Dependencies of Swift:

Firstly I updated the ubuntu using **sudo apt-get update**
Then I am using this command for downloading other packages:
**sudo apt-get install curl gcc memcached rsync sqlite3 xfsprogs **
          **git-core libffi-dev python3-setuptools **
          liberasurecode-dev libssl-dev python3-pip

Then I am using this command to install other packages :
**sudo apt-get install python3-coverage python3-dev python3-nose **
          **python3-xattr python3-eventlet **
          **python3-greenlet python3-pastedeploy **
          **python3-netifaces python3-pip python3-dnspython **
          python3-mock

```
mashiyat@nahjabineshita-22101878 ~> sudo apt-get install python3-coverage python
3-dev python3-nose \
                                                    python3-xattr pytho
n3-eventlet \
                                                    python3-greenlet py
thon3-pastedeploy \
                                                    python3-netifaces p
ython3-pip python3-dnspython \
                                                    python3-mock

Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
```

Then I have done installing the packages.

Now, I am using **mkdir -p /etc/swift** for creating swift's directory in etc

After all those **cd /opt**

```
root@nahjabineshita-22101878 /h/mashiyat# mkdir -p /etc/swift
root@nahjabineshita-22101878 /h/mashiyat# cd/opt
cd/opt: command not found
root@nahjabineshita-22101878 /h/mashiyat [127]# cd /opt
root@nahjabineshita-22101878 /opt#
```

I cloned my swiftclient here.

git clone https://github.com/openstack/python-swiftclient.git

```
root@nahjabineshita-22101878 /opt# git clone https://github.com/openstack/python
-swiftclient.git
Cloning into 'python-swiftclient'...
remote: Enumerating objects: 6266, done.
```

Checking the requirements to run other commands

cd /opt/python-swiftclient

Installing the requirements from the file.

sudo pip3 install -r requirements.txt;

```
root@nahjabineshita-22101878 /opt# cd python-swiftclient/
root@nahjabineshita-22101878 /o/python-swiftclient (master)# sudo pip3 install -
r requirements.txt
Requirement already satisfied: requests>=2.4.0 in /usr/lib/python3/dist-packages
 (from -r requirements.txt (line 1)) (2.25.1)
```

Installing python3 setup.py

python3 setup.py install;

```
root@nahjabineshita-22101878 /o/python-swiftclient (master)# python3 setup.py in
stall
/usr/lib/python3/dist-packages/setuptools/command/easy_install.py:158: EasyInsta
llDeprecationWarning: easy_install command is deprecated. Use build and pip and
```

Going back using this command:

cd ..

Going back again cloning :

git clone https://github.com/openstack/swift.git

I am installing the requirements from the file. Then I installed python3 setup.py

I set up the either things now I have to copy the files from /opt/swift/etc/ to /etc/swift/

Used command: **cd /opt/swift/etc**

Used command:

cp account-server.conf-sample /etc/swift/account-server.conf

cp container-server.conf-sample /etc/swift/container-server.conf

cp object-server.conf-sample /etc/swift/object-server.conf

cp proxy-server.conf-sample /etc/swift/proxy-server.conf

cp drive-audit.conf-sample /etc/swift/drive-audit.conf

cp swift.conf-sample /etc/swift/swift.conf

cp internal-client.conf-sample /etc/swift/internal-client.conf

Then I used **ls** to show the files here.

```
root@nahjabineshita-22101878 /o/s/etc (master)# cp account-server.conf
-sample /etc/swift/account-server.conf
                                          cp container-server.co
nf-sample /etc/swift/container-server.conf
                                          cp object-server.conf-
sample /etc/swift/object-server.conf
                                          cp proxy-server.conf-s
ample /etc/swift/proxy-server.conf
                                          cp drive-audit.conf-sa
mple /etc/swift/drive-audit.conf
                                          cp swift.conf-sample /
etc/swift/swift.conf
                                          cp internal-client.con
f-sample /etc/swift/internal-client.conf
root@nahjabineshita-22101878 /o/s/etc (master)#
```

```
root@nahjabineshita-22101878 /o/swift (master)#  cd /opt/swift/etc
root@nahjabineshita-22101878 /o/s/etc (master)# ls
account-server.conf-sample          memcache.conf-sample
container-reconciler.conf-sample    mime.types-sample
container-server.conf-sample        object-expirer.conf-sample
container-sync-realms.conf-sample   object-server.conf-sample
dispersion.conf-sample              proxy-server.conf-sample
drive-audit.conf-sample             rsyncd.conf-sample
internal-client.conf-sample         swift.conf-sample
keymaster.conf-sample               swift-rsyslog.conf-sample
```

Mounting the virtual disks:

I added the virtual disks here. I added **1gb** on each **three disks** that I have created

```
sdb      8:16   0        1G  0 disk
sdc      8:32   0        1G  0 disk
sdd      8:48   0        1G  0 disk
sr0     11:0    1  1024M  0 rom
root@nahjabineshita-22101878 /e
```

I formatted my three disks here using these commands:

Disk1:

mkfs.xfs -f -L d1 /dev/sdb

```
root@nahjabineshita-22101878 /e/swift# mkfs.xfs -f -L d1 /dev/
sdb
meta-data=/dev/sdb                  isize=512    agcount=4, agsiz
e=65536 blks
         =                          sectsz=512   attr=2, projid32
bit=1
```

Disk2:

mkfs.xfs -f -L d2 /dev/sdc

```
root@nahjabineshita-22101878 /e/swift# mkfs.xfs -f -L d2 /dev/
sdc
meta-data=/dev/sdc                 isize=512    agcount=4, agsiz
e=65536 blks
         =                         sectsz=512   attr=2, projid32
bit=1
```

Disk3:

mkfs.xfs -f -L d3 /dev/sdd

```
realtime =none                     extsz=4096   blocks=0, rtexte
nts=0
root@nahjabineshita-22101878 /e/swift# mkfs.xfs -f -L d3 /dev/
sdd
meta-data=/dev/sdd                 isize=512    agcount=4, agsiz
e=65536 blks
```

Now I created nodes for my file systems here.

mkdir -p /srv/node/d1

mkdir -p /srv/node/d2

mkdir -p /srv/node/d3

```
root@nahjabineshita-22101878 /e/swift# mkdir -p /srv/node/d1
                                       mkdir -p /srv/node/d2
                                       mkdir -p /srv/node/d3
root@nahjabineshita-22101878 /e/swift#
```

I am mounting the disks.

mount -t xfs -L d1 /srv/node/d1

mount -t xfs -L d2 /srv/node/d2

mount -t xfs -L d3 /srv/node/d3

```
root@nahjabineshita-22101878 /e/swift# mount -t xfs -L d1 /srv
/node/d1
                                       mount -t xfs -L d2 /srv
/node/d2
                                       mount -t xfs -L d3 /srv
/node/d3
root@nahjabineshita-22101878 /e/swift#
```

```
sdb     8:16    0     1G  0 disk /srv/node/d1
sdc     8:32    0     1G  0 disk /srv/node/d2
sdd     8:48    0     1G  0 disk /srv/node/d3
sr0    11:0     1  1024M  0 rom
root@nahjabineshita-22101878 /e/swift#
```

Creating user swift:

Creating a user swift and giving permissions to the nodes that I created

useradd swift

chown -R swift:swift /srv/node

```
root@nahjabineshita-22101878 /e/swift# useradd swift
                                chown -R swift:swift /s
rv/node
root@nahjabineshita-22101878 /e/swift#
```

Going to etc/swift using: **cd /etc/swift/**

```
root@nahjabineshita-22101878 /e/swift# cd /etc/swift/
root@nahjabineshita-22101878 /e/swift#
```

Building the rings

swift-ring-builder account.builder create 3 3 1

swift-ring-builder container.builder create 3 3 1

swift-ring-builder object.builder create 3 3 1

```
root@nahjabineshita-22101878 /e/swift# cd /etc/swift
root@nahjabineshita-22101878 /e/swift# swift-ring-builder account.build
er create 3 3 1
root@nahjabineshita-22101878 /e/swift# swift-ring-builder container.bui
lder create 3 3 1
root@nahjabineshita-22101878 /e/swift# swift-ring-builder object.builde
r create 3 3 1
```

Adding the devices to the ring

swift-ring-builder account.builder add r1z1-127.0.0.1:6202/d2 100

swift-ring-builder container.builder add r1z1-127.0.0.1:6201/d2 100

swift-ring-builder object.builder add r1z1-127.0.0.1:6200/d2 100

```
root@nahjabineshita-22101878 /e/swift# swift-ring-builder account.build
er add r1z1-127.0.0.1:6202/d1 100
                                swift-ring-builder container.bui
lder add r1z1-127.0.0.1:6201/d1 100
                                swift-ring-builder object.builde
r add r1z1-127.0.0.1:6200/d1 100
Device d0r1z1-127.0.0.1:6202R127.0.0.1:6202/d1_"" with 100.0 weight got
 id 0
Device d0r1z1-127.0.0.1:6201R127.0.0.1:6201/d1_"" with 100.0 weight got
 id 0
Device d0r1z1-127.0.0.1:6200R127.0.0.1:6200/d1_"" with 100.0 weight got
 id 0
root@nahjabineshita-22101878 /e/swift#
```

swift-ring-builder account.builder add r1z2-127.0.0.1:6202/d2 100
swift-ring-builder container.builder add r1z2-127.0.0.1:6201/d2 100
swift-ring-builder object.builder add r1z2-127.0.0.1:6200/d2 100

```
root@nahjabineshita-22101878 /e/swift# swift-ring-builder account.build
er add r1z2-127.0.0.1:6202/d2 100
                                swift-ring-builder container.bui
lder add r1z2-127.0.0.1:6201/d2 100
                                swift-ring-builder object.builde
r add r1z2-127.0.0.1:6200/d2 100

Device d1r1z2-127.0.0.1:6202R127.0.0.1:6202/d2_"" with 100.0 weight got
 id 1
Device d1r1z2-127.0.0.1:6201R127.0.0.1:6201/d2_"" with 100.0 weight got
 id 1
Device d1r1z2-127.0.0.1:6200R127.0.0.1:6200/d2_"" with 100.0 weight got
 id 1
root@nahjabineshita-22101878 /e/swift#
```

swift-ring-builder account.builder add r1z3-127.0.0.1:6202/d3 100
swift-ring-builder container.builder add r1z3-127.0.0.1:6201/d3 100
swift-ring-builder object.builder add r1z3-127.0.0.1:6200/d3 100

```
root@nahjabineshita-22101878 /e/swift# swift-ring-builder account.build
er add r1z3-127.0.0.1:6202/d3 100
                                swift-ring-builder container.bui
lder add r1z3-127.0.0.1:6201/d3 100
                                swift-ring-builder object.builde
r add r1z3-127.0.0.1:6200/d3 100
Device d2r1z3-127.0.0.1:6202R127.0.0.1:6202/d3_"" with 100.0 weight got
 id 2
Device d2r1z3-127.0.0.1:6201R127.0.0.1:6201/d3_"" with 100.0 weight got
 id 2
Device d2r1z3-127.0.0.1:6200R127.0.0.1:6200/d3_"" with 100.0 weight got
 id 2
root@nahjabineshita-22101878 /e/swift#
```

Now, I am rebalancing the rings here.
swift-ring-builder account.builder rebalance

swift-ring-builder container.builder rebalance
swift-ring-builder object.builder rebalance

Checking the log service, if this is working properly or not.

echo local0.* /var/log/swift/all0.log > /etc/rsyslog.d/0-swift.conf
mkdir /var/log/swift
chown -R syslog.adm /var/log/swift
chmod -R g+w /var/log/swift

Now in the configuration file I changed **account_autocreate = true &**
allow_account_management= true
Then I am using **systemctl restart rsyslog**

Starting the main servers of the swift now, **swift-init main start**

Authentication for further work:

Now I am entering and using my authentication token: **AUTH_tk9119d9110c074bb583c8fe0cbe30feb3** to access my account

NOTE: Using the STORAGE TOKEN from this command

curl -v -H 'X-Auth-User: admin:admin' -H 'X-Auth-Key: admin'

http://localhost:8080/auth/v1.0

```
root@nahjabineshita-22101878 /e/swift [1]# curl -v -H 'X-Auth-User: adm
in:admin' -H 'X-Auth-Key: admin' http://localhost:8080/auth/v1.0
*   Trying 127.0.0.1:8080...
* Connected to localhost (127.0.0.1) port 8080 (#0)
> GET /auth/v1.0 HTTP/1.1
> Host: localhost:8080
> User-Agent: curl/7.81.0
> Accept: */*
> X-Auth-User: admin:admin
> X-Auth-Key: admin
>
* Mark bundle as not supporting multiuse
< HTTP/1.1 200 OK
< Content-Type: text/html; charset=UTF-8
< X-Auth-Token: AUTH_tk9119d9110c074bb583c8fe0cbe30feb3
< X-Storage-Token: AUTH_tk9119d9110c074bb583c8fe0cbe30feb3
< X-Auth-Token-Expires: 86399
```

```
* Connection #0 to host localhost left intact
root@nahjabineshita-22101878 /e/swift# curl -v -H 'X-Auth-Token: AUTH_tk9119d9110c074bb58
_admin
*   Trying 127.0.0.1:8080...
* Connected to localhost (127.0.0.1) port 8080 (#0)
> GET /v1/AUTH_admin HTTP/1.1
> Host: localhost:8080
> User-Agent: curl/7.81.0
> Accept: */*
> X-Auth-Token: AUTH_tk9119d9110c074bb583c8fe0cbe30feb3
>
* Mark bundle as not supporting multiuse
< HTTP/1.1 204 No Content
< Content-Type: text/plain; charset=utf-8
< Content-Length: 0
< X-Account-Container-Count: 0
< X-Account-Object-Count: 0
< X-Account-Bytes-Used: 0
< X-Timestamp: 1714057180.70209
< X-Put-Timestamp: 1714057180.70209
< Vary: Accept
< X-Trans-Id: tx8274bcc60944472c92d5f-00662a6fdc
< X-Openstack-Request-Id: tx8274bcc60944472c92d5f-00662a6fdc
< Date: Thu, 25 Apr 2024 14:59:40 GMT
```

Now, I am logging in with **swift cli.**

```
root@nahjabineshita-22101878 /e/swift [1]# swift -U admin:admin -K admin -A http://localhost:8080/auth/v1.0 stat
             Account: AUTH_admin
          Containers: 0
             Objects: 0
               Bytes: 0
        Content-Type: text/plain; charset=utf-8
X-Account-Container-Count: 0
  X-Account-Object-Count: 0
   X-Account-Bytes-Used: 0
         X-Timestamp: 1714109929.46812
      X-Put-Timestamp: 1714109929.46812
                Vary: Accept
      Content-Length: 0
          X-Trans-Id: txa70708c331ed43128a9f7-00662b3de9
X-Openstack-Request-Id: txa70708c331ed43128a9f7-00662b3de9
                Date: Fri, 26 Apr 2024 05:38:49 GMT
```

Upload and download of Naruto's Picture using Swift and Curl (:

file:///home/mashiyat/Desktop/naruto.jpeg [my picture is currently here]

Creating a container using curl for further work,

NOTE:using STORAGE TOKEN from this command again

curl -v -H 'X-Auth-User: admin:admin' -H 'X-Auth-Key: admin'

http://localhost:8080/auth/v1.0

Now creating a container using the storage that was found from the previous command:

curl -v -H 'X-Storage-Token: AUTH_tk9119d9110c074bb583c8fe0cbe30feb3' -X PUT

http://127.0.0.1:8080/v1/AUTH_admin/mypictures


```
root@nahjabineshita-22101878 /e/swift [127]#
                                    curl -v -H 'X-Auth-User: a
dmin:admin' -H 'X-Auth-Key: admin' http://localhost:8080/auth/v1.0


*   Trying 127.0.0.1:8080...
* Connected to localhost (127.0.0.1) port 8080 (#0)
> GET /auth/v1.0 HTTP/1.1
> Host: localhost:8080
> User-Agent: curl/7.81.0
> Accept: */*
> X-Auth-User: admin:admin
> X-Auth-Key: admin
```



```
                    Date: Fri, 26 Apr 2024 05:38:49 GMT
root@nahjabineshita-22101878 /e/swift# curl -v -H 'X-Storage-Token: AUT
H_tk9119d9110c074bb583c8fe0cbe30feb3' -X PUT http://127.0.0.1:8080/v1/A
UTH_admin/mypictures
*   Trying 127.0.0.1:8080...
* Connected to 127.0.0.1 (127.0.0.1) port 8080 (#0)
> PUT /v1/AUTH_admin/mypictures HTTP/1.1
> Host: 127.0.0.1:8080
> User-Agent: curl/7.81.0
> Accept: */*
> X-Storage-Token: AUTH_tk9119d9110c074bb583c8fe0cbe30feb3
>
* Mark bundle as not supporting multiuse
< HTTP/1.1 201 Created
< Content-Type: text/html; charset=UTF-8
< Content-Length: 0
< X-Trans-Id: txa574faa118214e909469d-00662b40e7
< X-Openstack-Request-Id: txa574faa118214e909469d-00662b40e7
```

After creating the container we can see it from **swift -U admin:admin -K admin -A**

http://localhost **: 8080/auth/v1.0 stat** that there is a container created in my admin account.

Going to the folder where the picture is. It was in **cd /home/mashiyat/Desktop/** also check the existing files by using **ls**.

Now let's upload using this command:

swift -A http://127.0.0.1:8080/auth/v1.0/ -U myaccount:admin -K admin upload mypictures naruto.jpeg

Using Curl:

Here I created a container thenI used it for my curl commands

curl -X PUT -T naruto.jpeg -H 'X-Auth-Token: AUTH_tk9119d9110c074bb583c8fe0cbe30feb3'

http://127.0.0.1:8080/v1/AUTH_admin/mypictures/naruto.jpeg

curl -X GET -H "X-AUTH-Token:**AUTH_tk9119d9110c074bb583c8fe0cbe30feb3**"
http://127.0.0.1:8080/v1/AUTH_admin/mypictures/naruto.jpeg -o
/home/mashiyat/Pictures/naruto.jpeg

Here, is naruto.jpeg download successfully.

Using Swift:

Create a container named 'meaw' using swift client.

Used command: **swift post meaw**

Swift stat

[I created too many containers because my previous containers were not working properly.]

Now uploading my naruto.jpeg in the meaw container using **swift upload meaw naruto.jpeg**

Downloading the naruto.jpeg from the meaw container using **swift download meaw naruto.jpeg**

Swift and checking commands:

Now let's check the commands using swift commands on my swift client.

Using **swift list** to list all my containers

```
root@nahjabineshita-22101878 /h/m/Desktop# swift list
eshita1
eshitacont
meaw
mypictures
mypictures1
```

Using swift list meaw to know what is in my container and I got naruto's picture.

Command: **swift list meaw**

```
root@nahjabineshita-22101878 /h/m/Desktop# swift list meaw
naruto.jpeg
```

Using swift client to post a container name lunas in my swift server

Command: **swift post luna** ; then using **swift list** to show the containers

```
root@nahjabineshita-22101878 /h/m/Desktop# swift post luna
root@nahjabineshita-22101878 /h/m/Desktop# swift list
eshita1
eshitacont
luna
meaw
mypictures
mypictures1
```

Deleting a server from my cloud using: **swift delete luna**

```
root@nahjabineshita-22101878 /h/m/Desktop# swift delete luna
luna
```

deleted luna :(

```
root@nahjabineshita-22101878 /h/m/Desktop [127]# swift list
eshita1
eshitacont
meaw
mypictures
mypictures1
root@nahjabineshita-22101878 /h/m/Desktop#
```

Again another container I created named harry and then I used that to keep naruto's picture.

Used command: **swift post harry**

swift upload harry naruto.jpeg

```
root@nahjabineshita-22101878 /h/m/Desktop# swift post harry
root@nahjabineshita-22101878 /h/m/Desktop# swift list
eshita1
eshitacont
harry
meaw
mypictures
mypictures1
root@nahjabineshita-22101878 /h/m/Desktop# swift upload harry naruto.jpeg
naruto.jpeg
root@nahjabineshita-22101878 /h/m/Desktop#
```

Downloading a file from swift using: **swift download harry naruto.jpeg**

```
root@nahjabineshita-22101878 /h/m/Desktop# swift download harry naruto.jpeg
naruto.jpeg [auth 0.002s, headers 0.031s, total 0.031s, 2.027 MB/s]
```

Deleting a file from my container **swift delete harry naruto.jpeg**

```
root@nahjabineshita-22101878 /h/m/Desktop# swift delete harry naruto.jpeg
naruto.jpeg
```

```
root@nahjabineshita-22101878 /h/m/Desktop# swift list harry
```

I deleted harry using the list harry was not there :(

Then I got a metadata of a swift of a container. **swift stat harry**

```
root@nahjabineshita-22101878 /h/m/Desktop# swift stat harry
            Account: AUTH_admin
          Container: harry
```

Then I got a metadata of a swift of a object using **swift stat harry naruto.jpeg**

```
root@nahjabineshita-22101878 /h/m/Desktop# swift stat harry naruto.jpeg
            Account: AUTH_admin
          Container: harry
             Object: naruto.jpeg
```

Replication Process:

Checking commands on my swift client now.

Made the **RSYNC_ENABLE=true** from rsync file that can be accessed from **etc/default/rsync**
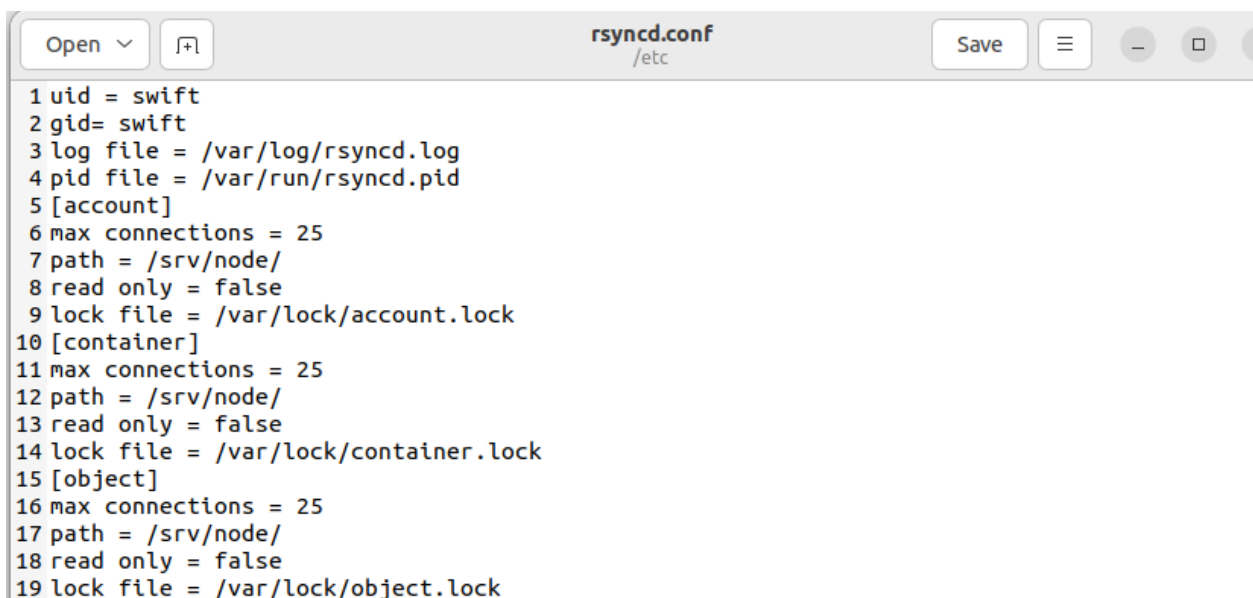
Command to get: **gedit /etc/default/rsync**

```
                    Date: Fri, 26 Apr 2024 07:33:37 GMT
root@nahjabineshita-22101878 /h/m/Desktop# gedit /etc/default/rsync

(gedit:21204): dconf-WARNING **: 14:13:54.409: failed to commit changes
ed to execute child process "dbus-launch" (No such file or directory)
```

```
#  about not starting
RSYNC_ENABLE=true
```

Now, I have used **gedit /etc/rsyncd.conf** for my configeratitonn file [here I forgot to take the
screen shot of that command on terminal] Then I copy pasted the commands on that file and
saved them as you can see from the screen shot below:

```
Open  ∨      ⊞                       rsyncd.conf                    Save    ≡   —  □
                                        /etc
 1 uid = swift
 2 gid= swift
 3 log file = /var/log/rsyncd.log
 4 pid file = /var/run/rsyncd.pid
 5 [account]
 6 max connections = 25
 7 path = /srv/node/
 8 read only = false
 9 lock file = /var/lock/account.lock
10 [container]
11 max connections = 25
12 path = /srv/node/
13 read only = false
14 lock file = /var/lock/container.lock
15 [object]
16 max connections = 25
17 path = /srv/node/
18 read only = false
19 lock file = /var/lock/object.lock
```

Restarting my rsync account by,
systemctl restart rsync

```
root@nahjabineshita-22101878:/srv/node# systemctl restart rsync
root@nahjabineshita-22101878:/srv/node# systemctl restart rsync
root@nahjabineshita-22101878:/srv/node# rsync localhost::
account
container
object
```

Checking my rsync account now, **rsync account**

```
root@nahjabineshita-22101878 /h/m/Desktop# rsync account
rsync: [sender] link_stat "/home/mashiyat/Desktop/account" failed: No such file or dir
ectory (2)
rsync error: some files/attrs were not transferred (see previous errors) (code 23) at
main.c(1338) [sender=3.2.7]
```

Checking my local host using: **rsync localhost : :**

```
root@nahjabineshita-22101878:/home/mashiyat# rsync localhost::
account
container
object
root@nahjabineshita-22101878:/home/mashiyat#
```

It shows all my servers are up **:)**

Starting things on swift using: **swift-init all start**

```
root@nahjabineshita-22101878:/srv/node# swift-init all start
object-updater running (21479 - /etc/swift/object-server.conf)
object-updater already started...
object-reconstructor running (21487 - /etc/swift/object-server.conf)
object-reconstructor already started...
container-auditor running (21485 - /etc/swift/container-server.conf)
container-auditor already started...
```

Yeey!!! Our system is up and running with all parts like the sharder, auditor, and others working. Now, I need to check it. Going to the **node** folder with the command **cd /srv/node**. Inside, we should see **d1, d2,** and **d3** when we use the **ls** command.

Going to srv node: **cd /srv/node**, using **ls** to see what is inside then I finally got my disks.

```
object-auditor already started...
root@nahjabineshita-22101878:/srv/node# cd /srv/node
root@nahjabineshita-22101878:/srv/node# ls
d1  d2  d3
```

Checking the files I have uploaded using: **find . -name '*.data'** this wild card command will fetch all the files ending with **.data**

```
root@nahjabineshita-22101878:/srv/node# find . -name '*data'
./d3/objects/7/472/e14439cd6f8507c29fc90d438654d472/1714111707.41239.data
./d3/objects/4/b17/8f391dd0258a0937df11bca3fd8c9b17/1714113501.34980.data
./d3/objects/5/df3/b8f64a62ec517f3075d34576b5dc6df3/1714116812.03741.data
./d1/objects/7/472/e14439cd6f8507c29fc90d438654d472/1714111707.41239.data
./d1/objects/4/b17/8f391dd0258a0937df11bca3fd8c9b17/1714113501.34980.data
./d1/objects/5/df3/b8f64a62ec517f3075d34576b5dc6df3/1714116812.03741.data
./d2/objects/7/472/e14439cd6f8507c29fc90d438654d472/1714111707.41239.data
./d2/objects/4/b17/8f391dd0258a0937df11bca3fd8c9b17/1714113501.34980.data
./d2/objects/5/df3/b8f64a62ec517f3075d34576b5dc6df3/1714116812.03741.data
root@nahjabineshita-22101878:/srv/node#
```

Our files are saved in three places, like the **'41239.data'** file found in **d1, d2, and d3**. I'll remove all data from d1 using **rm -rf ./d1/*** to demonstrate how replication works. After this, **d1 will be empty.**

Now, we can see my d1 is not in this terminal result as I have already deleted it.

```
root@nahjabineshita-22101878:/srv/node# rm -rf ./d1/*
root@nahjabineshita-22101878:/srv/node# find . -name '*data'
./d3/objects/7/472/e14439cd6f8507c29fc90d438654d472/1714111707.41239.data
./d3/objects/4/b17/8f391dd0258a0937df11bca3fd8c9b17/1714113501.34980.data
./d3/objects/5/df3/b8f64a62ec517f3075d34576b5dc6df3/1714116812.03741.data
./d2/objects/7/472/e14439cd6f8507c29fc90d438654d472/1714111707.41239.data
./d2/objects/4/b17/8f391dd0258a0937df11bca3fd8c9b17/1714113501.34980.data
./d2/objects/5/df3/b8f64a62ec517f3075d34576b5dc6df3/1714116812.03741.data
root@nahjabineshita-22101878:/srv/node#
```

Then I waited for some seconds for d1 deletion.

Again run the command to see the situation. Now, what we can see? Wow, d1 is back again. Though I deleted d1 but there was back up of d1 in d2 and d3 so it did not created any problem rather retuned. It actually world like Hydra sso it's good to have back up for my data, quite amazing…!

```
root@nahjabineshita-22101878:/srv/node# find . -name '*data'
./d3/objects/7/472/e14439cd6f8507c29fc90d438654d472/1714111707.41239.data
./d3/objects/4/b17/8f391dd0258a0937df11bca3fd8c9b17/1714113501.34980.data
./d3/objects/5/df3/b8f64a62ec517f3075d34576b5dc6df3/1714116812.03741.data
./d2/objects/7/472/e14439cd6f8507c29fc90d438654d472/1714111707.41239.data
./d2/objects/4/b17/8f391dd0258a0937df11bca3fd8c9b17/1714113501.34980.data
./d2/objects/5/df3/b8f64a62ec517f3075d34576b5dc6df3/1714116812.03741.data
root@nahjabineshita-22101878:/srv/node# find . -name '*data'
./d3/objects/7/472/e14439cd6f8507c29fc90d438654d472/1714111707.41239.data
./d3/objects/4/b17/8f391dd0258a0937df11bca3fd8c9b17/1714113501.34980.data
./d3/objects/5/df3/b8f64a62ec517f3075d34576b5dc6df3/1714116812.03741.data
./d1/objects/4/b17/8f391dd0258a0937df11bca3fd8c9b17/1714113501.34980.data
./d1/objects/7/472/e14439cd6f8507c29fc90d438654d472/1714111707.41239.data
./d1/objects/5/df3/b8f64a62ec517f3075d34576b5dc6df3/1714116812.03741.data
./d2/objects/7/472/e14439cd6f8507c29fc90d438654d472/1714111707.41239.data
./d2/objects/4/b17/8f391dd0258a0937df11bca3fd8c9b17/1714113501.34980.data
./d2/objects/5/df3/b8f64a62ec517f3075d34576b5dc6df3/1714116812.03741.data
root@nahjabineshita-22101878:/srv/node#
```

After all these efforts, we did it!!!