Director;
- export-controlled or classified material;
- software installers or licensed software, unless licensed for this use;
- personal files (photos, music, videos, private documents);
- sharing your account or password with anyone, including other lab members.

- **Keep a second copy of irreplaceable raw data** (for example in your SIU OneDrive) until the lab confirms an off-site copy of the NAS. The NAS protects against disk failure and accidental deletion, not against fire or theft of the building.
- Data collected in the laboratory belong to the project and to SIU, not to an individual; they stay available to the lab after you leave.
- Report immediately to the Lab Director: a lost or shared password, a computer that may be infected, files that appear changed or encrypted, or anything that does not work as described here.

9 Password problems and leaving the lab

- **Forgot your Lab Resources password**: use *Forgot your password?* on the sign-in page at `geocare.siu.edu/lab`; a reset link is e-mailed to you.
- **Forgot your NAS password**: ask the Lab Director. You receive a new temporary password and then set your own again (Section 3, Step 2).
- **Change your NAS password**: any time, at a short meeting with the Lab Director (same procedure as Step 2).
- **Leaving the lab** (graduation or end of appointment): one month before, clean your folder, complete the README files and tell the Lab Director which data must be kept. Your NAS account and Lab Resources access end on your last day; your folder is kept read-only for one year and then archived.

10 Troubleshooting

Problem	What to do
"Server not found" or nothing happens	Off campus: is the VPN connected? Copy the address again from the Lab NAS page. On campus: try a wired connection.
Password rejected	Use the *NAS* password, not your SIU password. Username in lower case. Windows: try `truenas\siu123456789` with your NetID (copy it from the Lab NAS page). After several failures, wait a minute and retry, then ask the Lab Director.
Windows: "multiple connections … not allowed"	Windows already has a connection with other credentials: in Command Prompt run `net use * /delete`, then reconnect.
Linux: "unknown filesystem type cifs" or "mount error(13)"	Install `cifs-utils` (`sudo apt install cifs-utils` or `sudo dnf install cifs-utils`). For error 13, check the NAS password, then add `,domain=truenas` to the options.
Lab Resources asks me to sign in again	Sessions last 14 days. Forgot the password: *Forgot your password?* on the sign-in page. "Access ended": ask the Lab Director to extend it.
I see no folder / "access denied"	You are in the share root; open your own folder. Other students' folders are not accessible by design.
Copy stops with "disk full"	Your quota is reached — Section 7.
Very slow	Through the VPN this is expected (Section 5). Do large transfers on campus.
Mac keeps asking for the password	Remove the old entry for the NAS server in Keychain Access, then reconnect and save the password again.