

Lustre File System Installation Guide

This guide provides step-by-step instructions for installing the Lustre file system on a CentOS 8 environment. Please follow the steps carefully to ensure proper configuration.

Initial Setup:

1. Create four VMs from the Centos-8 Image.
2. Attach an additional HDD to OSS-1, OSS-2, and MGS-MDS VMs.

Common Operations for All VMs:

- Install nano and disable firewalld:

```
yum install nano && systemctl stop firewalld && systemctl disable firewalld
```

- Disable SELinux:

Edit /etc/selinux/config to set SELinux as disabled.

Then execute: `setenforce 0`

- Configure the Lustre repository:

Edit /etc/yum.repos.d/lustre.repo and add the following:

```
[lustre-server]
```

```
name=lustre-server
```

```
baseurl=https://downloads.whamcloud.com/public/lustre/latest-release/el8.9/server
```

```
gpgcheck=0
```

```
[lustre-client]
```

```
name=lustre-client
```

```
baseurl=https://downloads.whamcloud.com/public/lustre/latest-release/el8.9/client
```

gpgcheck=0

[e2fsprogs-wc]

name=e2fsprogs-wc

baseurl=https://downloads.whamcloud.com/public/e2fsprogs/latest/el8

gpgcheck=0

- Update and install Lustre packages:

yum update && yum upgrade -y e2fsprogs

yum install -y lustre-tests

- Configure network interface:

Edit /etc/modprobe.d/lnet.conf and add: options lnet networks="tcp0(ens33)" (replace ens33 with your interface name)

Then execute:

modprobe lustre

lsmod | grep lustre

modprobe lnet

lsmod | grep lnet

lctl network up

- Optional: Test network connection (example):

lctl ping 192.168.1.34@tcp0

- Reboot all VMs after configuration.

Configuration for MDS-MGS VM:

- Partition and format the extra attached HDD:

fdisk /dev/nvme0n2

mkfs.ext4 /dev/nvme0n2p1

- Create and mount the Lustre filesystem:

```
mkfs.lustre --reformat --fsname=lustrefs --mgs --mdt --index=0 /dev/nvme0n2p1
```

```
mkdir /mnt/mdt
```

```
mount -t lustre /dev/nvme0n2p1 /mnt/mdt/
```

Configuration for OSS-OST VM-1:

- Prepare the disk and create the OST:

```
mkfs.ext4 /dev/nvme0n2
```

```
mkfs.lustre --reformat --ost --fsname=lustrefs --mgsgroup=192.168.1.30@tcp --index=0
```

```
/dev/nvme0n2
```

```
mkdir /ostoss_mount0
```

```
mount -t lustre /dev/nvme0n2 /ostoss_mount0
```

Configuration for OSS-OST VM-2:

- Follow the same steps as for VM-1, but use --index=1 for mkfs.lustre.

Configuration for Client VMs:

- Ensure connectivity to the MGS node:

```
lctl ping 192.168.1.30@tcp0
```

- Mount the Lustre filesystem:

```
mkdir /mnt/lustre
```

```
mount -t lustre 192.168.1.30@tcp0:/lustrefs /mnt/lustre
```

- Test file creation (optional):

```
cd /mnt/lustre
```

```
dd if=/dev/zero of=filename bs=2G count=1
```