

# [AWS] Route53 + Workmail + SES

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- 1.
2. route53 가
3. Workmail
5. Workmail Add Domain
6. Domain record 가
7. Workmail user
8. Workmail Test

[ ] <https://my.freenom.com/clientarea.php>

*"freenom"*

< >  
1. 가 TLD 가 => (.tk, .ml, .ga, .gq, .cf)  
2. - 1 ,  
3. 2 가 가 ,  
freenom  
4. DNS - DNS Freenom 가  
.

1. freenom 가
2. domain
  - 1) [Register a new Domain]
  - 2) TLD [Get it now!] Selected

Checkout

3) [Use DNS] - Use Freenom DNS Service IP address  
==> Domain IP  
4) Total Due Today : \$0.00USD -> ->  
Complete Order

## Route53 가

route 53 - -

1. : <freenom >
2. - ( .)
- 3.

## WorkMail

Workmail - Create organization

1. Create organization
2. Email domain : Existing Route 53 domain  
- Route 53 hosted zone : <Freenom >
3. Alias : alias name  
- Workmail url  
. (https://<alias>.awsapps.com/mail)
4. Advanced settings  
- User directory :
  - 1) Create Amazon Workmail directory - 가  
Workmail
  - 2) Use existing directory - AWS Directory Service  
Simple AD, AD, AD , workmail가
- Encryption :
  - 1) use Amazon WorkMail managed key - AWS
  - 2) Use existing customer managed key(CMK) - AWS KMS  
customer managed key(CMK) key
5. Create organization

# Workmail Add Domain

WorkMail-Organizations-< organization>-Domains

1. Add domain
2. Domain name - route53 domain
3.
  - Domain ownership : TXT
  - WorkMail configuration : Workmail MX, CNAME
  - Improved security : (DKIM, SPF, DMARC)
  - Improved email delivery
4. Organization - Domains [my domain] "Set as default" default [my domain]

## Domain record 가

Route 53 - - < > - -

1. subdomain (main domain X)
2. Type (TXT, MX, CNAME..)
- 3.

\*\* "Workmail Add Domain" 3 가 \*\*

리플릭 [redacted] 정보 영역 삭제 | 레코드 테스트 | 쿼리 로깅 구성

▶ 호스팅 영역 세부 정보 호스팅 영역 편집

레코드(12) | DNSSEC 서명 | 호스팅 영역 태그(0)

레코드 (12) 정보 레코드 삭제 | 영역 파일 가져오기 | 레코드 생성

Automatic 모드는 최상의 필터 결과에 최적화된 현재 검색 동작입니다. 모드를 변경하려면 설정(settings)으로 이동합니다.

Q 속성 또는 값을 기준으로 레코드 필터링 유형 ▼ | 라우팅 정책 ▼ | 변경 ▼ < 1 > ⌂

레코드 이름	유형	라우팅 ...	차별...	값/트래픽 라우팅 대상
[redacted]	MX	단순	-	10 inbound-smtp.us-east-1.amazonaws.com.
[redacted]	NS	단순	-	ns-1720.awsdns-23.co.uk. ns-420.awsdns-52.com. ns-890.awsdns-47.net. ns-1473.awsdns-56.org.
[redacted]	SOA	단순	-	ns-1720.awsdns-23.co.uk. awsdns-hostmaster.amazon.com. 1 7200 900 1209600 86400
[redacted]	TXT	단순	-	"v=spf1 include:amazonses.com -all"
._amazonses.[redacted]	TXT	단순	-	"B+7wIPb7lyE5qb3/je5A/um+8xcWLS/grg12Pfd8zgw="
._dmarc.[redacted]	TXT	단순	-	"v=DMARC1,p=quarantine,pct=100,fo=1"
5jsok5tip5u5tqwya3x4w5cgb5s37q3y_._domainkey.[redacted]	CNAME	단순	-	5jsok5tip5u5tqwya3x4w5cgb5s37q3y.dkim.amazonses.com
pn7t6g7j23fregjfrt4hmvv7xwbp7pb_._domainkey.[redacted]	CNAME	단순	-	pn7t6g7j23fregjfrt4hmvv7xwbp7pb.dkim.amazonses.com
uqwt5vz7v72xn4utpedxcqa3kneekk6_._domainkey.[redacted]	CNAME	단순	-	uqwt5vz7v72xn4utpedxcqa3kneekk6.dkim.amazonses.com
autodiscover.[redacted]	CNAME	단순	-	autodiscover.mail.us-east-1.awsapps.com.

# Workmail User

Workmail - organization - Users

User details

1. User name - user name AWS WorkMail 가
2. Display name - name

Email setup

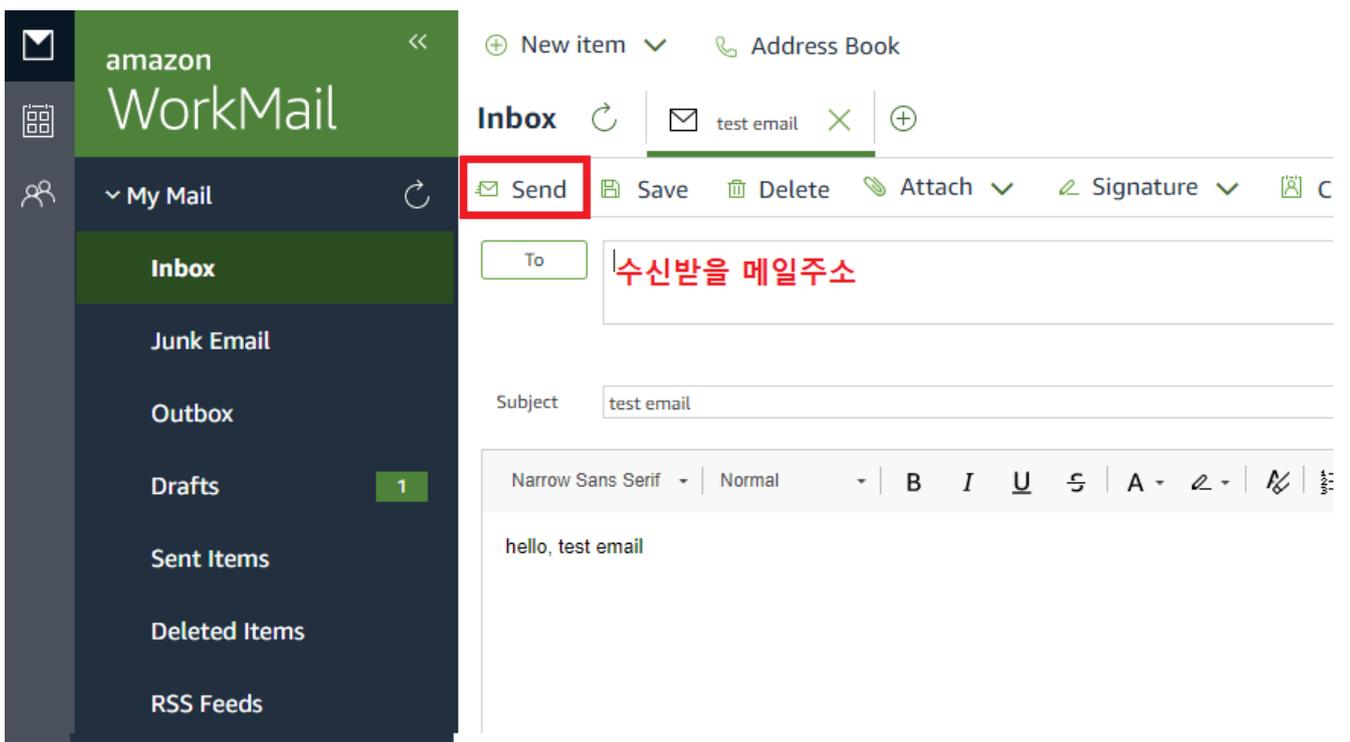
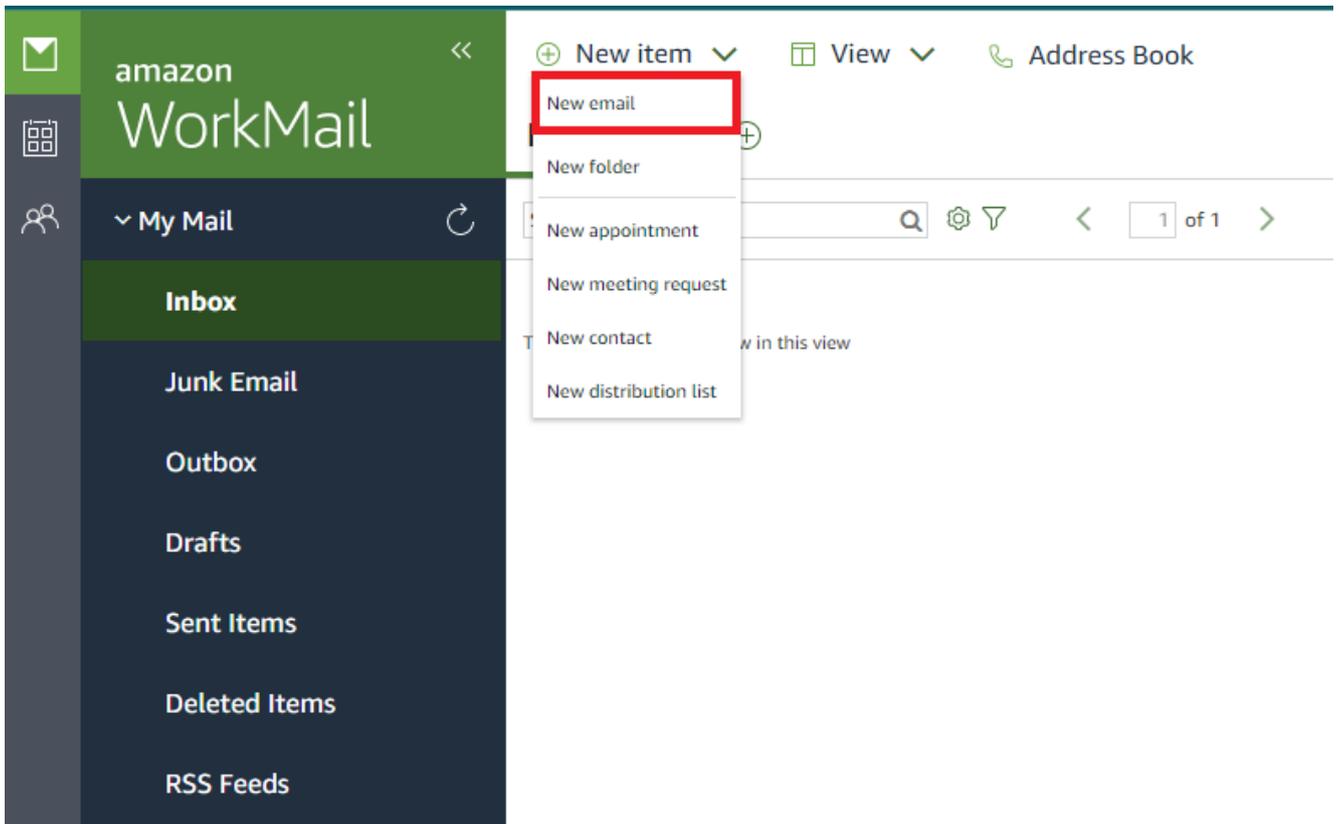
1. Email address
  - <User name>@<workmail >
2. Password , Repeat password
  - Email

# Workmail Test

<Mail login>

1. WorkMail - Organizations - [my organization] url
  - https://xxx.awsapps.com/mail
2. Workmail user (Email address x), user

< >



# test email



test test <testtest@>  
받는 사람

testtest@jaesung.tk의 전자 메일이 수신되지 않는

hello, test email

< >

보내기(S)    받는 사람(T)    test test <testtest@>  
참조(C)

---

제목(U)    RE: test email

## Test mail

New item   Print   View   Address Book

Inbox

Search globally   1 of 1

Reply   Reply All   Forward

From   Received Today, 2:50 pm  
RE: test email

RE: test email

To test test

Test test

# [Linux] LVM

- 1

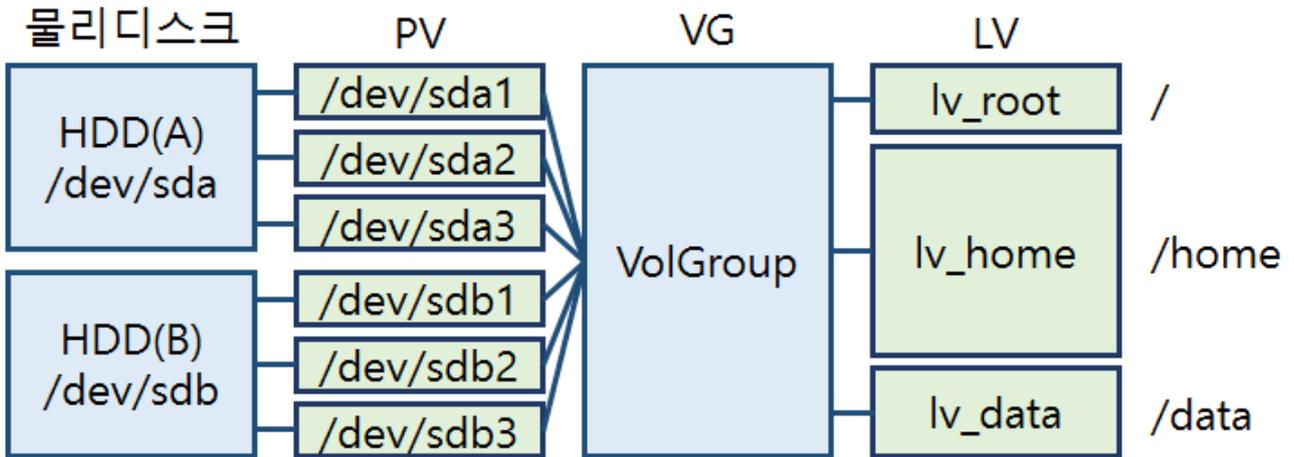
## 1. LVM ?

HDD

1.

LVM

)



## 2. LVM

### 1) LVM

LVM

### 2) PV(Physical Volume) :

/dev/sda1, /dev/sdb1, /dev/sdc1

LVM

LVM

PV

(PV PE(Physical Extent) )

- PE( Physical Extent) :

PV

4MB

### 3) VG ( Volume Group) :

Physical Volume (PE가 ?)

PV PV VG  
LV

### 4) LV (Logical Volume) :

Volume Group 가

## 3. LVM

/home LVM

/home 가

```
# df -Th
```

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/sda2	xfs	30G	1.3G	29G	5%	/
/dev/sda1	xfs	1014M	140M	875M	14%	/boot
/dev/sda3	ext4	68G	55M	65G	1%	/home

### 1) LVM

```
-  
# rpm -qa |grep lvm
```

```
-  
# yum install lvm2
```

```
-  
# systemctl enable lvm2-monitor
```

2)

LVM .( fdisk -l /dev/sda )

LVM

LVM

/dev/sda3 (/home)

LVM

-

```
# fdisk -l /dev/sda
```

Device	Boot	Start	End	Blocks	Id	System
/dev/sda1	*	2048	2099199	1048576	83	Linux
/dev/sda2		2099200	65013759	31457280	83	Linux
/dev/sda3		65013760	209715199	72350720	8e	Linux

-

```
# fdisk /dev/sda
```

```
Command (m for help): **p**
```

```
Disk /dev/sda: 107.4 GB, 107374182400 bytes, 209715200 sectors
```

```
Units = sectors of 1 * 512 = 512 bytes
```

```
Sector size (logical/physical): 512 bytes / 4096 bytes
```

```
I/O size (minimum/optimal): 4096 bytes / 4096 bytes
```

```
Disk label type: dos
```

```
Disk identifier: 0x000c8e42
```

Device	Boot	Start	End	Blocks	Id	System
/dev/sda1	*	2048	2099199	1048576	83	Linux
/dev/sda2		2099200	65013759	31457280	83	Linux
/dev/sda3		65013760	209715199	72350720	83	Linux

```
Command (m for help): **t**
```

```
Partition number (1-3, default 3): **3**
```

```
Hex code (type L to list all codes): **8e**
```

```
Changed type of partition 'Linux' to 'Linux LVM'
```

```
Command (m for help): **p**
```

```
Disk /dev/sda: 107.4 GB, 107374182400 bytes, 209715200 sectors
```

```
Units = sectors of 1 * 512 = 512 bytes
```

Sector size (logical/physical): 512 bytes / 4096 bytes  
I/O size (minimum/optimal): 4096 bytes / 4096 bytes  
Disk label type: dos  
Disk identifier: 0x000c8e42

Device	Boot	Start	End	Blocks	Id	System
/dev/sda1	*	2048	2099199	1048576	83	Linux
/dev/sda2		2099200	65013759	31457280	83	Linux
/dev/sda3		65013760	209715199	72350720	8e	Linux LVM

Command (m for help): **\*\*w\*\***

### 3) (PV)

LVM

PE(Physical Extent) : PV LVM2  
4MB

#### 3-1) PV (pvcreate)

```
# pvcreate /dev/sda3  
WARNING: ext4 signature detected on /dev/sda3 at offset 1080.  
Wipe it? [y/n]: y Wiping ext4 signature on /dev/sda3. Physical  
volume "/dev/sda3" successfully created.
```

```
# pvcreate /dev/sda3  
WARNING: ext4  
signature detected on /dev/sda3 at offset 1080.  
Wipe it? [y/n]: y  
Wiping ext4 signature on /dev/sda3.  
Physical volume "/dev/sda3" successfully created.
```

```
pvcreate /dev/sda3  
WARNING: ext4 signature detected on /dev/sda3 at offset 1080.  
Wipe it? [y/n]: y  
Wiping ext4 signature on /dev/sda3.  
Physical volume "/dev/sda3" successfully created.
```

#### 3-2) PV

```
# pvs  
PV VG Fmt Attr PSize PFree
```

```
/dev/sda3 lvm2 --- <69.00g <69.00g
```

```
# pvscan PV /dev/sda3
```

```
lvm2 [<69.00 GiB]Total: 1 [<69.00 GiB] / in use: 0 [0 ] / in  
no VG: 1 [<69.00 GiB]
```

```
# pvdisplay
```

```
VG NamePV Size <69.00 GiB
```

```
Allocatable NO
```

```
PE Size 0
```

```
Total PE 0
```

```
Free PE 0
```

```
Allocated
```

```
PE 0
```

```
PV UUID dFUFjg-ETp6-aCkV-UHpw-HpP7-e40T-7L00p3
```

```
3-3) (VG)
```

```
# (VG) /dev/VG_NAME
```

```
- VG
```

```
# vgcreate [ ] [ ]
```

```
vgcreate vg-home /dev/sda3Volume group "vg-home" successfully  
created
```

```
- VG
```

```
# vgs
```

```
VG #PV #LV #SN Attr VSize VFreevg-home 1 0 0 wz--n-  
<69.00g <69.00g
```

```
# vgscan
```

```
Reading volume groups from cache.Found volume group "vg-home"  
using metadata type lvm2
```

```
# vgdisplay
```

```
--- Volume group ---
```

```
VG Name vg-home
```

```
System
```

```
IDFormat lvm2
```

```
Metadata Areas      1
Metadata Sequence No 1
VG Access          read/write
VG Status          resizable
MAX LV             0
Cur LV            00
pen LV             0
Max PV             0
Cur PV            1
Act PV            1
VG Size            <69.00 GiB
PE Size            4.00 MiB
Total PE           17663
Alloc PE / Size    0 / 0
Free PE / Size     17663 / <69.00 GiB
VG UUID            MESw3F-j0gs-yz0o-bwR9-34nn-u0dP-qHOHEC
```

4)

```
# (Logical Volumes)
- LV

# lvcreate -n data1v L 70GB testvg --> testvg 70G data1v

# lvcreate -n lv-home -l +100%FREE vg-home --> lv-home
home
# lvcreate

lvcreate -n lv-home -l +100%FREE vg-homeLogical volume "lv-home" created.

- LV (lvs, lvdisplay, lvscan)

# lvs
LV VG Attr LSize Pool Origin Data% Meta% Move Log
Cpy%Sync Convert
lv-home vg-home -wi-ao---- <69.00g

# lvscan
ACTIVE '/dev/vg-home/lv-home' [<69.00 GiB] inherit

# lvdisplay
--- Logical volume ---
```

```
LV Path          /dev/vg-home/lv-home
LV Name          lv-home
VG Name          vg-home
LV UUID          AY0b7g-L0pN-DrTm-Lhgb-vqU5-T2W1-0cFe4W
LV Write Access  read/write
LV Creation host, time localhost.localdomain, 2022-05-11
16:20:59 +0900
LV Status        available
# open          0
LV Size         <69.00 GiB
Current LE      17663
Segments        1
Allocation      inheritRead ahead sectors    auto
- currently set to 8192
Block device    253:0
```

5)

5-1)        **LV**

```
# lvdisplay          LV Path  ext4
/home                .
**
# mkfs.ext4 /dev/vg-home/lv-home
**mke2fs 1.42.9 (28-Dec-2013)Discarding
device blocks: done
Filesystem label=0S
type: LinuxBlock
size=4096 (log=2)Fragment size=4096 (log=2)Stride=0 blocks,
Stripe width=0 blocks4521984 inodes, 18086912 blocks904345
blocks (5.00%) reserved for the super userFirst data
block=0Maximum filesystem blocks=2166358016552 block
groups32768 blocks per group, 32768 fragments per group8192
inodes per groupSuperblock backups stored on blocks:
32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632,
2654208,      4096000, 7962624, 11239424 Allocating group
tables: done
Writing inode tables: done
Creating journal (32768 blocks): doneWriting superblocks and
filesystem accounting information: done

**# mount -t ext4 /dev/vg-home/lv-home /home**
```

```

**# df -Th
**Filesystem
Type      Size Used Avail Use% Mounted on/dev/sda2
xfs       30G 1.3G  29G   5% /devtmpfs          devtmpfs 484M   0
484M  0%
/devtmpfs                tmpfs   493M   0 493M   0%
/dev/shmtmpfs            tmpfs   493M  13M 480M   3%
/runtmpfs                tmpfs   493M   0 493M   0%
/sys/fs/cgroup/dev/sda1 xfs     1014M 140M 875M  14%
/boottmpfs               tmpfs   99M   0 99M   0% /run/user/0*
/dev/mapper/vg--home-lv--home ext4    68G  53M  65G   1% /home*

5-2)                /etc/fstab                .

# /etc/fstab
/dev/vg-home/lv-home    /home                ext4 defaults    1 2

```

---

# PXE

PXE

Preboot execution environment ,  
OS 가

PXE

Virtualbox , Host-only Adapter .

Virtualbox - File - Host Network Manager

IPv4 Address: 10.0.0.254/24

DHCP Server: None

CentOS 07 VM PXE:

NIC 2EA ( / )

CentOS 07 VM Client:

NIC 1EA ( )

PXE

# Public

```
cat << EOF | sudo tee /etc/sysconfig/network-scripts/ifcfg-  
enp0s3
```

```
TYPE=Ethernet  
BOOTPROTO=dhcp  
DEFROUTE=yes  
NAME=enp0s3  
DEVICE=enp0s3  
ONBOOT=yes  
EOF
```

# Private

```
cat << EOF | sudo tee /etc/sysconfig/network-scripts/ifcfg-  
enp0s8
```

```
TYPE=Ethernet  
BOOTPROTO=none  
DEFROUTE=no  
NAME=enp0s8  
DEVICE=enp0s8  
ONBOOT=yes
```

```
IPADDR=10.0.0.11
```

```
PREFIX=24
```

```
EOF
```

```
sudo systemctl restart network
```

```
sudo systemctl status network
```

PXE DHCP

```
sudo yum install -y dhcp
```

```
sudo mkdir /etc/dhcp/dhcpd.d/
```

```
cat << EOF | sudo tee /etc/dhcp/dhcpd.conf
```

```
option domain-name-servers 10.0.0.11;
```

```
## 10.0.0.11 -> PXE          IP
```

```
default-lease-time 600;  
max-lease-time 7200;
```

```
authoritative;  
## DHCPNAK send enable
```

```
filename          "pxelinux.0";  
next-server       10.0.0.11;  
## tftp          IP
```

```
subnet 10.0.0.0 netmask 255.255.255.0 {  
    range dynamic-bootp 10.0.0.200 10.0.0.253;  
    option broadcast-address 10.0.0.255;
```

```
    # option routers 10.0.0.11;  
    ## Client 가          Gateway IP
```

```
    ##  
}
```

EOF

```
sudo systemctl enable --now dhcpd  
sudo systemctl status dhcpd
```

PXE TFTP

tftp

```
sudo yum install -y syslinux tftp tftp-server  
sudo cp /usr/share/syslinux/pxelinux.0 /var/lib/tftpboot/
```

```
sudo systemctl enable --now tftp  
sudo systemctl status tftp
```

```
tftp  
(to) 10.0.0.11  
tftp> verbose  
tftp> trace  
tftp> get pxelinux.0
```

PXE        ISO

wget

```
http://mirror.navercorp.com/centos/7/isos/x86_64/CentOS-7-x86_64-Minimal-2009.iso
```

```
sudo mkdir /var/lib/tftpboot/centos7
```

```
sudo mount CentOS-7-x86_64-Minimal-2009.iso /mnt
```

```
## sudo mount -t iso9660 -o loop CentOS-7-x86_64-Minimal-2009.iso /mnt
```

```
sudo cp /mnt/images/pxeboot/vmlinuz /var/lib/tftpboot/centos7/  
sudo cp /mnt/images/pxeboot/initrd.img /var/lib/tftpboot/centos7/
```

```
sudo cp /usr/share/syslinux/menu.c32 /var/lib/tftpboot/
```

```
sudo mkdir /var/lib/tftpboot/pxelinux.cfg/
```

```
cat << EOF | sudo tee /var/lib/tftpboot/pxelinux.cfg/default  
timeout 100  
default menu.c32
```

```
menu title ##### PXE Boot Menu #####
```

```
label 1
```

```
    menu label ^1) Install CentOS 7
```

```
    kernel centos7/vmlinuz
```

```
                append        initrd=centos7/initrd.img
```

```
method=http://10.0.0.11/iso devfs=nomount
```

```
label 2
```

```
    menu label ^2) Boot from local drive
```

```
    localboot
```

```
EOF
```

```
sudo yum install -y httpd
```

```
cat << EOF | sudo tee /etc/httpd/conf.d/pxeboot.conf
```

```
Alias /iso /mnt
```

```
<Directory /mnt>
```

```
    Require ip 127.0.0.1 10.0.0.0/24
```

</Directory>

EOF

```
sudo systemctl enable --now httpd
sudo systemctl disable --now firewalld
```

PXE ISO

Virtualbox - VM - Settings

```
( NIC dhcpd NIC .
  NIC .)
```

VM Start - F12 - Boot Manager - 1) LAN ( L )

CentOS .

PXE

```
PXE PC CentOS 가
  . initrd(= ) CentOS
(kickstart) 가 nfs 가 PXE
  가 .
```