

How to disable IP V6 in Red Hat 7 with MQ 9.0

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IBM MQ Support

+++ Objective +++

The objective of this technical document is to provide step-by-step instructions on how to disable the TCP/IP version 6 protocol (IPv6) in Red Hat Enterprise Linux (RHEL) v7.3. This will work for the Server, Workstation, and Desktop editions.

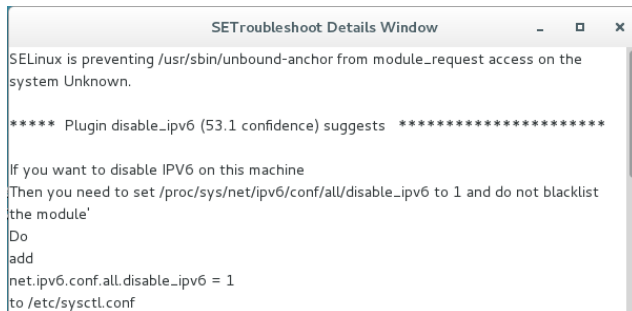
The steps outlined in this document disable the IPv6 in both the built-in kernel module (steps 1-4) AND by altering the sysctl settings (steps 5-10).

Caveats:

If you use X11 forwarding through SSH, the altering-the-sysctl-settings method will break it unless the following line is added to the `/etc/ssh/sshd_config` file:

```
AddressFamily inet
```

If you use Selinux, you may see error messages like the one below (SELinux Troubleshooter) after disabling the IPv6 kernel module:



```
SELinux is preventing /usr/sbin/unbound-anchor from module_request access on the
system Unknown.

**** Plugin disable_ipv6 (53.1 confidence) suggests ****

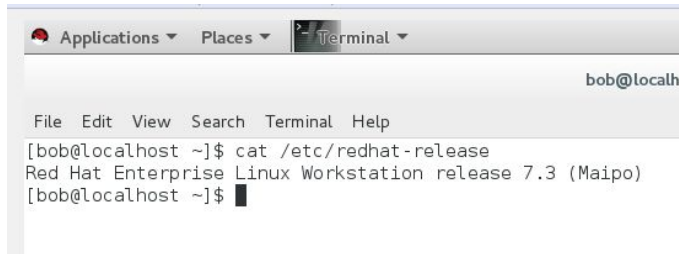
If you want to disable IPV6 on this machine
Then you need to set /proc/sys/net/ipv6/conf/all/disable_ipv6 to 1 and do not blacklist
the module'
Do
add
net.ipv6.conf.all.disable_ipv6 = 1
to /etc/sysctl.conf
```

If this is the case, you may choose to only use the altering-the-sysctl-settings method. To undo the changes to the built-in kernel module, undo step 2, regenerate the GRUB configuration file and overwrite the existing one (redo step 3), and reboot.

++ Step 1:

Verify you are using RHEL 7.3:

\$ cat /etc/redhat-release



```
Applications Places Terminal
bob@localhost
File Edit View Search Terminal Help
[bob@localhost ~]$ cat /etc/redhat-release
Red Hat Enterprise Linux Workstation release 7.3 (Maipo)
[bob@localhost ~]$
```

++ Step 2:

Edit the file: /etc/default/grub

In the line for: GRUB_CMDLINE_LINUX

Add:

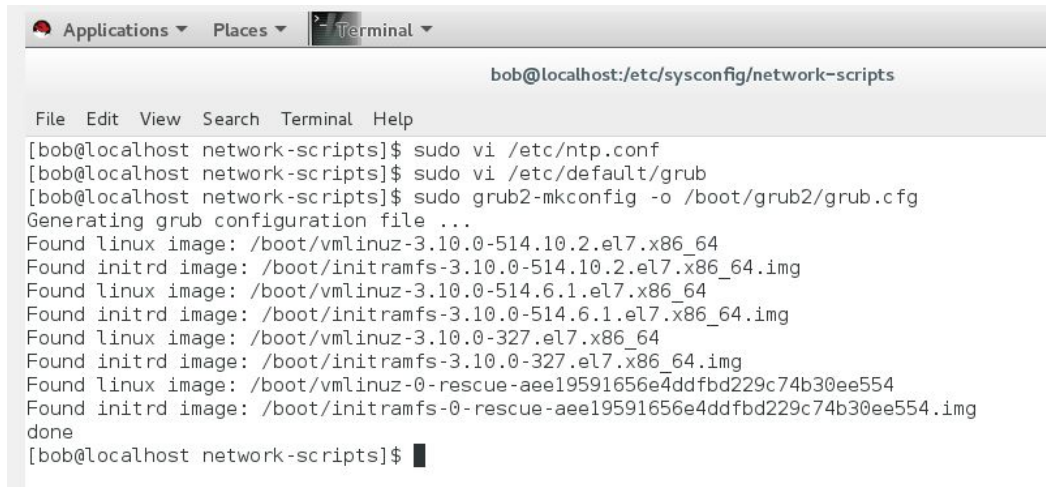
ipv6.disable=1



```
Applications Places Terminal Tue 12:15 PM
bob@localhost:/etc/sysconfig/network-scripts
File Edit View Search Terminal Help
GRUB_TIMEOUT=5
GRUB_DISTRIBUTOR="$(sed 's, release .*$,,g' /etc/system-release)"
GRUB_DEFAULT=saved
GRUB_DISABLE_SUBMENU=true
GRUB_TERMINAL_OUTPUT="console"
GRUB_CMDLINE_LINUX="crashkernel=auto rd.lvm.lv=rhel/root rd.lvm.lv=rhel/swap rhgb quiet ipv6.disable=1"
GRUB_DISABLE_RECOVERY="true"
~
```

++ Step 3:

Regenerate a GRUB configuration file and overwrite the existing one:

A terminal window titled 'Terminal' with a menu bar (Applications, Places, Terminal) and a title bar (bob@localhost:/etc/sysconfig/network-scripts). The terminal shows the following commands and output:

```
[bob@localhost network-scripts]$ sudo vi /etc/ntp.conf
[bob@localhost network-scripts]$ sudo vi /etc/default/grub
[bob@localhost network-scripts]$ sudo grub2-mkconfig -o /boot/grub2/grub.cfg
Generating grub configuration file ...
Found linux image: /boot/vmlinuz-3.10.0-514.10.2.el7.x86_64
Found initrd image: /boot/initramfs-3.10.0-514.10.2.el7.x86_64.img
Found linux image: /boot/vmlinuz-3.10.0-514.6.1.el7.x86_64
Found initrd image: /boot/initramfs-3.10.0-514.6.1.el7.x86_64.img
Found linux image: /boot/vmlinuz-3.10.0-327.el7.x86_64
Found initrd image: /boot/initramfs-3.10.0-327.el7.x86_64.img
Found linux image: /boot/vmlinuz-0-rescue-aeel9591656e4ddfdb229c74b30ee554
Found initrd image: /boot/initramfs-0-rescue-aeel9591656e4ddfdb229c74b30ee554.img
done
[bob@localhost network-scripts]$
```

++ Step 4:

Reboot.

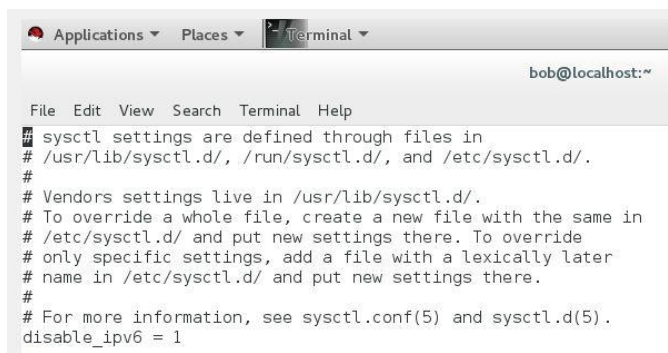
This will complete disabling the IPv6 built-in kernel module.

Continue to the remaining steps to disable IPv6 by editing the sysctl settings.

++ Step 5:

In the file: `/etc/sysctl.conf`

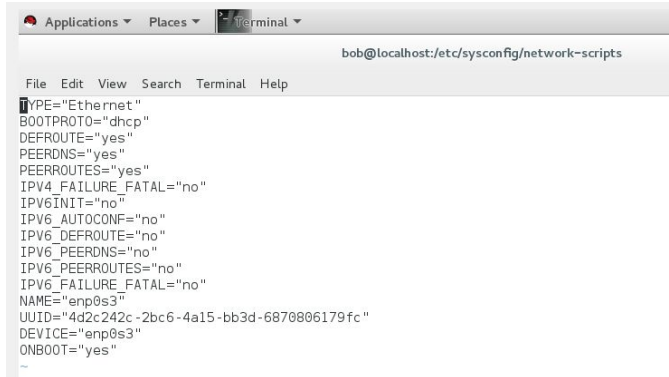
Add the entry:
`disable_ipv6 = 1`

A terminal window titled 'Terminal' with a menu bar (Applications, Places, Terminal) and a title bar (bob@localhost:~). The terminal shows the following content:

```
File Edit View Search Terminal Help
## sysctl settings are defined through files in
# /usr/lib/sysctl.d/, /run/sysctl.d/, and /etc/sysctl.d/.
#
# Vendors settings live in /usr/lib/sysctl.d/.
# To override a whole file, create a new file with the same in
# /etc/sysctl.d/ and put new settings there. To override
# only specific settings, add a file with a lexically later
# name in /etc/sysctl.d/ and put new settings there.
#
# For more information, see sysctl.conf(5) and sysctl.d(5).
disable_ipv6 = 1
```

++ Step 6:

Disable IPv6 in all `/etc/sysconfig/network-scripts/ifcfg-*` files:

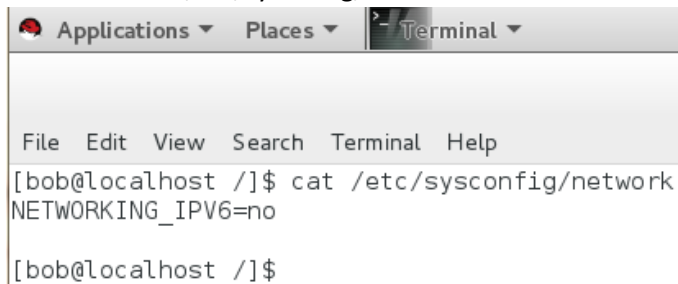


```
Applications Places Terminal
bob@localhost:/etc/sysconfig/network-scripts

File Edit View Search Terminal Help
TYPE="Ethernet"
BOOTPROTO="dhcp"
DEFROUTE="yes"
PEERDNS="yes"
PEERROUTES="yes"
IPV4_FAILURE_FATAL="no"
IPV6INIT="no"
IPV6_AUTOCONF="no"
IPV6_DEFROUTE="no"
IPV6_PEERDNS="no"
IPV6_PEERROUTES="no"
IPV6_FAILURE_FATAL="no"
NAME="enp0s3"
UUID="4d2c242c-2bc6-4a15-bb3d-6870806179fc"
DEVICE="enp0s3"
ONBOOT="yes"
```

++ Step 7:

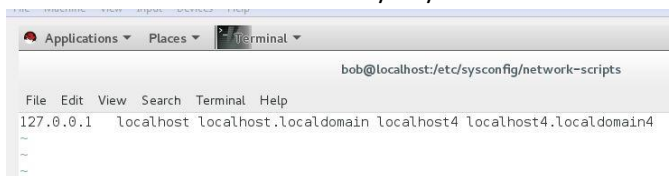
Disable IPv6 in `/etc/sysconfig/network`:



```
Applications Places Terminal
File Edit View Search Terminal Help
[bob@localhost ~]$ cat /etc/sysconfig/network
NETWORKING_IPV6=no
[bob@localhost ~]$
```

++ Step 8:

Remove the `:::1` line from the `/etc/hosts` file:



```
Applications Places Terminal
bob@localhost:/etc/sysconfig/network-scripts

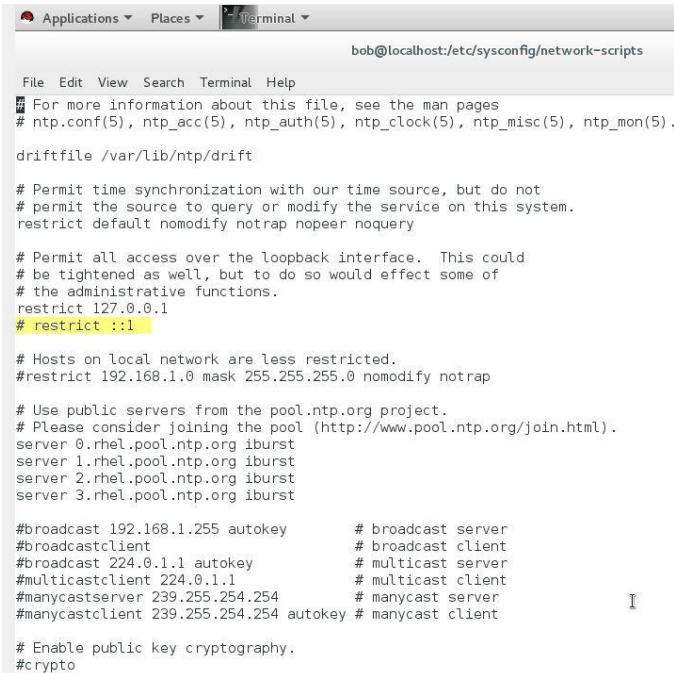
File Edit View Search Terminal Help
127.0.0.1 localhost localhost.localdomain localhost4 localhost4.localdomain4
~
~
~
```

++ Step 9:

In the file: /etc/ntp.conf

Remove or comment the line:

restrict ::1



```
Applications Places Terminal
bob@localhost:/etc/sysconfig/network-scripts

File Edit View Search Terminal Help
# For more information about this file, see the man pages
# ntp.conf(5), ntp_acc(5), ntp_auth(5), ntp_clock(5), ntp_misc(5), ntp_mon(5).

driftfile /var/lib/ntp/drift

# Permit time synchronization with our time source, but do not
# permit the source to query or modify the service on this system.
restrict default nomodify notrap nopeer noquery

# Permit all access over the loopback interface. This could
# be tightened as well, but to do so would effect some of
# the administrative functions.
restrict 127.0.0.1
# restrict ::1

# Hosts on local network are less restricted.
#restrict 192.168.1.0 mask 255.255.255.0 nomodify notrap

# Use public servers from the pool.ntp.org project.
# Please consider joining the pool (http://www.pool.ntp.org/join.html).
server 0.rhel.pool.ntp.org iburst
server 1.rhel.pool.ntp.org iburst
server 2.rhel.pool.ntp.org iburst
server 3.rhel.pool.ntp.org iburst

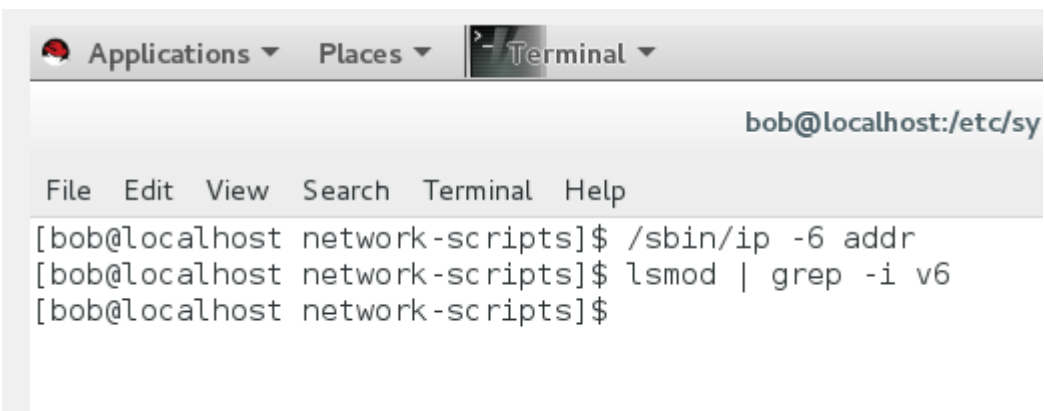
#broadcast 192.168.1.255 autokey # broadcast server
#broadcastclient # broadcast client
#broadcast 224.0.1.1 autokey # multicast server
#multicastclient 224.0.1.1 # multicast client
#manycastserver 239.255.254.254 # manycast server
#manycastclient 239.255.254.254 autokey # manycast client

# Enable public key cryptography.
#crypto
```

++ Step 10:

Reboot.

After rebooting, ran the following commands to ensure that IPv6 has been disabled:



```
Applications Places Terminal
bob@localhost:/etc/sy

File Edit View Search Terminal Help
[bob@localhost network-scripts]$ /sbin/ip -6 addr
[bob@localhost network-scripts]$ lsmod | grep -i v6
[bob@localhost network-scripts]$
```

++ end ++