

2. 센트OS 설치 및 기본 환경 설정

도커 이미지 pull

```
Hong-YoonKi@Hong-YoonKi-MacBookAir ~ % docker pull centos:7
7: Pulling from library/centos
[2d473b07cdd5: Pull complete
Digest: sha256:be65f488b7764ad3638f236b7b515b3678369a5124c47b8d32916d6487418ea4
Status: Downloaded newer image for centos:7
[docker.io/library/centos:7
```

도커 데스크톱을 이용해서 설치가 가능하다

도커 네트워크 설정

요구조건

```
BROADCAST=192.168.119.255 ,
NETWORK=192.168.119.0 ,
NETMASK=255.255.255.0
GATEWAY=192.168.119.2 ,
DNS=168.126.63.1
```

네트워크 컨테이너 생성

```
docker network create --subnet=192.168.119.0/24 --gateway=192.168.119.2 mynet
```

```
[Hong-YoonKi@Hong-YoonKi-MacBookAir ~ % docker network ls
NETWORK ID          NAME                DRIVER              SCOPE
3ee6ac5f36ca        bridge             bridge              local
2f1da81d638c        host               host                local
cfce6c34329c        none              null                local
Hong-YoonKi@Hong-YoonKi-MacBookAir ~ % docker network create --subnet=192.168.119.0/24 --gateway=192.168.119.2 mynetwork
0292cc90f0a1ffaf050888803de0e3fb86f7bb2c8631c48c5882ec801d9bf152
```

생성된 network 확인

```

    name: mynet,
[Hong-YoonKi@Hong-YoonKi-MacBookAir ~ % docker network inspect mynet
[
  {
    "Name": "mynet",
    "Id": "1a51f8237d6cc8d49b912850a7b4d709c15be4d53f4f46a15dfca43e7ad86bd4",
    "Created": "2023-05-04T05:45:51.287937Z",
    "Scope": "local",
    "Driver": "bridge",
    "EnableIPv6": false,
    "IPAM": {
      "Driver": "default",
      "Options": {},
      "Config": [
        {
          "Subnet": "192.168.119.0/24",
          "Gateway": "192.168.119.2"
        }
      ]
    },
    "Internal": false,
    "Attachable": false,
    "Ingress": false,
    "ConfigFrom": {
      "Network": ""
    },
    "ConfigOnly": false,
    "Containers": {},
    "Options": {},
    "Labels": {}
  }
]

```

CentOS 컨테이너 생성 및 계정 생성

컨테이너 생성

```

# 고정 ip 할당해서 생성 및 실행
docker run -it --name DBSVR -p 1520:1520 --net mynet --ip 192.168.119.119 centos:7
# ip 주소 확인
docker inspect -f '{{range .NetworkSettings.Networks}}{{.IPAddress}}{{end}}' DBSVR

```

```

[Hong-YoonKi@Hong-YoonKi-MacBookAir ~ % docker run -it --name DBSVR -p 1520:1520 --net mynet --ip 192.168.119.119 centos:7

```

도커 컨테이너 생성에 성공함

```

[Hong-YoonKi@Hong-YoonKi-MacBookAir ~ % docker inspect -f '{{range .NetworkSettings.Networks}}{{.IPAddress}}{{end}}' DBSVR
192.168.119.119

```

고정 ip 할당도 성공함

oracle 계정 및 그룹 생성

```
adduser oracle
```

```
[[root@cb5bfb303f88 /]# ls
anaconda-post.log bin dev etc home lib lib64 media mnt opt proc root run sbin srv sys tmp usr var
[[root@cb5bfb303f88 /]# cat /etc/passwd
root:x:0:0:root:/root:/bin/bash
bin:x:1:1:bin:/bin:/sbin/nologin
daemon:x:2:2:daemon:/sbin:/sbin/nologin
adm:x:3:4:adm:/var/adm:/sbin/nologin
lp:x:4:7:lp:/var/spool/lpd:/sbin/nologin
sync:x:5:0:sync:/sbin:/bin/sync
shutdown:x:6:0:shutdown:/sbin:/sbin/shutdown
halt:x:7:0:halt:/sbin:/sbin/halt
mail:x:8:12:mail:/var/spool/mail:/sbin/nologin
operator:x:11:0:operator:/root:/sbin/nologin
games:x:12:100:games:/usr/games:/sbin/nologin
ftp:x:14:50:FTP User:/var/ftp:/sbin/nologin
nobody:x:99:99:Nobody:/:/sbin/nologin
systemd-network:x:192:192:systemd Network Management:/:/sbin/nologin
dbus:x:81:81:System message bus:/:/sbin/nologin
oracle:x:1000:1000::/home/oracle:/bin/bash
```

oracle 계정이 생성됨

```
[[root@cb5bfb303f88 /]# groupadd dba
[[root@cb5bfb303f88 /]# id dba
id: dba: no such user
[[root@cb5bfb303f88 /]# usermod -aG dba oracle
[[root@cb5bfb303f88 /]# id dba
id: dba: no such user
[[root@cb5bfb303f88 /]# grep dba /etc/group
dba:x:1001:oracle
```

dba 그룹 생성해서 oracle 계정 추가

```
# dba 그룹 생성
groupadd dba
# oracle user dba에 추가
usermod -aG dba oracle
# dba 그룹의 사용자 확인
grep dba /etc/group
```

리눅스 기본 패키지 설치

yum update

```
yum update
```

```

Updated:
bash.x86_64 0:4.2.46-35.el7_9
centos-release.x86_64 0:7.9.2009.1.el7.centos
device-mapper.x86_64 7:1.02.170-6.el7_9.5
glibc.x86_64 0:2.56.1-9.el7_9
kpartx.x86_64 0:0.4.9-136.el7_9
libmount.x86_64 0:2.23.2-65.el7_9.1
libxml2-python.x86_64 0:2.9.1-6.el7_9.6
nss-softokn-freebl.x86_64 0:3.79.0-4.el7_9
openldap.x86_64 0:2.4.44-25.el7_9
rpm.x86_64 0:4.11.3-48.el7_9
systemd.x86_64 0:219-78.el7_9.7
vim-minimal.x86_64 2:7.4.629-8.el7_9

bind-license.noarch 32:9.11.4-26.P2.el7_9.13
coreutils.x86_64 0:8.22-24.el7_9.2
device-mapper-libs.x86_64 7:1.02.170-6.el7_9.5
glibc.x86_64 0:2.17-326.el7_9
krb5-libs.x86_64 0:1.15.1-55.el7_9
libsmartcols.x86_64 0:2.23.2-65.el7_9.1
nss.x86_64 0:3.79.0-5.el7_9
nss-sysinit.x86_64 0:3.79.0-5.el7_9
openssl-libs.x86_64 1:1.0.2k-26.el7_9
rpm-build-libs.x86_64 0:4.11.3-48.el7_9
systemd-libs.x86_64 0:219-78.el7_9.7
xz.x86_64 0:5.2.2-2.el7_9

binutils.x86_64 0:2.27-44.base.el7_9.1
curl.x86_64 0:7.29.0-59.el7_9.1
diffutils.x86_64 0:3.3-6.el7_9
glibc-common.x86_64 0:2.17-326.el7_9
libblkid.x86_64 0:2.23.2-65.el7_9.1
libuuid.x86_64 0:2.23.2-65.el7_9.1
nss.x86_64 0:3.79.0-5.el7_9
nss-tools.x86_64 0:3.79.0-5.el7_9
python.x86_64 0:2.7.5-92.el7_9
rpm-libs.x86_64 0:4.11.3-48.el7_9
tzdata.noarch 0:2023c-1.el7
xz-libs.x86_64 0:5.2.2-2.el7_9

ca-certificates.noarch 0:2022.2.54-74.el7_9
cyrus-sasl-lib.x86_64 0:2.1.26-24.el7_9
expat.x86_64 0:2.1.0-15.el7_9
gzip.x86_64 0:1.5-11.el7_9
libcurl.x86_64 0:7.29.0-59.el7_9.1
libxml2.x86_64 0:2.9.1-6.el7_9.6
nss-softokn.x86_64 0:3.79.0-4.el7_9
nss-util.x86_64 0:3.79.0-1.el7_9
python-libs.x86_64 0:2.7.5-92.el7_9
rpm-python.x86_64 0:4.11.3-48.el7_9
util-linux.x86_64 0:2.23.2-65.el7_9.1
zlib.x86_64 0:1.2.7-21.el7_9

Complete!

```

net-tools 설치

```
yum install net-tools
```

```

Installed:
  net-tools.x86_64 0:2.0-0.25.20131004git.el7

Complete!

```

sudo 설치

```
yum install -y sudo
```

```

Installed:
  sudo.x86_64 0:1.8.23-10.el7_9.3

Complete!

```

systemd, **systemd-sysv**, **systemd-udev**, **initscripts** 패키지 설치 ⇒ service, systemctl 사용

```
yum install -y systemd systemd-sysv systemd-udev initscripts
```

```

Installed:
  initscripts.x86_64 0:9.49.53-1.el7_9.1
  systemd-sysv.x86_64 0:219-78.el7_9.7

Dependency Installed:
  iproute.x86_64 0:4.11.0-30.el7
  sysvinit-tools.x86_64 0:2.88-14.dsfc.el7
  iptables.x86_64 0:1.4.21-35.el7
  libnml.x86_64 0:1.0.3-7.el7
  libnetfilter_conntrack.x86_64 0:1.0.6-1.el7_3
  libnftnl.x86_64 0:1.0.1-4.el7

Complete!

```

```

[[root@cb5bfb303f88 bin]# systemctl
Failed to get D-Bus connection: Operation not permitted
[[root@cb5bfb303f88 bin]# service
Usage: service < option > | --status-all | [ service_name [ command | --full-restart ] ]

```

service : 성공

systemctl : 오류 발생

systemctl 오류를 해결하는 방법

하나의 완성된 리눅스 환경을 만들어 이미지로 변환 후 이를 복제하여 컨테이너로 생성, 서버로 사용할 예정이다.

따라서 리눅스 환경을 완벽하게 구축한 이후, 실제로 서버로 사용할 컨테이너 run 시에

```
$ docker run --privileged -d --name mycentos centos:7 /sbin/init
```

다음과 같은 옵션을 넣어주면 해결이 가능하다.

jdk 11version 설치

```
yum -y install java-11-openjdk-devel
```

11버전을 사용한 이유 : 엔터프라이즈 개발환경에서 가장 많이 쓰이는 LTS 버전이 11 버전이라 11버전을 사용함.

```
Installed:
  java-11-openjdk-devel.x86_64 1:11.0.19.0.7-1.el7_9

Dependency Installed:
  alsa-lib.x86_64 0:1.1.8-1.el7          avahi-libs.x86_64 0:0.6.31-20.el7      copy-jdk-configs.noarch 0:3.3-11.el7_9      cups-libs.x86_64 1:1.6.3-51.el7
  dejavu-fonts-common.noarch 0:2.33-6.el7  dejavu-sans-fonts.noarch 0:2.33-6.el7      fontconfig.x86_64 0:2.13.0-4.3.el7          fontpackages-filesystem.noarch 0:1.44-8.el7
  freetype.x86_64 0:2.8-14.el7_9.1      giflib.x86_64 0:4.1.6-9.el7           graphite2.x86_64 0:1.3.10-1.el7_3          harfbuzz.x86_64 0:1.7.5-2.el7
  java-11-openjdk.x86_64 1:11.0.19.0.7-1.el7_9  java-11-openjdk-headless.x86_64 1:11.0.19.0.7-1.el7_9  jpackage-tools.noarch 0:3.4.1-11.el7          libICE.x86_64 0:1.0.9-9.el7
  libSM.x86_64 0:1.2.2-2.el7           libX11.x86_64 0:1.6.7-4.el7_9         libX11-common.noarch 0:1.6.7-4.el7_9          libkhu.x86_64 0:1.0.8-2.1.el7
  libXext.x86_64 0:1.3.3-3.el7          libXi.x86_64 0:1.7.9-1.el7           libXrender.x86_64 0:0.9.10-1.el7          libltst.x86_64 0:1.2.3-1.el7
  libfontenc.x86_64 0:1.1.3-3.el7       libjpeg-turbo.x86_64 0:1.2.90-8.el7      libpng.x86_64 2:1.5.13-8.el7             libxcb.x86_64 0:1.13-1.el7
  libxslt.x86_64 0:1.1.28-6.el7         libktp-tools.x86_64 0:1.0.17-2.el7      pcsc-lite-libs.x86_64 0:1.8.8-8.el7         python-javapackages.noarch 0:3.4.1-11.el7
  python-lxml.x86_64 0:3.2.1-4.el7       ttmkfdir.x86_64 0:3.0.9-42.el7         tzdata-java.noarch 0:2023c-1.el7          xorg-x11-font-utils.x86_64 1:7.5-21.el7
  xorg-x11-fonts-Type1.noarch 0:7.5-9.el7

Complete!
```

nano 설치

```
yum install nano
```

```
Downloading packages:
nano-2.3.1-10.el7.x86_64.rpm
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Installing : nano-2.3.1-10.el7.x86_64
  Verifying   : nano-2.3.1-10.el7.x86_64

Installed:
  nano.x86_64 0:2.3.1-10.el7

Complete!
```

wget 설치

```
yum install wget
```

```
Downloading packages:
wget-1.14-18.el7_6.1.x86_64.rpm
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Installing : wget-1.14-18.el7_6.1.x86_64
install-info: No such file or directory for /usr/share/info/wget.info.gz
  Verifying   : wget-1.14-18.el7_6.1.x86_64

Installed:
  wget.x86_64 0:1.14-18.el7_6.1

Complete!
```

unzip 설치

```
yum install unzip
```

```
Downloading packages:
unzip-6.0-24.el7_9.x86_64.rpm
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Installing : unzip-6.0-24.el7_9.x86_64
  Verifying  : unzip-6.0-24.el7_9.x86_64

Installed:
  unzip.x86_64 0:6.0-24.el7_9
```

Complete! —

ftp 설치

```
yum install ftp
```

```
Installed:
  ftp.x86_64 0:0.17-67.el7
```

Complete! —

이미지 파일 생성

생성된 표준 CentOS 컨테이너를 이미지 파일로 변환하여 이를 복제해 웹, was, dbms 서버 컨테이너를 생성한다.

```
# 도커 이미지 생성
docker commit DBSVR std_setting_os_img
# 도커 이미지 목록 확인
docker image ls
```

```
[Hong-YoonKi@Hong-YoonKi-MacBookAir ~ % docker commit DBSVR std_setting_os_img
sha256:423b557a5548f8b8fe0da30798bfef20951603c3551dec418c08c3f21badfe86
[Hong-YoonKi@Hong-YoonKi-MacBookAir ~ % docker image ls
REPOSITORY          TAG          IMAGE ID      CREATED        SIZE
std_setting_os_img   latest       423b557a5548  7 seconds ago  761MB
centos               7           eeb6ee3f44bd  19 months ago  204MB
truevoly/oracle-12c  latest      21789d4d876f  4 years ago    5.7GB
```

환경구축용 컨테이너 삭제

```
docker ps
docker stop DBSVR
docker rm DBSVR
```

```
[Hong-YoonKi@Hong-YoonKi-MacBookAir ~ % docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS                               NAMES
cb5bfb303f88   centos:7  "/bin/bash"             5 hours ago   Up 5 hours    0.0.0.0:1520->1520/tcp, :::1520->1520/tcp  DBSVR
[Hong-YoonKi@Hong-YoonKi-MacBookAir ~ % docker stop DBSVR
DBSVR
[Hong-YoonKi@Hong-YoonKi-MacBookAir ~ % docker rm DBSVR
DBSVR
```

이미지 파일 생성하여 더이상 불필요한 컨테이너를 삭제해 용량을 확보한다.