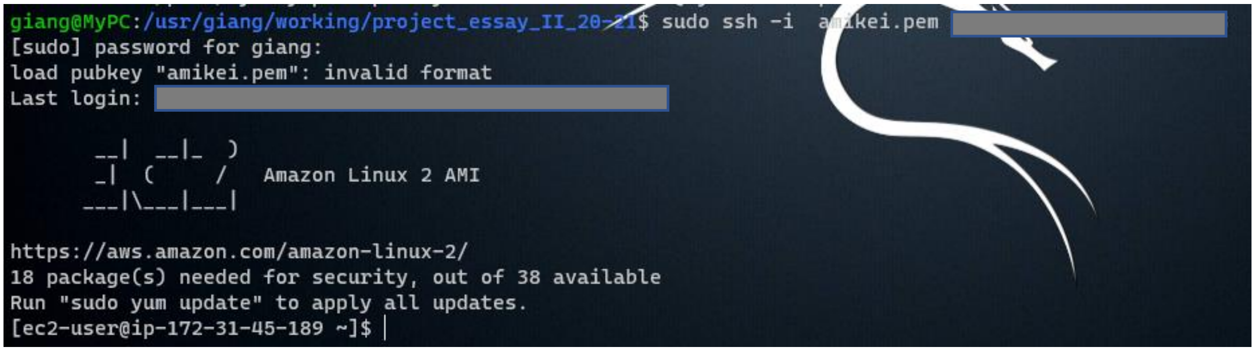
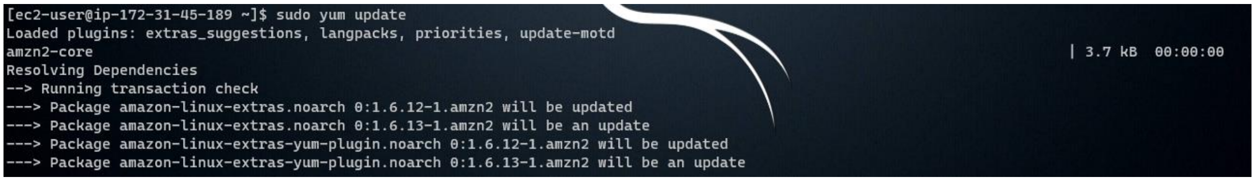
Assumbly, ec2 have been installed and launched



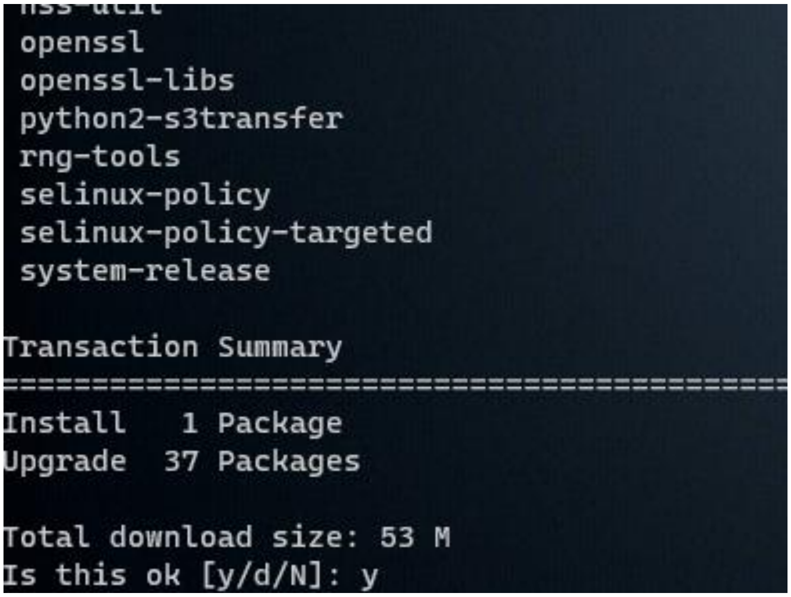
```
giang@MyPC:/usr/giang/working/project_essay_II_20-21$ sudo ssh -i  amikei.pem [redacted]
[sudo] password for giang:
load pubkey "amikei.pem": invalid format
Last login: [redacted]

       __|  __|_  )
       _|  (     /   Amazon Linux 2 AMI
      ___|\___|___|

https://aws.amazon.com/amazon-linux-2/
18 package(s) needed for security, out of 38 available
Run "sudo yum update" to apply all updates.
[ec2-user@ip-172-31-45-189 ~]$ |
```

Best practice to update all packages to latest version.



```
[ec2-user@ip-172-31-45-189 ~]$ sudo yum update
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
amzn2-core                                                                          | 3.7 kB  00:00:00
Resolving Dependencies
--> Running transaction check
---> Package amazon-linux-extras.noarch 0:1.6.12-1.amzn2 will be updated
---> Package amazon-linux-extras.noarch 0:1.6.13-1.amzn2 will be an update
---> Package amazon-linux-extras-yum-plugin.noarch 0:1.6.12-1.amzn2 will be updated
---> Package amazon-linux-extras-yum-plugin.noarch 0:1.6.13-1.amzn2 will be an update
```

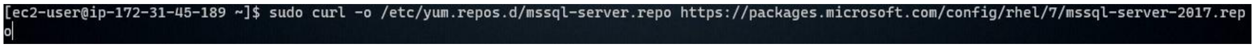
Once all checks are complete, it asks for downloading the packages. Enter y for download and install all required packages upgrades



```
 nss-util
 openssl
 openssl-libs
 python2-s3transfer
 rng-tools
 selinux-policy
 selinux-policy-targeted
 system-release

Transaction Summary
=============================================
Install    1 Package
Upgrade   37 Packages

Total download size: 53 M
Is this ok [y/d/N]: y
```

SQL SERVER INSTALLATION

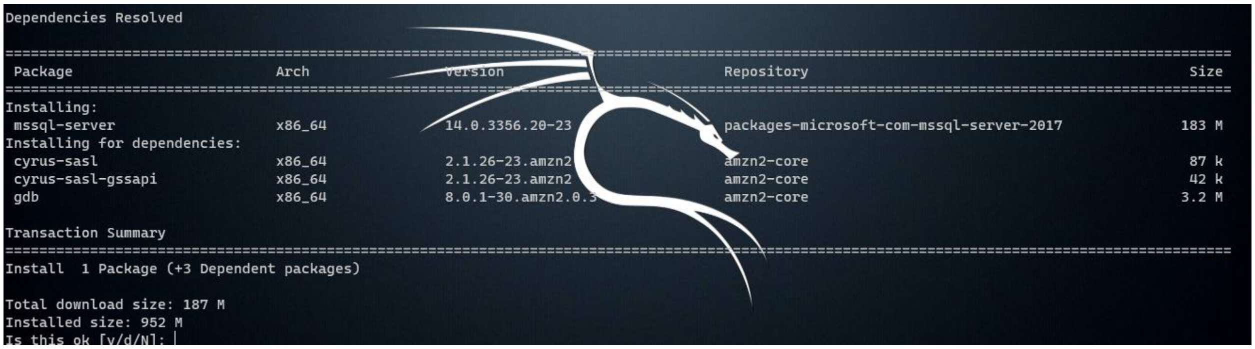
Step1: download sqlsever 2017 repository



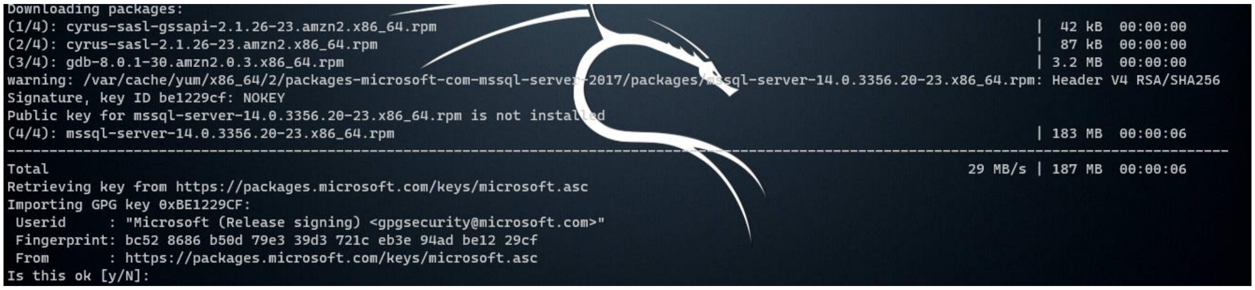
```
[ec2-user@ip-172-31-45-189 ~]$ sudo curl -o /etc/yum.repos.d/mssql-server.repo https://packages.microsoft.com/config/rhel/7/mssql-server-2017.rep
o
```

Step2: install sqlserver from the repository

It checks for the dependencies and gives information about the packages it need to download

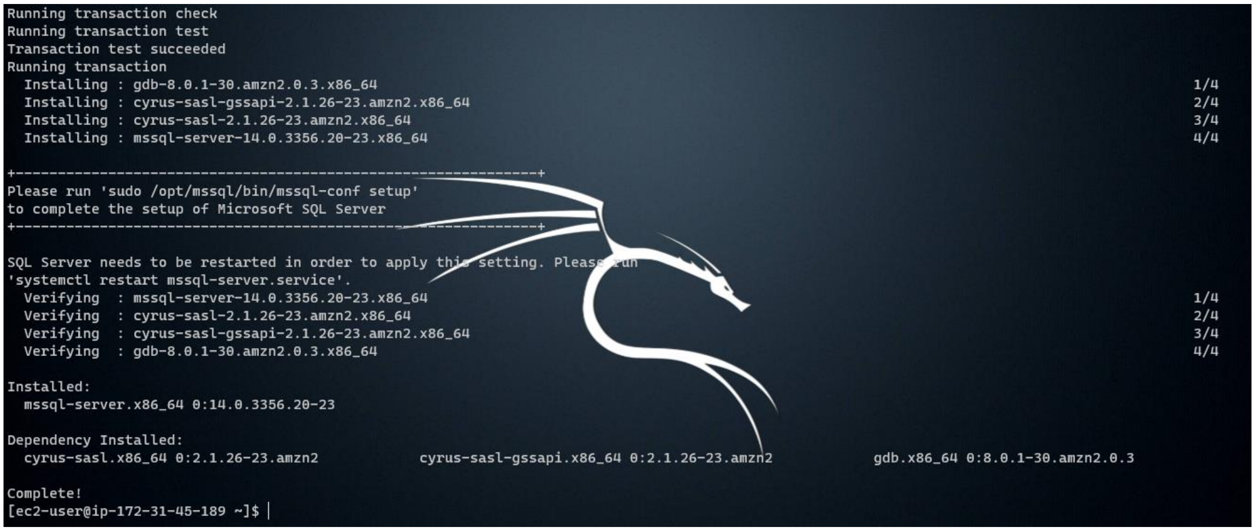


```
Dependencies Resolved

==================================================================================================================================
 Package                        Arch                Version                          Repository                               Size
==================================================================================================================================
Installing:
 mssql-server                   x86_64              14.0.3356.20-23                  packages-microsoft-com-mssql-server-2017    183 M
Installing for dependencies:
 cyrus-sasl                     x86_64              2.1.26-23.amzn2                  amzn2-core                                   87 k
 cyrus-sasl-gssapi              x86_64              2.1.26-23.amzn2                  amzn2-core                                   42 k
 gdb                            x86_64              8.0.1-30.amzn2.0.3               amzn2-core                                  3.2 M

Transaction Summary
==================================================================================================================================
Install  1 Package (+3 Dependent packages)

Total download size: 187 M
Installed size: 952 M
Is this ok [y/d/N]: 
```



```
Downloading packages:
(1/4): cyrus-sasl-gssapi-2.1.26-23.amzn2.x86_64.rpm                                                           |  42 kB  00:00:00
(2/4): cyrus-sasl-2.1.26-23.amzn2.x86_64.rpm                                                                  |  87 kB  00:00:00
(3/4): gdb-8.0.1-30.amzn2.0.3.x86_64.rpm                                                                      | 3.2 MB  00:00:00
warning: /var/cache/yum/x86_64/2/packages-microsoft-com-mssql-server-2017/packages/mssql-server-14.0.3356.20-23.x86_64.rpm: Header V4 RSA/SHA256
Signature, key ID be1229cf: NOKEY
Public key for mssql-server-14.0.3356.20-23.x86_64.rpm is not installed
(4/4): mssql-server-14.0.3356.20-23.x86_64.rpm                                                                | 183 MB  00:00:06
----------------------------------------------------------------------------------------------------------------------------------
Total                                                                                                 29 MB/s | 187 MB  00:00:06
Retrieving key from https://packages.microsoft.com/keys/microsoft.asc
Importing GPG key 0xBE1229CF:
 Userid     : "Microsoft (Release signing) <gpgsecurity@microsoft.com>"
 Fingerprint: bc52 8686 b50d 79e3 39d3 721c eb3e 94ad be12 29cf
 From       : https://packages.microsoft.com/keys/microsoft.asc
Is this ok [y/N]:
```

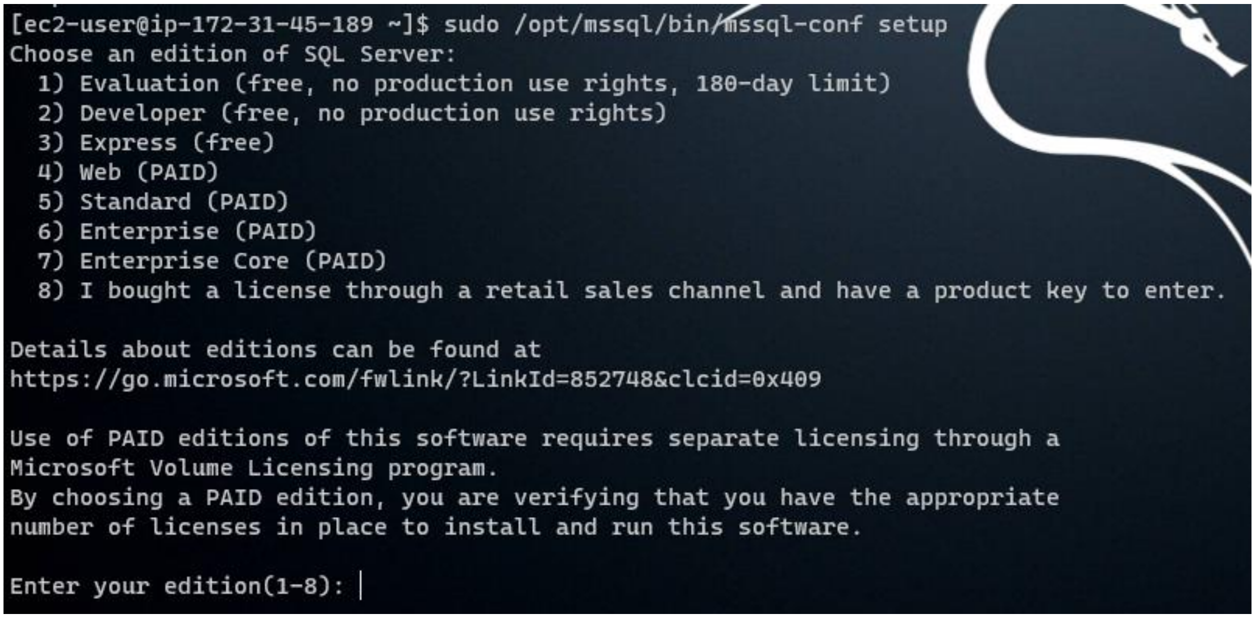
Download install package complete



```
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Installing : gdb-8.0.1-30.amzn2.0.3.x86_64                                                                                   1/4
  Installing : cyrus-sasl-gssapi-2.1.26-23.amzn2.x86_64                                                                        2/4
  Installing : cyrus-sasl-2.1.26-23.amzn2.x86_64                                                                               3/4
  Installing : mssql-server-14.0.3356.20-23.x86_64                                                                             4/4

+--------------------------------------------------------------+
Please run 'sudo /opt/mssql/bin/mssql-conf setup'
to complete the setup of Microsoft SQL Server
+--------------------------------------------------------------+

SQL Server needs to be restarted in order to apply this setting. Please run
'systemctl restart mssql-server.service'.
  Verifying  : mssql-server-14.0.3356.20-23.x86_64                                                                             1/4
  Verifying  : cyrus-sasl-2.1.26-23.amzn2.x86_64                                                                               2/4
  Verifying  : cyrus-sasl-gssapi-2.1.26-23.amzn2.x86_64                                                                        3/4
  Verifying  : gdb-8.0.1-30.amzn2.0.3.x86_64                                                                                   4/4

Installed:
  mssql-server.x86_64 0:14.0.3356.20-23

Dependency Installed:
  cyrus-sasl.x86_64 0:2.1.26-23.amzn2            cyrus-sasl-gssapi.x86_64 0:2.1.26-23.amzn2            gdb.x86_64 0:8.0.1-30.amzn2.0.3

Complete!
[ec2-user@ip-172-31-45-189 ~]$ 
```

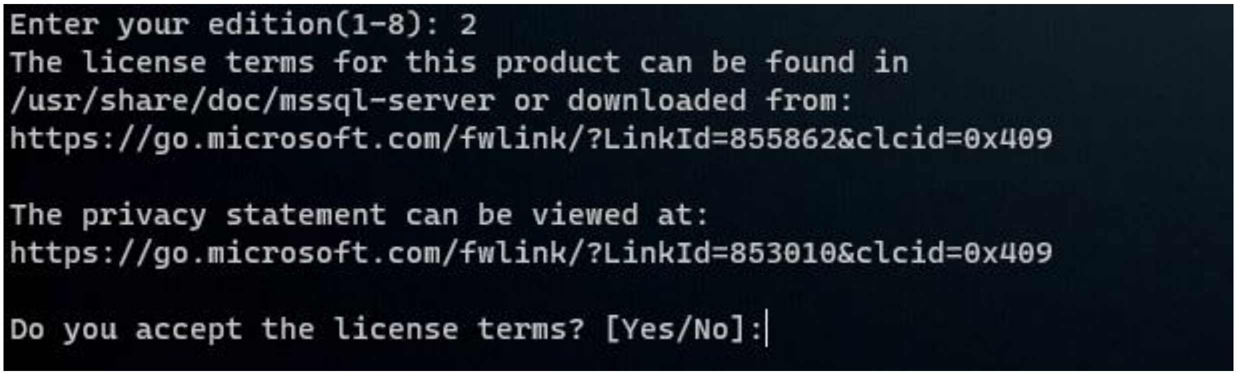
LET’S CONFIGURE MSSQL-SERVER!

Firstly, it asks edition of sql server.



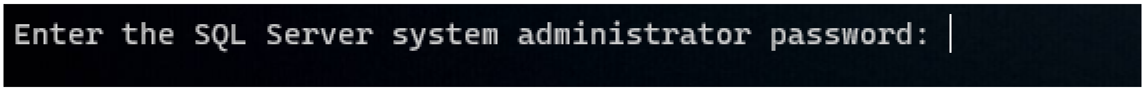
```
[ec2-user@ip-172-31-45-189 ~]$ sudo /opt/mssql/bin/mssql-conf setup
Choose an edition of SQL Server:
  1) Evaluation (free, no production use rights, 180-day limit)
  2) Developer (free, no production use rights)
  3) Express (free)
  4) Web (PAID)
  5) Standard (PAID)
  6) Enterprise (PAID)
  7) Enterprise Core (PAID)
  8) I bought a license through a retail sales channel and have a product key to enter.

Details about editions can be found at
https://go.microsoft.com/fwlink/?LinkId=852748&clcid=0x409

Use of PAID editions of this software requires separate licensing through a
Microsoft Volume Licensing program.
By choosing a PAID edition, you are verifying that you have the appropriate
number of licenses in place to install and run this software.

Enter your edition(1-8):
```

Choosing developer edition and acceptance license



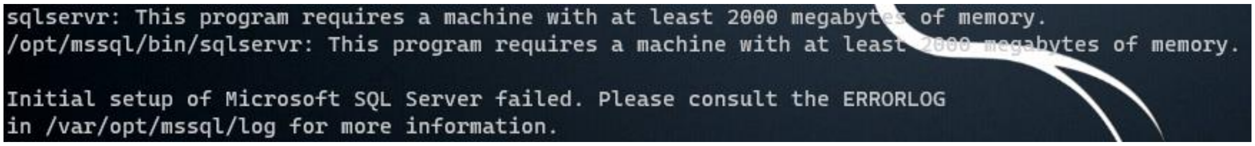
```
Enter your edition(1-8): 2
The license terms for this product can be found in
/usr/share/doc/mssql-server or downloaded from:
https://go.microsoft.com/fwlink/?LinkId=855862&clcid=0x409

The privacy statement can be viewed at:
https://go.microsoft.com/fwlink/?LinkId=853010&clcid=0x409

Do you accept the license terms? [Yes/No]:
```

Asking password for admin



```
Enter the SQL Server system administrator password:
```

But, at affter entering the password, u will see following infor:

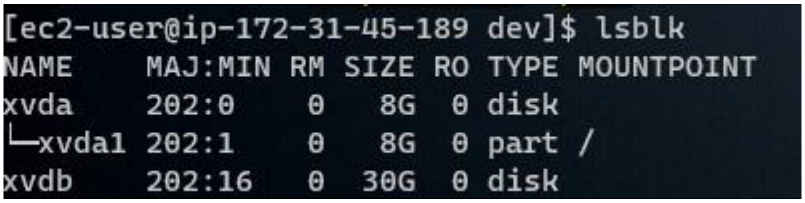


```
sqlservr: This program requires a machine with at least 2000 megabytes of memory.
/opt/mssql/bin/sqlservr: This program requires a machine with at least 2000 megabytes of memory.

Initial setup of Microsoft SQL Server failed. Please consult the ERRORLOG
in /var/opt/mssql/log for more information.
```

ATTACH ADDITIONAL VOLUME TO CURRENT INSTANCE FOR EXTRA STORAGE

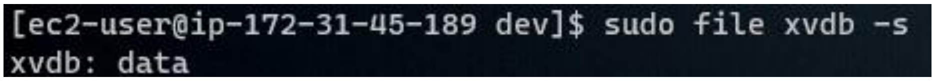
Step1: attach new volume to instance

Step2: checking available disk



```
[ec2-user@ip-172-31-45-189 dev]$ lsblk
NAME    MAJ:MIN RM SIZE RO TYPE MOUNTPOINT
xvda    202:0    0   8G  0 disk
└─xvda1 202:1    0   8G  0 part /
xvdb    202:16   0  30G  0 disk
```

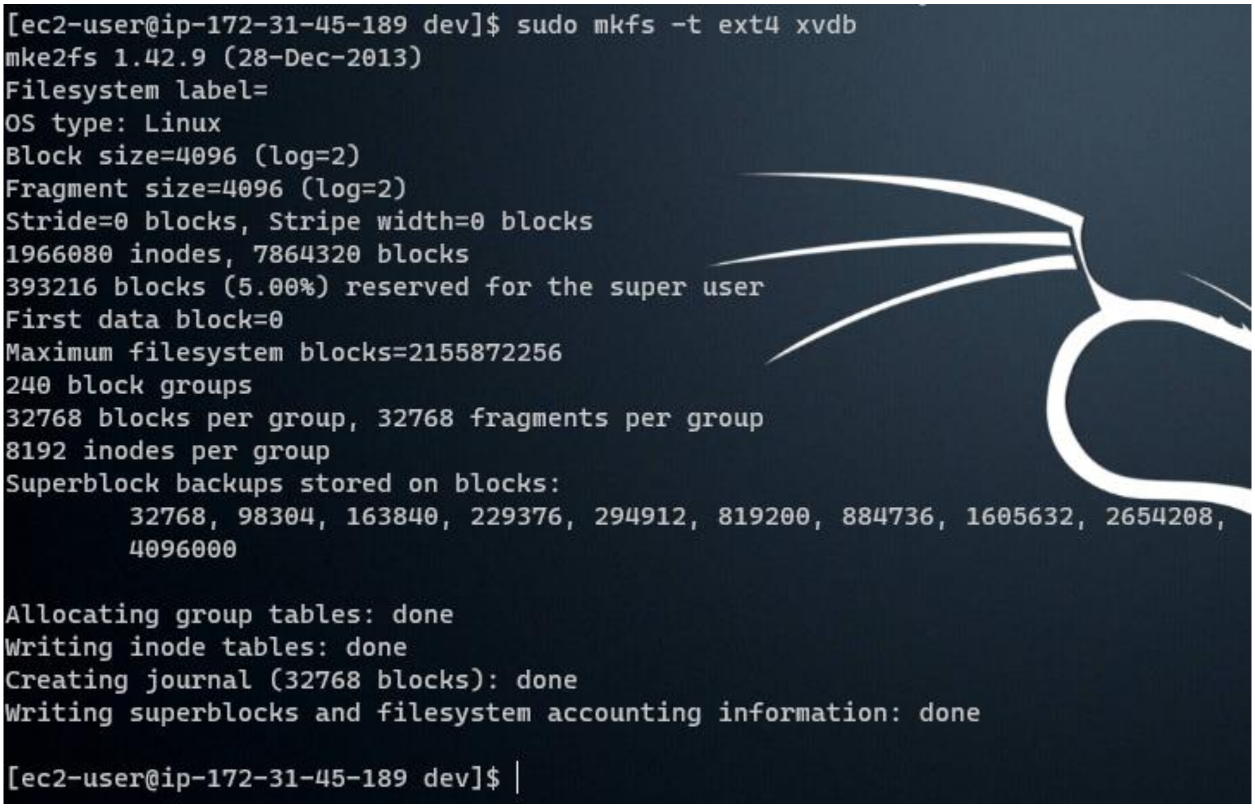
Step3: checking if the volume is empty



```
[ec2-user@ip-172-31-45-189 dev]$ sudo file xvdb -s
xvdb: data
```

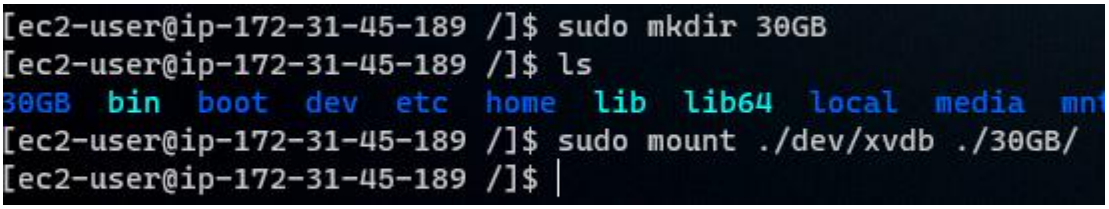
If above command output show “<volume name>: data”, it means that volume is empty

Step4: format volume



```
[ec2-user@ip-172-31-45-189 dev]$ sudo mkfs -t ext4 xvdb
mke2fs 1.42.9 (28-Dec-2013)
Filesystem label=
OS type: Linux
Block size=4096 (log=2)
Fragment size=4096 (log=2)
Stride=0 blocks, Stripe width=0 blocks
1966080 inodes, 7864320 blocks
393216 blocks (5.00%) reserved for the super user
First data block=0
Maximum filesystem blocks=2155872256
240 block groups
32768 blocks per group, 32768 fragments per group
8192 inodes per group
Superblock backups stored on blocks:
        32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632, 2654208,
        4096000

Allocating group tables: done
Writing inode tables: done
Creating journal (32768 blocks): done
Writing superblocks and filesystem accounting information: done

[ec2-user@ip-172-31-45-189 dev]$ |
```

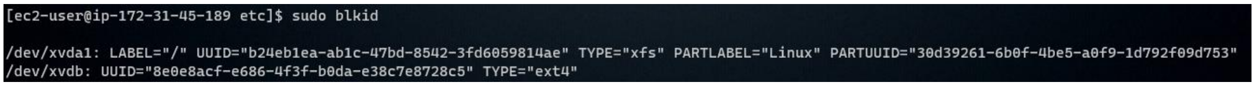
Step5:mout to directory



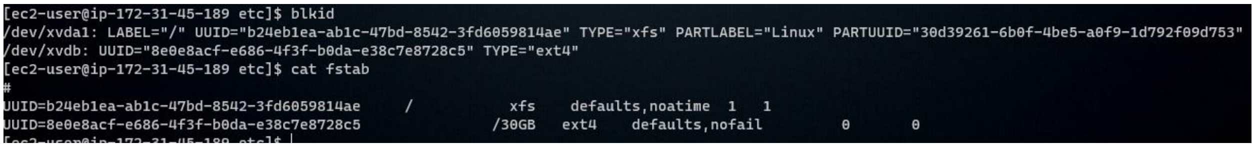
```
[ec2-user@ip-172-31-45-189 /]$ sudo mkdir 30GB
[ec2-user@ip-172-31-45-189 /]$ ls
30GB  bin  boot  dev  etc  home  lib  lib64  local  media  mn
[ec2-user@ip-172-31-45-189 /]$ sudo mount ./dev/xvdb ./30GB/
[ec2-user@ip-172-31-45-189 /]$ |
```

AUTOMOUNT FILE SYSTEMS ON LINUX

Make something like bellow figures

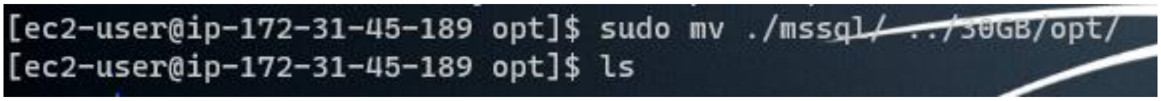


```
[ec2-user@ip-172-31-45-189 etc]$ sudo blkid

/dev/xvda1: LABEL="/" UUID="b24eb1ea-ab1c-47bd-8542-3fd6059814ae" TYPE="xfs" PARTLABEL="Linux" PARTUUID="30d39261-6b0f-4be5-a0f9-1d792f09d753"
/dev/xvdb: UUID="8e0e8acf-e686-4f3f-b0da-e38c7e8728c5" TYPE="ext4"
```

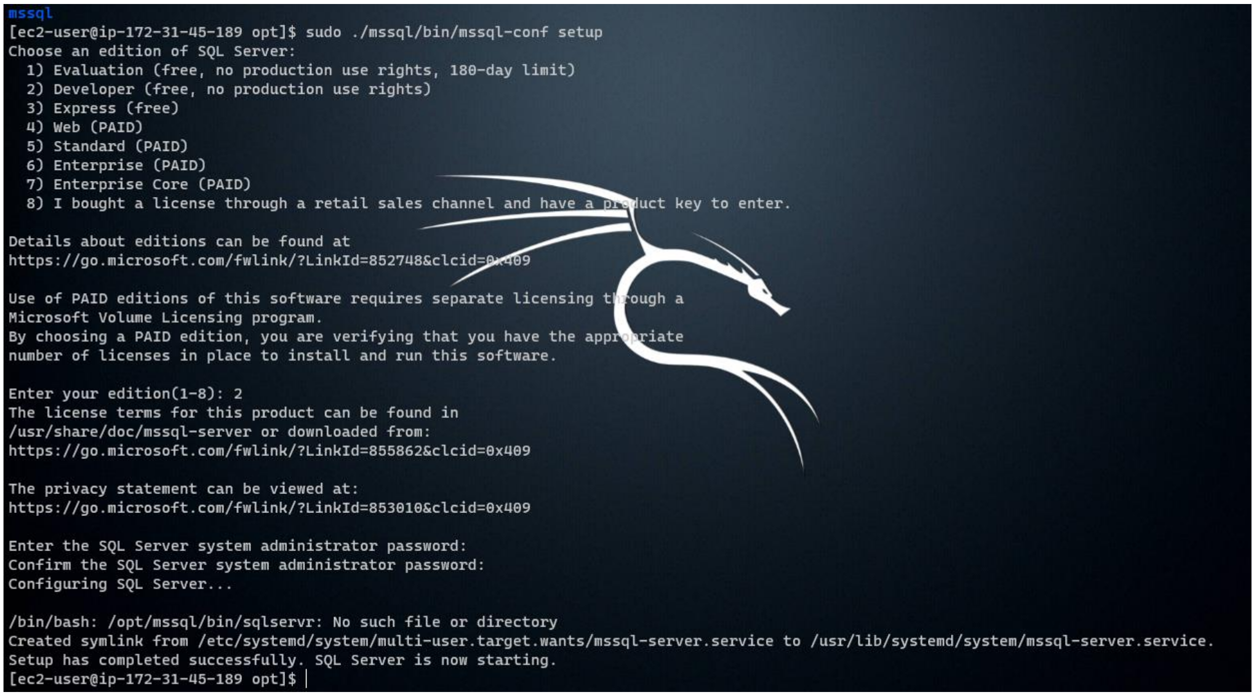


```
[ec2-user@ip-172-31-45-189 etc]$ blkid
/dev/xvda1: LABEL="/" UUID="b24eb1ea-ab1c-47bd-8542-3fd6059814ae" TYPE="xfs" PARTLABEL="Linux" PARTUUID="30d39261-6b0f-4be5-a0f9-1d792f09d753"
/dev/xvdb: UUID="8e0e8acf-e686-4f3f-b0da-e38c7e8728c5" TYPE="ext4"
[ec2-user@ip-172-31-45-189 etc]$ cat fstab
#
UUID=b24eb1ea-ab1c-47bd-8542-3fd6059814ae     /           xfs    defaults,noatime  1   1
UUID=8e0e8acf-e686-4f3f-b0da-e38c7e8728c5               /30GB   ext4    defaults,nofail         0       0
[ec2-user@ip-172-31-45-189 etc]$ |
```

After creating new partition, move mssql folder to new partition to cofiguring



```
[ec2-user@ip-172-31-45-189 opt]$ sudo mv ./mssql/ ../30GB/opt/
[ec2-user@ip-172-31-45-189 opt]$ ls
```



```
mssql
[ec2-user@ip-172-31-45-189 opt]$ sudo ./mssql/bin/mssql-conf setup
Choose an edition of SQL Server:
  1) Evaluation (free, no production use rights, 180-day limit)
  2) Developer (free, no production use rights)
  3) Express (free)
  4) Web (PAID)
  5) Standard (PAID)
  6) Enterprise (PAID)
  7) Enterprise Core (PAID)
  8) I bought a license through a retail sales channel and have a product key to enter.

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Use of PAID editions of this software requires separate licensing through a
Microsoft Volume Licensing program.
By choosing a PAID edition, you are verifying that you have the appropriate
number of licenses in place to install and run this software.

Enter your edition(1-8): 2
The license terms for this product can be found in
/usr/share/doc/mssql-server or downloaded from:
https://go.microsoft.com/fwlink/?LinkId=855862&clcid=0x409

The privacy statement can be viewed at:
https://go.microsoft.com/fwlink/?LinkId=853010&clcid=0x409

Enter the SQL Server system administrator password:
Confirm the SQL Server system administrator password:
Configuring SQL Server...

/bin/bash: /opt/mssql/bin/sqlservr: No such file or directory
Created symlink from /etc/systemd/system/multi-user.target.wants/mssql-server.service to /usr/lib/systemd/system/mssql-server.service.
Setup has completed successfully. SQL Server is now starting.
[ec2-user@ip-172-31-45-189 opt]$ |
```
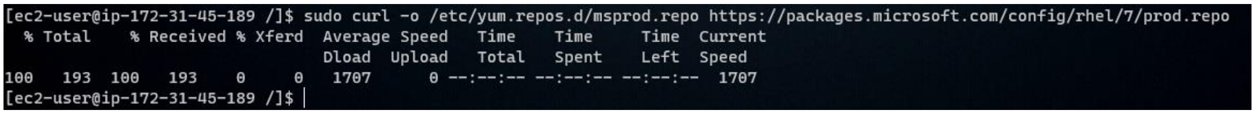
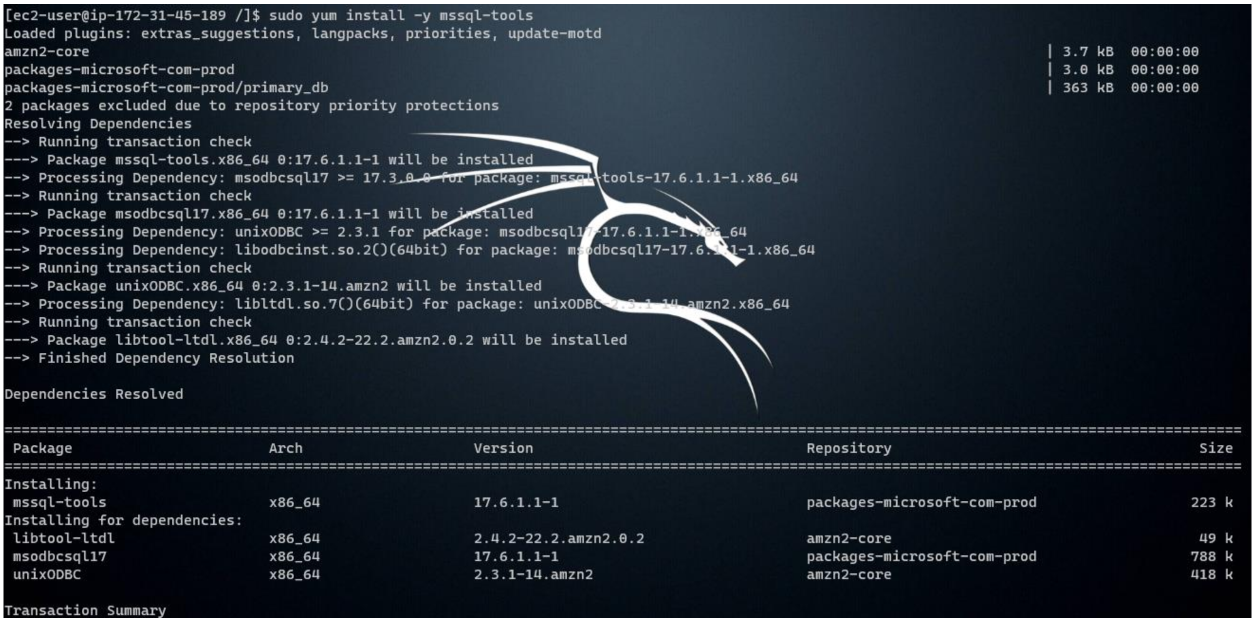

DOWNLOAD SQL COMMAND

Step1: download repo



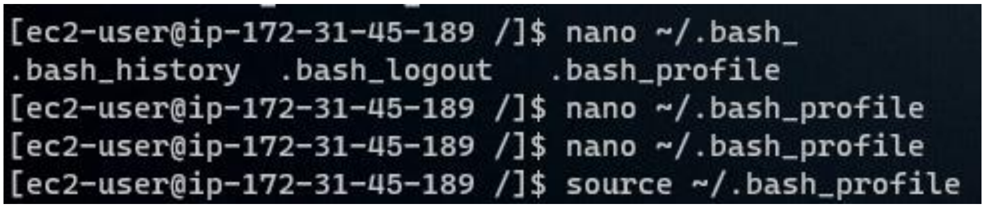
```
[ec2-user@ip-172-31-45-189 /]$ sudo curl -o /etc/yum.repos.d/msprod.repo https://packages.microsoft.com/config/rhel/7/prod.repo
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100   193  100   193    0     0   1707      0 --:--:-- --:--:-- --:--:--  1707
[ec2-user@ip-172-31-45-189 /]$ |
```

Step2: install



```
[ec2-user@ip-172-31-45-189 /]$ sudo yum install -y mssql-tools
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
amzn2-core                                                                                                                | 3.7 kB  00:00:00
packages-microsoft-com-prod                                                                                               | 3.0 kB  00:00:00
packages-microsoft-com-prod/primary_db                                                                                    | 363 kB  00:00:00
2 packages excluded due to repository priority protections
Resolving Dependencies
--> Running transaction check
---> Package mssql-tools.x86_64 0:17.6.1.1-1 will be installed
--> Processing Dependency: msodbcsql17 >= 17.3.0.0 for package: mssql-tools-17.6.1.1-1.x86_64
--> Running transaction check
---> Package msodbcsql17.x86_64 0:17.6.1.1-1 will be installed
--> Processing Dependency: unixODBC >= 2.3.1 for package: msodbcsql17-17.6.1.1-1.x86_64
--> Processing Dependency: libodbcinst.so.2()(64bit) for package: msodbcsql17-17.6.1.1-1.x86_64
--> Running transaction check
---> Package unixODBC.x86_64 0:2.3.1-14.amzn2 will be installed
--> Processing Dependency: libltdl.so.7()(64bit) for package: unixODBC-2.3.1-14.amzn2.x86_64
--> Running transaction check
---> Package libtool-ltdl.x86_64 0:2.4.2-22.2.amzn2.0.2 will be installed
--> Finished Dependency Resolution

Dependencies Resolved

================================================================================================================================================
 Package                        Arch                    Version                                 Repository                                  Size
================================================================================================================================================
Installing:
 mssql-tools                    x86_64                  17.6.1.1-1                              packages-microsoft-com-prod                223 k
Installing for dependencies:
 libtool-ltdl                   x86_64                  2.4.2-22.2.amzn2.0.2                    amzn2-core                                  49 k
 msodbcsql17                    x86_64                  17.6.1.1-1                              packages-microsoft-com-prod                788 k
 unixODBC                       x86_64                  2.3.1-14.amzn2                          amzn2-core                                 418 k

Transaction Summary
```

Step3: Add environemnt variable



```
[ec2-user@ip-172-31-45-189 /]$ nano ~/.bash_
.bash_history  .bash_logout   .bash_profile
[ec2-user@ip-172-31-45-189 /]$ nano ~/.bash_profile
[ec2-user@ip-172-31-45-189 /]$ nano ~/.bash_profile
[ec2-user@ip-172-31-45-189 /]$ source ~/.bash_profile
```

SOME ERROR

Consider to install the package with needed *org.freedesktop.PolicyKit1* file:

- error: The name org.freedesktop.PolicyKit1 was not provided by any .service files
- Cause: systemctl <action> <service name>
- Fix: using prepending sudo to systemctl <action> <service name>

MANAGING SQL SERVER SERVICES IN LINUX ENVIRONMENT

In linux, to manager services, we’ll be using command called “systemctl”. It can check status, stop, start, disable, enable any service running in linux.

Syntax:

```
systemctl <action> <service name>
```