Introduction to Linux Mint

UNIT 9

Learning Objectives

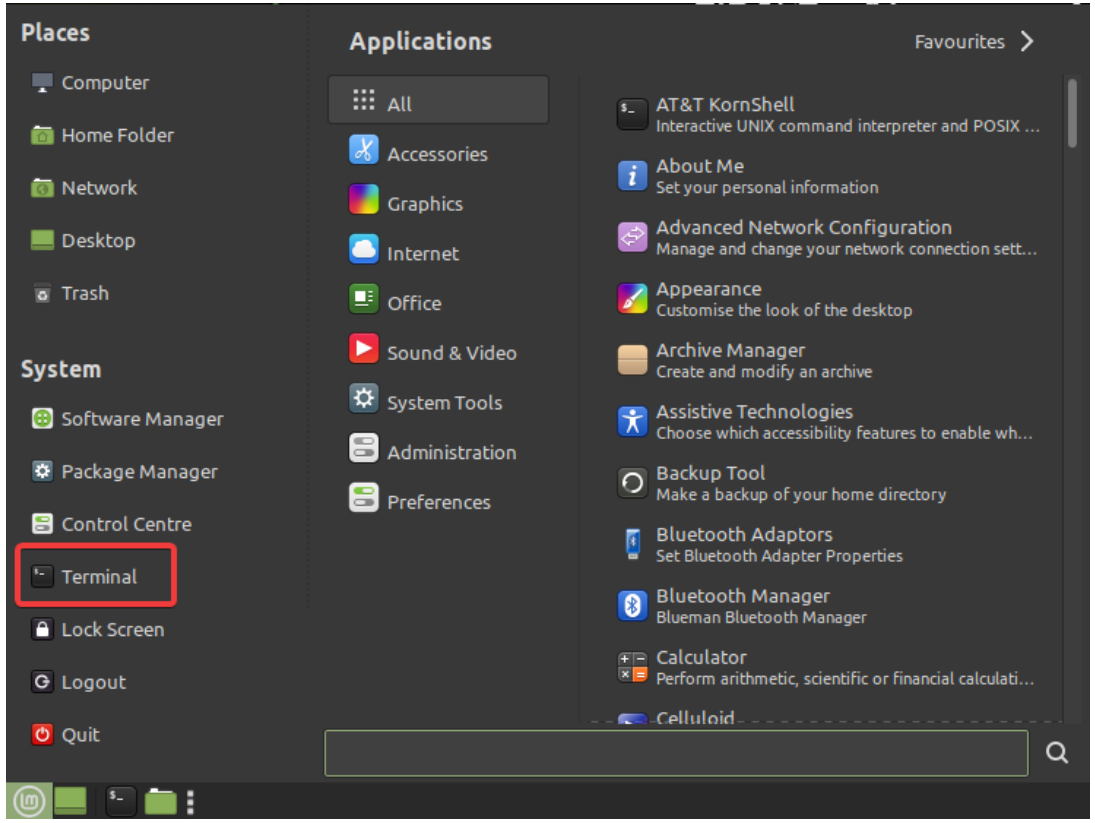
- Introduction of Linux Mint
  - Review of Unit 7 and 8 but covering how they are similar or different in Linux Mint from Ubuntu

Introduction to Linux Mint

Section 1

Open a Terminal

- Open the **MATE Menu**.
- Click the icon labeled **Terminal.**

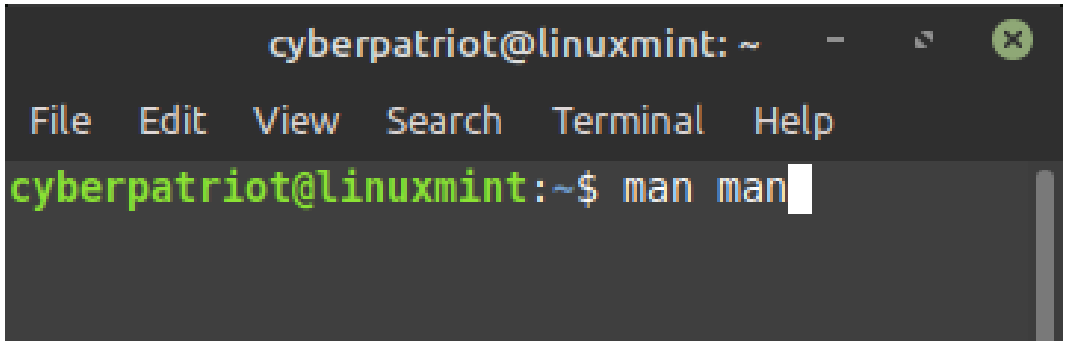


Basic Navigation Commands

- pwd
  - "Present Working Directory"
  - Prints out your current working directory
- ls [FILE]…
  - "List Segments"
  - Optional file/directory paths as an argument
- cd [dir]
  - "Change Directory"
  - Optional directory path as an argument
- Absolute paths
  - Starts from the *root directory* (/)
  - cd /home/cyberpatriot/Music
- Relative paths
  - Start from the *current directory* (.)
  - cd ./Music or just cd Music
  - One dot (.) indicates the *current directory*
  - Two dots (..) indicates the *parent directory*

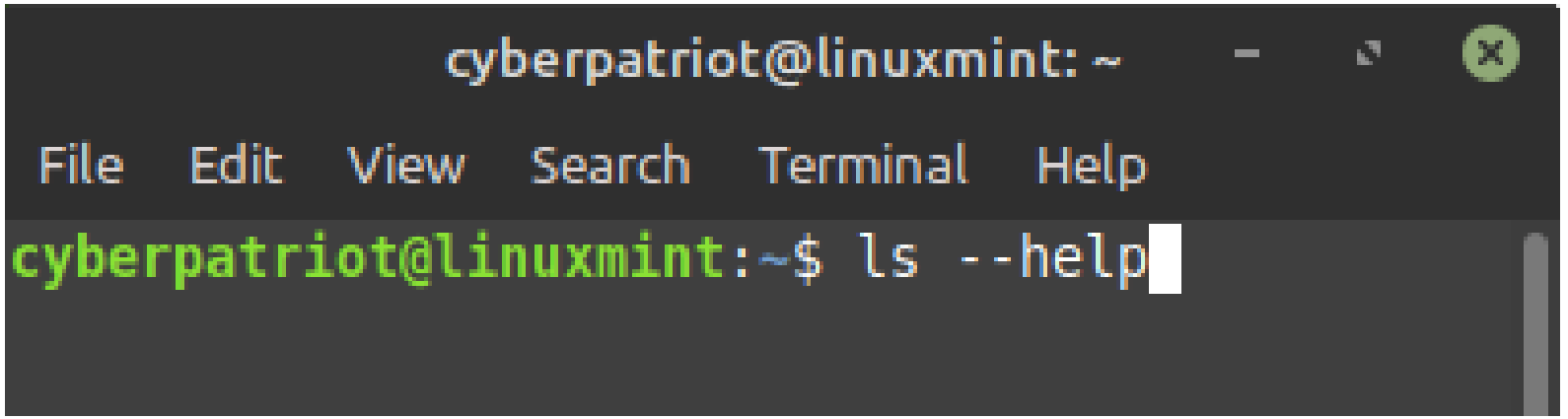
Command Manuals and Usage

- **man [section] page**
  - "Manual"
  - Displays the manual for a command
- Type man man and press **Enter**
  - Displays the manual for the command "man"
  - Use the arrow keys or PgUp/PgDn to scroll up and down
- Type q
  - Exits man



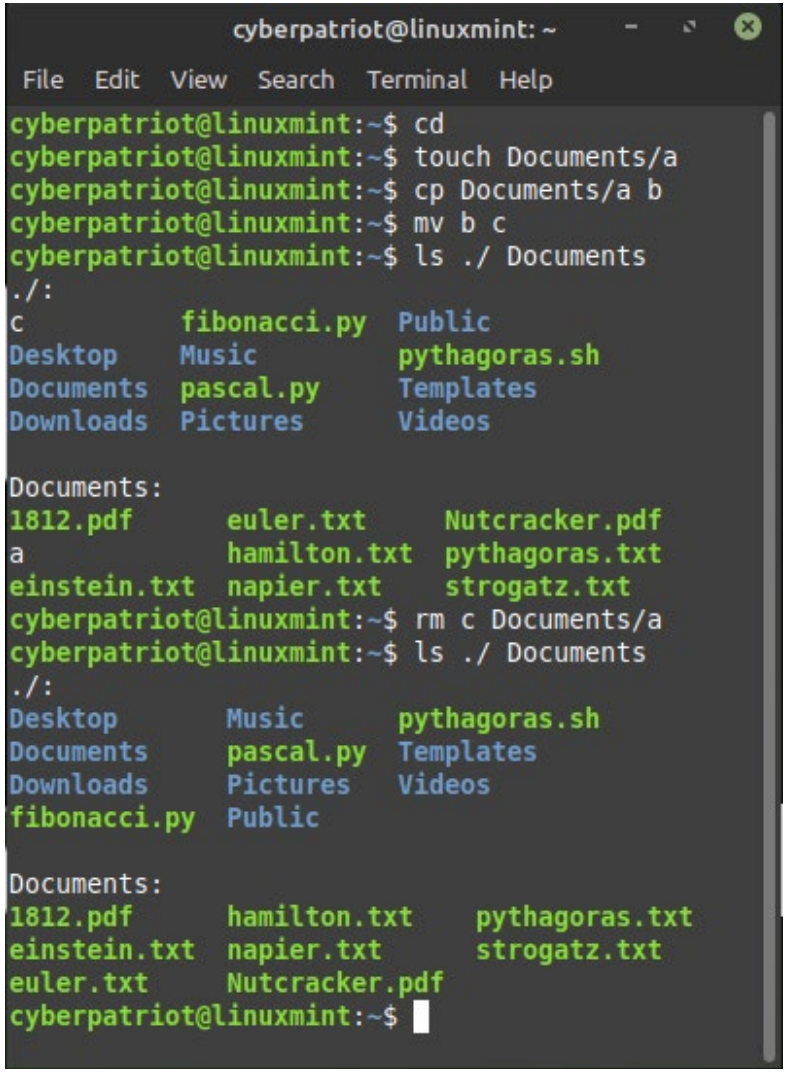
Command Manuals and Usage

- Many commands have a --help or –h option.
- Type ls --help and press **Enter.**
  - Displays help for the command ls



File Manipulation Commands

- Type the following commands in order:
  - cd
  - touch Documents/a
  - cp Documents/a b
  - mv b c
  - ls ./ Documents
  - rm c Documents/a
  - ls ./ Documents



File Contents and Output Redirection

- **echo [STRING]...**
  - displays a line of text in the command line

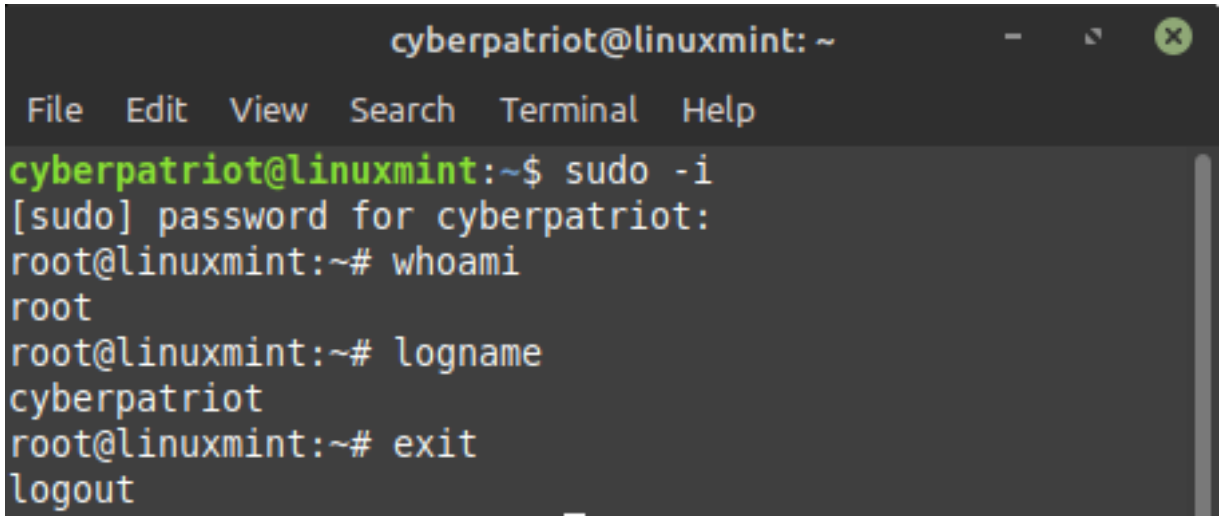
- **[command] > [FILE]**
  - The standard output of any command can be redirected to a file with a “greater than” symbol.
  - This will create a new file or overwrite an existing file.

Switching Users

- Many administrative commands must be run as root.
- **su [username]**
  - Change user ID or become superuser
  - If no username specified, defaults to root
  - Must enter password of target user “username”
- **sudo [-u username] [command]**
  - Execute a command as another user
  - If no username specified, defaults to root
  - May be required to enter your own password
- Sometimes the root user does not have a password.
  - Cannot log in
  - Cannot authenticate with su

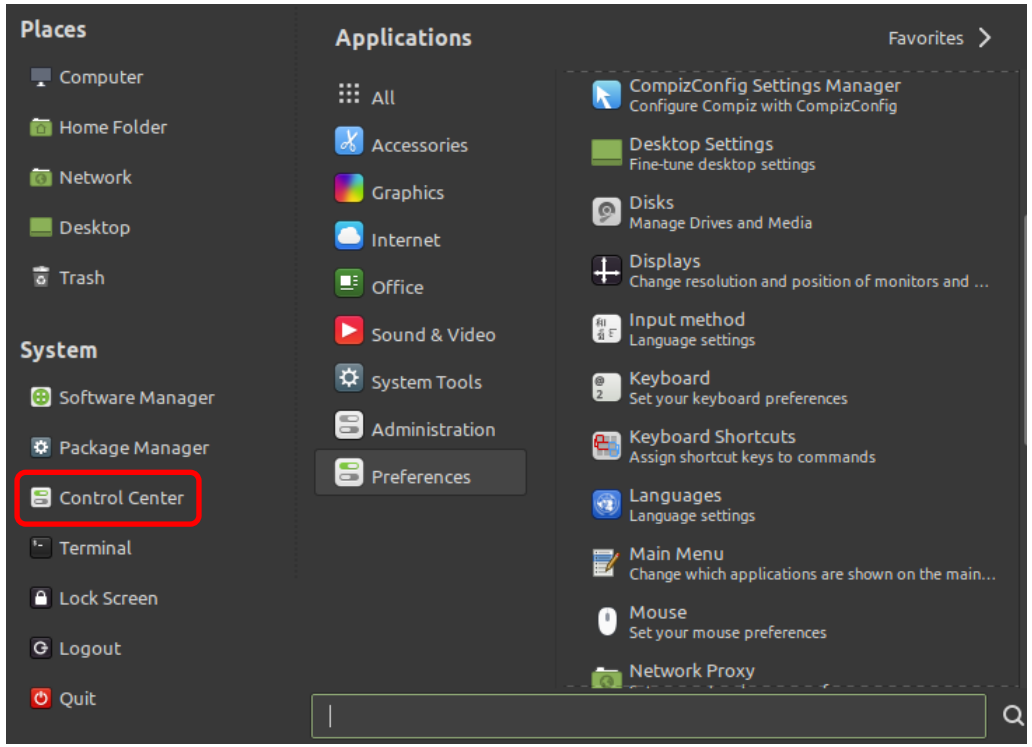
Switching to Root

- Switch to root by typing sudo -i
  - Type your password if prompted.
  - Works even if root has no password
- Type the command whoami then type logname
  - Type exit (Being root can be dangerous so exit)



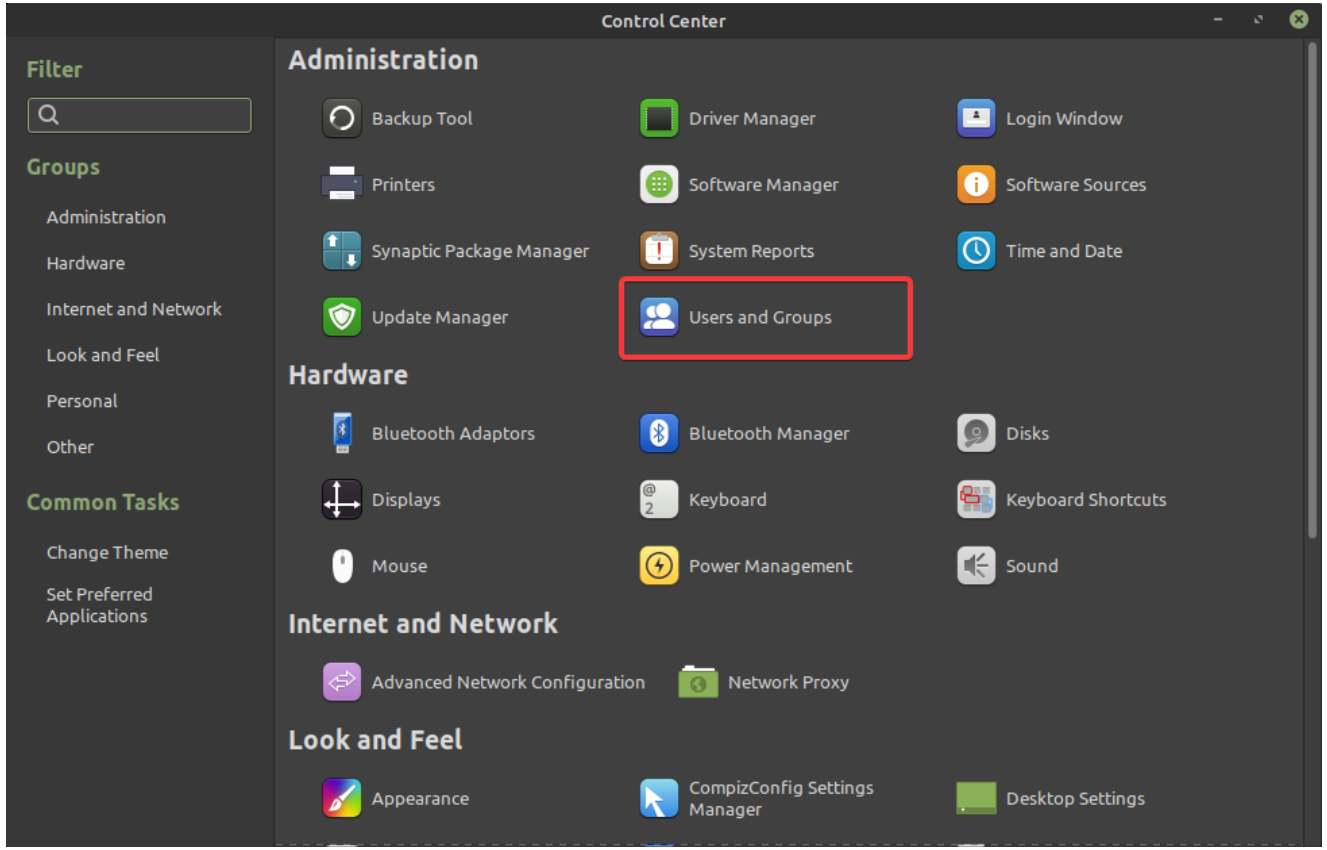
User Accounts

- No Control Panel like in Windows
- Open the **MATE Menu** in the bottom left corner menu.
- Click **Control Center** on the left-hand side of the **MATE Menu.**



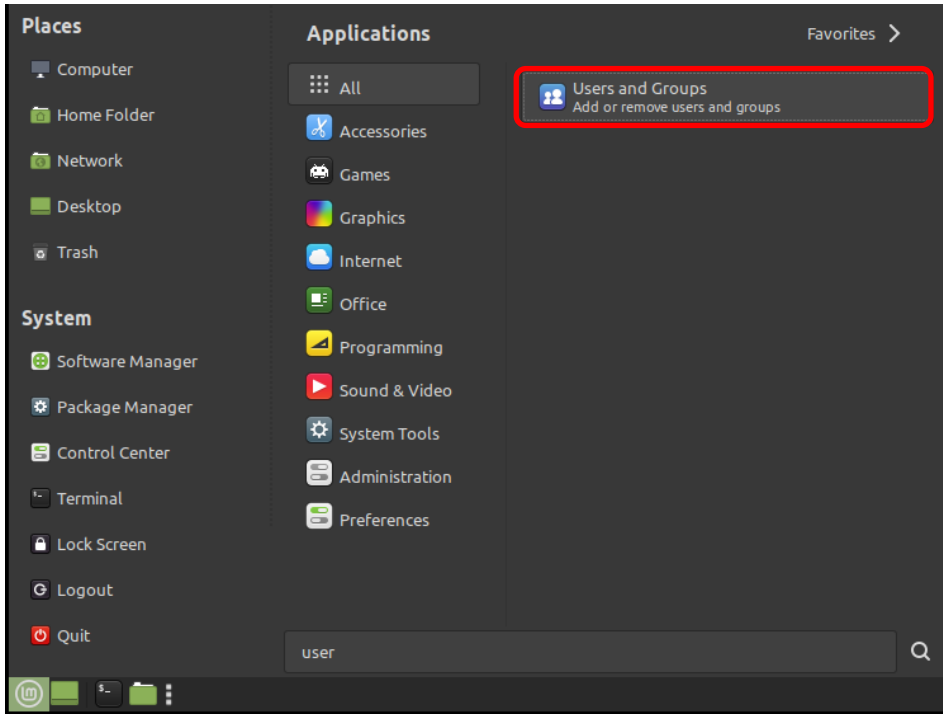
User Accounts

- Click on **Users and Groups** to manage user accounts.



Confirm Creation of User Accounts

- To check that accounts for “archimedes” and “riemann” were created when you entered your commands, click the “M” icon on your menu bar and click the **Users and Groups** button.



Basic Mint Security

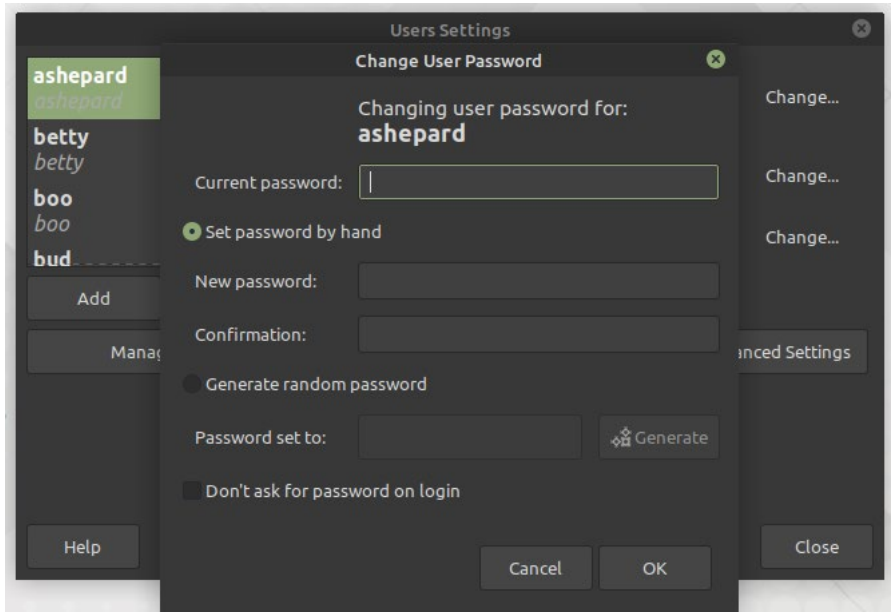
- Mint does not have System Settings or Control Panel like in Linux or Windows.

The Administration application offers limited security tools.

In the Menu, select the **Administration** button.

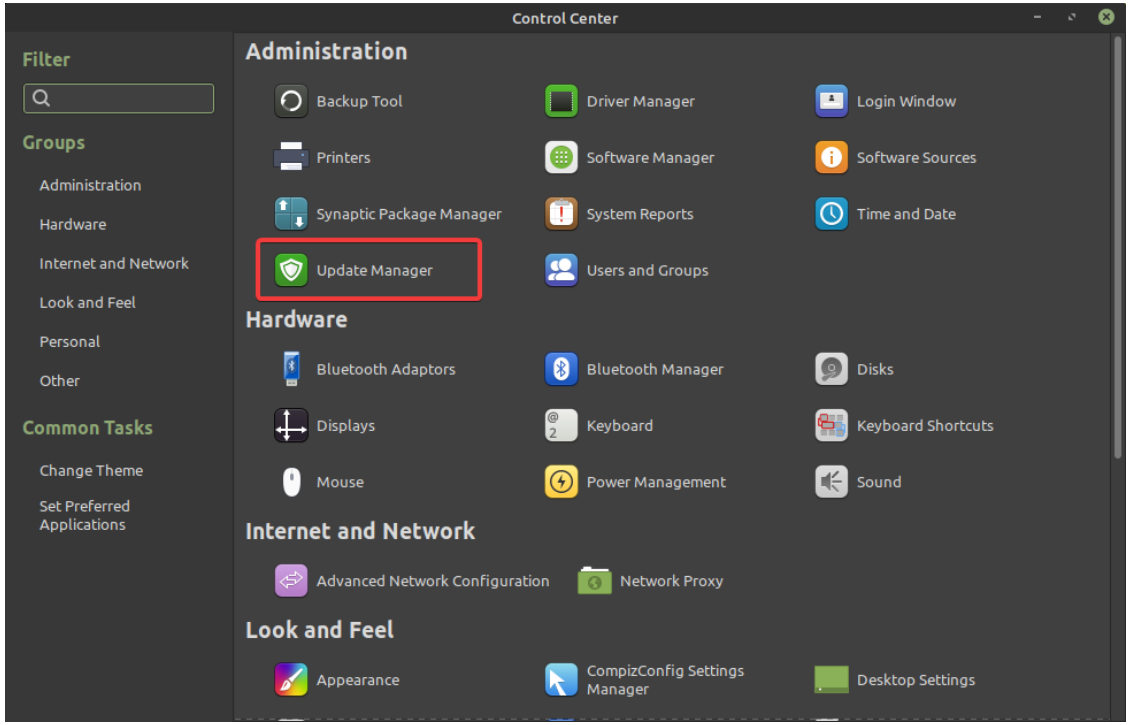
User Account -- Passwords

- In the Menu, go to **Users and Groups.**
- Click the **Change..** field next to **Password** .
- Select **Set password by hand** and enter your password in the field below.
- Enter the same password in the **Confirmation** field.
- Select OK to save the new password that you have entered.



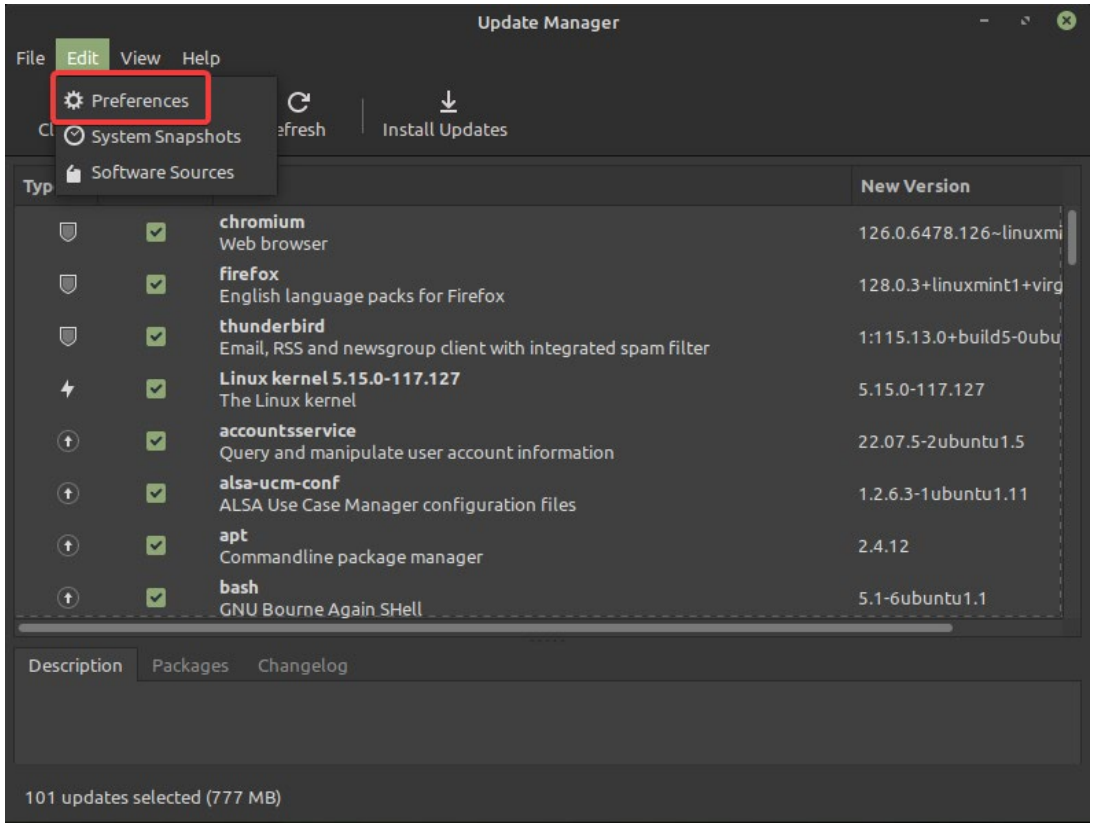
Configure Updates

- Open the **Control Center** from the **Start Menu.**
- Click **Update Manager**



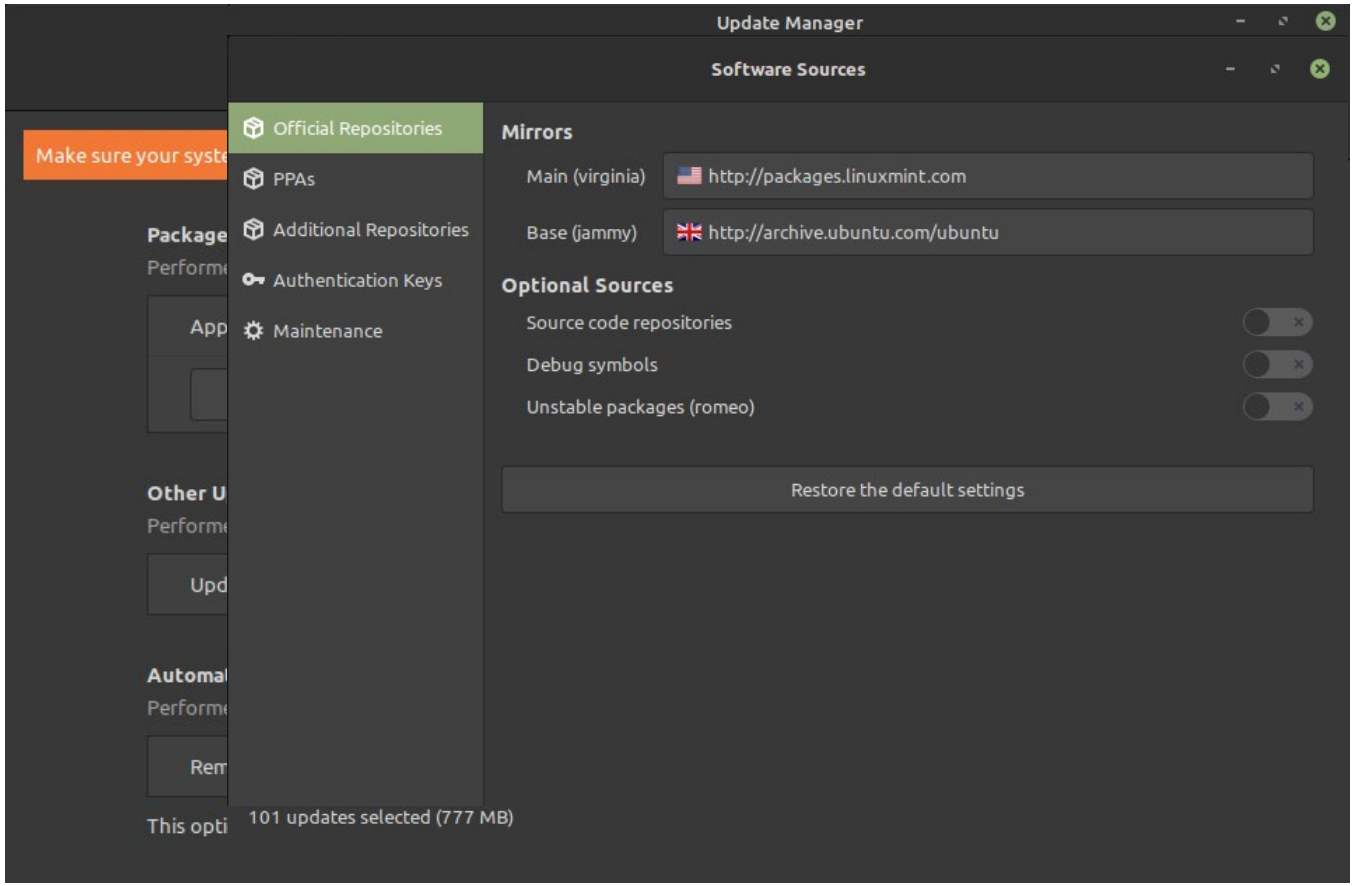
Installing Updates

- **Update Manager** will show available updates.
  - Based on your configuration settings
  - Click **Edit.**
  - Click **Preferences.**



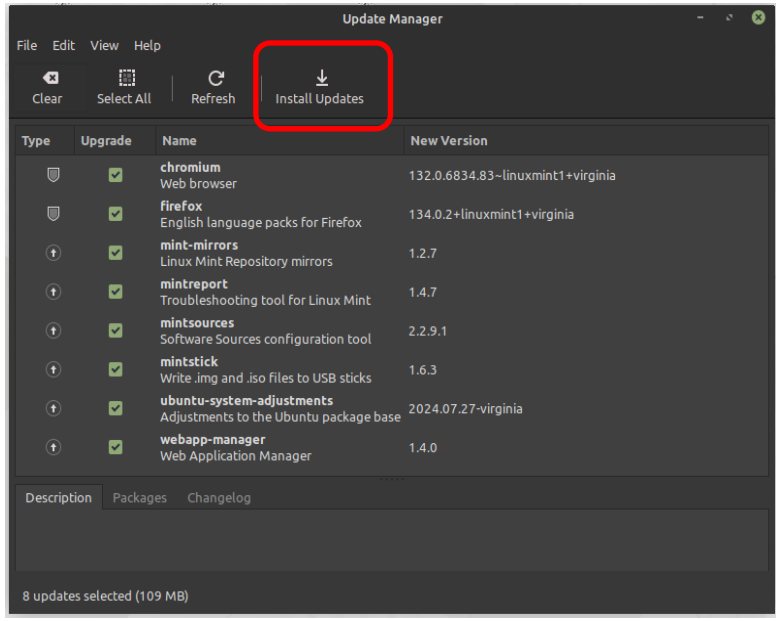
Update Policy

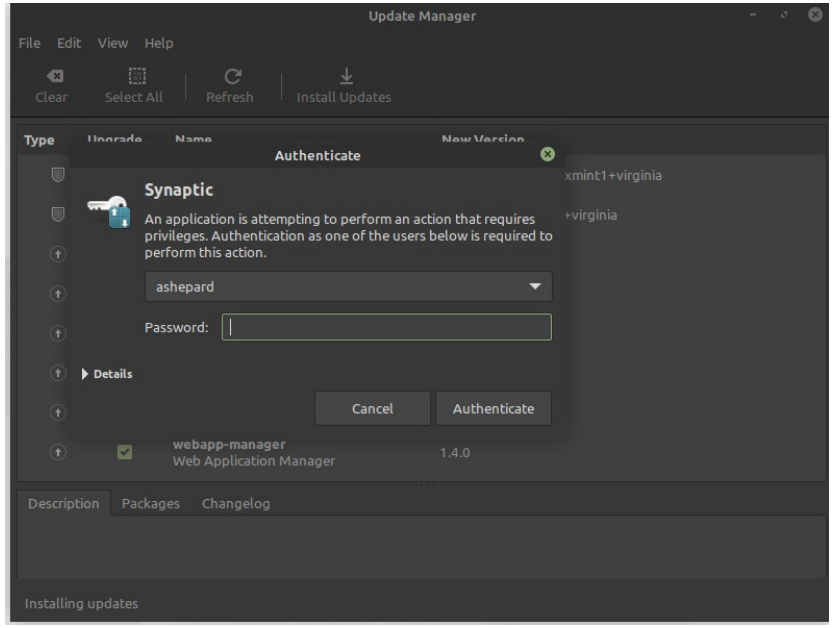
- Two important tabs
  - Options
  - Automation
- Close **Preferences**
  - Click **Edit**, then click **Software Sources**



Installing Updates

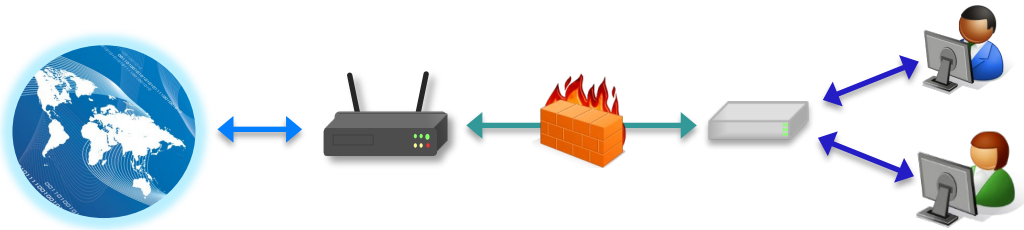
- In the Menu, go to **Update Manager**
- Update Manager shows a list of software updates that can be installed on your system.Make sure all of the updates you want to run are selected (shown by the green check box).All of the updates are selected by default.
- Select **Install Updates**
- Enter your password and select **Authenticate**

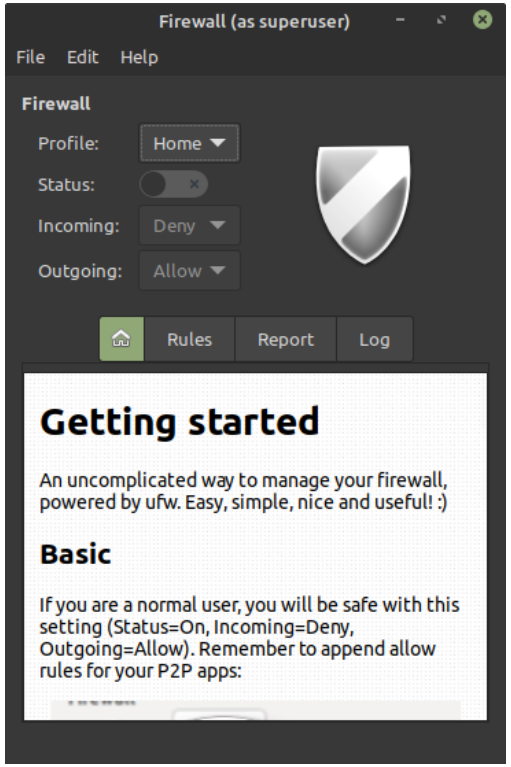




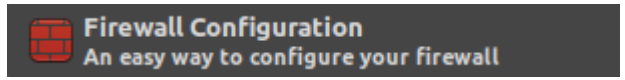
Local Firewall

- Built-in Firewall: **ufw**
- Not activated by default
- Command line interface
- GUI interface: **gufw**

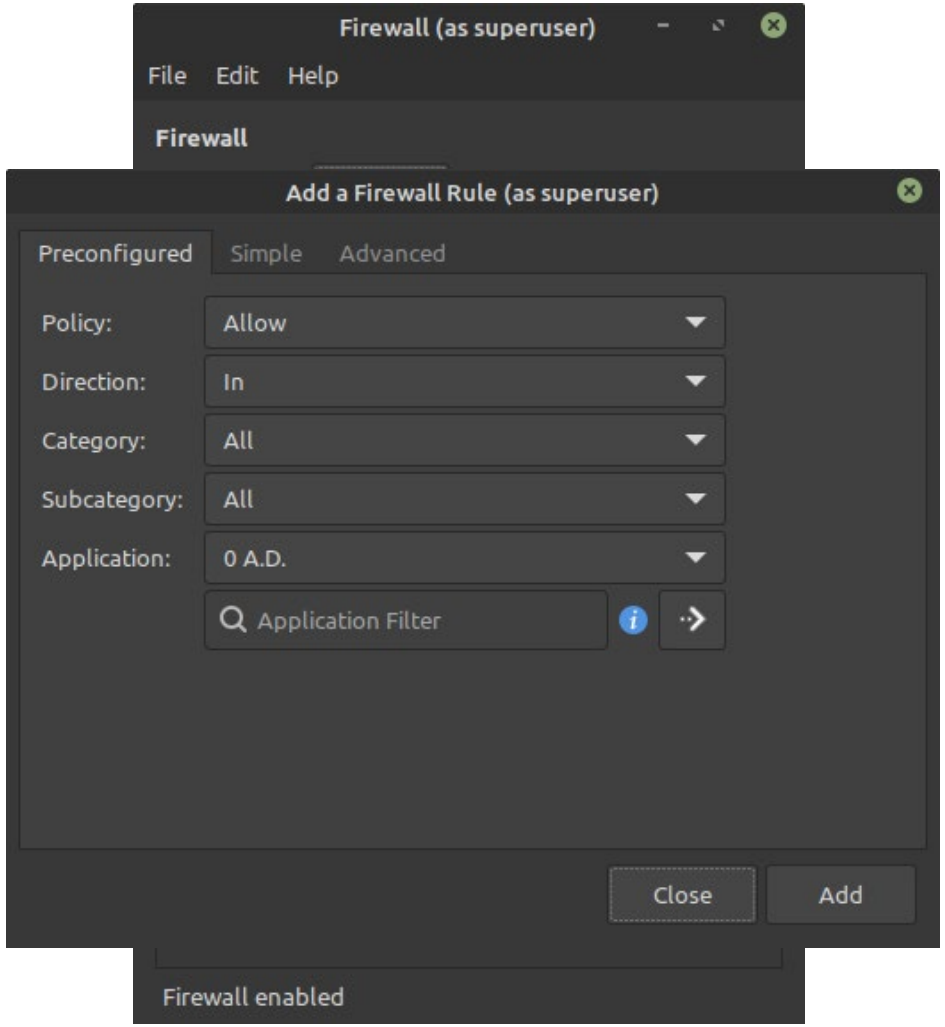




GUFW – Customizing Settings

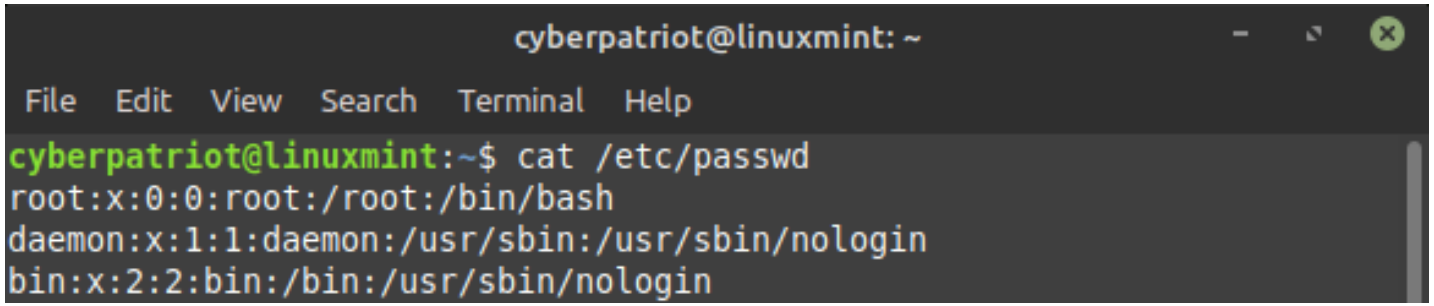
- Open the **MATE Menu**
  - Search: Firewall Configuration
- Authenticate 

- Click Status → On
- Default:
  - Deny all incoming traffic
  - Allow all outgoing traffic
- Deny vs. Reject
- Preconfigured Rules



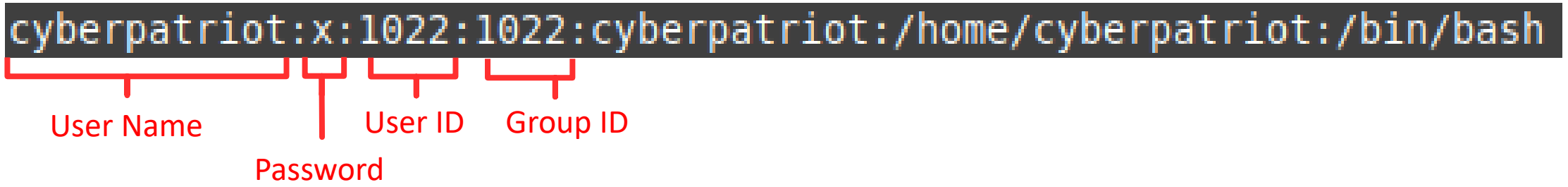
The Password File

- **/etc/passwd**
  - Usually does not contain passwords (anymore)
  - Contains user information
- Type `cat /etc/passwd`



- Type `man 5 passwd` to view the manual for the password file.
  - When you are done, press `q` to quit.

The Password File



- **User Name**
  - The name associated with this user account.
  - This is primarily used by humans to identify a user account.
- **Password**
  - x denotes the password is stored in shadow file
- **User ID** – Numerical user ID, or “UID”
  - The OS internally identifies users using their UID; not Username.
- **Group ID** – Numerical primary group ID, or “GID”

The Password File

```
cyberpatriot:x:1022:1022:cyberpatriot:/home/cyberpatriot:/bin/bash
```

Comment

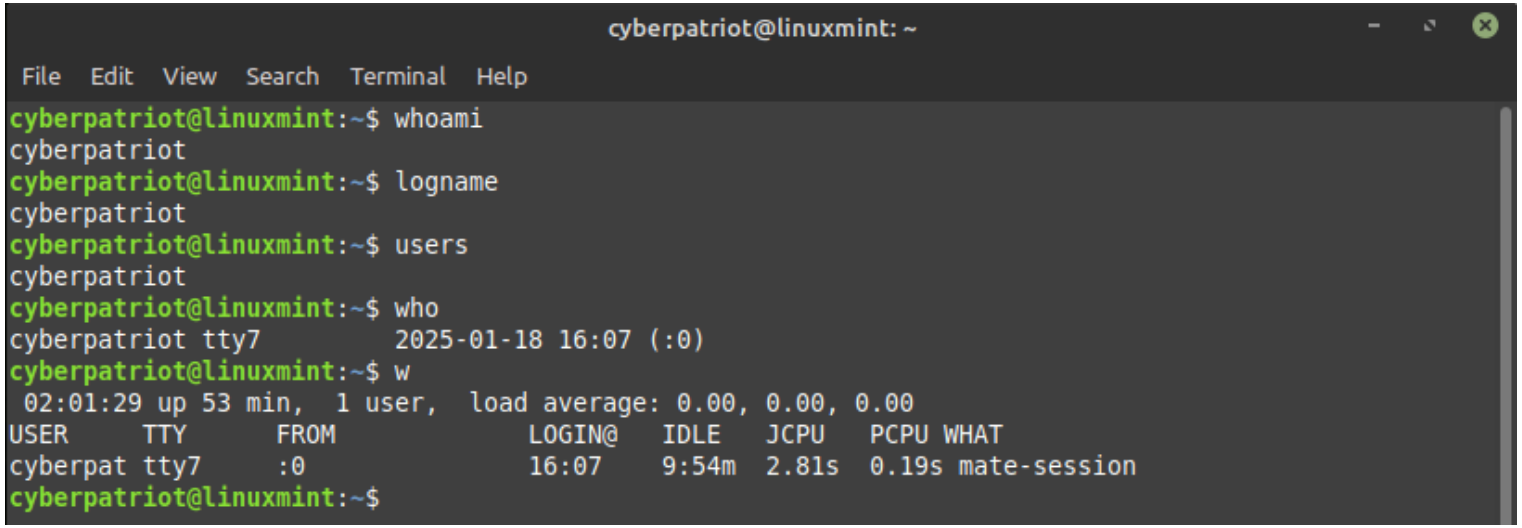
Home Directory

Shell

- **Comment**
  - Typically used to store the users' "real name"
- **Home Directory**
  - The current working directory when this user logs in
- **Shell**
  - The shell (or command) that gets executed when you log in.
  - How this user interacts with the computer when logging in on the command line.

Listing Users

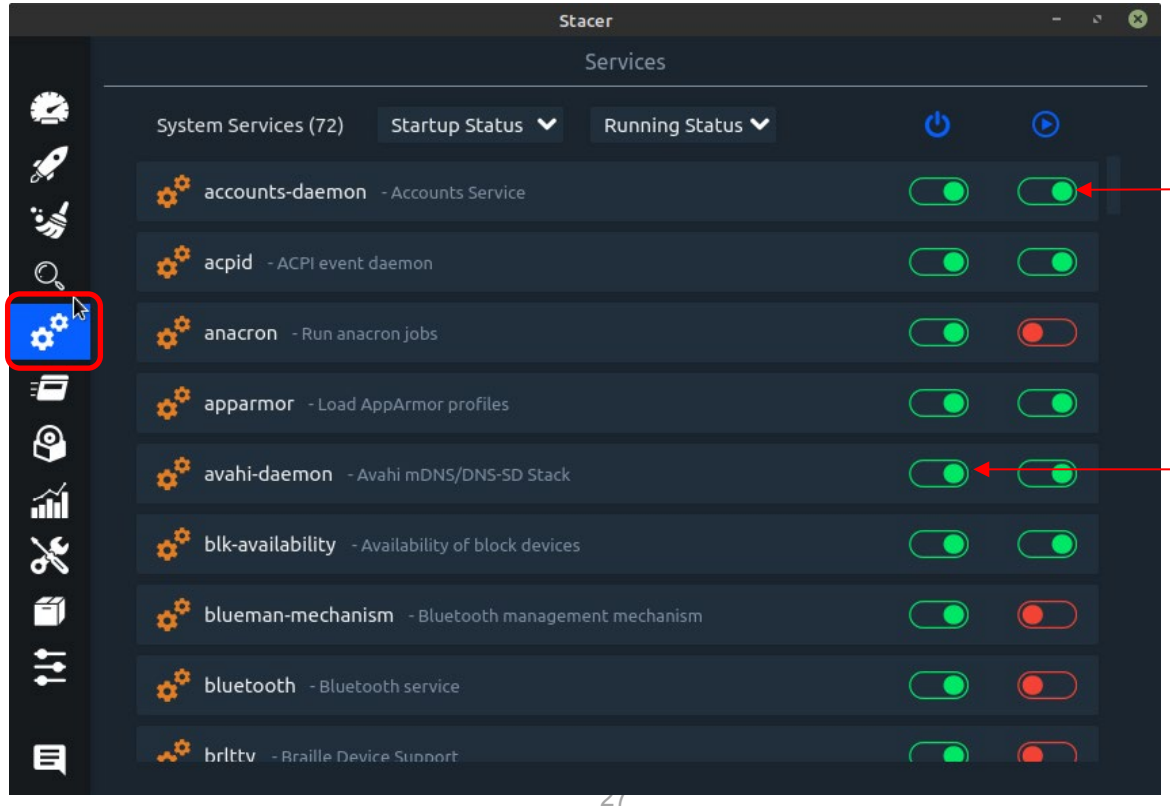
- Run the following commands in the terminal:
  - **whoami** – Your current effective username
  - **logname** – Your real login name
  - **users** – Usernames of users currently logged in to the host
  - **who** – Information about users who are currently logged in
  - **w** – Information about the users currently on the machine, and their processes



Note: Your information may vary slightly from the output shown above.

Services

- Can be viewed and managed in the Graphical User Interface
- To install, type **apt-get install stacer**
- After installing, type **stacer** to run
- On the left sidebar, select the 4th option **Services**



Select the toggle to set a Service to automatically run on startup

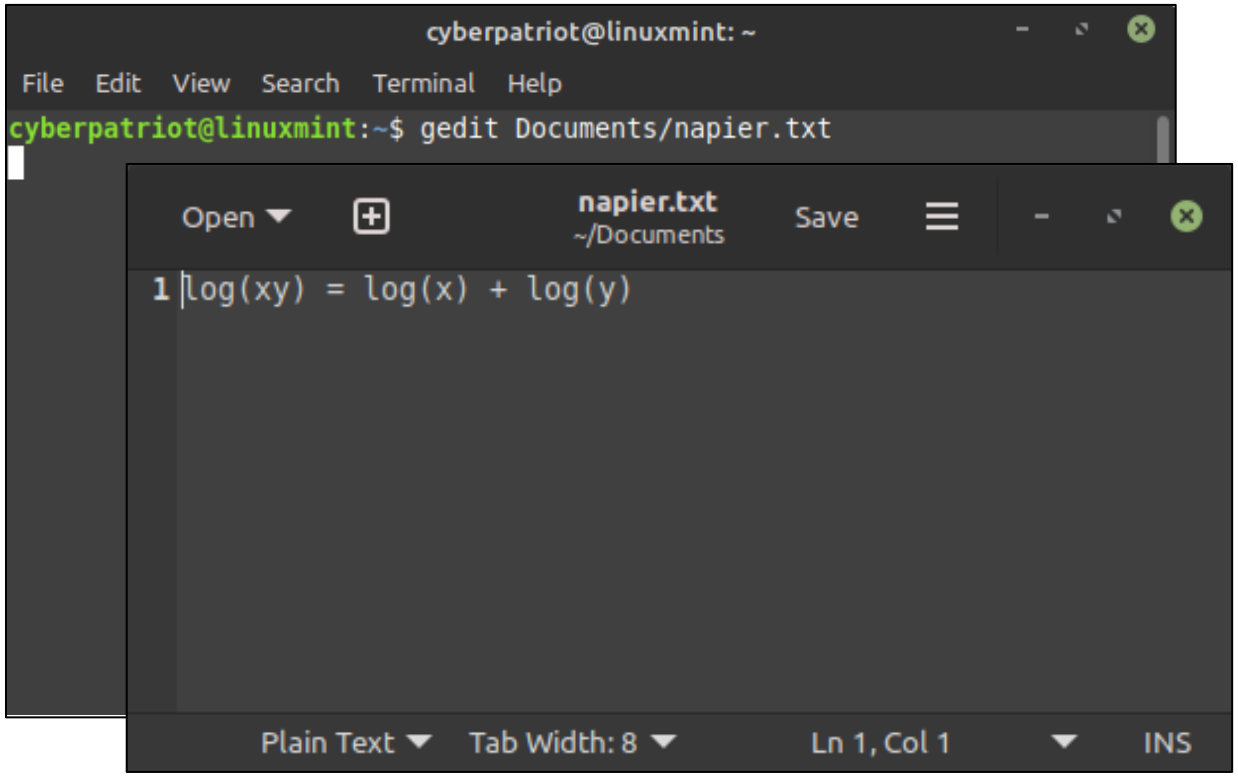
Select the toggle to start or stop the service

File Editing

- **gedit [FILE]…**
  - Easiest
  - Open the files in a common graphical editor

File Editing

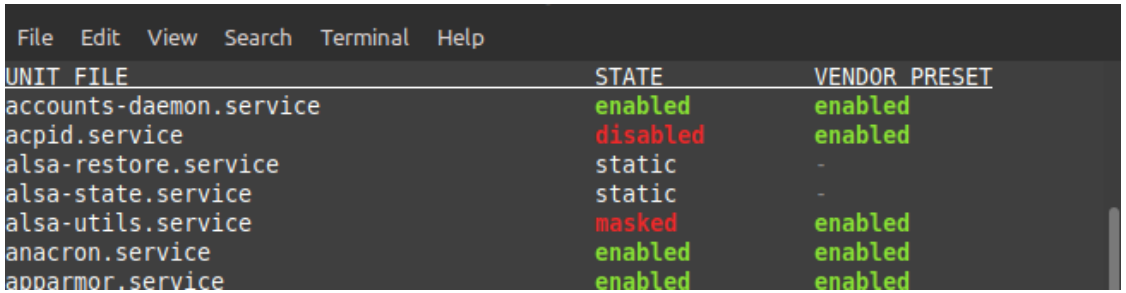
- Type gedit Documents/napier.txt



- Save and close the gedit window before continuing.

Services in the Command Line

- Can also be viewed via command line
- In a terminal, type systemctl list-unit-files –-type=service



Shows the status of the service

Adding and Removing Groups

- **groupadd [GROUP]**
  - Creates a new group
- **groupdel [GROUP]**
  - Delete an existing group
- **gpasswd –a [LOGIN] [GROUP]**
  - Add a user to a group
- **gpasswd –d [LOGIN] [GROUP]**
  - Delete a user from a group

Create a New Group

- Create a new physics group, and add users
- Type the following commands:
  - sudo groupadd astronomical
    - (You may be prompted for your password)
  - sudo gpasswd –a ggalilei astronomical
  - sudo gpasswd –a csagan astronomical
  - getent group astronomical

```
cyberpatriot@linuxmint:~$ sudo groupadd astronomical
cyberpatriot@linuxmint:~$ sudo gpasswd -a ggalilei astronomical
Adding user ggalilei to group astronomical
cyberpatriot@linuxmint:~$ sudo gpasswd -a csagan astronomical
Adding user csagan to group astronomical
cyberpatriot@linuxmint:~$ getent group astronomical
astronomical:x:1043:ggalilei,csagan
cyberpatriot@linuxmint:~$
```

Delete a Group

- Delete the cybernetics group
- Type the following commands:
  - getent group cybernetics
  - sudo groupdel cybernetics
    - (You may be prompted for your password)
  - getent group cybernetics
  - groups nsoong

```
cyberpatriot@linuxmint:~$ getent group cybernetics
cybernetics:x:1041:nsoong
cyberpatriot@linuxmint:~$ sudo groupdel cybernetics
cyberpatriot@linuxmint:~$ getent group cybernetics
cyberpatriot@linuxmint:~$ groups nsoong
nsoong : nsoong adm dialout cdrom floppy sudo audio dip video
 plugdev users lpadmin bluetooth netdev scanner sambashare
```

Changing File Permissions

- **chown [OWNER] [FILE]**
  - "Change ownership"
- **chgrp [GROUP] [FILE]**
  - "Change group"
- **chmod [MODE] [FILE]**
  - "Change mode"
  - MODE
    - [ugoa][+-=][rwx]
    - User/Group/Other/All +-= Read/Write/eXecute