Assignment 04

CSE491

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Sec:02

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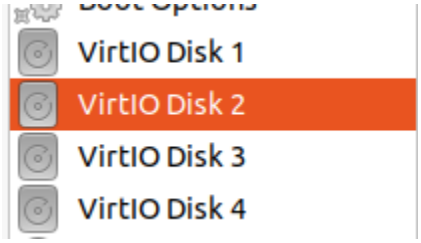
The **OpenStack** Object Store project, known as **Swift**, offers cloud storage software so that you can store and retrieve lots of data with a simple API. It's built for scale and optimized for durability, availability, and concurrency across the entire data set.



To install openstack swift, I installed ubuntu16.04 in a VM using KVM hypervisor and after that I added extra 3 virtual storages to the machine.

```
muhammad@mustaqim-16301174:~$ sudo su -
[sudo] password for muhammad:
```

Then, I went super user mode(*sudo su*) to work with root permission all the time.

```
root@mustaqim-16301174:~# apt-get install curl gcc memcached rsync sqlite3 xfsprogs \
>                                   git-core libffi-dev python-setuptools \
>                                   liberasurecode-dev libssl-dev
Reading package lists... Done
Building dependency tree
Reading state information... Done
curl is already the newest version.
rsync is already the newest version.
The following extra packages will be installed:
```

After that I installed some tools and packages with apt-get install command.

*apt-get install curl gcc memcached rsync sqlite3 xfsprogs *

*git-core libffi-dev python-setuptools *

liberasurecode-dev libssl-dev

```
root@mustaqim-16301174:~# apt-get install python-coverage python-dev python-nose \
>                                         python-xattr python-eventlet \
>                                         python-greenlet python-pastedeploy \
>                                         python-netifaces python-pip python-dnspython \
>                                         python-mock
```

I also installed many python dependencies and python packages for further work.

*apt-get install python-coverage python-dev python-nose *

*python-xattr python-eventlet *

*python-greenlet python-pastedeploy *

*python-netifaces python-pip python-dnspython *

python-mock

```
root@mustaqim-16301174:~# git clone https://github.com/openstack/python-swiftclient.git
Cloning into 'python-swiftclient'...
remote: Enumerating objects: 82, done.
remote: Counting objects: 100% (82/82), done.
remote: Compressing objects: 100% (64/64), done.
remote: Total 5441 (delta 40), reused 45 (delta 17), pack-reused 5359
```

After that, I cloned python-swiftclient folder to my machine from github. It clones that whole repository to my hard drive using git clone command.

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

```
root@mustaqim-16301174:~/python-swiftclient# pip install -r requirements.txt
WARNING: pip is being invoked by an old script wrapper. This will fail in a future version of pip.
Please see https://github.com/pypa/pip/issues/5599 for advice on fixing the underlying issue.
To avoid this problem you can invoke Python with '-m pip' instead of running pip directly.
DEPRECATION: Python 2.7 reached the end of its life on January 1st, 2020. Please upgrade your Python as Python 2.7 is no long
maintained. pip 21.0 will drop support for Python 2.7 in January 2021. More details about Python 2 support in pip can be foun
t https://pip.pypa.io/en/latest/development/release-process/#python-2-support pip 21.0 will remove support for this functiona
y.
Requirement already satisfied: futures>=3.0.0 in /usr/local/lib/python2.7/dist-packages (from -r requirements.txt (line 1)) (
.0)
Requirement already satisfied: requests>=1.1.0 in /usr/local/lib/python2.7/dist-packages (from -r requirements.txt (line 2))
24.0)
Requirement already satisfied: six>=1.9.0 in /usr/lib/python2.7/dist-packages (from -r requirements.txt (line 3)) (1.10.0)
Requirement already satisfied: certifi>=2017.4.17 in /usr/local/lib/python2.7/dist-packages (from requests>=1.1.0->-r require
ts.txt (line 2)) (2020.6.20)
Requirement already satisfied: urllib3!=1.25.0,!=1.25.1,<1.26,>=1.21.1 in /usr/local/lib/python2.7/dist-packages (from reques
=1.1.0->-r requirements.txt (line 2)) (1.25.10)
Requirement already satisfied: idna<3,>=2.5 in /usr/local/lib/python2.7/dist-packages (from requests>=1.1.0->-r requirements.
 (line 2)) (2.10)
Requirement already satisfied: chardet<4,>=3.0.2 in /usr/local/lib/python2.7/dist-packages (from requests>=1.1.0->-r requirer
s.txt (line 2)) (3.0.4)
```

Then, I went to the python-swiftclient destination with cd command and installed the requirements.txt which consist of some libraries and package installation commands to generate the download and installation process.

pip install -r requirements.txt

```
root@mustaqim-16301174:~# cd swift
root@mustaqim-16301174:~/swift# python setup.py install
```

Then I went to the swift destination and installed the setup.py file to install swift.

cd swift

python setup.py install

```
root@mustaqim-16301174:~/swift# cd
root@mustaqim-16301174:~# mkdir -p /etc/swift
root@mustaqim-16301174:~# cd swift/etc
root@mustaqim-16301174:~/swift/etc#
```

Then, I make a directory as /etc/swift in which I will copy all the configuration files.

mkdir -p /etc/swift

```
root@mustaqim-16301174:~# cd swift/etc
root@mustaqim-16301174:~/swift/etc# cp account-server.conf-sample /etc/swift/account-server.conf
root@mustaqim-16301174:~/swift/etc# cp container-server.conf-sample /etc/swift/container-server.conf
root@mustaqim-16301174:~/swift/etc# cp object-server.conf-sample /etc/object-server.conf
root@mustaqim-16301174:~/swift/etc# cp proxy-server.conf-sample /etc/proxy-server.conf
root@mustaqim-16301174:~/swift/etc# cp drive-audit.conf-sample /etc/swift/drive-audit.conf
root@mustaqim-16301174:~/swift/etc# cp swift.conf-sample /etc/swift/swift.conf
```

Then, I would go to the swift/etc directory and then copy all the necessary configuration samples files provided by swift and copy them as .conf files to /etc/swift directory.

cd swift/etc

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 (in screenshot the path is wrong, I corrected after another ubuntu installation)

cp proxy-server.conf-sample /etc/swift/proxy-server.conf (in screenshot the path is wrong, I corrected after another ubuntu installation)

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

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

```
root@mustaqim-16301174:~/swift/etc# ls /sys/block
loop0  loop1  loop2  loop3  loop4  loop5  loop6  loop7  sr0  vda  vdb  vdc  vdd
root@mustaqim-16301174:~/swift/etc# cd
```

After that, I check whether the partition I made, by adding virtual hard drive, exists or not. Then I found that there is vdb vdc and vdd virtual drives in the block system.

/swift/etc# ls /sys/block

loop0 loop1 loop2 loop3 loop4 loop5 loop6 loop7 sr0 vda vdb vdc vdd

/swift/etc# cd

```
root@mustaqim-16301174:~# mkfs.xfs -f -L d1 /dev/vdb
meta-data=/dev/vdb               isize=256    agcount=4, agsize=32768 blks
         =                       sectsz=512   attr=2, projid32bit=0
data     =                       bsize=4096   blocks=131072, imaxpct=25
         =                       sunit=0      swidth=0 blks
naming   =version 2              bsize=4096   ascii-ci=0
log      =internal log           bsize=4096   blocks=1200, version=2
         =                       sectsz=512   sunit=0 blks, lazy-count=1
realtime =none                   extsz=4096   blocks=0, rtextents=0
root@mustaqim-16301174:~# mkfs.xfs -f -L d2 /dev/vdc
meta-data=/dev/vdc               isize=256    agcount=4, agsize=32768 blks
         =                       sectsz=512   attr=2, projid32bit=0
data     =                       bsize=4096   blocks=131072, imaxpct=25
         =                       sunit=0      swidth=0 blks
naming   =version 2              bsize=4096   ascii-ci=0
log      =internal log           bsize=4096   blocks=1200, version=2
         =                       sectsz=512   sunit=0 blks, lazy-count=1
realtime =none                   extsz=4096   blocks=0, rtextents=0
root@mustaqim-16301174:~# mkfs.xfs -f -L d3 /dev/vdd
meta-data=/dev/vdd               isize=256    agcount=4, agsize=32768 blks
         =                       sectsz=512   attr=2, projid32bit=0
data     =                       bsize=4096   blocks=131072, imaxpct=25
         =                       sunit=0      swidth=0 blks
naming   =version 2              bsize=4096   ascii-ci=0
log      =internal log           bsize=4096   blocks=1200, version=2
         =                       sectsz=512   sunit=0 blks, lazy-count=1
realtime =none                   extsz=4096   blocks=0, rtextents=0
```

Next, I formatted the /dev/vdb , /dev/vdc and /dev/vdd virtual drives as XFS using these commands.

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

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

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

```
root@mustaqim-16301174:~# mkdir -p /srv/node/d1
root@mustaqim-16301174:~# mkdir -p /srv/node/d2
root@mustaqim-16301174:~# mkdir -p /srv/node/d3
root@mustaqim-16301174:~#
```

I created a directory in /srv/node/ for each device as a place to mount the filesystem. We suggest a simple approach to naming the directories, such as using each device's label (d1, d2,d3)

mkdir -p /srv/node/d1

mkdir -p /srv/node/d2

mkdir -p /srv/node/d3

```
root@mustaqim-16301174:~#
root@mustaqim-16301174:~# mount -t xfs -o noatime,nodiratime,logbufs=8 -L d1 /srv/node/d1
root@mustaqim-16301174:~# mount -t xfs -o noatime,nodiratime,logbufs=8 -L d2 /srv/node/d2
root@mustaqim-16301174:~# mount -t xfs -o noatime,nodiratime,logbufs=8 -L d3 /srv/node/d3
root@mustaqim-16301174:~#
```

The next step is to tell the operating system to attach (mount) the new XFS filesystems somewhere on the devices so that Swift can find them and start putting data on them. For each drive I want to mount, I used the mount command.

mount -t xfs -o noatime,nodiratime,logbufs=8 -L d1 /srv/node/d1

mount -t xfs -o noatime,nodiratime,logbufs=8 -L d2 /srv/node/d2

mount -t xfs -o noatime,nodiratime,logbufs=8 -L d3 /srv/node/d3

```
root@mustaqim-16301174:~#
root@mustaqim-16301174:~# useradd swift
root@mustaqim-16301174:~# chown -R swift:swift /srv/node
```

After the drives are mounted, a user needs to be created with read/write permissions to the directories where the devices have been mounted. The default user that swift uses is named SWIFT.

Then, I gave the swift user ownership to the directories.

useradd swift

chown -R swift:swift /srv/node

Now if I need to make sure that every time when I start my machine the drives will be mounted automatically; I need to write:

cd swift/bin

sudo vim mount_devices.sh

Then in 'mount_devices.sh' I have to write:

#!/bin/bash

Sudo mount -t xfs -o natime,nodiratime,logbufs=8 -L d1 /srv/node/d1

Sudo mount -t xfs -o natime,nodiratime,logbufs=8 -L d2 /srv/node/d2

Sudo mount -t xfs -o natime,nodiratime,logbufs=8 -L d3 /srv/node/d3

Then I added a cronejob to run the shell script whenever I boot.

crontab -e

@reboot sh swift/bin/mount_devices.sh

Then I rebooted my machine and mounted again using mount command.

```
root@mustaqim-16301174:~/swift/bin# cd /etc/swift
root@mustaqim-16301174:/etc/swift# swift-ring-builder account.builder create 3 3 1
root@mustaqim-16301174:/etc/swift# swift-ring-builder container.builder create 3 3 1
root@mustaqim-16301174:/etc/swift# swift-ring-builder object.builder create 3 3 1
root@mustaqim-16301174:/etc/swift# ls
account.builder      backups            container-server.conf  object.builder
account-server.conf  container.builder  drive-audit.conf       swift.conf
```

Now, I need to create builder files. I need to create minimum of three files, account.builder, container.builder, object.builder. The builder file is a composite of big database. It contains records of all the storage devices in the cluster and the values the ring-builder utilitiy will use to create a ring.

It contains <part_power> <replicas> <min_part_hours> parameters also.

<part_power> means, the number of partitions created in the storage cluster,

<replicas> means, how many replicas you would like stored in the cluster,

<min_part_hours> means, the frequency at which a replica is allowed to be moved.

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@mustaqim-16301174:/etc/swift# swift-ring-builder account.builder add r1z1-127.0.0.1:6002/d1 100
Device d0r1z1-127.0.0.1:6002R127.0.0.1:6002/d1_"" with 100.0 weight got id 0
root@mustaqim-16301174:/etc/swift# swift-ring-builder container.builder add r1z1-127.0.0.1:6001/d1 100
Device d0r1z1-127.0.0.1:6001R127.0.0.1:6001/d1_"" with 100.0 weight got id 0
root@mustaqim-16301174:/etc/swift# swift-ring-builder object.builder add r1z1-127.0.0.1:6000/d1 100
Device d0r1z1-127.0.0.1:6000R127.0.0.1:6000/d1_"" with 100.0 weight got id 0
root@mustaqim-16301174:/etc/swift# swift-ring-builder account.builder add r1z1-127.0.0.1:6002/d2 100
Device d1r1z1-127.0.0.1:6002R127.0.0.1:6002/d2_"" with 100.0 weight got id 1
root@mustaqim-16301174:/etc/swift# swift-ring-builder container.builder add r1z1-127.0.0.1:6001/d2 100
Device d1r1z1-127.0.0.1:6001R127.0.0.1:6001/d2_"" with 100.0 weight got id 1
root@mustaqim-16301174:/etc/swift# swift-ring-builder object.builder add r1z1-127.0.0.1:6000/d2 100
Device d1r1z1-127.0.0.1:6000R127.0.0.1:6000/d2_"" with 100.0 weight got id 1
root@mustaqim-16301174:/etc/swift# swift-ring-builder account.builder add r1z1-127.0.0.1:6002/d3 100
Device d2r1z1-127.0.0.1:6002R127.0.0.1:6002/d3_"" with 100.0 weight got id 2
root@mustaqim-16301174:/etc/swift# swift-ring-builder container.builder add r1z1-127.0.0.1:6001/d3 100
Device d2r1z1-127.0.0.1:6001R127.0.0.1:6001/d3_"" with 100.0 weight got id 2
root@mustaqim-16301174:/etc/swift# swift-ring-builder object.builder add r1z1-127.0.0.1:6000/d3 100
Device d2r1z1-127.0.0.1:6000R127.0.0.1:6000/d3_"" with 100.0 weight got id 2
```

With the builder file created, I have to add drives to them. I have to add region and zone also with the local host ip address and the port number defined for account/container/object and weights to them.

Swift-ring-builder <builder name.builder> add <region><zone>-<IP>:(6002/6001/6000)/d1/d2/d3 <weight>

The account server process runs on port 6002.

The container server process runs on port 6001.

The object server process runs on port 6000.

swift-ring-builder account.builder add r1z1-127.0.0.1:6002/d1 100

swift-ring-builder container.builder add r1z1-127.0.0.1:6001/d1 100

swift-ring-builder object.builder add r1z1-127.0.0.1:6000/d1 100

swift-ring-builder account.builder add r1z1-127.0.0.1:6002/d2 100

swift-ring-builder container.builder add r1z1-127.0.0.1:6001/d2 100

swift-ring-builder object.builder add r1z1-127.0.0.1:6000/d2 100

swift-ring-builder account.builder add r1z1-127.0.0.1:6002/d3 100

swift-ring-builder container.builder add r1z1-127.0.0.1:6001/d3 100

swift-ring-builder object.builder add r1z1-127.0.0.1:6000/d3 100

swift-ring-builder account.builder add r1z1-127.0.0.1:6002/d4 100

swift-ring-builder container.builder add r1z1-127.0.0.1:6001/d4 100

swift-ring-builder object.builder add r1z1-127.0.0.1:6000/d4 100

```
root@mustaqim-16301174:/etc/swift# swift-ring-builder account.builder rebalance
Reassigned 24 (300.00%) partitions. Balance is now 0.00.  Dispersion is now 0.00
root@mustaqim-16301174:/etc/swift# swift-ring-builder container.builder rebalance
Reassigned 24 (300.00%) partitions. Balance is now 0.00.  Dispersion is now 0.00
root@mustaqim-16301174:/etc/swift# swift-ring-builder object.builder rebalance
Reassigned 24 (300.00%) partitions. Balance is now 0.00.  Dispersion is now 0.00
```

The rebalance command creates an actual ring file used by Swift to determine where data is placed. The builder files keep track of things such as when partitions were last moved and where partitions are currently located. These commands create ring.gz files in /etc/swift directory.

swift-ring-builder account.builder rebalance

swift-ring-builder container.builder rebalance

swift-ring-builder object.builder rebalance

```
root@mustaqim-16301174:/etc/swift# ls
account.builder  account-server.conf  container.builder  container-server.conf  object.builder  object-server.conf  swift.conf
account.ring.gz  backups              container.ring.gz  drive-audit.conf       object.ring.gz  proxy-server.conf
```

Here is the screen shot of all the files in /etc/swift directory.

```
muhammad@mustaqim-16301174:~$ cd /etc
muhammad@mustaqim-16301174:/etc$ sudo su
[sudo] password for muhammad:
root@mustaqim-16301174:/etc# cd rsyslog.d
root@mustaqim-16301174:/etc/rsyslog.d# sudo cat 0-swift.conf
local0.* /var/log/swift/all.log
root@mustaqim-16301174:/etc/rsyslog.d# _
```

I created a configuration file named 0-swift.conf in the /etc/rsyslog.d directory which consists,

cd /etc/rsyslog.d

/etc/rsyslog.d# vim 0-swift.conf

local0.* /var/log/swift/all.log.

#cat 0-swift.conf

```
root@mustaqim-16301174:/etc/rsyslog.d# ls
0-swift.conf  20-ufw.conf  50-default.conf
root@mustaqim-16301174:/etc/rsyslog.d# mkdir /var/log/swift
root@mustaqim-16301174:/etc/rsyslog.d# chown -R syslog.adm /var/log/swift
root@mustaqim-16301174:/etc/rsyslog.d# chown -R g+w /var/log/swift
chown: invalid user: 'g+w'
root@mustaqim-16301174:/etc/rsyslog.d# chmod -R g+w /var/log/swift
root@mustaqim-16301174:/etc/rsyslog.d# _
```

Now, I made a directory where all the log files will be created in it.

/etc/rsyslog# mkdir /var/log/swift

Also, I need to set permissions on the directory so the log process can write to it.

/etc/rsyslog# chown -R syslog.adm /var/log/swift

/etc/rsyslog# chmod -R g+w /var/log/swift

```
root@mustaqim-16301174:/etc/rsyslog.d# service rsyslog restart
rsyslog stop/waiting
rsyslog start/running, process 1129
root@mustaqim-16301174:/etc/rsyslog.d# _
```

After that, I restarted rsyslog to begin swift logging,

/etc/rsyslog.d# service rsyslog restart

After that, in the directory /etc/swift I edited the swift.conf file and added new suffix and prefix.

swift_hash_path_suffix = RzUfDdu32L7J2ZBDYgsD6YI3Xie7hTVO8/oaQbpTbI8=

swift_hash_path_prefix = OZ1uQJNjJzTuFaM8X3v%fsJ1iR#F8wJjf9uhRiABevQ4

```
root@mustaqim-16301174:~/python-swiftclient# swift-init proxy start
/usr/local/lib/python2.7/dist-packages/OpenSSL/crypto.py:12: CryptographyDeprecationWarning: Python 2 is no longer supported by
the Python core team. Support for it is now deprecated in cryptography, and will be removed in a future release.
  from cryptography import x509
proxy-server running (2099 - /etc/swift/proxy-server.conf)
proxy-server already started...
root@mustaqim-16301174:~/python-swiftclient#
```

Then I started the proxy server using,

swift-init proxy start

```
root@mustaqim-16301174:~# service memcached start
root@mustaqim-16301174:~#
root@mustaqim-16301174:~#
root@mustaqim-16301174:~# ps aux | grep memcached
memcache  1052  0.0  0.1  63388  2648 ?        Ssl  17:09   0:00 /usr/bin/memcached -m 64 -p 11211 -u memcache -l 127.0.0.1
root      2161  0.0  0.0  14220   900 tty1     S+   18:24   0:00 grep --color=auto memcached
root@mustaqim-16301174:~#
```

Then I started Memcached service using,

Service Memcached start

```
root@mustaqim-16301174:/etc/swift# swift-init account start
/usr/local/lib/python2.7/dist-packages/OpenSSL/crypto.py:12: CryptographyDeprecationWarning: Python 2 is no longer supported
the Python core team. Support for it is now deprecated in cryptography, and will be removed in a future release.
  from cryptography import x509
account-server running (2175 - /etc/swift/account-server.conf)
account-server already started...
```

swift-init account start

```
root@mustaqim-16301174:/etc/swift# swift-init container start
/usr/local/lib/python2.7/dist-packages/OpenSSL/crypto.py:12: CryptographyDeprecationWarning: Python 2 is no longer supported
the Python core team. Support for it is now deprecated in cryptography, and will be removed in a future release.
  from cryptography import x509
container-server running (2198 - /etc/swift/container-server.conf)
container-server already started...
```

swift-init container start

```
root@mustaqim-16301174:/etc/swift# swift-init object start
/usr/local/lib/python2.7/dist-packages/OpenSSL/crypto.py:12: CryptographyDeprecationWarning: Python 2 is no longer supported
the Python core team. Support for it is now deprecated in cryptography, and will be removed in a future release.
  from cryptography import x509
object-server running (2220 - /etc/swift/object-server.conf)
object-server already started...
```

swift-init object start

```
root@mustaqim-16301174:/etc/swift# swift-init proxy restart
/usr/local/lib/python2.7/dist-packages/OpenSSL/crypto.py:12: CryptographyDeprecationWarning: Python 2 is no longer supported
the Python core team. Support for it is now deprecated in cryptography, and will be removed in a future release.
  from cryptography import x509
Signal proxy-server  pid: 2099  signal: 15
proxy-server (2099) appears to have stopped
Starting proxy-server...(/etc/swift/proxy-server.conf)
/usr/local/lib/python2.7/dist-packages/OpenSSL/crypto.py:12: CryptographyDeprecationWarning: Python 2 is no longer supported
the Python core team. Support for it is now deprecated in cryptography, and will be removed in a future release.
  from cryptography import x509
/usr/lib/python2.7/dist-packages/pkg_resources/__init__.py:1268: UserWarning: /tmp is writable by group/others and vulnerabl
 attack when used with get_resource_filename. Consider a more secure location (set with .set_extraction_path or the PYTHON_E
ACHE environment variable).
  warnings.warn(msg, UserWarning)
liberasurecode[2245]: liberasurecode_backend_open: dynamic linking error libJerasure.so.2: cannot open shared object file: N
```

There were lots of errors and errors for python swift version. So I installed via pip installer, sudo apt-get installer and restart again.

swift-init main restart

To see all the status of all the servers i used,

swift-init all status

then I edited the proxy-server.conf file and added some changes to it.

cd /etc/swift/

vim proxy-server.conf

then I added this command as a new user.

user_myaccount_me = secretpassword .admin .reseller_admin

allow-account_management = true

account_autocreate= true

```
root@mustaqimvm-16301174:/etc/swift# curl -v -H 'X-Auth-User: myaccount:me' -H 'X-Auth
-Key:secretpassword' http://localhost/auth/v1.0
*   Trying 127.0.0.1...
* Connected to localhost (127.0.0.1) port 80 (#0)
> GET /auth/v1.0 HTTP/1.1
> Host: localhost
> User-Agent: curl/7.47.0
> Accept: */*
> X-Auth-User: myaccount:me
> X-Auth-Key:secretpassword
>
< HTTP/1.1 200 OK
< X-Storage-Url: http://localhost/v1/AUTH_myaccount
< X-Auth-Token-Expires: 85296
< X-Auth-Token: AUTH_tk64247b9f17724efdbffc576bd44262c6
< Content-Type: text/html; charset=UTF-8
< X-Storage-Token: AUTH_tk64247b9f17724efdbffc576bd44262c6
< Content-Length: 0
< X-Trans-Id: txce14503ef56f49e8b4f24-005f67ee45
< X-Openstack-Request-Id: txce14503ef56f49e8b4f24-005f67ee45
< Date: Mon, 21 Sep 2020 00:05:25 GMT
```

(I used several times in ubuntu server 16.04 but all the time new errors occurs. Everytime new errors)

Now let's authenticate the account that was added to TempAuth in Swift using cURL,

curl -v -H 'X-Auth-User: myaccount:me' -H 'X-Auth-Key:secretpassword' http://localhost/auth/v1.0

```
root@mustaqimvm-16301174:/etc/swift# curl -v -H 'X-Auth-User: admin:admin' -H 'X-Auth-
Key: admin' http://127.0.0.1/auth/v1.0
*   Trying 127.0.0.1...
* Connected to 127.0.0.1 (127.0.0.1) port 80 (#0)
> GET /auth/v1.0 HTTP/1.1
> Host: 127.0.0.1
> User-Agent: curl/7.47.0
> Accept: */*
> X-Auth-User: admin:admin
> X-Auth-Key: admin
>
< HTTP/1.1 200 OK
< X-Storage-Url: http://127.0.0.1/v1/AUTH_admin
< X-Auth-Token-Expires: 86399
< X-Auth-Token: AUTH_tk1ff875ecaf3c4275a31f2b0d11abb60b
< Content-Type: text/html; charset=UTF-8
< X-Storage-Token: AUTH_tk1ff875ecaf3c4275a31f2b0d11abb60b
< Content-Length: 0
< X-Trans-Id: txbe737003fc30442dbf2ec-005f67ef17
< X-Openstack-Request-Id: txbe737003fc30442dbf2ec-005f67ef17
< Date: Mon, 21 Sep 2020 00:08:55 GMT
<
* Connection #0 to host 127.0.0.1 left intact
```

Now we are accessing through username as admin and password as admin in the server. It will give an output of a authentication token.

curl -v -H ‘X-Auth-User: admin;admin’ -H ‘X-Auth-Key:admin’ http://localhost/auth/v1.0

```
root@mustaqimvm-16301174:/etc/swift# curl -v -H 'X-Auth-token: AUTH_tk1ff875ecaf3c4275
a31f2b0d11abb60b' http://localhost:80/v1/AUTH_admin
*   Trying 127.0.0.1...
* Connected to localhost (127.0.0.1) port 80 (#0)
> GET /v1/AUTH_admin HTTP/1.1
> Host: localhost
> User-Agent: curl/7.47.0
> Accept: */*
> X-Auth-token: AUTH_tk1ff875ecaf3c4275a31f2b0d11abb60b
>
< HTTP/1.1 204 No Content
< Content-Length: 0
< Content-Type: text/plain; charset=utf-8
< X-Account-Object-Count: 0
< X-Timestamp: 1600647338.10089
< X-Account-Bytes-Used: 0
< X-Account-Container-Count: 0
< X-Put-Timestamp: 1600647338.10089
< Vary: Accept
< X-Trans-Id: tx2e05143ac33945ceae126-005f67f0aa
< X-Openstack-Request-Id: tx2e05143ac33945ceae126-005f67f0aa
< Date: Mon, 21 Sep 2020 00:15:38 GMT
```

Now, I gave the authentication code and it will show like this. Now I am ready to make your first request. Here I will attempt to list the containers in the account. The system should return a response of 204 No Content because I have not created any containers yet.

curl -v -H ‘X-Auth-token: AUTH_tk1ff875ecaf3c4275a31f2b0d11abb60b’ http://localhost:80/v1/AUTH_admin

```
root@mustaqimvm-16301174:/etc/swift# swift -U admin:admin -K admin -A http://127.0.0.1
/auth/v1.0 stat
               Account: AUTH_admin
            Containers: 0
               Objects: 0
                 Bytes: 0
      X-Put-Timestamp: 1600647458.41238
                 Vary: Accept
          X-Timestamp: 1600647458.41238
           X-Trans-Id: txbd3611187d074cd096e5e-005f67f122
        Content-Type: text/plain; charset=utf-8
X-Openstack-Request-Id: txbd3611187d074cd096e5e-005f67f122
```

I can see the status of the object server by writing this command,

swift -U admin:admin -K admin -A http://127.0.0.1/auth/v1.0 stat

```
root@mustaqimvm-16301174:/etc/swift# cd
root@mustaqimvm-16301174:~# cd /home/muhammad/Desktop
root@mustaqimvm-16301174:/home/muhammad/Desktop# ls
myinfo.txt
root@mustaqimvm-16301174:/home/muhammad/Desktop# swift -A http://127.0.0.1:80/au
th/v1.0/ -U myaccount:me -K secretpassword upload newcse491 myinfo.txt
myinfo.txt
```

Now I have to upload an object to the object server. So, I went to the Desktop directory and created a file named myinfo.txt. i created a container named newcse491 with my useraccount:me and gave my secretpassword as password and then I uploaded a file in this way.

swift-A http://127.0.0.1:80/auth/v1.0/ -U myaccount:me -K secretpassword upload newcse491 myinfo.txt

```
root@mustaqimvm-16301174:/home/muhammad/Desktop# swift -A http://127.0.0.1:80/au
th/v1.0/ -U myaccount:me -K secretpassword list
newcse491
root@mustaqimvm-16301174:/home/muhammad/Desktop# swift -A http://127.0.0.1:80/au
th/v1.0/ -U myaccount:me -K secretpassword list newcse491
myinfo.txt
```

Now, I listed the containers and the file by list command.

swift -A http://127.0.0.1:80/auth/v1.0/ -U myaccount:me -K secretpassword list

swift -A http://127.0.0.1:80/auth/v1.0/ -U myaccount:me -K secretpassword list newcse491

```
root@mustaqimvm-16301174:/home/muhammad/Desktop# swift -A http://127.0.0.1:80/au
th/v1.0/ -U myaccount:me -K secretpassword stat newcse491
               Account: AUTH_myaccount
             Container: newcse491
               Objects: 1
                 Bytes: 60
              Read ACL:
             Write ACL:
               Sync To:
              Sync Key:
         Accept-Ranges: bytes
                  Vary: Accept
      X-Storage-Policy: Policy-0
         Last-Modified: Mon, 21 Sep 2020 01:18:13 GMT
           X-Timestamp: 1600650592.97843
            X-Trans-Id: txe7cf68845ab248eeb5572-005f6800bf
  X-Container-Sharding: False
          Content-Type: text/plain; charset=utf-8
X-Openstack-Request-Id: txe7cf68845ab248eeb5572-005f6800bf
```

To see the containers status we can write stat command.

swift -A http://127.0.0.1:80/auth/v1.0/ -U myaccount:me -K secretpassword stat newcse491

```
root@mustaqimvm-16301174:/home/muhammad/Desktop# swift -A http://127.0.0.1:80/au
th/v1.0/ -U myaccount:me -K secretpassword download newcse491
myinfo.txt [auth 0.009s, headers 0.032s, total 0.032s, 0.003 MB/s]
root@mustaqimvm-16301174:/home/muhammad/Desktop#
```

To download the Object we can write download command.

swift -A http://127.0.0.1:80/auth/v1.0/ -U myaccount:me -K secretpassword download newcse491

It was really not easy to do this task. But at the end of the day I am so happy to creating this on my own. Thankyou!