

# CMAC 3990 –Systems Administration and Operations

## Fall 2025 – Section 200

### Assignment 12 – 72 points

Create a new network bond interface on the private network, add the enp9s0 and enp10s0 interfaces to the bond, and configure the IP address 192.168.1.1##/24 on the interface: (5 points)

```
nmcli con add type bond ifname mybond1 bond.options "mode=balance-rr,miimon=100"
nmcli con add type ethernet ifname enp9s0 master bond-mybond1
nmcli con add type ethernet ifname enp10s0 master bond-mybond1
nmcli con mod bond-mybond1 ipv4.method manual ipv4.addresses 192.168.1.1##/24
```

Create a new virtual IPv4 address on the new bond and bring it online: (5 points)

```
nmcli con mod "bond-mybond1" +ipv4.addresses "192.168.1.2##/24"
nmcli con up bond-mybond1
```

Add an IPv6 address to the new bond interface and bring it online: (5 points)

```
nmcli con mod "bond-mybond1" ipv6.method manual ipv6.address "fd06:8765:4321:face:1##::1/64"
nmcli con up bond-mybond1
```

Add VLAN 399 to the new network bond interface: (5 points)

```
nmcli con add type vlan con-name "bond-mybond1.399" dev mybond1 id 399
nmcli con mod "bond-mybond1.399" ipv4.method manual ipv4.address "192.168.1.1##.1/24"
nmcli con up "bond-mybond1.399"
```

Cleanup existing docker installation, install docker-compose & podman packages, and configure: (10 points)

Remove any of the old or incorrect docker stuff we previously installed:

```
docker stop $(docker ps -a -q)
docker rm $(docker ps -a -q)
echo y | docker system prune -a
dnf -y remove docker
```

Install, start, and enable the new docker and podman packages

```
dnf config-manager --add-repo https://download.docker.com/linux/rhel/docker-ce.repo
dnf -y install docker-ce docker-ce-cli containerd.io docker-buildx-plugin
dnf -y install docker-compose-plugin podman
systemctl enable docker --now
systemctl enable podman.socket --now
```

Open a new firewall port, change the existing Apache port setting, and restart Apache

```
firewall-cmd --zone=public --add-port=8081/tcp
firewall-cmd --zone=public --add-port=8081/tcp --permanent
sed -i 's/8080/8081/g' /usr/local/apache2/conf/httpd.conf
/usr/local/apache2/bin/apachectl restart
```

Change the existing DNS server settings to accommodate ownCloud!

Edit the /etc/named.conf file and update the ipv4 listen-on port option:

```
listen-on port 53 { 147.64.243.1##; 192.168.1.1##; };
```

**Deploy the ownCloud docker compose package and environment config file: (5 points)**

```
mkdir -p /docker/owncloud
cd /docker/owncloud
wget https://jpatalon.cs.edinboro.edu/cmac3990/classfiles/owncloud.docker-
compose.yml -O ./docker-compose.yml

cat << EOF > .env
OWNCLOUD_VERSION=10.15
OWNCLOUD_DOMAIN=localhost:8080
OWNCLOUD_TRUSTED_DOMAINS=localhost,147.64.243.1##
ADMIN_USERNAME=admin
ADMIN_PASSWORD=admin
HTTP_PORT=8080
EOF

docker compose up -d
```

**Create a new disk partition on device /dev/vdb: (10 points)**

**Edit the /dev/vdb disk with fdisk**

```
fdisk /dev/vdb
```

**New primary partition #1, 1GB disk size**

```
n, p, 1, 2048, +1G
```

**Change the partition type to Linux LVM**

```
t, 8e
```

**Write the changes to disk**

```
w
```

**Scan for new partitions**

```
partprobe
```

**Create a new physical volume**

```
pvcreate /dev/vdb1
```

**Extend the existing cs volume group**

```
vgextend cs /dev/vdb1
vgscan
```

**Create a new lv\_data logical volume**

```
lvcreate -n lv_data -l 100%FREE cs
```

**Create a new XFS file system**

```
mkfs.xfs /dev/cs/lv_data
```

**Make a new directory and mount the new filesystem...**

```
mkdir -p /data
echo "/dev/mapper/cs-lv_data /data xfs defaults 0 0" >> /etc/fstab
systemctl daemon-reload
mount -a
```

Deploy the NextCloud docker package on port 81, and open the firewall: (5 points)

```
cd /docker
docker pull nextcloud
docker run -d -p 81:80 --name=nextcloud_1 --restart=always nextcloud
firewall-cmd --zone=public --add-port=81/tcp
firewall-cmd --zone=public --add-port=81/tcp --permanent
```

Log in to the web ui on port 81 and create an admin account (USE SOCKS PROXY!)

`http://147.64.243.1##:81`

Leave the storage and database as default

Optionally install the additional recommended apps

Make sure your machine is up to date, reboot, and make sure everything still works! (5 points)

Run the following commands to reinitialize the containers if they did not restart correctly:

```
cd /docker/owncloud
docker compose up -d
cd /docker
docker run -d -p 81:80 --name=nextcloud_1 --restart=always nextcloud
```

Create a document with a list of the commands you ran in this exercise, and an explanation of each command in plain English. Include in your document the specifications, names, and sizes of each disk, partition, disk group, and logical volume on your machine after completing the above tasks. Upload this document to the HW12 folder in D2L. (17 points)

Download and run the check script. Check script must be run for config points!

```
curl -O https://jpatalon.cs.edinboro.edu/cmac3990/classfiles/assignment12check.sh
bash assignment12check.sh
```