

I U S

Faculté des Sciences et des Technologies

Administration des Systèmes Informatiques I

TD n° 1

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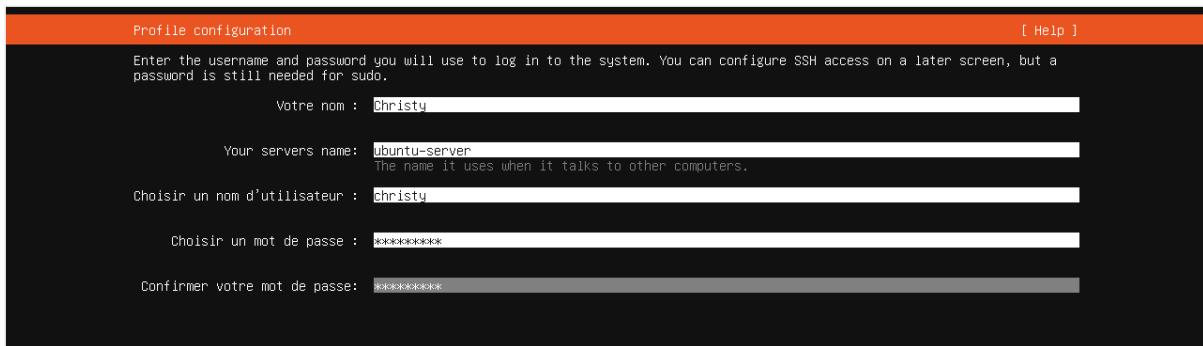
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Le 26 février 2026

Installation et première configuration d'un serveur Ubuntu

1. Installer un serveur Linux minimal
2. Configurer le réseau
3. Mettre en place l'accès distant sécurisé avec SSH
4. Effectuer la configuration de base d'un serveur

1. Installation d'Ubuntu server



```
Ubuntu 24.04.4 LTS ubuntu-server tty1

ubuntu-server login: christy
Password:
Welcome to Ubuntu 24.04.4 LTS (GNU/Linux 6.8.0-101-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/pro

System information as of Thu Feb 26 16:18:27 UTC 2026

 System load:          0.12
 Usage of /:           42.4% of 11.21GB
 Memory usage:         6%
 Swap usage:           0%
 Processes:            123
 Users logged in:      0
 IPv4 address for enp0s3: 10.0.2.15
 IPv6 address for enp0s3: fd17:625c:f037:2:a00:27ff:fee8:b94d

La maintenance de sécurité étendue pour Applications n'est pas activée.

5 mises à jour peuvent être appliquées immédiatement.
Pour afficher ces mises à jour supplémentaires, exécuter : apt list --upgradable

Activez ESM Apps pour recevoir des futures mises à jour de sécurité supplémentaires.
Visitez https://ubuntu.com/esm ou exécutez : sudo pro status

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/*copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
```

Installation du serveur SSH

```
christy@ubuntu-server:~$ sudo systemctl start ssh
christy@ubuntu-server:~$ sudo systemctl status ssh
● ssh.service - OpenBSD Secure Shell server
    Loaded: loaded (/usr/lib/systemd/system/ssh.service; enabled; preset: enabled)
      Active: active (running) since Thu 2026-02-26 17:39:11 UTC; 2s ago
TriggeredBy: ● ssh.socket
    Docs: man:sshd(8)
           man:sshd_config(5)
  Process: 3494 ExecStartPre=/usr/sbin/sshd -t (code=exited, status=0/SUCCESS)
 Main PID: 3495 (sshd)
    Tasks: 1 (limit: 4603)
   Memory: 2.1M (peak: 2.1M)
      CPU: 14ms
     CGroup: /system.slice/ssh.service
             └─3495 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"

Feb 26 17:39:11 ubuntu-server systemd[1]: Starting ssh.service - OpenBSD Secure Shell server...
Feb 26 17:39:11 ubuntu-server sshd[3495]: Server listening on 0.0.0.0 port 22.
Feb 26 17:39:11 ubuntu-server systemd[1]: Started ssh.service - OpenBSD Secure Shell server.
Feb 26 17:39:11 ubuntu-server sshd[3495]: Server listening on :: port 22.
christy@ubuntu-server:~$
```

Installation des outils utiles

```
christy@ubuntu-server:~$ sudo apt install vim htop net-tools curl -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
vim is already the newest version (2:9.1.0016-1ubuntu7.9).
vim set to manually installed.
htop is already the newest version (3.3.0-4build1).
htop set to manually installed.
curl is already the newest version (8.5.0-2ubuntu10.7).
curl set to manually installed.
The following NEW packages will be installed:
  net-tools
0 upgraded, 1 newly installed, 0 to remove and 2 not upgraded.
Need to get 204 kB of archives.
After this operation, 811 kB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 net-tools amd64 2.10-0.1ubuntu4.4 [204 kB]
Fetched 204 kB in 1s (233 kB/s)
Selecting previously unselected package net-tools.
(Reading database ... 87540 files and directories currently installed.)
Preparing to unpack .../net-tools_2.10-0.1ubuntu4.4_amd64.deb ...
Unpacking net-tools (2.10-0.1ubuntu4.4) ...
Setting up net-tools (2.10-0.1ubuntu4.4) ...
Processing triggers for man-db (2.12.0-4build2) ...
Scanning processes...
Scanning candidates...
Scanning linux images...

Running kernel seems to be up-to-date.

Restarting services...

Service restarts being deferred:
  systemctl restart unattended-upgrades.service

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
christy@ubuntu-server:~$
```

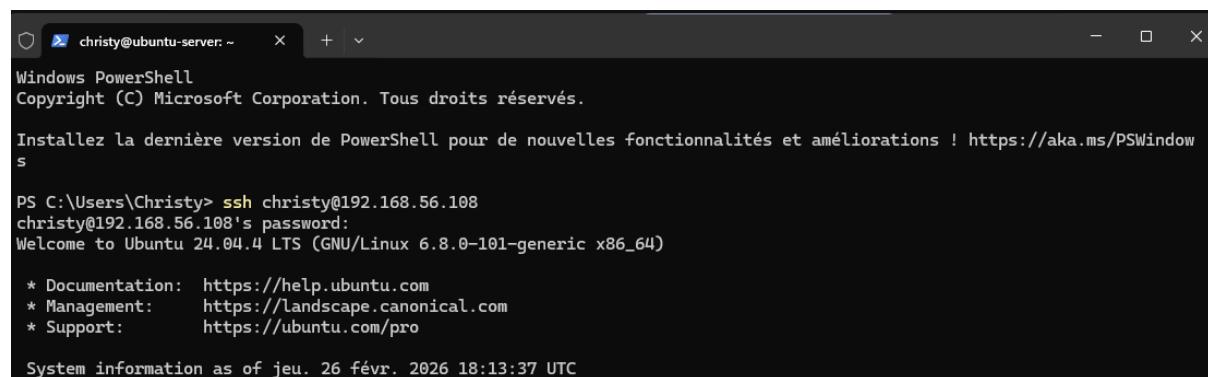
Sécurisation de SSH

```
# Logging
#SyslogFacility AUTH
#LogLevel INFO

# Authentication:

#LoginGraceTime 2m
#PermitRootLogin yes
#PasswordAuthentication no_
#StrictModes yes
#MaxAuthTries 6
#MaxSessions 10
```

- Depuis votre machine physique, exécutez ces commandes via PowerShell.



```
christy@ubuntu-server: ~
Windows PowerShell
Copyright (C) Microsoft Corporation. Tous droits réservés.

Installez la dernière version de PowerShell pour de nouvelles fonctionnalités et améliorations ! https://aka.ms/PSWindows

PS C:\Users\Christy> ssh christy@192.168.56.108
christy@192.168.56.108's password:
Welcome to Ubuntu 24.04.4 LTS (GNU/Linux 6.8.0-101-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/pro

System information as of jeu. 26 févr. 2026 18:13:37 UTC
```

- Vérification de la version du serveur installé

```
christy@ubuntu-server:~$ lsb_release -a
No LSB modules are available.
Distributor ID: Ubuntu
Description:    Ubuntu 24.04.4 LTS
Release:        24.04
Codename:       noble
```

- Vérification de l'adresse ip

```
christy@ubuntu-server:~$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
        inet6 ::1/128 scope host noprefixroute
            valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:e8:b9:4d brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 metric 100 brd 10.0.2.255 scope global dynamic enp0s3
        valid_lft 79427sec preferred_lft 79427sec
        inet6 fd17:625c:f037:2:a00:27ff:fee8:b94d/64 scope global dynamic mngtmpaddr noprefixroute
            valid_lft 85952sec preferred_lft 13952sec
        inet6 fe80::a00:27ff:fee8:b94d/64 scope link
            valid_lft forever preferred_lft forever
3: enp0s8: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:af:e0:10 brd ff:ff:ff:ff:ff:ff
```

- Test de la connectivité

```
christy@ubuntu-server:~$ ping -c 4 google.com
PING google.com (142.250.64.142) 56(84) bytes of data.
64 bytes from mia09s21-in-f14.1e100.net (142.250.64.142): icmp_seq=1 ttl=255 time=37.2 ms
64 bytes from mia09s21-in-f14.1e100.net (142.250.64.142): icmp_seq=2 ttl=255 time=46.1 ms
64 bytes from mia09s21-in-f14.1e100.net (142.250.64.142): icmp_seq=3 ttl=255 time=58.8 ms
64 bytes from mia09s21-in-f14.1e100.net (142.250.64.142): icmp_seq=4 ttl=255 time=36.5 ms

--- google.com ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3425ms
rtt min/avg/max/mdev = 36.450/44.630/58.782/9.019 ms
```

- Affichage du stockage

Filesystem	Size	Used	Avail	Use%	Mounted on
tmpfs	392M	1,2M	391M	1%	/run
/dev/mapper/ubuntu--vg-ubuntu--lv	12G	5,2G	5,0G	49%	/
tmpfs	2,0G	0	2,0G	0%	/dev/shm
tmpfs	5,0M	0	5,0M	0%	/run/lock
/dev/sda2	2,0G	102M	1,7G	6%	/boot
tmpfs	392M	12K	392M	1%	/run/user/1000

- Affichage de la mémoire

	total	used	free	shared	buff/cache	available
Mem:	3,8Gi	475Mi	2,5Gi	1,1Mi	1,1Gi	3,4Gi
Swap:	2,2Gi	0B	2,2Gi			

- Vérification du status du service ssh

```
christy@ubuntu-server:~$ sudo systemctl status ssh
[sudo] password for christy:
● ssh.service - OpenBSD Secure Shell server
  Loaded: loaded (/usr/lib/systemd/system/ssh.service; enabled; preset: enabled)
  Active: active (running) since Thu 2026-02-26 18:05:09 UTC; 13min ago
    TriggeredBy: ● ssh.socket
      Docs: man:sshd(8)
             man:sshd_config(5)
    Process: 3698 ExecStartPre=/usr/sbin/sshd -t (code=exited, status=0/SUCCESS)
   Main PID: 3700 (sshd)
     Tasks: 1 (limit: 4603)
       Memory: 3.1M (peak: 4.4M)
         CPU: 194ms
        CGroup: /system.slice/ssh.service
                   └─3700 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"

févr. 26 18:05:09 ubuntu-server systemd[1]: Starting ssh.service - OpenBSD Secure Shell server...
févr. 26 18:05:09 ubuntu-server sshd[3700]: Server listening on 0.0.0.0 port 22.
févr. 26 18:05:09 ubuntu-server sshd[3700]: Server listening on :: port 22.
févr. 26 18:05:09 ubuntu-server systemd[1]: Started ssh.service - OpenBSD Secure Shell server.
févr. 26 18:06:41 ubuntu-server sshd[3703]: pam_unix(sshd:auth): authentication failure; logname= uid=0 euid=0 tty=ssh ruser= rhost=192.168.56.1 u
févr. 26 18:06:44 ubuntu-server sshd[3703]: Failed password for christy from 192.168.56.1 port 51491 ssh2
févr. 26 18:06:54 ubuntu-server sshd[3703]: Accepted password for christy from 192.168.56.1 port 51491 ssh2
févr. 26 18:06:54 ubuntu-server sshd[3703]: pam_unix(sshd:session): session opened for user christy(uid=1000) by christy(uid=0)
févr. 26 18:13:37 ubuntu-server sshd[3822]: Accepted password for christy from 192.168.56.1 port 64255 ssh2
févr. 26 18:13:37 ubuntu-server sshd[3822]: pam_unix(sshd:session): session opened for user christy(uid=1000) by christy(uid=0)
[lines 1-24/24 (END)]
[1]+  Stopped                  sudo systemctl status ssh
```

- Affichage instantanée des processus

PID	TTY	TIME	CMD
3879	pts/0	00:00:00	bash
3921	pts/0	00:00:00	ps

- Affichage de la liste des processus

```
christy@ubuntu-server:~$ top
top - 18:18:35 up 1:58, 2 users, load average: 0,00, 0,00, 0,09
Tasks: 123 total, 1 running, 120 sleeping, 2 stopped, 0 zombie
%Cpu(s): 0,0 us, 0,8 sy, 0,0 ni, 98,4 id, 0,0 wa, 0,0 hi, 0,8 si, 0,0 st
MiB Mem : 3916,0 total, 2532,0 free, 477,2 used, 1140,3 buff/cache
MiB Swap: 2277,0 total, 2277,0 free, 0,0 used. 3438,8 avail Mem

      PID USER      PR  NI    VIRT    RES    SHR S %CPU %MEM     TIME+ COMMAND
 3878 christy    20   0  15128  7160  5160 S  3,6  0,2  0:03.37 sshd
 3912 root      20   0      0      0    0 I  1,6  0,0  0:00.35 kworker/1:1-events
 16 root      20   0      0      0    0 S  0,3  0,0  0:09.67 ksoftirqd/0
 1756 root      20   0 311684  9184  7440 S  0,3  0,2  0:01.24 upowerd
 2167 root      20   0 915264 69204 43500 S  0,3  1,7  0:05.83 prometheus
 3815 root      20   0      0      0    0 I  0,3  0,0  0:04.17 kworker/0:1-events
 3922 christy    20   0 11924  5968  3760 R  0,3  0,1  0:00.03 top
 1 root      20   0 22732 13956  9488 S  0,0  0,3  0:05.48 systemd
 2 root      20   0      0      0    0 S  0,0  0,0  0:00.02 kthreadd
 3 root      20   0      0      0    0 S  0,0  0,0  0:00.00 pool_workqueue_release
 4 root      0 -20      0      0    0 I  0,0  0,0  0:00.00 kworker/R-rcu_g
 5 root      0 -20      0      0    0 I  0,0  0,0  0:00.00 kworker/R-rcu_p
 6 root      0 -20      0      0    0 I  0,0  0,0  0:00.00 kworker/R-slab_
 7 root      0 -20      0      0    0 I  0,0  0,0  0:00.00 kworker/R-netns
 11 root     20   0      0      0    0 I  0,0  0,0  0:00.29 kworker/u4:0-ext4-rsv-conversion
 12 root     0 -20      0      0    0 I  0,0  0,0  0:00.00 kworker/R-mm_pe
 13 root     20   0      0      0    0 I  0,0  0,0  0:00.00 rCU_tasks_kthread
 14 root     20   0      0      0    0 I  0,0  0,0  0:00.00 rCU_tasks_rude_kthread
 15 root     20   0      0      0    0 I  0,0  0,0  0:00.00 rCU_tasks_trace_kthread
 17 root     20   0      0      0    0 I  0,0  0,0  0:01.00 rCU_preempt
 18 root     rt  0      0      0    0 S  0,0  0,0  0:00.09 migration/0
 19 root     -51  0      0      0    0 S  0,0  0,0  0:00.00 idle_inject/0
 20 root     20   0      0      0    0 S  0,0  0,0  0:00.00 cpuhp/0
 21 root     20   0      0      0    0 S  0,0  0,0  0:00.00 cpuhp/1
 22 root     -51  0      0      0    0 S  0,0  0,0  0:00.00 idle_inject/1
 23 root     rt  0      0      0    0 S  0,0  0,0  0:00.37 migration/1
```

Conclusion

A l'issu de ce TD, j'ai pu atteindre les objectifs fixés au départ, à savoir :

Installer un serveur Linux

Configurer le réseau

Accéder au serveur à distance