Find Your Group

First Name	Last Name	Group
Åsne Midtbø	Øyulvstad	09B
Adelin Mae	Evergreen	03A
Agnes Fagerfjord	Nørve	08B
Amund	Arset	05A
Andrea Noelle	Alvestad	01B
Andreas Rønning	Indreråk	07A
Aslaug	Iversland	06A
Attal	Ahmadjan	11B
August Skorgen	Rakvaag	01A
Bendik Bø	Trosterud	10B
Biraveen	Gnanasampanthan	06A
Brage Aas	Jetne	02A
Casper Strand	Yttervik	04A
Christian Thielemann	Grytøyr	01B
Daniel	Fossan	05B
Dennis	Berntsen	11B
Emina Alija Hammervold	Handanagic	04A
Emil	Berg-Hansen	04B
Francesca Karlsen	Dallago	02B
Frederik Tokle	Negård	05B
Fredrik William	Husemoen-Zhang	10A
Frida	Olsen	09A

First Name	Last Name	Group
Håkon	Sæther	09B
Hamza	Maksumic	02B
Hannah Hauge	Kalager	06B
Ida Cecilia	Fagerli	03B
Imre	Angelo	06B
Jakob Severin	Gundersen	11A
Jesper Tønseth	Lyngner	09A
Jonas Sagmo	Snøan	02A
Jonathan	Constantinos	08A
Kaja Prestnes	Lind	07B
Kirsten Sunde	Thaulow	08B
Ken Marcus Johan	Hopper	09A
Konrad Bårdsen	Tingstad	10B
Konrad Hogstad	Johannessen	06A
Kristian Iver	Berget	01B
Kristian Myhr	Høgstøl	03B
Kristine Gjersøe	Spone	11A
Karoline Zhiwen Lie	Holm	05A
Laurits Bjørhovde	Rossebø	01A
Lea	Aas-Jakobsen	01A
Lisa Hartmann	Sellæg	09B
Magnus	Enebakk	10A

First Name	Last Name	Group
Magnus Bjørnstad	Andersen	03A
Maria	Storm	11B
Marius Hatlen	Nøst	08B
Marius Bakken	Berg	03B
Mats	Anonsen	05A
Marthe Eline Mohn	Hove	05B
Mikal	Samland-Johansen	11A
Mikkel	Kjærstad	03A
Mina Johanne	Heier	04B
Mirjam	Liodden	08A
Nora Marie Thon	Børaas	02A
Noah Johannes	Borch	07A
Olav Martinus	Njå	04A
Oliver Sviund	Donselaar	07B
Olivia Nilsson	Sætveit	06B
Omid	Sediqi	08A
Oscar	Lae	07B
Stella Figueirado	Kirkvaag	07A
Thomas Jørdre	Kvamme	04B
Tuan Dat	Le	02B
Victoria	Sløgedal	10A
Vilde-Marie	Spilde	10B

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TTM4175 – Week 34
Linux Command Line Interface (CLI)

https://archive.org/details/unix-magic-poster-gary-overcare-1
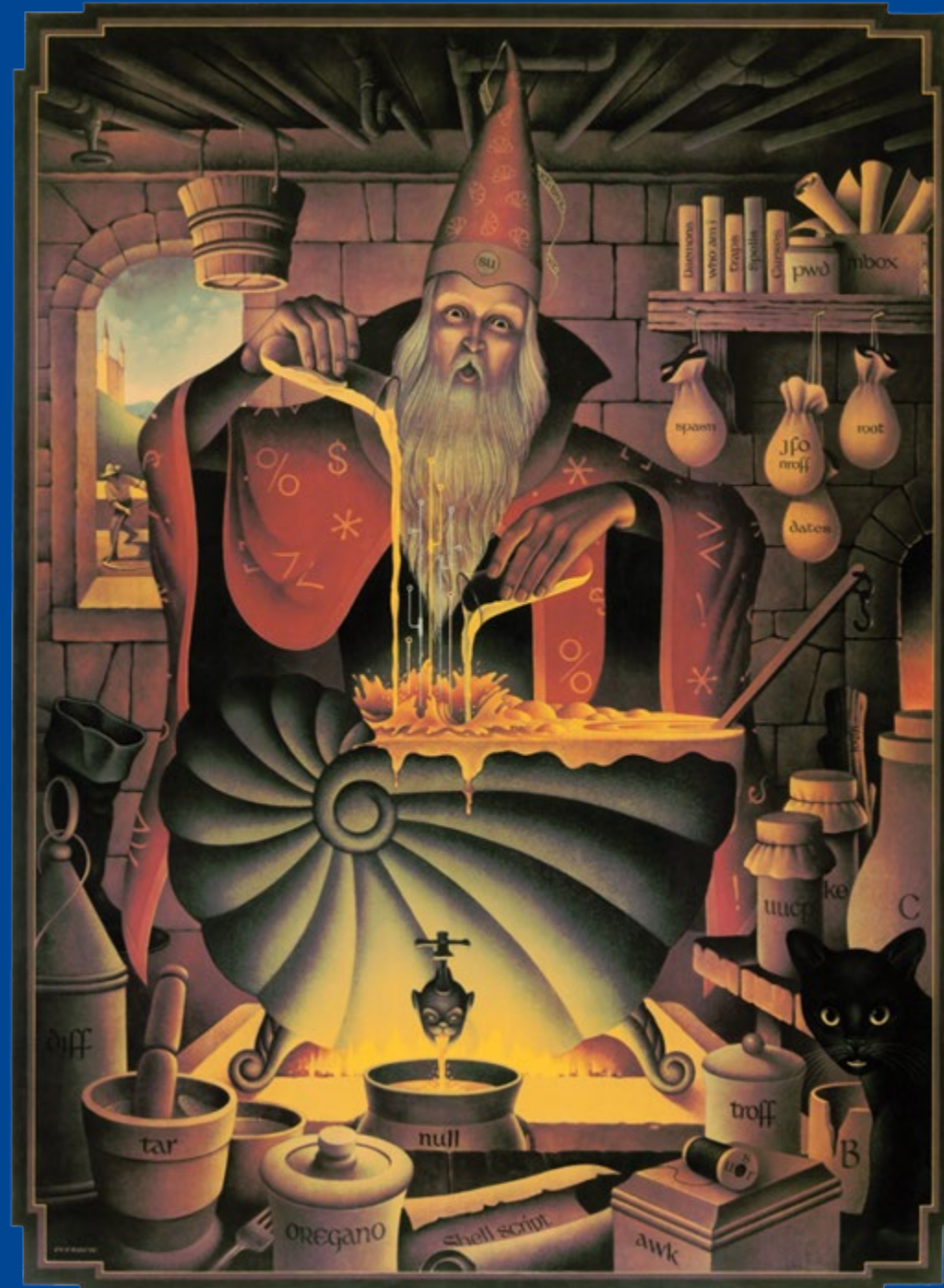
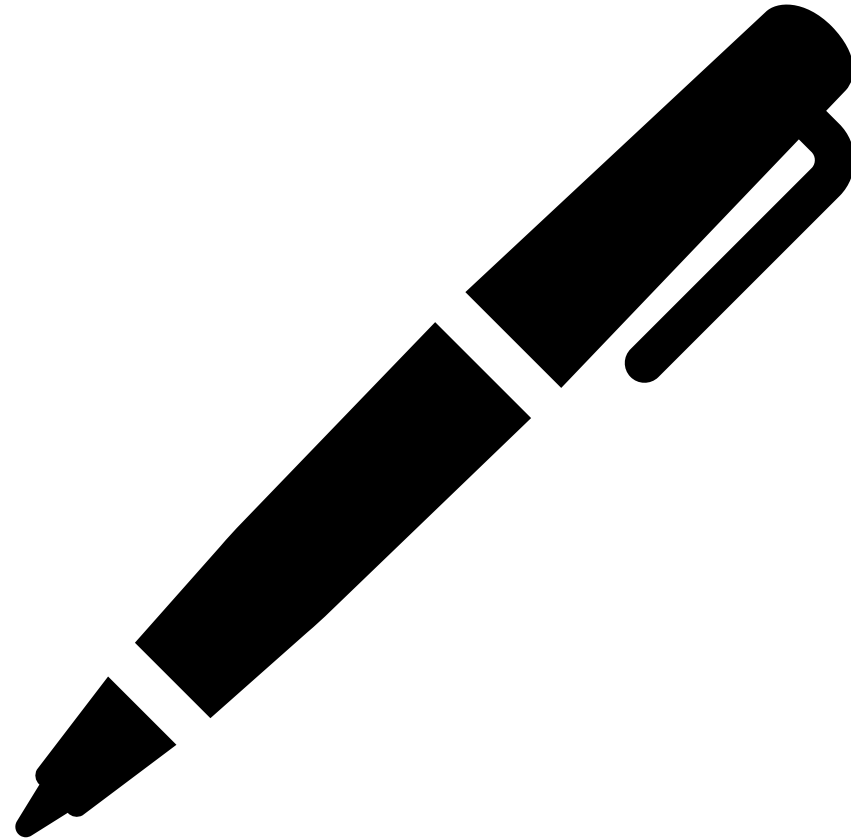# Agenda

- Explainer about labs and reports [Stas, Natasa]

- Explainer about RATs [Frank]

- RATs – i & t

- Break

- Lecture until 10

- Labs in Sahara
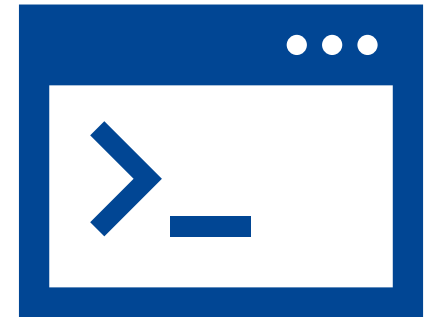
iRATs

15:00

20:00

# tRATs - Get the Nøtteknekker App

15:00

20:00

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Goals

- Get to know the Linux Command Line Interface (CLI)
  - Understand its importance
  - Learn basic commands for
    - Navigation
    - Remote access
    - Networking-related tasks
  - Understand basic virtualization principles

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What is the Command Line?

- Text-based interface to navigate and control computers
  - Inspect, create, move, edit files
  - Execute programs
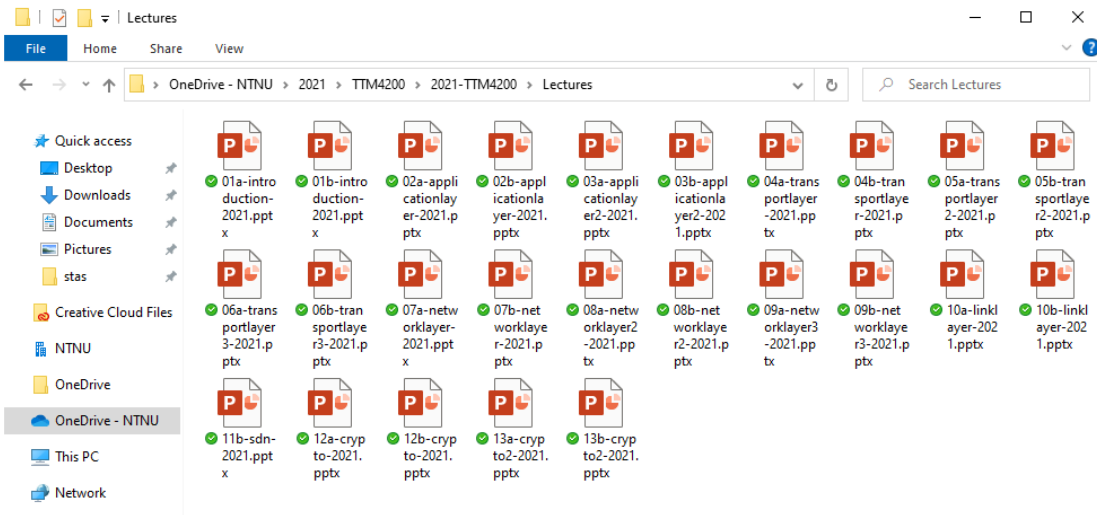
Graphical User Interface
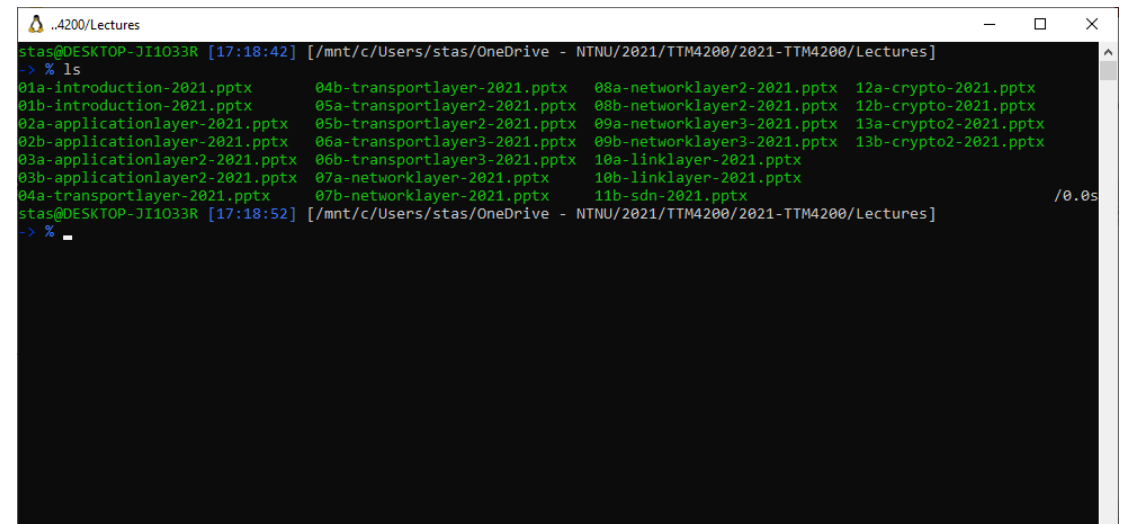
Command Line Interface

Why use the Command Line?

- Unified set of tools & commands to navigate
  - Servers
  - Personal computers
  - Mobile and embedded devices

- Interaction with devices that don't have a GUI (servers)

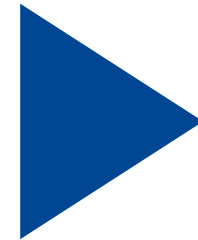- Easier to automate than GUI interactions
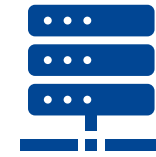
Recap of Preparation Material
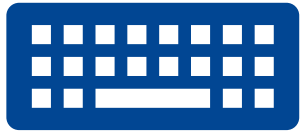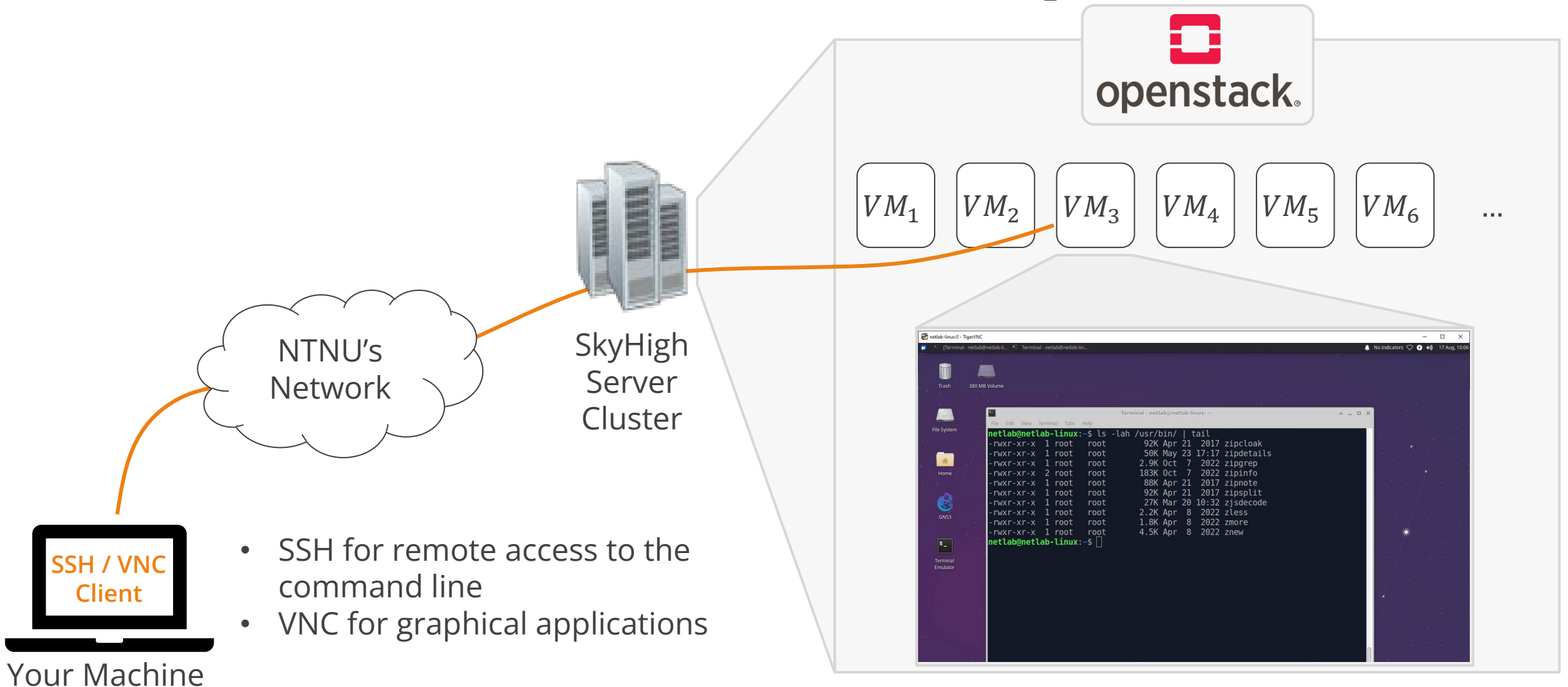
Practical

Local environment

VMs, SSH, VNC

Readings

What is the CLI

Getting help

Videos

File system navigation

File system manipulation

grep, cat, man

Course Environment – OpenStack

- SSH for remote access to the command line
- VNC for graphical applications

Your Machine

SSH / VNC Client

NTNU's Network

SkyHigh Server Cluster

VM_1 VM_2 VM_3 VM_4 VM_5 VM_6 …

VM Credentials

- Blackboard: TTM4175 > My Groups > $yourGroup > Group Homepage > Group Description

Demo: Using VNC to Connect to Your VM
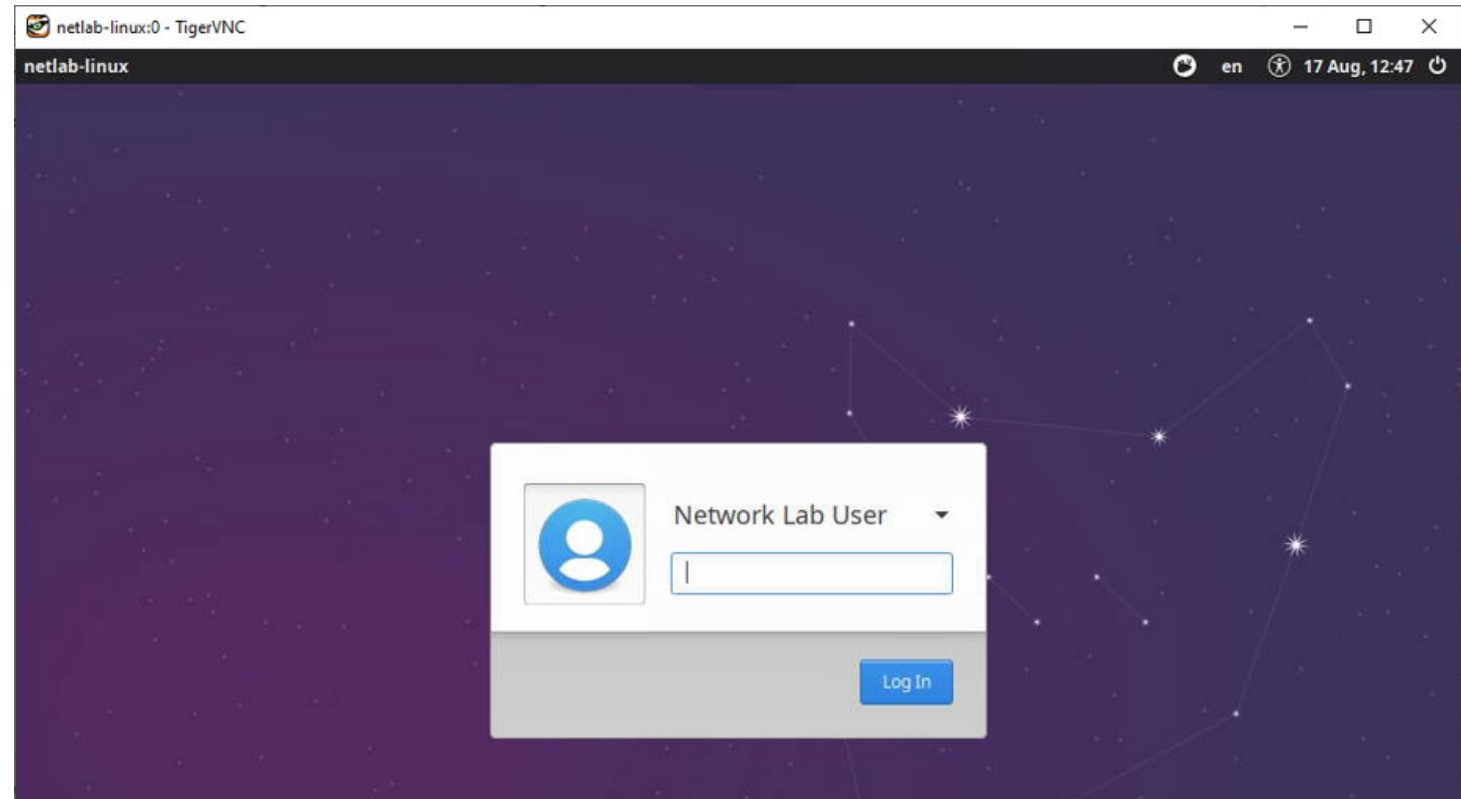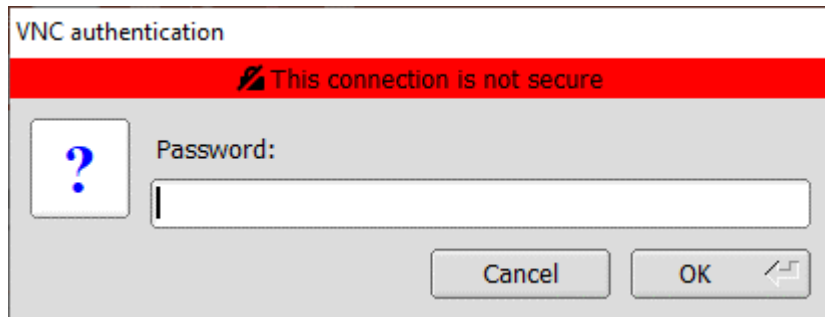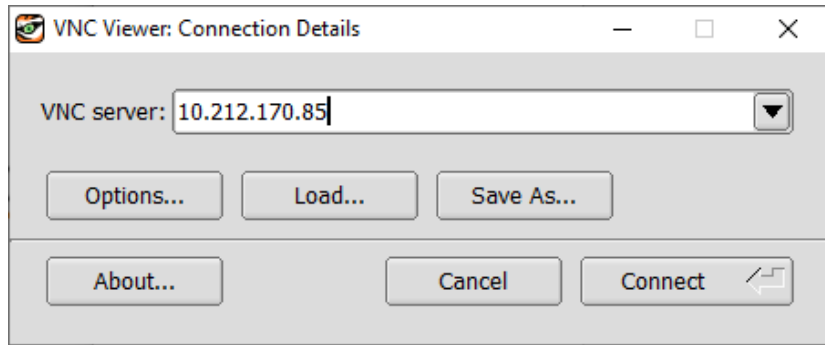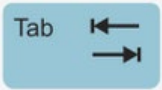
Demo: Basics
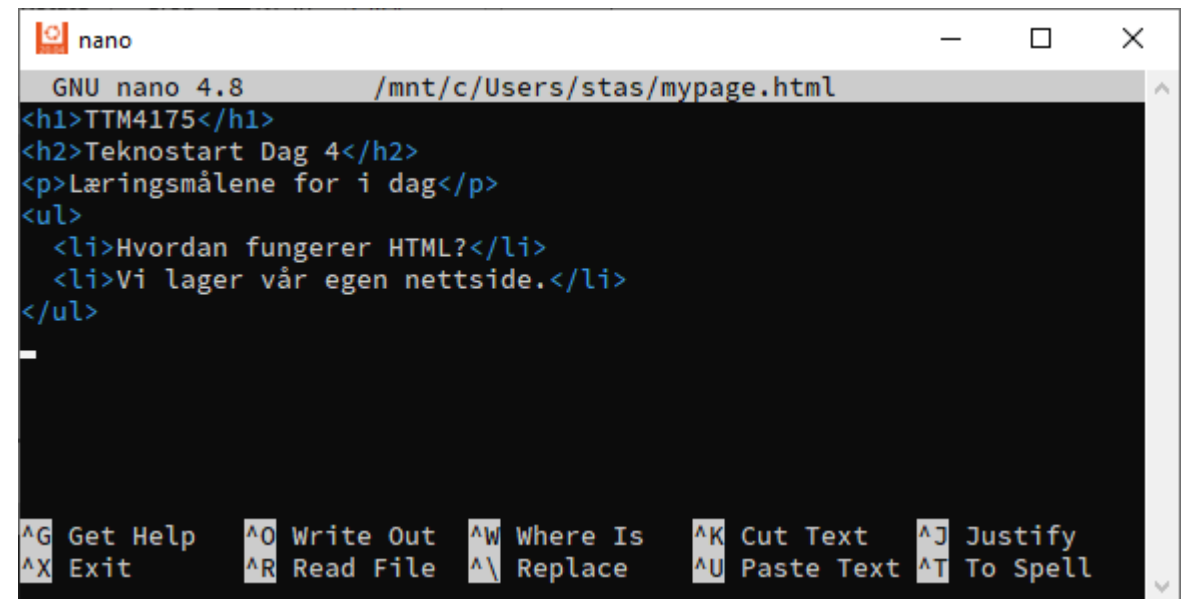
- `pwd, ls, cd, cat, less`
- `mkdir, rm, rmdir, mv, cp`
- *Tab completion*: start typing a command and hit
- Arrow keys up / down to browse command history
- Ctrl + ..
  - C: abort currently active program – handy if something hangs
  - R: search command history
  - L: `clear` terminal window
  - D: `exit` current session

Demo: Streams, Redirection, Pipes

- (Over-)Writing to a file with >
    - `echo "hello, world" > hello.txt`

- Appending to a file with >>
    - `echo "hei, world" >> hello2.txt`

- *Piping* output from one command to the next with |
    - `ls | head`
    - `cat *.txt | grep hei`

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Demo: nano Editor

- Most basic CLI-based text editor
- Shipped with most Linux distributions
- Open a file for editing via `nano myfile.txt`
- Ctrl + ..
  - S: **s**ave
  - O: save as (**o**ffer to write)
  - X: e**x**it
  - W: search (**w**here is)
- Arrow keys to navigate

Activities Today

Connect to Your VM

Suggested mode: one computer / connection per group

Solve the Tasks

Jeopardy-style Capture-the-Flag (CTF)

Command line crime mystery

Next Week: Networking Lab I

- Topics: binary, IP addresses, subnets, LAN configuration
- Goals
  - Understand and apply basic binary arithmetic
  - Understand IP addresses and their organization into subnets
  - Create and configure Local Area Networks (LANs)
  - Use basic Linux commands for managing
    - IP addresses (IPv4 and IPv6)
    - IP subnets and masks
- Preparation material & BB announcement on Monday