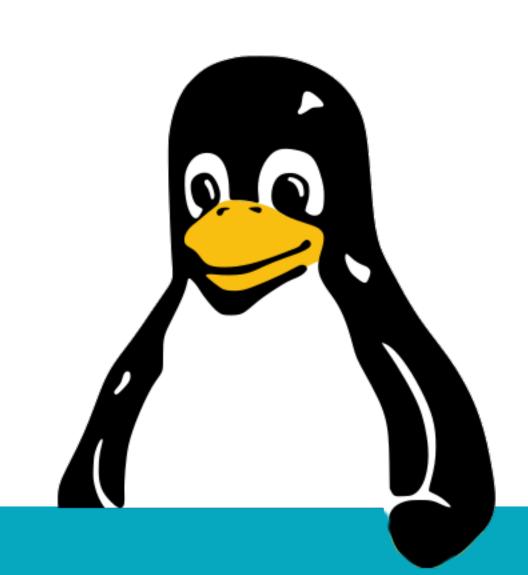
# Linux, day 3





#### LAB: Files and directories





#### Command hints

sudo	Switch User and DO
mkdir	MaKe DIRectory
nano	Friendly editor
Vi	Less-than-friendly editor
Ср	CoPy
cp rm	ReMove
man	MANual (documentation)

#### Assignment

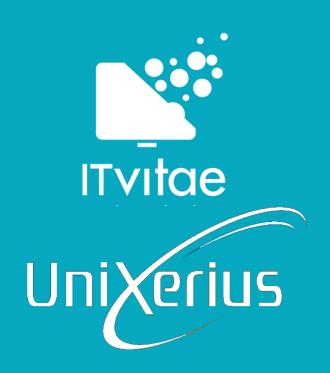
- Create two new directory trees:
  - "~/staff/files" and "~/dummies/files"
- Use "nano" or "vi" to put some text into:
  - ~/staff/files/staff-demo.txt
  - ~/dummies/files/dummy-demo.txt
- Move:
  - ~/staff/ to /home/staff/
  - ~/dummies to /home/dummies



#### Spoilers

```
$ cd ~
$ mkdir -p staff/files dummies/files
$ vi staff/files/staff-demo.txt
$ vi dummies/files/dummies-demo.txt
$ sudo mv staff /home/
$ sudo mv dummies /home/
```

# LAB: File permissions





#### Command hints

chmod	CHange MODe
chown	CHange OWNer
chgrp	CHange GRouP

#### Assignment

- /home/staff and contents should have group "staff".
  - New files should automatically get group "staff".
  - Files should only be deletable by their creator.
  - Group "staff" should have full rights on all contents.

Apply similarly for "dummies" on /home/dummies.

#### Spoilers

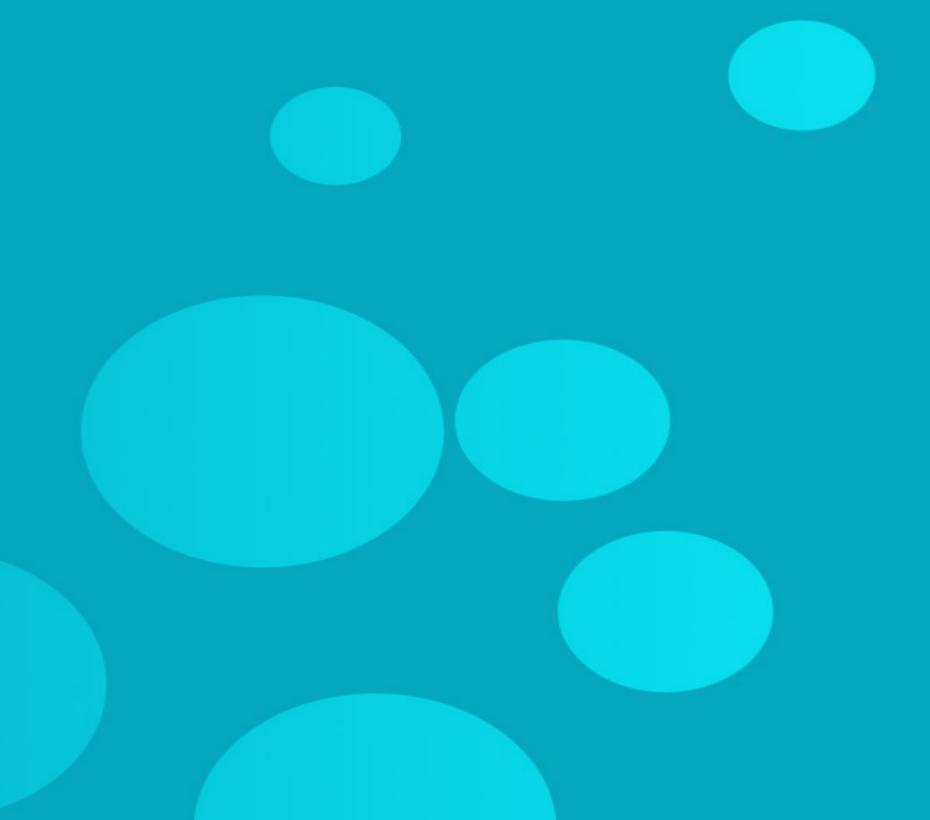
```
$ sudo chgrp -R staff /home/staff
$ sudo chown -R opsuser /home/staff
$ sudo chmod g+s /home/staff /home/staff/files
$ sudo chmod +t /home/staff /home/staff/files
$ sudo chmod g+rwx /home/staff /home/staff/files
```

#### Spoilers

```
$ sudo chgrp -R dummies /home/dummies
$ sudo chown -R dummy1 /home/dummies
$ sudo chmod g+s /home/dummies /home/dummies/files
 sudo chmod +t /home/dummies /home/dummies/files
$ sudo chmod g+rwx /home/dummies /home/dummies/files
```

# LAB: Git





#### What's the point again?

- Companies want teams to cooperate.
  - They will work on the same code.
  - When code is ready for release,
  - The central copy will be pushed to production.

#### Your own, "remote" repo

- We now have two VMs.
  - And we can SSH from Fedora to the other.

- Let's make the Ubuntu VM our Git server.
  - So we can code on Fedora,
  - And push updates to the server.

#### Setting up the server

- On the Ubuntu VM, make user account "git".
  - With homedir "/home/git".
  - And a password you won't mind typing.

- Test that you can SSH from Fedora,
  - To the user "git" on the new VM.

#### Making a repo

- On the Ubuntu VM, login as user "git".
  - Configure their name and email (slide 70).

- Make the dir "/home/git/firstrepo".
- "cd" into "firstrepo" and init a Git repo.
  - Use: "git init --bare"!!
- See: <u>Bare vs non-bare repositories</u>



## Cloning the repo

- On the Fedora VM, login as yourself.
- "cd" into your Documents folder.
- Clone the repository from the new VM:

```
$ git clone ssh://git@ubuntu:/home/git/firstrepo
```

## Making a change

- On the Fedora VM, "cd" into the Git repo.
- Make a new file and commit the change.
- Then "git push" the update.

## Comparing

- Compare the contents of:
  - The cloned git repo on your Fedora box.
  - The "bare" repo on the new VM.
  - "git log" on the two repository locations.

Research question: where are the files on Ubuntu?!

#### Co-working

- On the Fedora VM, login as user "dummy".
- "cd" into your Documents folder.
- Clone the repository from the new VM:

```
$ git clone ssh://git@ubuntu:/home/git/firstrepo
```

## Co-working

- Do you see the file(s) you just pushed?
- Now make another file, as dummy.
- Commit and push it.

- Then switch back to your own account.
- And "git pull". Does the changed file show up?

#### Spoilers - on Ubuntu

• With your own account ...

```
$ sudo useradd -m -s /bin/bash git
$ sudo passwd git
$ su - git
```

#### Spoilers - on Ubuntu

You are now the "git user"...

```
$ git config --global user.name "Git"
$ git config --global user.email "git@ubuntu"
$ mkdir firstrepo; cd firstrepo
$ git init --bare
 exit
```

With your own account.

```
$ cd ~/Documents
$ git clone ssh://git@ubuntu:/home/git/firstrepo
$ cd firstrepo
```

With your own account.

```
$ echo "Hoi." > readme.txt
$ git add readme.txt
$ git commit -m "My first file."
$ git push
$ su - dummy
```

Now you are user "dummy".

```
$ git config --global user.name "Git"
$ git config --global user.email "git@ubuntu"
$ git clone ssh://git@ubuntu:/home/git/firstrepo
$ cd firstrepo
```

• You are still user "dummy".

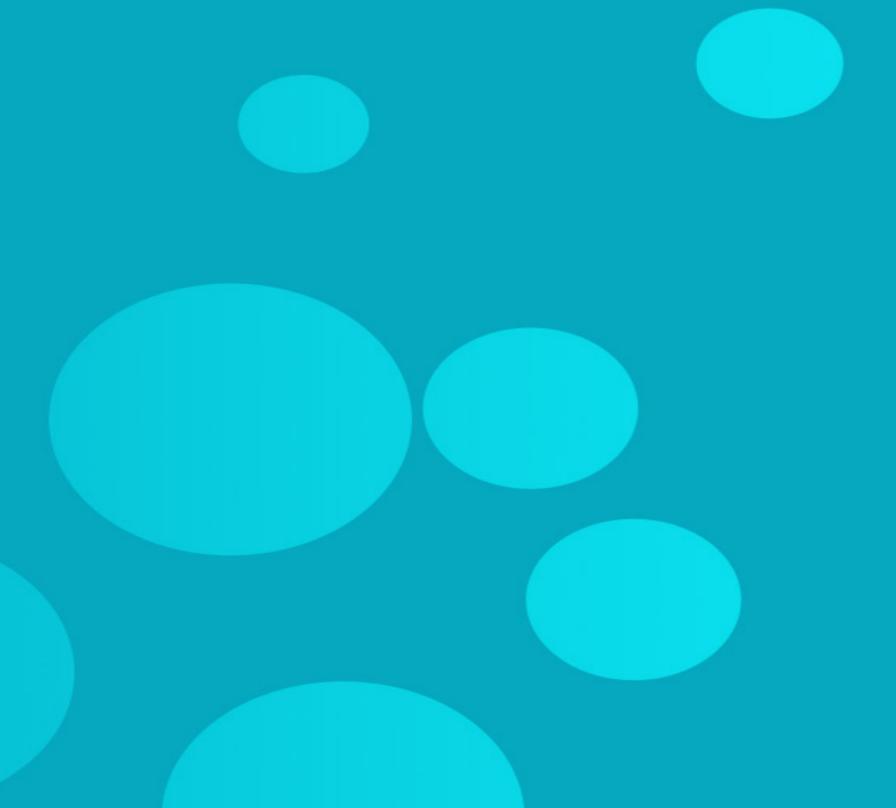
```
$ echo "Dummy wrote this." > dummy.txt
$ git add dummy.txt
$ git commit -m "Dummy file."
$ git push
$ exit
```

You are now using your own account again.

```
$ cd ~/Documents/firstrepo
$ git pull
$ ls -al
$ cat dummy.txt
```

# Closing





#### Next week

- Scripting!
- Linux shells
- Shell scripting

#### Homework

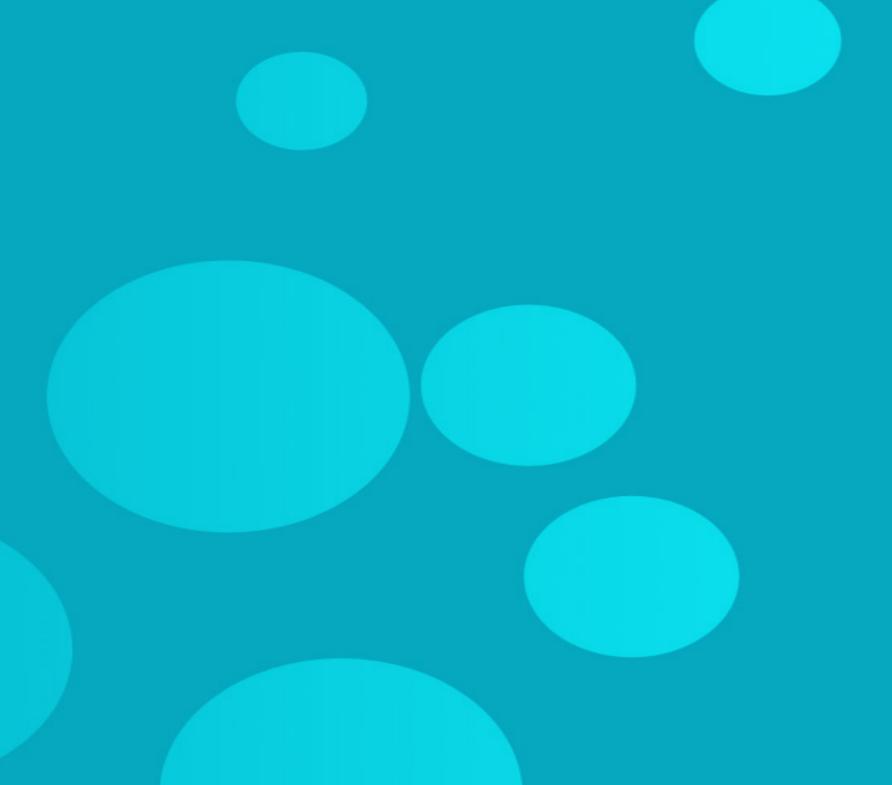
- Reading:
  - Chapter 4
  - Chapter 25

#### Homework

- Go do:
  - Download the <u>free book "Pro Git"</u>.
  - Complete the "Git" lab.
  - Make a directory "~/Scripts" for your account.
    - Make it a Git repository.
    - We will use this for our scripts next week.

#### Reference materials





#### Resources

- Linux file paths
- FHS on Wikipedia
- Identifying file types in Linux
- Graphical vi cheatsheet
- Vim Adventures! (game to practice hotkeys)
- Nano cheatsheet

#### Resources

- Git internals
- Free book: Pro Git
- Intro to Git for security professionals
- Bare vs non-bare repositories
- Stop making shell aliases for SSH!