RHEL: Bonding network interfaces

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RHEL: Bonding network interfaces

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# Tested on RHEL 5, 6 & 7



# Red Hat Enterprise Linux allows administrators to bind multiple
network interfaces
# together into a single channel using the bonding kernel module and
a special network
# interface called a "channel bonding interface". Channel bonding
enables two or more
# network interfaces to act as one, simultaneously increasing the
bandwidth and providing
# redundancy.

# To create a channel bonding interface, create a file in the
/etc/sysconfig/network-scripts
# directory called <ifcfg-bondN>, replacing "N" with the number for
the interface, such as 0.

# The contents of the file can be identical to whatever type of
interface is getting
# bonded, such as an Ethernet interface. The only difference is that
the DEVICE directive
# must be bondN, replacing N with the number for the interface.

# The following is a sample channel bonding configuration file (RHEL
6):
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   DEVICE=bond0
   IPADDR=192.168.1.1
   NETMASK=255.255.255.0
   ONBOOT=yes
   BOOTPROTO=none
   USERCTL=no
   BONDING_OPTS="bonding parameters separated by spaces"

# After the channel bonding interface is created, the network
interfaces to be bound
# together must be configured by adding the MASTER and SLAVE
directives to their
# configuration files. The configuration files for each of the
channel-bonded interfaces
# can be nearly identical.

# For example, if two Ethernet interfaces are being channel bonded,
both eth0 and eth1
# may look like the following example:

   DEVICE=<ethN>
   BOOTPROTO=none
   ONBOOT=yes
   MASTER=bond0
   SLAVE=yes
   USERCTL=no

# For a channel bonding interface to be valid, the kernel module must
be loaded
# ('modprobe bonding'). To ensure that the module is loaded when the
channel bonding
# interface is brought up, for RHEL 6, create a new file as root
named bonding.conf in
# the /etc/modprobe.d directory or, if working with RHEL 5, add the
configuration
# directly to /etc/modprobe.conf (this file is deprecated on RHEL 6).
On RHEL 7 it is
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# not necessary to indicate explicitly to load bonding kernel module
as, once the
# interfaces configured for bonding, module will be automatically
loaded on startup.




# RHEL 7:


# No need to explicitly load bonding module




# RHEL 6:

vi /etc/modprobe.d/bonding.conf
   alias <bondN> bonding


# RHEL 5:

vi /etc/modprobe.conf
   alias <bondN> bonding
   options <bondN> mode=<active-backup> miimon=<100>
primary_reselect=<failure> primary=<ethX> downdelay=<100>
updelay=<5000>


# *** Note: On RHEL 6 we'll put all bonding module parameters in
<ifcfg-bondN> files.
#     that will allow to specify different configurations for
different bonding
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#     interfaces.



# Additional commands
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# Start a "bonding" network interface

ifup <bond0>


# Stop a "bonding" network interface and free all slave interfaces

ifdown <bond0>


# Remove a slave interface without stopping "bonding" interface:

ifenslave {-d|--detach} <bond0> <eth0> [<eth1> <eth2> ...]


# Change active slave:

ifenslave {-c|--change-active} <bond0> <eth0>


# Show information about "master" interface:

ifenslave <bond0>

cat /proc/net/bonding/<bond0>


# Show information about all interfaces:

ifenslave {-a|--all-interfaces}
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# Configuration examples
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# RHEL 5
# ------------------------------------------------------------------------
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vi /etc/modprobe.conf
   alias bond0 bonding
   options bond0 mode=active-backup miimon=100
primary_reselect=failure primary=eth3 downdelay=100 updelay=5000

modprobe bonding

cd /etc/sysconfig/network-scripts

vi ifcfg-bond0
   DEVICE=bond0
   BOOTPROTO=static
   IPADDR=10.150.0.107
   NETMASK=255.255.252.0
   ONBOOT=yes
   USERCTL=no

vi ifcfg-eth3
   DEVICE=eth3
   BOOTPROTO=none
   HWADDR=90:E2:BA:55:1F:DB
   MASTER=bond0
   SLAVE=yes
   ONBOOT=yes
   USERCTL=no

vi ifcfg-eth6
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   DEVICE=eth6
   BOOTPROTO=none
   HWADDR=40:F2:E9:0C:9A:5E
   MASTER=bond0
   SLAVE=yes
   ONBOOT=yes
   USERCTL=no
```

ifup bond0

cat /proc/net/bonding/bond0

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   Ethernet Channel Bonding Driver: v3.4.0-1 (October 7, 2008)

   Bonding Mode: fault-tolerance (active-backup)
   Primary Slave: eth3 (primary_reselect failure)
   Currently Active Slave: eth3
   MII Status: up
   MII Polling Interval (ms): 100
   Up Delay (ms): 5000
   Down Delay (ms): 100

   Slave Interface: eth3
   MII Status: up
   Speed: 1000 Mbps
   Duplex: full
   Link Failure Count: 0
   Permanent HW addr: 90:e2:ba:55:1f:db

   Slave Interface: eth6
   MII Status: up
   Speed: 1000 Mbps
   Duplex: full
   Link Failure Count: 0
   Permanent HW addr: 40:f2:e9:0c:9a:5e
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# RHEL 6
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vi /etc/modprobe.d/bonding.conf
   alias bond0 bonding

modprobe bonding

cd /etc/sysconfig/network-scripts

vi ifcfg-bond0
   DEVICE=bond0
   BOOTPROTO=static
   IPADDR=10.149.72.202
   NETMASK=255.255.252.0
   ONBOOT=yes
   USERCTL=no
   IPV6INIT=no
   BONDING_OPTS="mode=active-backup miimon=100
primary_reselect=failure primary=eth0 downdelay=100 updelay=5000"

vi ifcfg-eth0
   DEVICE=eth0
   BOOTPROTO=none
   HWADDR=F0:92:1C:0D:53:90
   MASTER=bond0
   SLAVE=yes
   ONBOOT=yes
   USERCTL=no

vi ifcfg-eth1
   DEVICE=eth1
   BOOTPROTO=none
   HWADDR=F0:92:1C:0D:53:94
   MASTER=bond0
   SLAVE=yes
```

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   ONBOOT=yes
   USERCTL=no

ifup bond0

cat /proc/net/bonding/bond0
   Ethernet Channel Bonding Driver: v3.6.0 (September 26, 2009)

   Bonding Mode: fault-tolerance (active-backup)
   Primary Slave: eth0 (primary_reselect failure)
   Currently Active Slave: eth0
   MII Status: up
   MII Polling Interval (ms): 100
   Up Delay (ms): 5000
   Down Delay (ms): 100

   Slave Interface: eth0
   MII Status: up
   Speed: 600 Mbps
   Duplex: full
   Link Failure Count: 0
   Permanent HW addr: f0:92:1c:0d:53:90
   Slave queue ID: 0

   Slave Interface: eth1
   MII Status: up
   Speed: 600 Mbps
   Duplex: full
   Link Failure Count: 0
   Permanent HW addr: f0:92:1c:0d:53:94
   Slave queue ID: 0



# RHEL 7
# ------------------------------------------------------------------
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modprobe bonding

cd /etc/sysconfig/network-scripts

vi ifcfg-bond0
   DEVICE=bond0
   TYPE=bond
   NAME=bond0
   BONDING_MASTER=yes
   BOOTPROTO=none
   ONBOOT=yes
   IPADDR=192.168.1.22
   NETMASK=255.255.255.0
   GATEWAY=192.168.1.254
   BONDING_OPTS="mode=active-backup miimon=100
primary_reselect=failure primary=eth0 downdelay=100 updelay=5000"

vi ifcfg-enp2s7
   TYPE=Ethernet
   BOOTPROTO=static
   DEVICE=enp2s7
   ONBOOT=yes
   HWADDR=00:00:1c:d5:e3:6f
   MASTER=bond0
   SLAVE=yes

vi ifcfg-enp2s8
   TYPE=Ethernet
   BOOTPROTO=static
   DEVICE=enp2s8
   ONBOOT=yes
   HWADDR=00:08:a1:6c:7e:79
   MASTER=bond0
   SLAVE=yes

ifup bond0
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```
cat /proc/net/bonding/bond0
   Ethernet Channel Bonding Driver: v3.7.1 (April 27, 2011)

   Bonding Mode: fault-tolerance (active-backup)
   Primary Slave: None
   Currently Active Slave: enp2s7
   MII Status: up
   MII Polling Interval (ms): 100
   Up Delay (ms): 5000
   Down Delay (ms): 100

   Slave Interface: enp2s7
   MII Status: up
   Speed: 100 Mbps
   Duplex: full
   Link Failure Count: 0
   Permanent HW addr: 00:00:1c:d5:e3:6f
   Slave queue ID: 0

   Slave Interface: enp2s8
   MII Status: up
   Speed: 100 Mbps
   Duplex: full
   Link Failure Count: 0
   Permanent HW addr: 00:08:a1:6c:7e:79
   Slave queue ID: 0
```