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# Linux Network Bonding - fail\_over\_mac

: <https://twpower.github.io/207-network-bonding-active-backup-fail-over-mac-option>

(Network Bonding)

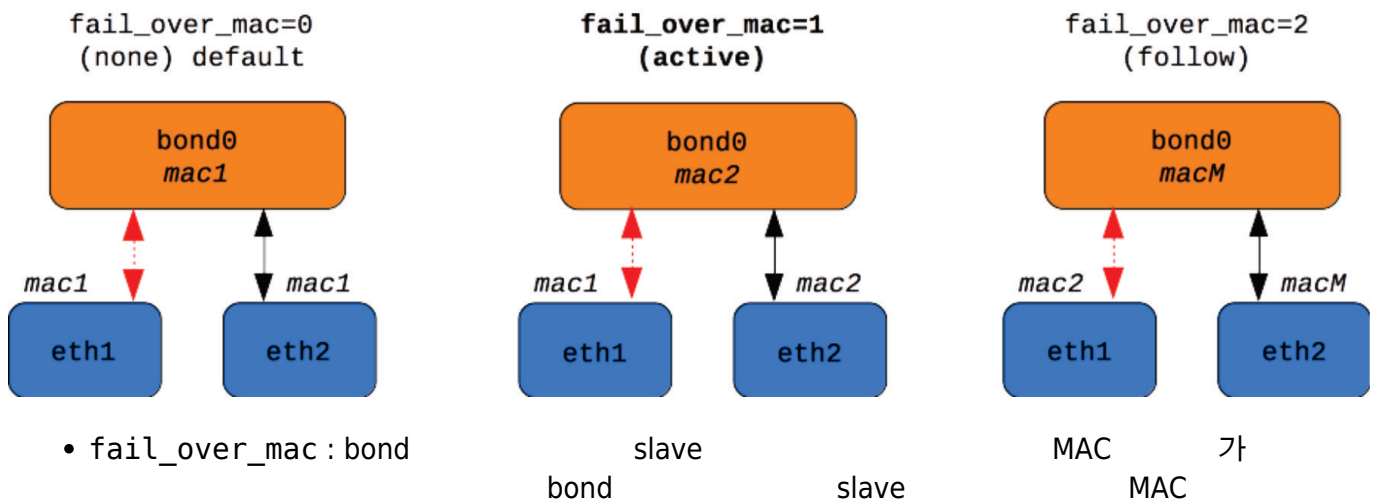
active-backup

fail\_over\_mac

- CentOS 7.7.1908
- Bash shell(/bin/bash)
- Network bonding

## fail\_over\_mac

### fail\_over\_mac



- fail\_over\_mac : bond

- bonding mode가 active-backup
- :

[https://www.ibm.com/support/knowledgecenter/en/linuxonibm/com.ibm.linux.z.l0w1cb00/l0w1cb00\\_optionfailovermac.html](https://www.ibm.com/support/knowledgecenter/en/linuxonibm/com.ibm.linux.z.l0w1cb00/l0w1cb00_optionfailovermac.html)

### fail\_over\_mac

- none or 0 : (Default) bond
  - 가 slave
  - slave
  - MAC
  - bond
- active or 1 : active failover
  - 가 slave
  - active
  - MAC slave
  - bond
  - MAC
  - MAC
- follow or 2 : bond
  - 가 slave
  - MAC
  - (
  - slave
  - MAC

|             |   |        |     |     |        |
|-------------|---|--------|-----|-----|--------|
| .) active   | 가 | slave  | MAC | MAC |        |
| . failover가 |   | active | 가   | MAC | active |
|             |   | bond   | MAC | .   |        |

## fail\_over\_mac

- Bonding ( ) Bonding .
- Host OS : Mac OS
- Guest OS : CentOS 7.7.1908
- Hypervisor : VirtualBox

### none or 0

- Default option
- fail\_over\_mac=0
- VirtualBox active-backup 가 .

```
[root@centos-client ~]# cat /etc/sysconfig/network-scripts/ifcfg-bond0 |
grep fail_over_mac
BONDING_OPTS="mode=1 miimon=100 fail_over_mac=0"
```

- bond0 slave (enp0s8 enp0s9) MAC 가

```
[root@centos-client ~]# ip link show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN mode
DEFAULT group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state
UP mode DEFAULT group default qlen 1000
    link/ether 08:00:27:2b:04:6e brd ff:ff:ff:ff:ff:ff
3: enp0s8: <BROADCAST,MULTICAST,SLAVE,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast
master bond0 state UP mode DEFAULT group default qlen 1000
    link/ether 08:00:27:e8:26:58 brd ff:ff:ff:ff:ff:ff
4: enp0s9: <BROADCAST,MULTICAST,SLAVE,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast
master bond0 state UP mode DEFAULT group default qlen 1000
    link/ether 08:00:27:e8:26:58 brd ff:ff:ff:ff:ff:ff
8: bond0: <BROADCAST,MULTICAST,MASTER,UP,LOWER_UP> mtu 1500 qdisc noqueue
state UP mode DEFAULT group default qlen 1000
    link/ether 08:00:27:e8:26:58 brd ff:ff:ff:ff:ff:ff
```

### active or 1

- fail\_over\_mac=1

```
[root@centos-client ~]# cat /etc/sysconfig/network-scripts/ifcfg-bond0 |
grep fail_over_mac
BONDING_OPTS="mode=1 miimon=100 fail_over_mac=1"
bond0 MAC slave enp0s8 MAC 가
[root@centos-client ~]# ip link show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN mode
DEFAULT group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state
UP mode DEFAULT group default qlen 1000
    link/ether 08:00:27:2b:04:6e brd ff:ff:ff:ff:ff:ff
3: enp0s8: <BROADCAST,MULTICAST,SLAVE,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast
master bond0 state UP mode DEFAULT group default qlen 1000
    link/ether 08:00:27:e8:26:58 brd ff:ff:ff:ff:ff:ff
4: enp0s9: <BROADCAST,MULTICAST,SLAVE,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast
master bond0 state UP mode DEFAULT group default qlen 1000
    link/ether 08:00:27:27:a9:2d brd ff:ff:ff:ff:ff:ff
9: bond0: <BROADCAST,MULTICAST,MASTER,UP,LOWER_UP> mtu 1500 qdisc noqueue
state UP mode DEFAULT group default qlen 1000
    link/ether 08:00:27:e8:26:58 brd ff:ff:ff:ff:ff:ff
```

- enp0s8 Down

```
ip link set dev enp0s8 down
```

- bond0 MAC 가 enp0s9 MAC

```
[root@centos-client ~]# ip link show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN mode
DEFAULT group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state
UP mode DEFAULT group default qlen 1000
    link/ether 08:00:27:2b:04:6e brd ff:ff:ff:ff:ff:ff
3: enp0s8: <BROADCAST,MULTICAST,SLAVE> mtu 1500 qdisc pfifo_fast master
bond0 state DOWN mode DEFAULT group default qlen 1000
    link/ether 08:00:27:e8:26:58 brd ff:ff:ff:ff:ff:ff
4: enp0s9: <BROADCAST,MULTICAST,SLAVE,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast
master bond0 state UP mode DEFAULT group default qlen 1000
    link/ether 08:00:27:27:a9:2d brd ff:ff:ff:ff:ff:ff
9: bond0: <BROADCAST,MULTICAST,MASTER,UP,LOWER_UP> mtu 1500 qdisc noqueue
state UP mode DEFAULT group default qlen 1000
    link/ether 08:00:27:27:a9:2d brd ff:ff:ff:ff:ff:ff
```

## follow or 2

- fail\_over\_mac=2

- VirtualBox active-backup 가 .

```
[root@centos-client ~]# cat /etc/sysconfig/network-scripts/ifcfg-bond0 |
grep fail_over_mac
BONDING_OPTS="mode=1 miimon=100 fail_over_mac=2"
bond0 MAC slave enp0s8 MAC 가
[root@centos-client ~]# ip link show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN mode
DEFAULT group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state
UP mode DEFAULT group default qlen 1000
    link/ether 08:00:27:2b:04:6e brd ff:ff:ff:ff:ff:ff
3: enp0s8: <BROADCAST,MULTICAST,SLAVE,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast
master bond0 state UP mode DEFAULT group default qlen 1000
    link/ether 08:00:27:e8:26:58 brd ff:ff:ff:ff:ff:ff
4: enp0s9: <BROADCAST,MULTICAST,SLAVE,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast
master bond0 state UP mode DEFAULT group default qlen 1000
    link/ether 08:00:27:27:a9:2d brd ff:ff:ff:ff:ff:ff
10: bond0: <BROADCAST,MULTICAST,MASTER,UP,LOWER_UP> mtu 1500 qdisc noqueue
state UP mode DEFAULT group default qlen 1000
    link/ether 08:00:27:e8:26:58 brd ff:ff:ff:ff:ff:ff
```

- enp0s8 Down

```
ip link set dev enp0s8 down
```

- bond0 MAC
- active 가 enp0s9 bond0 MAC 가
- fail enp0s8 active 가 enp0s9 MAC
- 가

```
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN mode
DEFAULT group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state
UP mode DEFAULT group default qlen 1000
    link/ether 08:00:27:2b:04:6e brd ff:ff:ff:ff:ff:ff
3: enp0s8: <BROADCAST,MULTICAST,SLAVE> mtu 1500 qdisc pfifo_fast master
bond0 state DOWN mode DEFAULT group default qlen 1000
    link/ether 08:00:27:27:a9:2d brd ff:ff:ff:ff:ff:ff
4: enp0s9: <BROADCAST,MULTICAST,SLAVE,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast
master bond0 state UP mode DEFAULT group default qlen 1000
    link/ether 08:00:27:e8:26:58 brd ff:ff:ff:ff:ff:ff
10: bond0: <BROADCAST,MULTICAST,MASTER,UP,LOWER_UP> mtu 1500 qdisc noqueue
state UP mode DEFAULT group default qlen 1000
    link/ether 08:00:27:e8:26:58 brd ff:ff:ff:ff:ff:ff
```

# Bonding

## Interfaces

- Bonding Interface : bond0
- Slave Interfaces : enp0s8, enp0s9

## bond0

- /etc/sysconfig/network-scripts/ifcfg-bond0
- IPADDR PREFIX
- fail\_over\_mac 0~2 가 .

```
TYPE=Bond
BOOTPROTO=static
DEFROUTE=no
NAME=bond0
DEVICE=bond0
ONBOOT=yes
PREFIX=24
IPADDR=192.168.99.101
BONDING_OPTS="mode=1 miimon=100 fail_over_mac=1"
```

## enp0s8, enp0s9

- /etc/sysconfig/network-scripts/ifcfg-enp0s8

```
NAME=enp0s8
DEVICE=enp0s8
TYPE=Ethernet
BOOTPROTO=none
ONBOOT=yes
MASTER=bond0
SLAVE=yes
```

- /etc/sysconfig/network-scripts/ifcfg-enp0s9

```
NAME=enp0s9
DEVICE=enp0s9
TYPE=Ethernet
BOOTPROTO=none
```

```
ONBOOT=yes  
MASTER=bond0  
SLAVE=yes
```

- [https://access.redhat.com/documentation/en-us/red\\_hat\\_enterprise\\_linux/7/html-single/networking\\_guide/index](https://access.redhat.com/documentation/en-us/red_hat_enterprise_linux/7/html-single/networking_guide/index)
- [https://www.ibm.com/support/knowledgecenter/en/linuxonibm/com.ibm.linux.z.l0wlc00/l0wlc00\\_optionfailovermac.html](https://www.ibm.com/support/knowledgecenter/en/linuxonibm/com.ibm.linux.z.l0wlc00/l0wlc00_optionfailovermac.html)
- <https://november11tech.tistory.com/128>

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