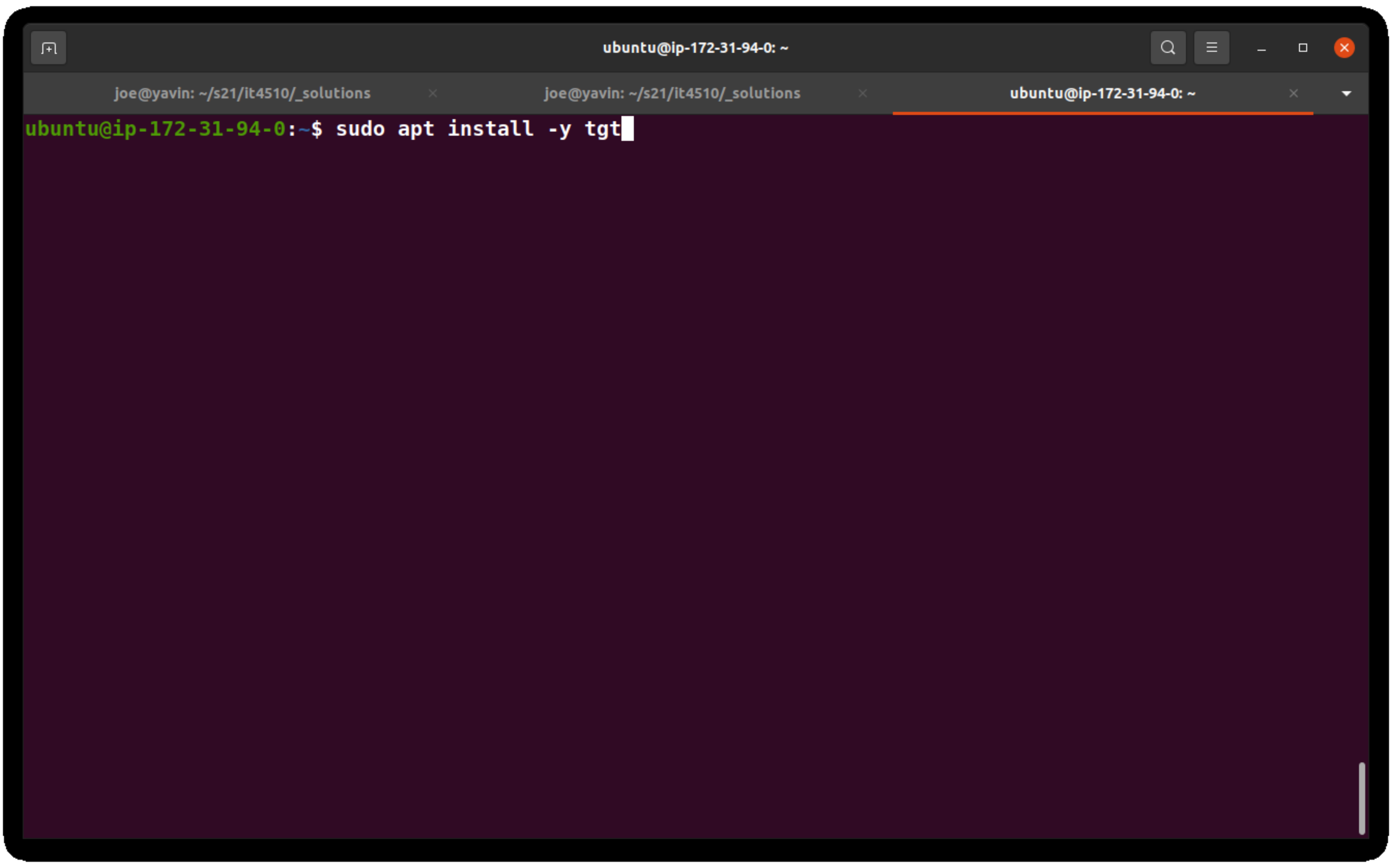
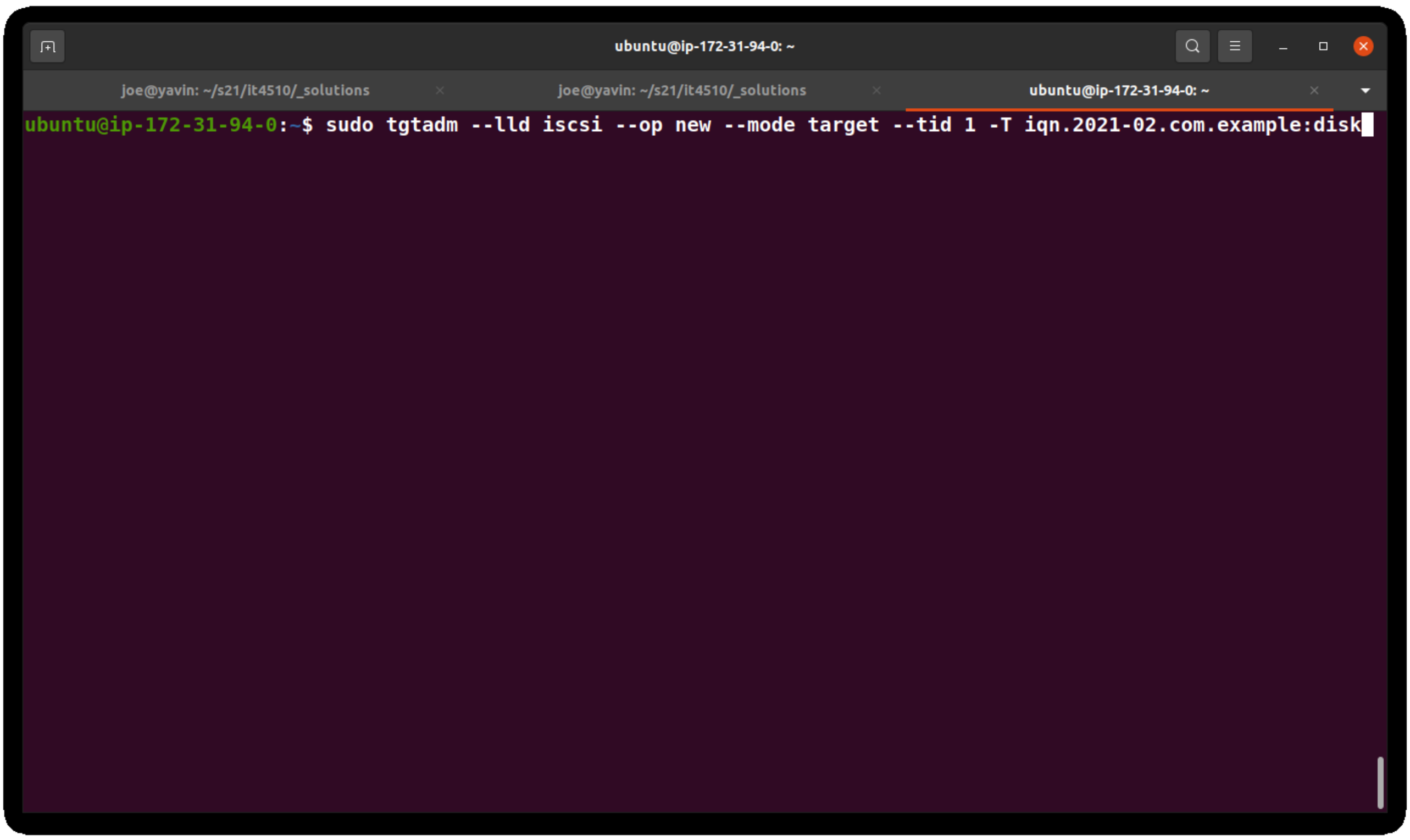
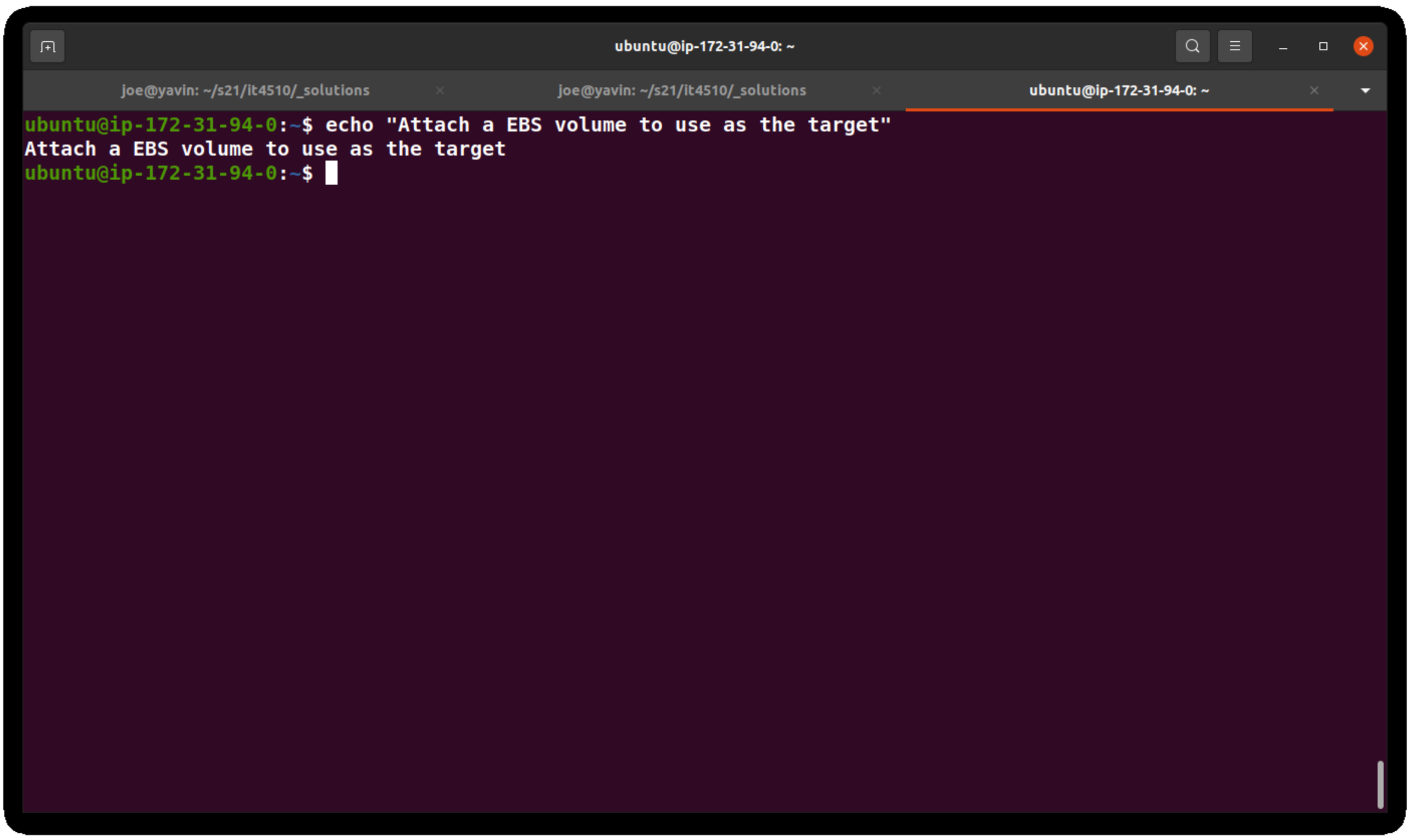
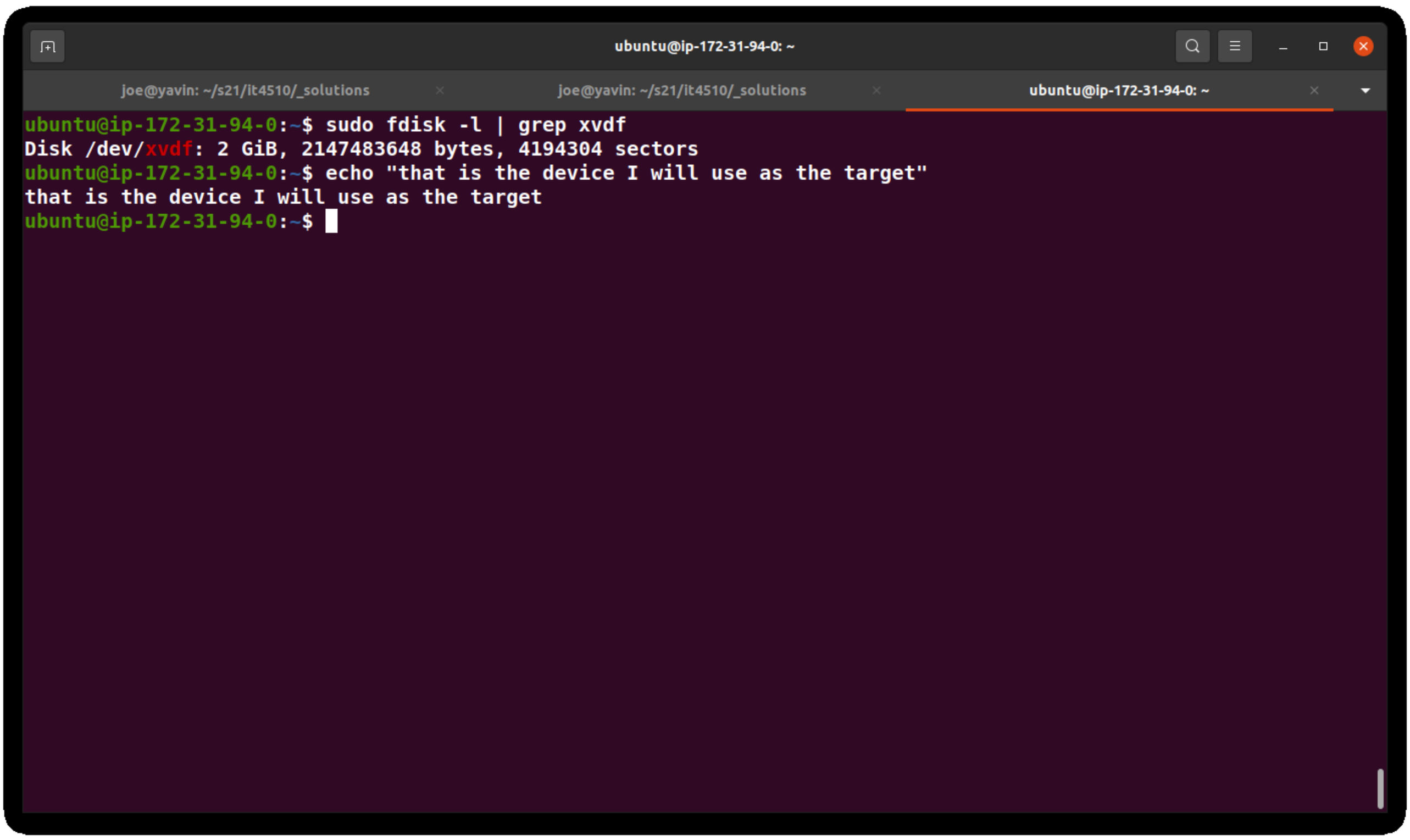

ubuntu@ip-172-31-94-0: ~
joe@yavin: ~/s21/it4510/_solutions
joe@yavin: ~/s21/it4510/_solutions
ubuntu@ip-172-31-94-0: ~
ubuntu@ip-172-31-94-0:~$ sudo apt install -y tgt

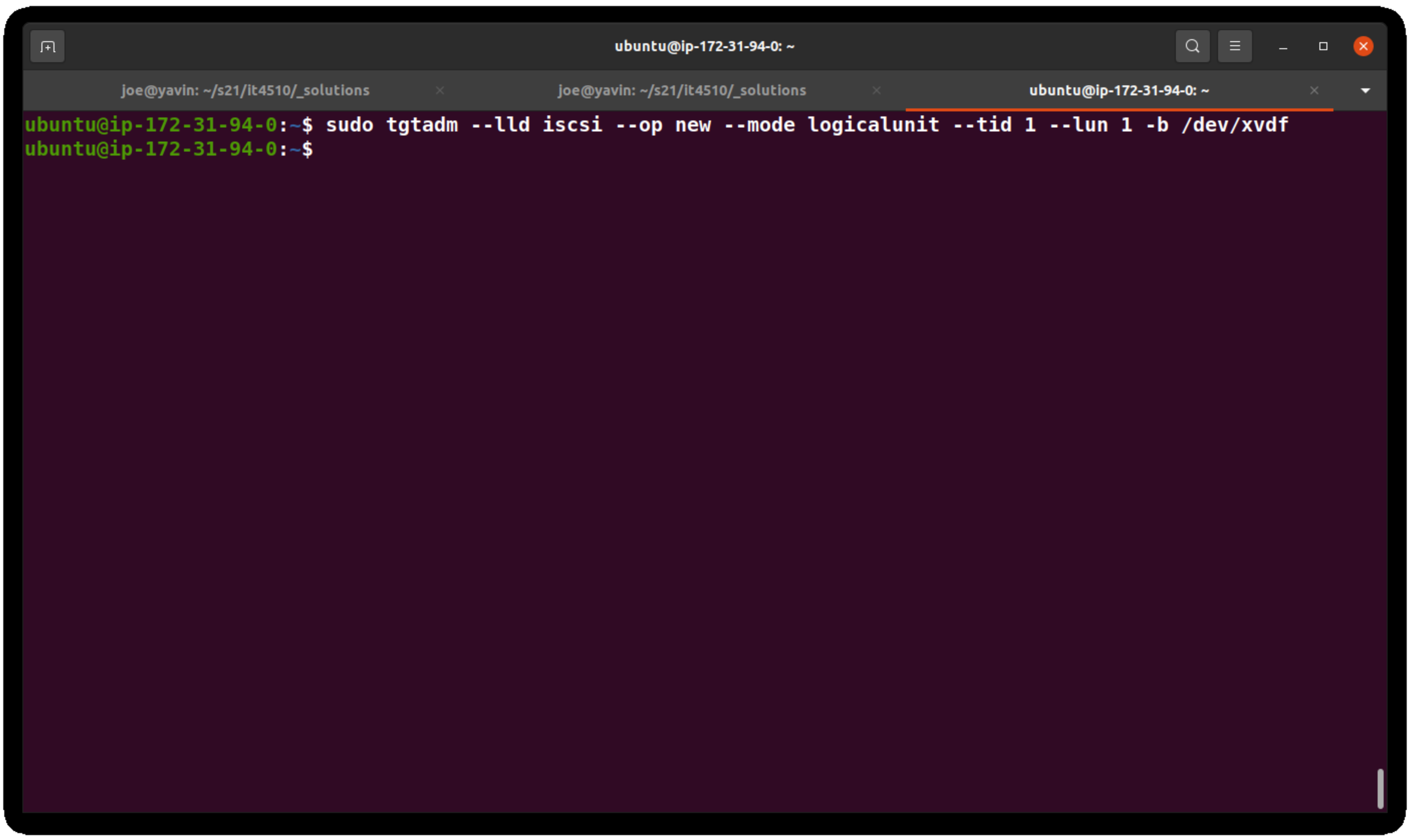

ubuntu@ip-172-31-94-0: ~
joe@yavin: ~/s21/it4510/_solutions
joe@yavin: ~/s21/it4510/_solutions
ubuntu@ip-172-31-94-0: ~
ubuntu@ip-172-31-94-0:~$ sudo tgtadm --lld iscsi --op new --mode target --tid 1 -T iqn.2021-02.com.example:disk

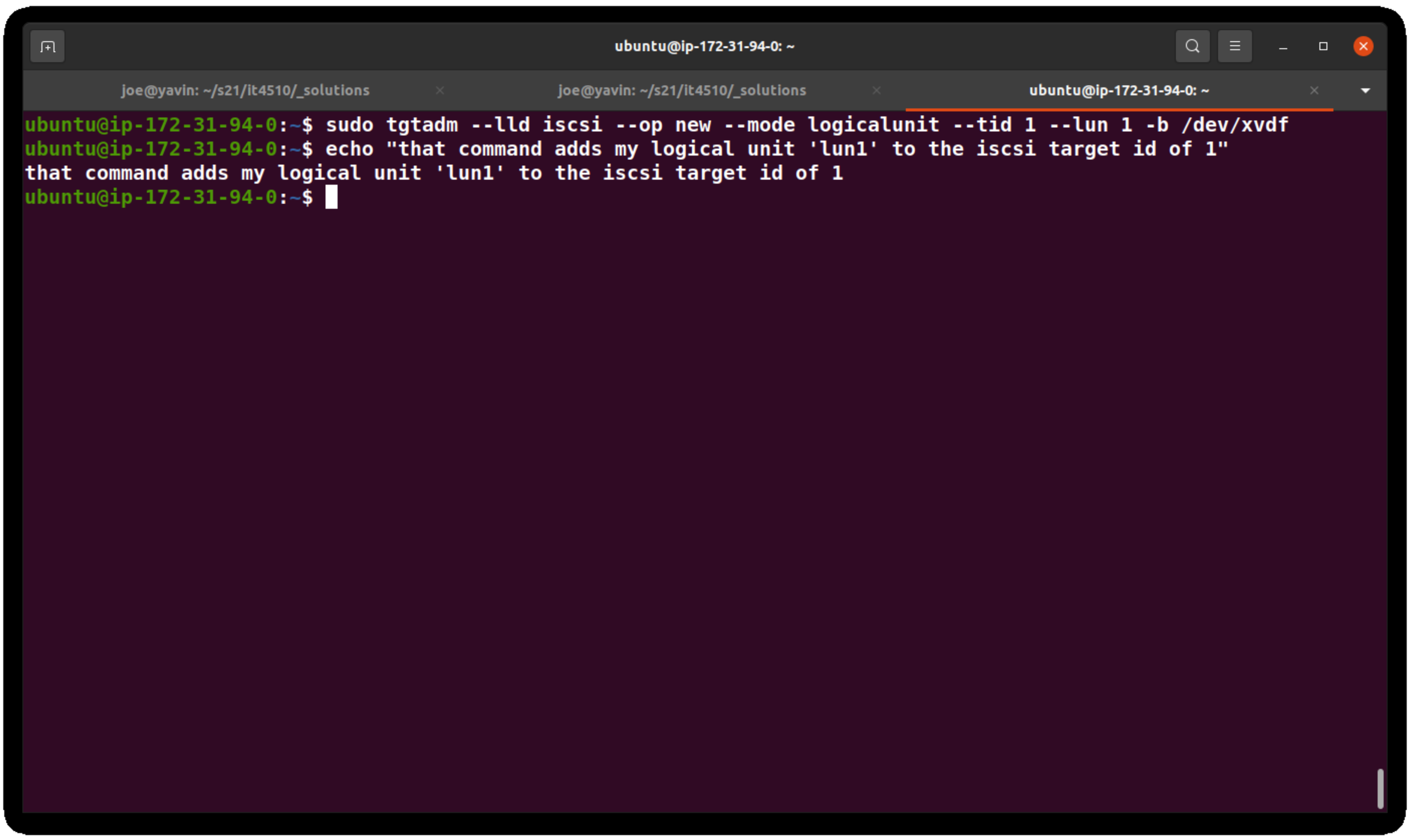

ubuntu@ip-172-31-94-0: ~
joe@yavin: ~/s21/it4510/_solutions
joe@yavin: ~/s21/it4510/_solutions
ubuntu@ip-172-31-94-0: ~
ubuntu@ip-172-31-94-0:~$ echo "Attach a EBS volume to use as the target"
Attach a EBS volume to use as the target
ubuntu@ip-172-31-94-0:~$

```
ubuntu@ip-172-31-94-0:~$ sudo fdisk -l
Disk /dev/loop0: 31.1 MiB, 32600064 bytes, 63672 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes


Disk /dev/loop1: 55.4 MiB, 58073088 bytes, 113424 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes


Disk /dev/loop2: 32.3 MiB, 33894400 bytes, 66200 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes


Disk /dev/xvda: 8 GiB, 8589934592 bytes, 16777216 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0x88e51edb

Device     Boot Start      End  Sectors Size Id Type
/dev/xvda1 *     2048 16777182 16775135   8G 83 Linux
ubuntu@ip-172-31-94-0:~$
```

```
Disk /dev/loop1: 55.4 MiB, 58073088 bytes, 113424 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes


Disk /dev/loop2: 32.3 MiB, 33894400 bytes, 66200 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes


Disk /dev/xvda: 8 GiB, 8589934592 bytes, 16777216 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0x88e51edb

Device     Boot Start      End  Sectors Size Id Type
/dev/xvda1 *     2048 16777182 16775135   8G 83 Linux


Disk /dev/xvdf: 2 GiB, 2147483648 bytes, 4194304 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
ubuntu@ip-172-31-94-0:~$
```


ubuntu@ip-172-31-94-0: ~
joe@yavin: ~/s21/it4510/_solutions
joe@yavin: ~/s21/it4510/_solutions
ubuntu@ip-172-31-94-0: ~
ubuntu@ip-172-31-94-0:~$ sudo fdisk -l | grep xvdf
Disk /dev/xvdf: 2 GiB, 2147483648 bytes, 4194304 sectors
ubuntu@ip-172-31-94-0:~$ echo "that is the device I will use as the target"
that is the device I will use as the target
ubuntu@ip-172-31-94-0:~$


ubuntu@ip-172-31-94-0: ~
joe@yavin: ~/s21/it4510/_solutions
joe@yavin: ~/s21/it4510/_solutions
ubuntu@ip-172-31-94-0: ~
ubuntu@ip-172-31-94-0:~$ sudo tgtadm --lld iscsi --op new --mode logicalunit --tid 1 --lun 1 -b /dev/xvdf
ubuntu@ip-172-31-94-0:~$

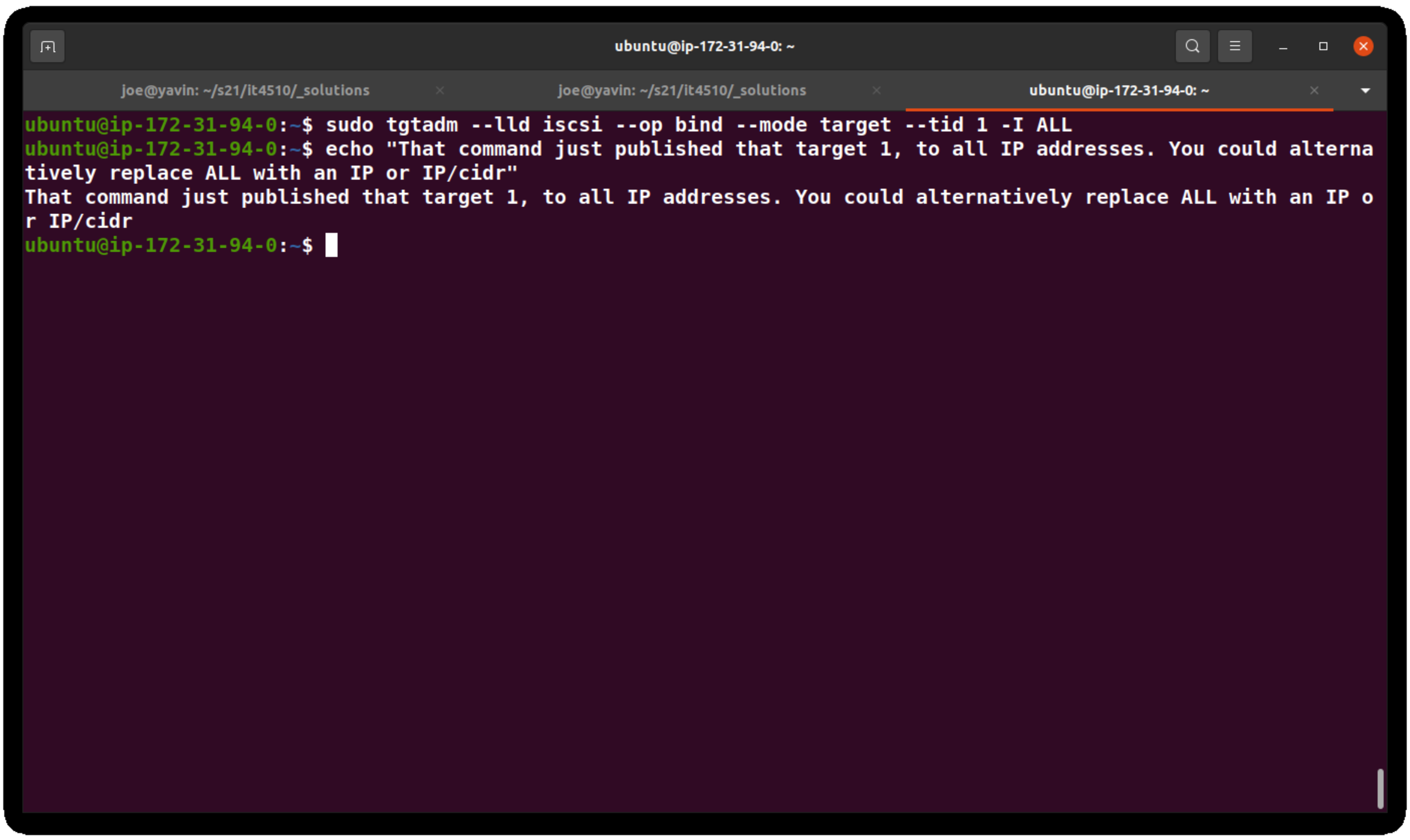

ubuntu@ip-172-31-94-0: ~
joe@yavin: ~/s21/it4510/_solutions
joe@yavin: ~/s21/it4510/_solutions
ubuntu@ip-172-31-94-0: ~
ubuntu@ip-172-31-94-0:~$ sudo tgtadm --lld iscsi --op new --mode logicalunit --tid 1 --lun 1 -b /dev/xvdf
ubuntu@ip-172-31-94-0:~$ echo "that command adds my logical unit 'lun1' to the iscsi target id of 1"
that command adds my logical unit 'lun1' to the iscsi target id of 1
ubuntu@ip-172-31-94-0:~$

ubuntu@ip-172-31-94-0: ~

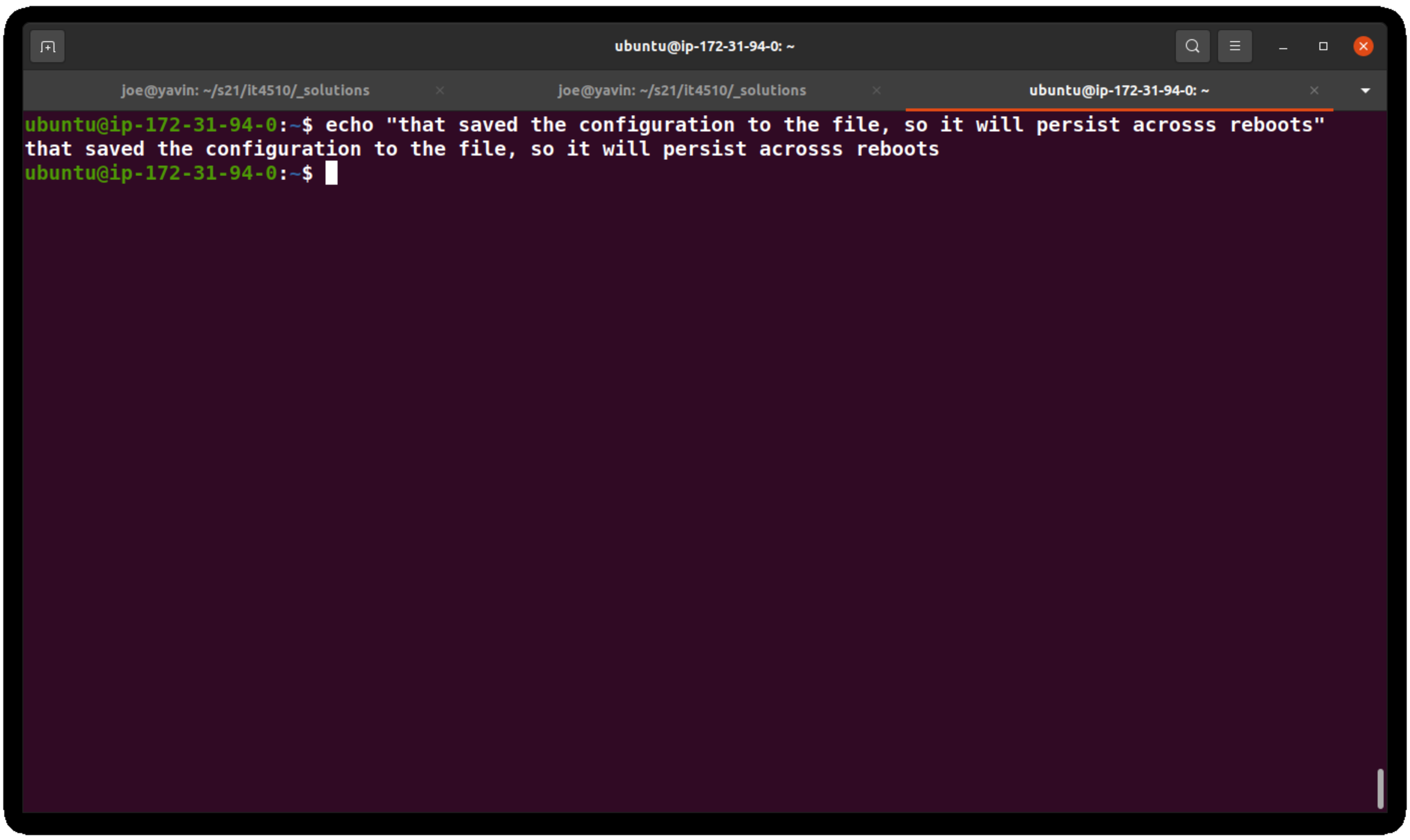
joe@yavin: ~/s21/it4510/_solutions | joe@yavin: ~/s21/it4510/_solutions | ubuntu@ip-172-31-94-0: ~

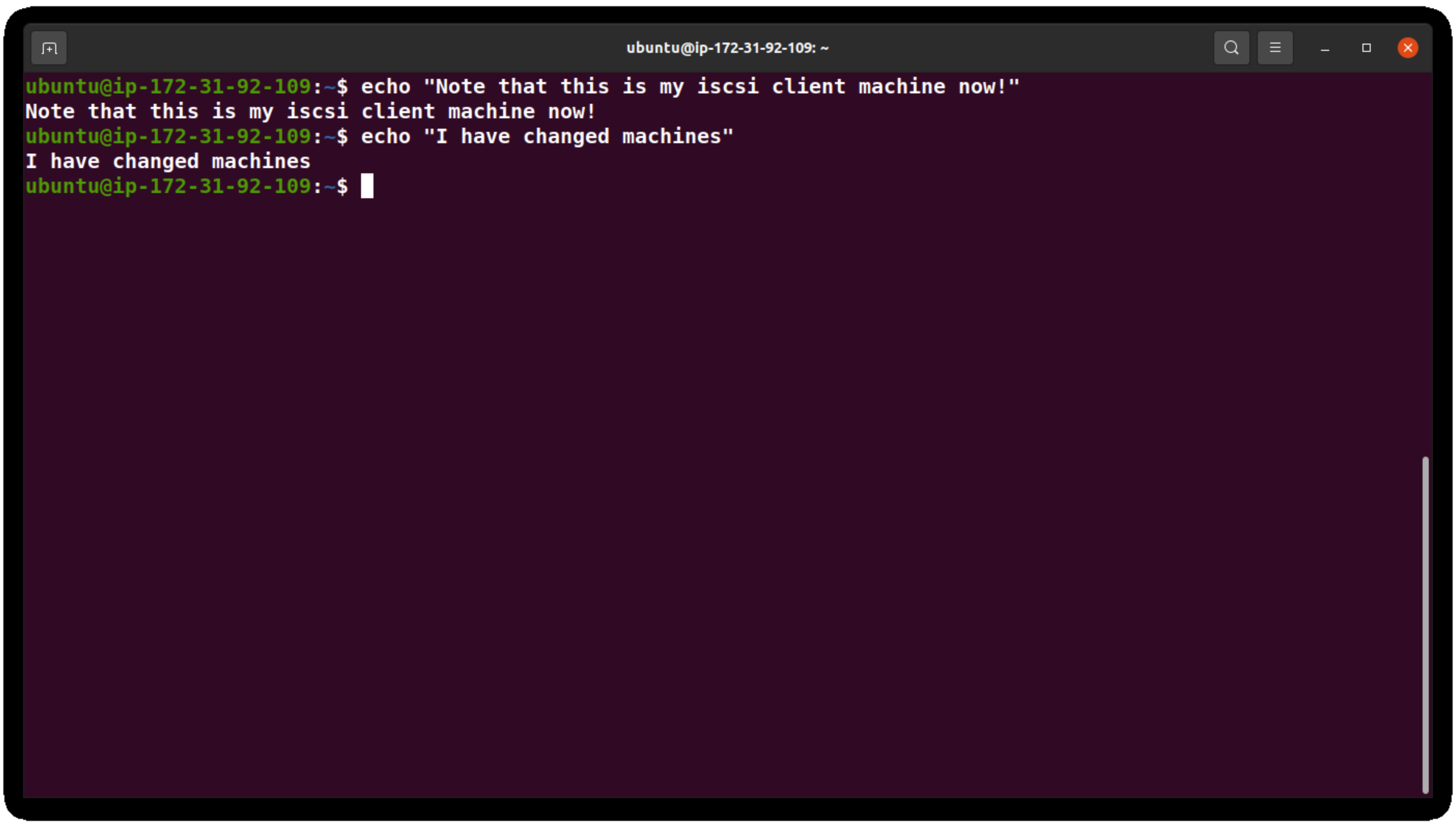
```
ubuntu@ip-172-31-94-0:~$ sudo tgtadm --mode target --op show
```

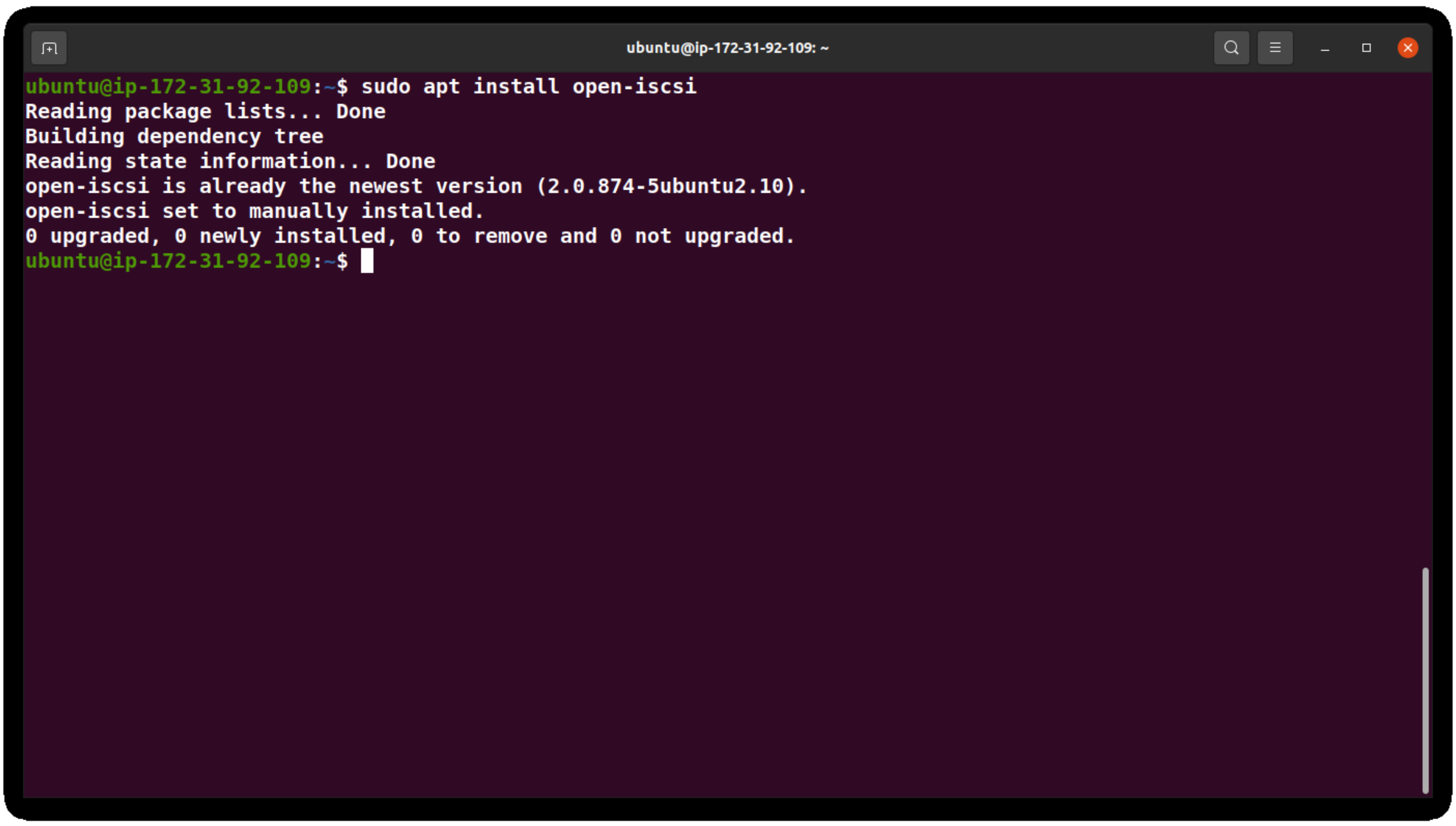
```
    Online: Yes
    Removable media: No
    Prevent removal: No
    Readonly: No
    SWP: No
    Thin-provisioning: No
    Backing store type: null
    Backing store path: None
    Backing store flags:
LUN: 1
    Type: disk
    SCSI ID: IET     00010001
    SCSI SN: beaf11
    Size: 2147 MB, Block size: 512
    Online: Yes
    Removable media: No
    Prevent removal: No
    Readonly: No
    SWP: No
    Thin-provisioning: No
    Backing store type: rdwr
    Backing store path: /dev/xvdf
    Backing store flags:
Account information:
ACL information:
ubuntu@ip-172-31-94-0:~$ echo "That command shows all your targets. Lun0 is a default controller lun.  Lun1 is t
he one we just created"
That command shows all your targets. Lun0 is a default controller lun.  Lun1 is the one we just created
ubuntu@ip-172-31-94-0:~$
```


ubuntu@ip-172-31-94-0: ~
joe@yavin: ~/s21/it4510/_solutions
joe@yavin: ~/s21/it4510/_solutions
ubuntu@ip-172-31-94-0: ~
ubuntu@ip-172-31-94-0:~$ sudo tgtadm --lld iscsi --op bind --mode target --tid 1 -I ALL
ubuntu@ip-172-31-94-0:~$ echo "That command just published that target 1, to all IP addresses. You could alterna
tively replace ALL with an IP or IP/cidr"
That command just published that target 1, to all IP addresses. You could alternatively replace ALL with an IP o
r IP/cidr
ubuntu@ip-172-31-94-0:~$

```
ubuntu@ip-172-31-94-0:~$ sudo tgt-admin --dump
default-driver iscsi

<target iqn.2021-02.com.example:disk>
        backing-store /dev/xvdf
</target>

ubuntu@ip-172-31-94-0:~$ cat /etc/tgt/targets.conf
# Empty targets configuration file -- please see the package
# documentation directory for an example.
#
# You can drop individual config snippets into /etc/tgt/conf.d
include /etc/tgt/conf.d/*.conf
ubuntu@ip-172-31-94-0:~$ sudo tgt-admin --dump | sudo tee /etc/tgt/targets.conf
default-driver iscsi

<target iqn.2021-02.com.example:disk>
        backing-store /dev/xvdf
</target>

ubuntu@ip-172-31-94-0:~$ cat /etc/tgt/targets.conf
default-driver iscsi

<target iqn.2021-02.com.example:disk>
        backing-store /dev/xvdf
</target>

ubuntu@ip-172-31-94-0:~$
```


ubuntu@ip-172-31-94-0: ~
joe@yavin: ~/s21/it4510/_solutions
joe@yavin: ~/s21/it4510/_solutions
ubuntu@ip-172-31-94-0: ~
ubuntu@ip-172-31-94-0:~$ echo "that saved the configuration to the file, so it will persist acrosss reboots"
that saved the configuration to the file, so it will persist acrosss reboots
ubuntu@ip-172-31-94-0:~$


ubuntu@ip-172-31-92-109: ~
ubuntu@ip-172-31-92-109:~$ echo "Note that this is my iscsi client machine now!"
Note that this is my iscsi client machine now!
ubuntu@ip-172-31-92-109:~$ echo "I have changed machines"
I have changed machines
ubuntu@ip-172-31-92-109:~$


ubuntu@ip-172-31-92-109: ~
ubuntu@ip-172-31-92-109:~$ sudo apt install open-iscsi
Reading package lists... Done
Building dependency tree
Reading state information... Done
open-iscsi is already the newest version (2.0.874-5ubuntu2.10).
open-iscsi set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
ubuntu@ip-172-31-92-109:~$

Gradebook | Dixie State | 144.38.193.245 | Dixie State | Connecting | My Classroo | Workbench | EC2 Man | iscsi ports -

https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#ModifyInboun

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Inbound rules control the incoming traffic that's allowed to reach the instance.

Inbound rules Info

Type Info	Protocol Info	Port range Info	Source Info	Description - optional Info	
Custom UDP	UDP	3260	Custom 0.0.0.0/0		Delete
Custom UDP	UDP	3260	Custom ::/0		Delete
Custom TCP	TCP	860	Custom 0.0.0.0/0		Delete
SSH	TCP	22	Custom 0.0.0.0/0		Delete
Custom UDP	UDP	860	Custom 0.0.0.0/0		Delete
Custom TCP	TCP	3260	Custom 0.0.0.0/0		Delete
Custom TCP	TCP	3260	Custom ::/0		Delete

Add rule

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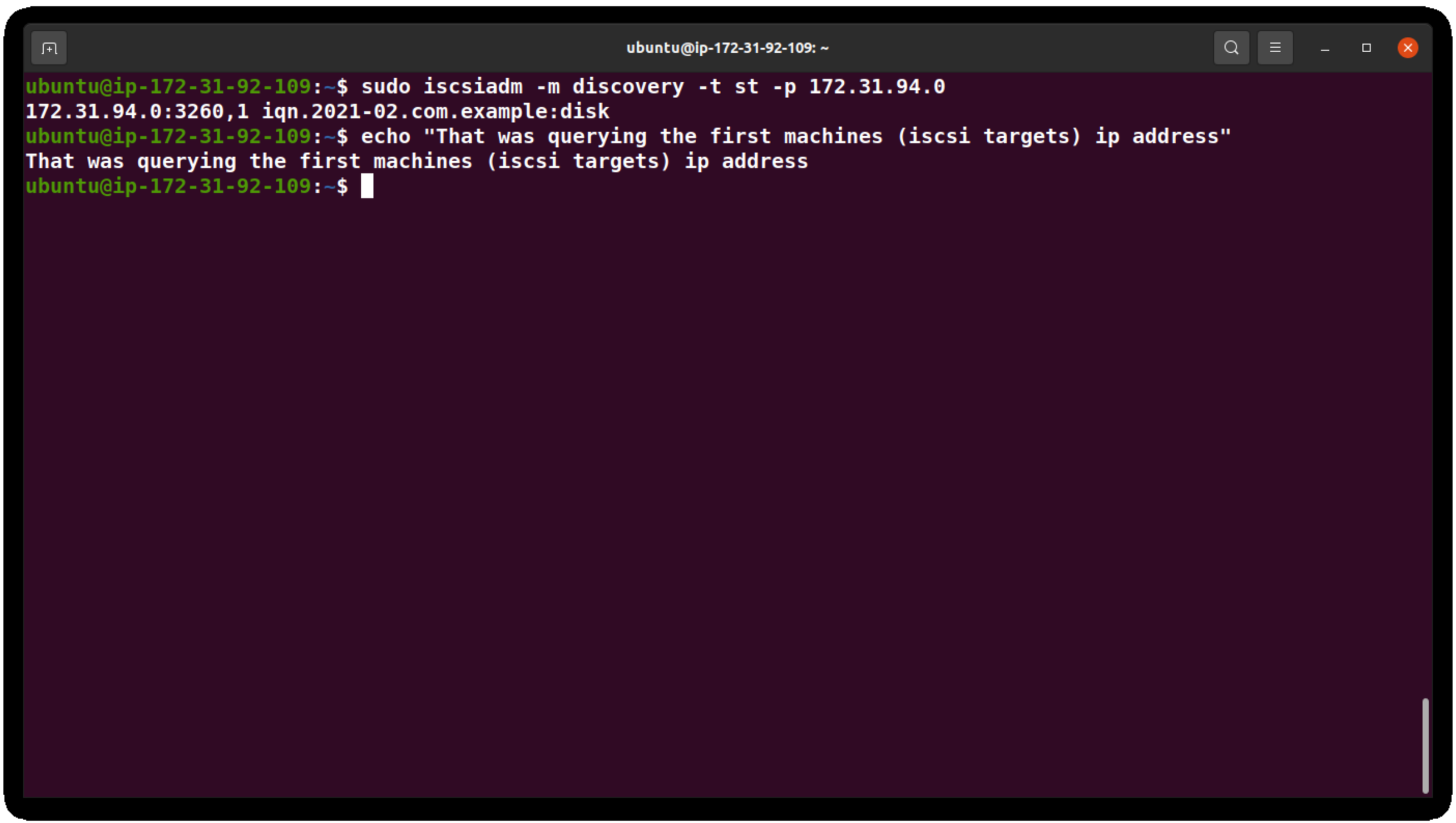
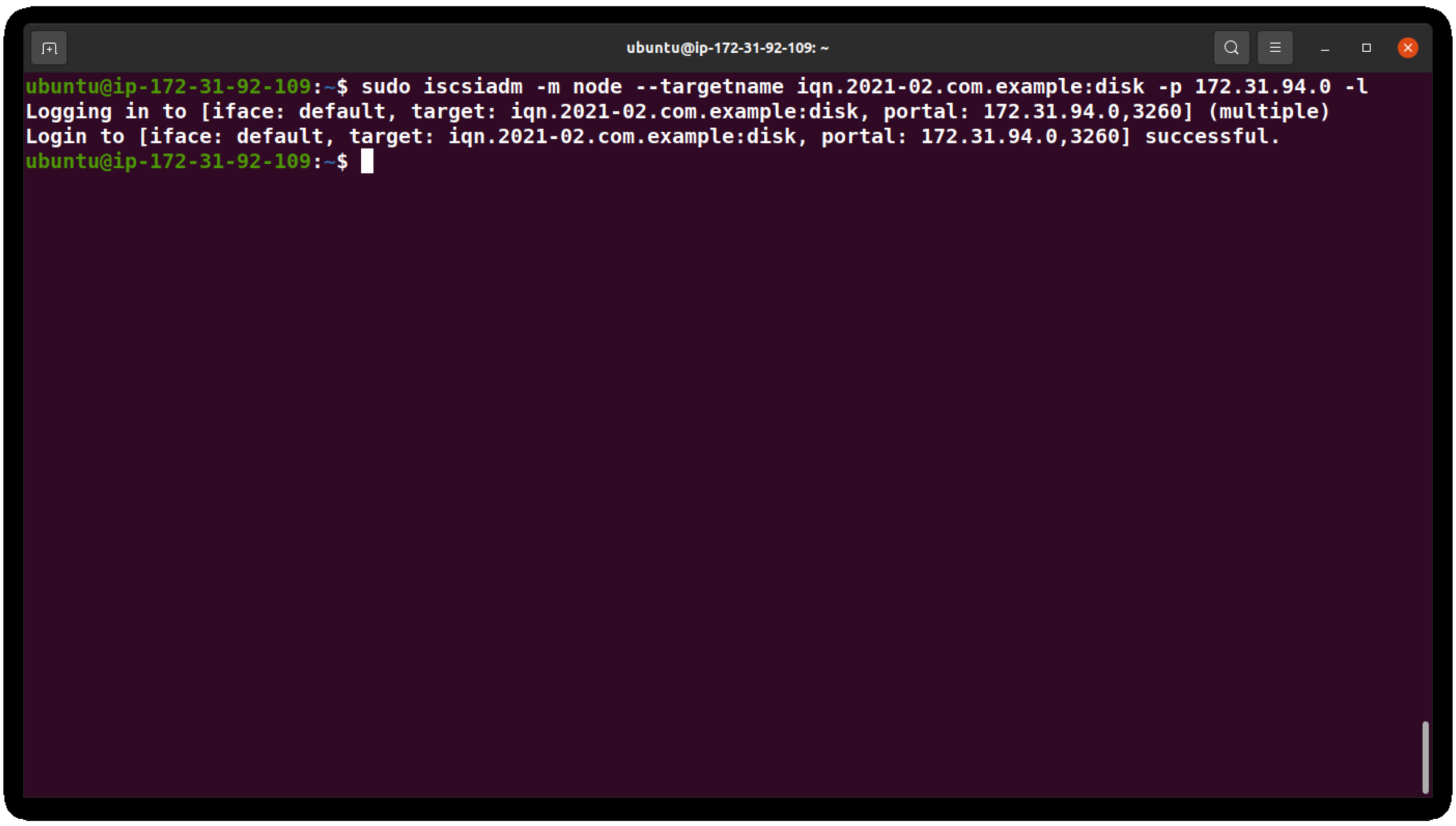
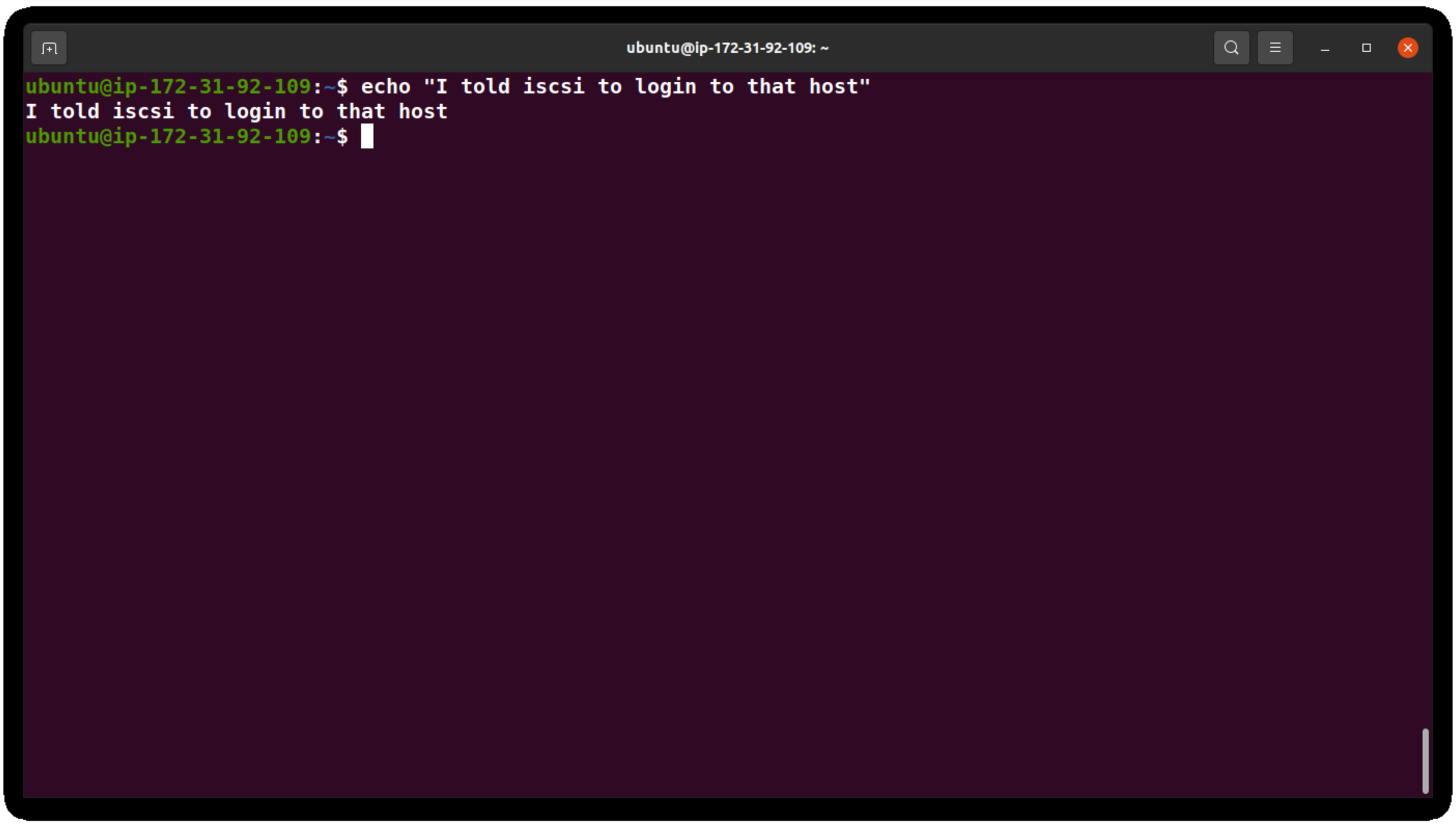
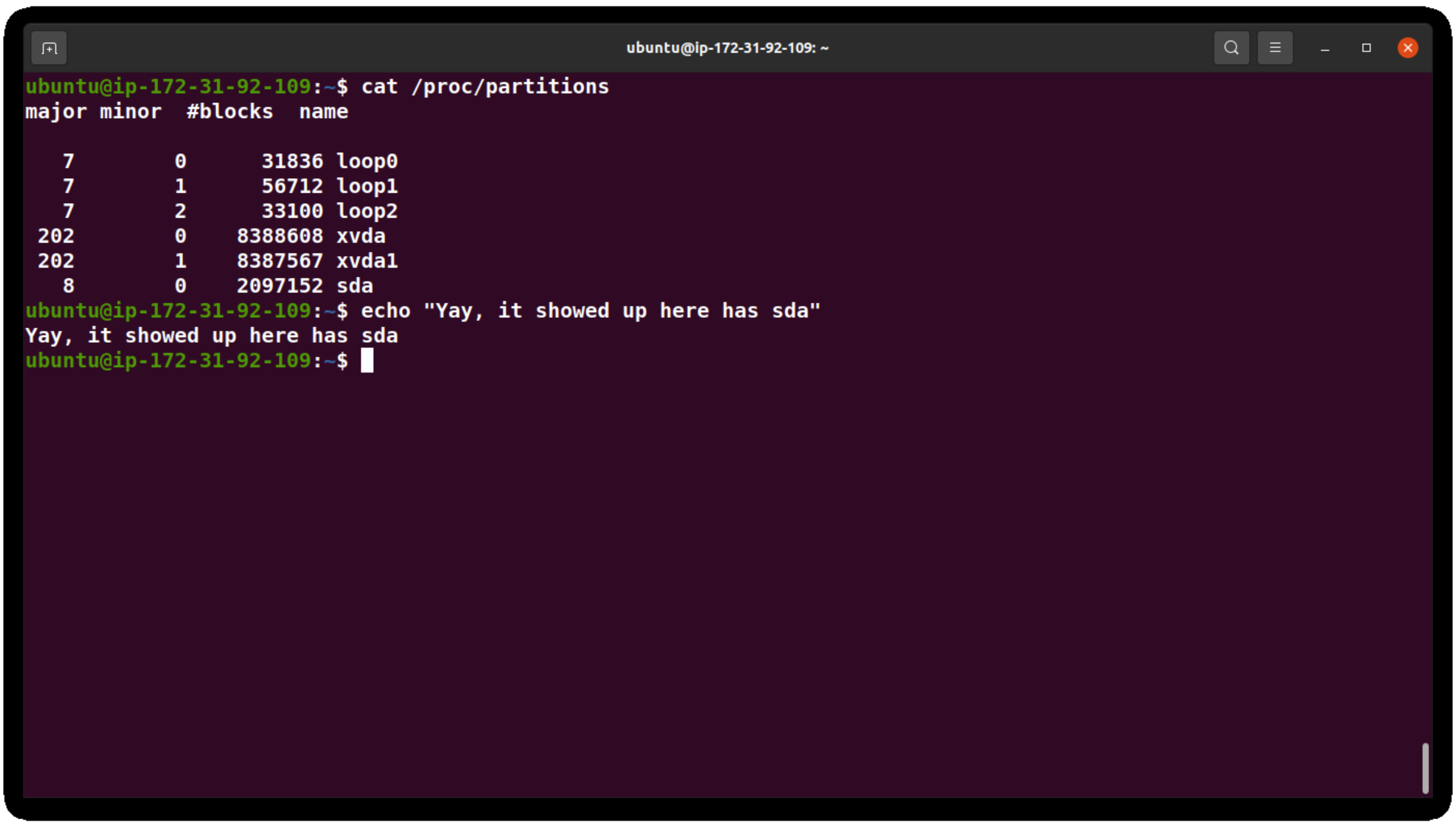
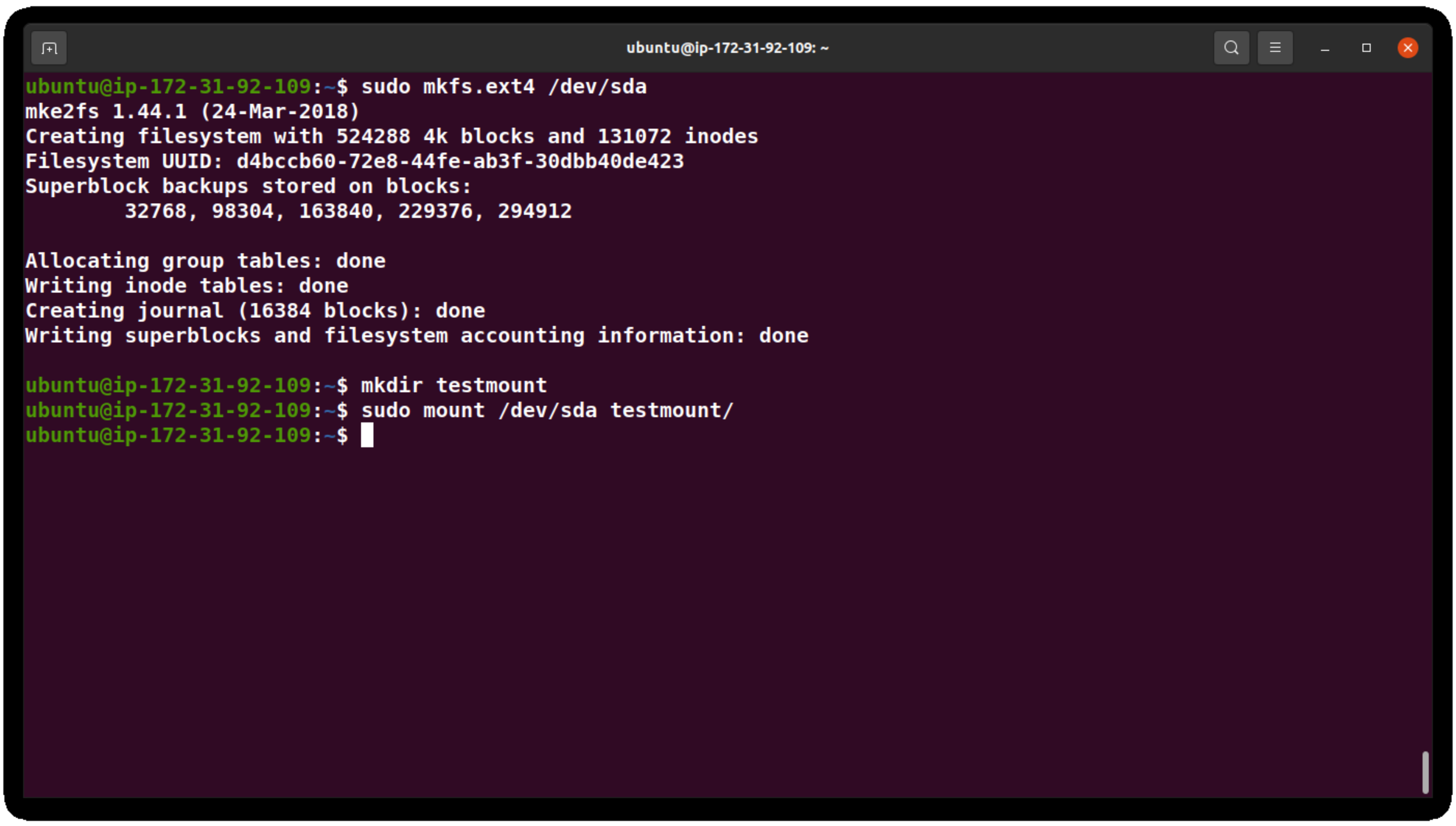

ubuntu@ip-172-31-92-109: ~
ubuntu@ip-172-31-92-109:~$ sudo iscsiadm -m discovery -t st -p 172.31.94.0
172.31.94.0:3260,1 iqn.2021-02.com.example:disk
ubuntu@ip-172-31-92-109:~$ echo "That was querying the first machines (iscsi targets) ip address"
That was querying the first machines (iscsi targets) ip address
ubuntu@ip-172-31-92-109:~$

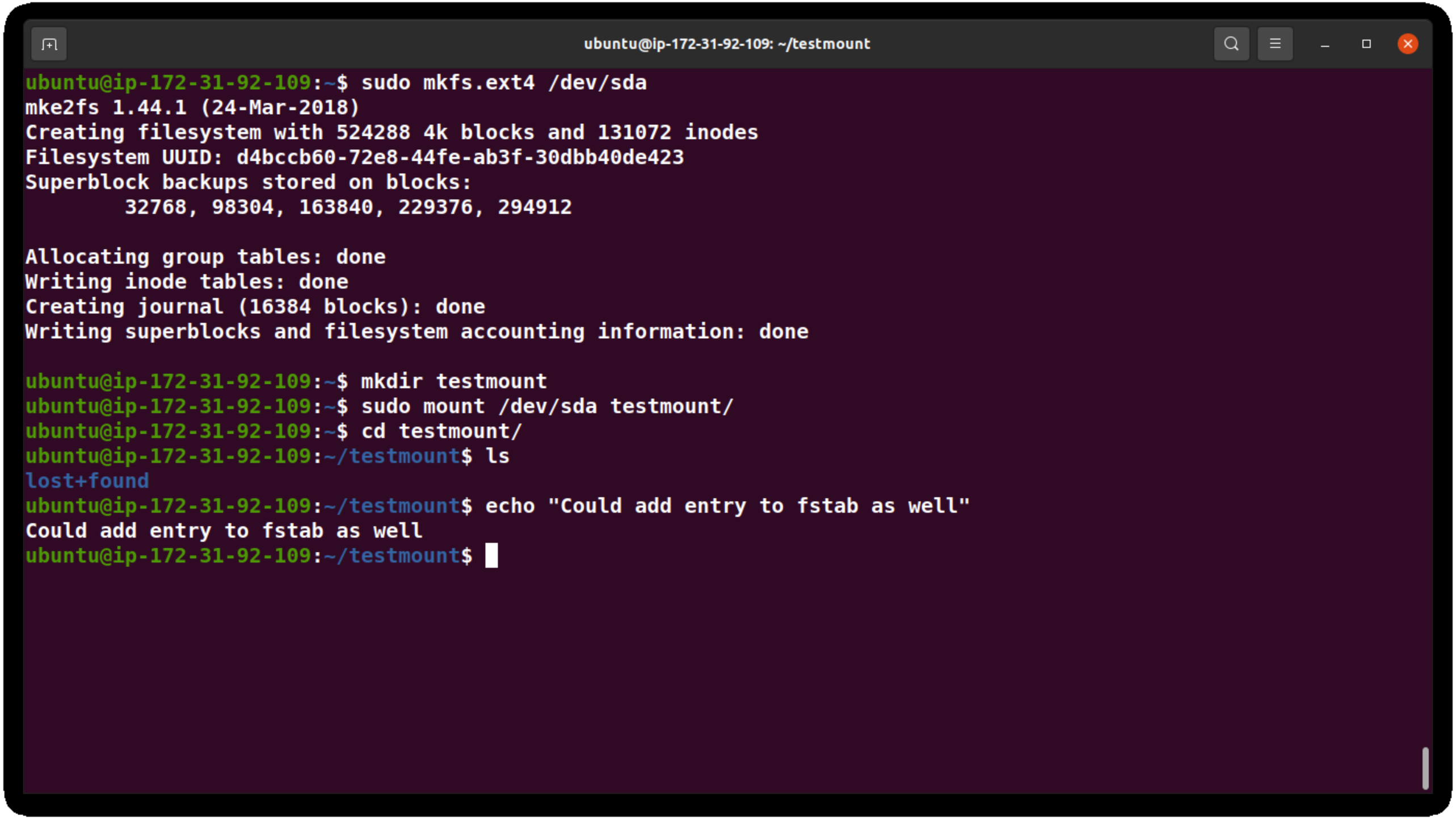

ubuntu@ip-172-31-92-109: ~
ubuntu@ip-172-31-92-109:~$ sudo iscsiadm -m node --targetname iqn.2021-02.com.example:disk -p 172.31.94.0 -l
Logging in to [iface: default, target: iqn.2021-02.com.example:disk, portal: 172.31.94.0,3260] (multiple)
Login to [iface: default, target: iqn.2021-02.com.example:disk, portal: 172.31.94.0,3260] successful.
ubuntu@ip-172-31-92-109:~$


ubuntu@ip-172-31-92-109: ~
ubuntu@ip-172-31-92-109:~$ echo "I told iscsi to login to that host"
I told iscsi to login to that host
ubuntu@ip-172-31-92-109:~$


ubuntu@ip-172-31-92-109: ~
ubuntu@ip-172-31-92-109:~$ cat /proc/partitions
major minor #blocks name
7   0   31836 loop0
7   1   56712 loop1
7   2   33100 loop2
202   0   8388608 xvda
202   1   8387567 xvda1
8   0   2097152 sda
ubuntu@ip-172-31-92-109:~$ echo "Yay, it showed up here has sda"
Yay, it showed up here has sda
ubuntu@ip-172-31-92-109:~$

```
Disk /dev/loop1: 55.4 MiB, 58073088 bytes, 113424 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes


Disk /dev/loop2: 32.3 MiB, 33894400 bytes, 66200 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes


Disk /dev/xvda: 8 GiB, 8589934592 bytes, 16777216 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0x88e51edb

Device     Boot Start      End  Sectors Size Id Type
/dev/xvda1 *     2048 16777182 16775135   8G 83 Linux


Disk /dev/sda: 2 GiB, 2147483648 bytes, 4194304 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
ubuntu@ip-172-31-92-109:~$
```


ubuntu@ip-172-31-92-109: ~
ubuntu@ip-172-31-92-109:~$ sudo mkfs.ext4 /dev/sda
mke2fs 1.44.1 (24-Mar-2018)
Creating filesystem with 524288 4k blocks and 131072 inodes
Filesystem UUID: d4bccb60-72e8-44fe-ab3f-30dbb40de423
Superblock backups stored on blocks:
32768, 98304, 163840, 229376, 294912
Allocating group tables: done
Writing inode tables: done
Creating journal (16384 blocks): done
Writing superblocks and filesystem accounting information: done
ubuntu@ip-172-31-92-109:~$ mkdir testmount
ubuntu@ip-172-31-92-109:~$ sudo mount /dev/sda testmount/
ubuntu@ip-172-31-92-109:~$
ubuntu@ip-172-31-92-109:~$


ubuntu@ip-172-31-92-109: ~/testmount
ubuntu@ip-172-31-92-109:~$ sudo mkfs.ext4 /dev/sda
mke2fs 1.44.1 (24-Mar-2018)
Creating filesystem with 524288 4k blocks and 131072 inodes
Filesystem UUID: d4bccb60-72e8-44fe-ab3f-30dbb40de423
Superblock backups stored on blocks:
32768, 98304, 163840, 229376, 294912
Allocating group tables: done
Writing inode tables: done
Creating journal (16384 blocks): done
Writing superblocks and filesystem accounting information: done
ubuntu@ip-172-31-92-109:~$ mkdir testmount
ubuntu@ip-172-31-92-109:~$ sudo mount /dev/sda testmount/
ubuntu@ip-172-31-92-109:~$ cd testmount/
ubuntu@ip-172-31-92-109:~/testmount$ ls
lost+found
ubuntu@ip-172-31-92-109:~/testmount$ echo "Could add entry to fstab as well"
Could add entry to fstab as well
ubuntu@ip-172-31-92-109:~/testmount$