

*****ISCSI(Internet Small Computer System Interface)*****

Prefer this lecture :-<https://www.youtube.com/watch?v=wYmLB-v4e5Y>

On -client:-

install iscsi package
yum install iscsi-initiator-utils

On server ■

Add two disk

check created disk

lsblk

```
[root@localhost ~]# lsblk
NAME                MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sda                  8:0    0   50G  0 disk
├─sda1               8:1    0    1G  0 part /boot
└─sda2               8:2    0   49G  0 part
   └─centos-root     253:0    0   47G  0 lvm  /
      └─centos-swap  253:1    0    2G  0 lvm  [SWAP]
sdb                  8:16    0   10G  0 disk
sdc                  8:32    0   10G  0 disk
sr0                 11:0    1  4,4G  0 rom   /run/media/root/CentOS 7 x86_64
[root@localhost ~]#
```

create physical volume

pvcree /dev/sdc /dev/sdb

```
[root@localhost ~]# pvcreate /dev/sdc /dev/sdb
Physical volume "/dev/sdc" successfully created.
Physical volume "/dev/sdb" successfully created.
```

create virtual group

vgcreate surya_iscsi /dev/sdb /dev/sdc

create logical volume of 1 gb

lvcreate -n lv_iscsi-disk-01 -L 1G surya_iscsi

```
[root@localhost ~]# lvcreate -n lv_iscsi-disk-01 -L 1G surya_iscsi
Logical volume "lv_iscsi-disk-01" created.
```

show partitions

lvs

```
[root@localhost ~]# lvs
  LV          VG      Attr      LSize   Pool Origin Data%  Meta%  Move Lo
  g Cpy%Sync Convert
  root        centos   -wi-ao---- 46,99g
  swap        centos   -wi-ao----  2,00g
  lv_iscsi-disk-01 surya_iscsi -wi-a----- 1,00g
```

install targetcli

Yum install targetcli

for enter targetcli

targetcli

show targetcli interface

ls

```
/> ls
o- / ..... [..]
  o- backstores ..... [..]
    | o- block ..... [Storage Objects: 0]
    | o- fileio ..... [Storage Objects: 0]
    | o- pscsi ..... [Storage Objects: 0]
    | o- ramdisk ..... [Storage Objects: 0]
  o- iscsi ..... [Targets: 0]
  o- loopback ..... [Targets: 0]
```

→ cd backstores/block

→ create block1 /dev/mapper/surya_iscsi-lv_iscsi--disk--01

```
/backstores/block> create block1 /dev/mapper/surya_iscsi-lv_iscsi--disk--01
Created block storage object block1 using /dev/mapper/surya_iscsi-lv_iscsi--disk--01.
```

```
/backstores/block> █
```

→ cd ../../

→ /create iscsi

```
/> /iscsi create
Created target iqn.2003-01.org.linux-iscsi.localhost.x8664:sn.7be6bc5626dd.
Created TPG 1.
Global pref auto_add_default_portal=true
Created default portal listening on all IPs (0.0.0.0), port 3260.
/> █
```

→ ls

```

/> ls
o- / ..... [....]
  o- backstores ..... [....]
    | o- block ..... [Storage Objects: 1]
    | | o- block1 [/dev/mapper/surya_iscsi-lv_iscsi--disk--01 (1.0GiB) write-thru d
eactivated]
    | | o- alua ..... [ALUA Groups: 1]
    | | o- default_tg_pt_gp ..... [ALUA state: Active/optimized]
    | o- fileio ..... [Storage Objects: 0]
    | o- pscsi ..... [Storage Objects: 0]
    | o- ramdisk ..... [Storage Objects: 0]
  o- iscsi ..... [Targets: 1]
    | o- iqn.2003-01.org.linux-iscsi.localhost.x8664:sn.7be6bc5626dd ..... [TPGs: 1]
    | o- tpg1 ..... [no-gen-acls, no-auth]
    | o- acls ..... [ACLs: 0]
    | o- luns ..... [LUNs: 0]
    | o- portals ..... [Portals: 1]
    | o- 0.0.0.0:3260 ..... [OK]
  o- loopback ..... [Targets: 0]
/> █

```

#underline is created iqn no which work on ip-address

-tpg1=>target portal group

-acl=>provide the access to luns with the help of client iqn no

-luns=>which luns to mapped ar to be accessed by client

-portals=>network cards,ip address port no

—>/iscsi/iqn.2003-01.org.linux-iscsi.localhost.x8664:sn.7be6bc5626dd/tpg1/luns create

/backstores/block/block1

```

/> /iscsi/iqn.2003-01.org.linux-iscsi.localhost.x8664:sn.7be6bc5626dd/tpg1/luns cr
eate /backstores/block/block1
Created LUN 0.
/> █

```

copy client name from client using this command

cat /etc/iscsi/initiatorname.iscsi

```

[root@localhost etc]# cat /etc/iscsi/initiatorname.iscsi
InitiatorName=iqn.1994-05.com.redhat:e753e6b6a464
[root@localhost etc]# █

```

—>/iscsi/iqn.2003-01.org.linux-iscsi.localhost.x8664:sn.7be6bc5626dd/tpg1/acls create

iqn.1994-05.com.redhat:e753e6b6a464

```

*** not valid as: iqn, nod, cat
/> /iscsi/iqn.2003-01.org.linux-iscsi.localhost.x8664:sn.7be6bc5626dd/tpg1/acls cr
eate iqn.1994-05.com.redhat:e753e6b6a464
Created Node ACL for iqn.1994-05.com.redhat:e753e6b6a464
Created mapped LUN 0.
/> █

```

—>ls

```

/> ls
o- / ..... [....]
  o- backstores ..... [....]
    | o- block ..... [Storage Objects: 1]
    |   | o- block1 [/dev/mapper/surya_iscsi-lv_iscsi--disk--01 (1.0GiB) write-thru activated]
    |   |   | o- alua ..... [ALUA Groups: 1]
    |   |   |   | o- default_tg_pt_gp ..... [ALUA state: Active/optimized]
    |   | o- fileio ..... [Storage Objects: 0]
    |   | o- pscsi ..... [Storage Objects: 0]
    |   | o- ramdisk ..... [Storage Objects: 0]
    o- iscsi ..... [Targets: 1]
      o- iqn.2003-01.org.linux-iscsi.localhost.x8664:sn.7be6bc5626dd ..... [TPGs: 1]
        o- tpg1 ..... [no-gen-acls, no-auth]
          o- acls ..... [ACLs: 1]
            o- iqn.1994-05.com.redhat:e753e6b6a464 ..... [Mapped LUNs: 1]
              o- mapped_lun0 ..... [lun0 block/block1 (rw)]
            o- luns ..... [LUNs: 1]
              o- lun0 [block/block1 (/dev/mapper/surya_iscsi-lv_iscsi--disk--01) (default_tg_pt_gp)]
          o- portals ..... [Portals: 1]
            o- 0.0.0.0:3260 ..... [OK]
        o- loopback ..... [Targets: 0]
/> █

```

#This is the final architecture of targetcli

—>Exit

restart targetcli and check status

systemctl restart target

systemctl status target

add port 3260 on firewall

firewall-cmd --add-port=3260/tcp --permanent

firewall-cmd --reload

```

[root@localhost ~]# firewall-cmd --add-port=3260/tcp --permanent
success
[root@localhost ~]# firewall-cmd --reload
success
[root@localhost ~]#

```

On client:-

for search iscsi server

iscsiadm -m discovery -t sendtargets -p 'server-ip'

```

[root@localhost etc]# iscsiadm -m discovery -t sendtargets -p 192.168.174.145
192.168.174.145:3260,1 iqn.2003-01.org.linux-iscsi.localhost.x8664:sn.7be6bc5626dd
[root@localhost etc]# █

```

copy target ipn no from server machine

targetcli # copy the no
ls

```
/> ls
o- / ..... [..]
  o- backstores ..... [..]
    | o- block ..... [Storage Objects: 1]
    | | o- block1 [/dev/mapper/surya_iscsi-lv_iscsi--disk--01 (1.0GiB) write-thru activated]
    | | | o- alua ..... [ALUA Groups: 1]
    | | | | o- default_tg_pt_gp ..... [ALUA state: Active/optimized]
    | | o- fileio ..... [Storage Objects: 0]
    | | o- pscsi ..... [Storage Objects: 0]
    | | o- ramdisk ..... [Storage Objects: 0]
  o- iscsi ..... [Targets: 1]
    | o- iqn.2003-01.org.linux-iscsi.localhost.x8664:sn.7be6bc5626dd ..... [TPGs: 1]
    | | o- tpg1 ..... [no-gen-acls, no-auth]
    | | | o- acls ..... [ACLs: 1]
    | | | | o- iqn.1994-05.com.redhat:e753e6b6a464 ..... [Mapped LUNs: 1]
    | | | | | o- mapped_lun0 ..... [lun0 block/block1 (rw)]
    | | | o- luns ..... [LUNs: 1]
    | | | | o- lun0 [block/block1 (/dev/mapper/surya_iscsi-lv_iscsi--disk--01) (default_tg_pt_gp)]
    | | o- portals ..... [Portals: 1]
    | | | o- 0.0.0.0:3260 ..... [OK]
  o- loopback ..... [Targets: 0]
/>
```

iqn.2003-01.org.linux-iscsi.localhost.x8664:sn.7be6bc5626dd

again run command on client for attach with server

iscsiadm -m node -T iqn.2003-01.org.linux-iscsi.localhost.x8664:sn.7be6bc5626dd
192.168.174.145 -l # write iqn no & server ip

```
[root@localhost ~]# iscsiadm -m node -T iqn.2003-01.org.linux-iscsi.localhost.x8664:sn.7be6bc5626dd 192.168.174.145 -l
Logging in to [iface: default, target: iqn.2003-01.org.linux-iscsi.localhost.x8664:sn.7be6bc5626dd, portal: 192.168.174.145,3260] (multiple)
Login to [iface: default, target: iqn.2003-01.org.linux-iscsi.localhost.x8664:sn.7be6bc5626dd, portal: 192.168.174.145,3260] successful.
```

#show disk

lsblk

```
[root@localhost ~]# lsblk
NAME        MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sda          8:0    0   50G  0 disk
├─sda1       8:1    0    1G  0 part /boot
├─sda2       8:2    0   49G  0 part
│   └─centos-root 253:0    0   47G  0 lvm  /
│       └─centos-swap 253:1    0    2G  0 lvm  [SWAP]
sdb          8:16    0    1G  0 disk
sr0         11:0    1  4,4G  0 rom  /run/media/root/CentOS 7 x86_64
[root@localhost ~]#
```

Successfully mapped of 1 gb storage by iscsi server

show detail of the luns

cat /proc/scsi/scsi

```
[root@localhost ~]# cat /proc/scsi/scsi
Attached devices:
Host: scsi0 Channel: 00 Id: 00 Lun: 00
  Vendor: VMware, Model: VMware Virtual S Rev: 1.0
  Type:   Direct-Access                      ANSI SCSI revision: 02
Host: scsi2 Channel: 00 Id: 00 Lun: 00
  Vendor: NECVMWar Model: VMware IDE CDR10 Rev: 1.00
  Type:   CD-ROM                            ANSI SCSI revision: 05
Host: scsi3 Channel: 00 Id: 00 Lun: 00
  Vendor: LIO-ORG Model: blockl              Rev: 4.0
  Type:   Direct-Access                      ANSI SCSI revision: 05
[root@localhost ~]# █
```

mount point the storage

mkfs.ext4 /dev/sdb

```
[root@localhost ~]# mkfs.ext4 /dev/sdb
mke2fs 1.42.9 (28-Dec-2013)
/dev/sdb est le périphérique en intégralité, pas seulement une partition !
Procéder malgré tout ? (o,n) o
Étiquette de système de fichiers=
Type de système d'exploitation : Linux
Taille de bloc=4096 (log=2)
Taille de fragment=4096 (log=2)
« Stride » = 0 blocs, « Stripe width » = 1024 blocs
65536 i-noeuds, 262144 blocs
13107 blocs (5.00%) réservés pour le super utilisateur
Premier bloc de données=0
Nombre maximum de blocs du système de fichiers=268435456
8 groupes de blocs
32768 blocs par groupe, 32768 fragments par groupe
8192 i-noeuds par groupe
Superblocs de secours stockés sur les blocs :
    32768, 98304, 163840, 229376

Allocation des tables de groupe : complété
Écriture des tables d'i-noeuds : complété
Création du journal (8192 blocs) : complété
Écriture des superblocs et de l'information de comptabilité du système de
fichiers : complété
```

now u can do anything with iscsi shared storage