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FreeBSD Configure IPv6 Networking / Static IP Address

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How do I configure IPv6 networking under FreeBSD 7.x server? How do I assign IPv6 IP address using command line utility?

FreeBSD [1]

IPv6 (IP next generation) can be easily configured under FreeBSD 7.x or 6.x. You need to know:

1. A **default router IPv6** address such as 2001:470:1e04:5ea::1
2. **128 bit IPv6 IP** such as 2001:470:1e04:5ea::10

FreeBSD IPv6 Network Configuration

Edit /etc/rc.conf file, enter:

```
# vi /etc/rc.conf
```

WARNING! Following configuration requires that the kernel has been compiled with options INET6 (a default in FreeBSD 6.x+ or above version)

Append following configurations:

```
ipv6_enable="YES"
ipv6_ifconfig_fxp0="2001:470:1e04:5ea::10"
ipv6_defaultrouter="2001:470:1e04:5ea::1"
```

Where,

- **ipv6_enable="YES"** : Turn on IPv6 networking support.
- **ipv6_ifconfig_fxp0="2001:470:1e04:5ea::10"** : Assign an IP address
- **ipv6_defaultrouter="2001:470:1e04:5ea::1"** : assign a default router

Save and close the file. Restart IPv6 networking, enter:

```
# /etc/rc.d/network_ipv6 restart
```

To view newly assigned IP address, enter:

```
# ifconfig
# ifconfig | grep inet6
```

How do I test my FreeBSD IPv6 networking connectivity?

Simply use ping6 or traceroute6 commands, enter:

```
$ ping6 ipv6.google.com
```

Try traceroute6 command, enter

```
$ traceroute6 ipv6.google.com
```

```
 1?: [LOCALHOST]                        pmtu 1280
 1:  2001:5c0:8fff:fffe::a68c              312.051ms
 2:  no reply
 3:  if-5-0-1.6bb1.mtt-montreal.ipv6.teleglobe.net 388.794ms
 4:  if-3-0.mcore3.mtt-montreal.ipv6.teleglobe.net asymm  5 345.947ms
 5:  if-13-0.mcore4.nqt-newyork.ipv6.teleglobe.net asymm  6 364.053ms
```

```
 6:  2001:5a0:400:200::1                      asymm  7 387.877ms
 7:  2001:5a0:400:200::6                      381.125ms
 8:  2001:5a0:600:100::5                      asymm  6 357.572ms
 9:  2001:5a0:600::5                          asymm  7 363.006ms
10:  pr61.iad07.net.google.com                asymm  9 386.211ms !A
     Resume: pmtu 1280
```

Try host command to obtian both IPv6 and IPv6 address, enter:

```
$ host www.kame.net
```

Sample output:

```
www.kame.net has address 203.178.141.194
www.kame.net has IPv6 address 2001:200:0:8002:203:47ff:fea5:3085
```

Finally, you can always visit www.kame.net [2] and see dancing kame to confirm IPv6. You can also try IPv6 Google search [3].

How do I assign IP address using command line ifconfig utility?

Use ifconfig command as follows to assign an IP address:

```
# ifconfig {interface-name} inet6 {IPv6-Address} prefixlen {routed-bit}
# ifconfig le0 inet6 001:470:1e04:5ea::10 prefixlen 64
```

To add a default router, enter:

```
# route -n add -inet6 default {IPv6-Router-IP}
# route -n add -inet6 default 2001:470:1e04:5ea::1
```

Further readings:

- man pages rc.conf, ifconfig
- FreeBSD IPv6 Configuration Guide [4]

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[1] Image: **http://www.cyberciti.biz/faq/faq/category/freebsd/**
[2] www.kame.net: **http://www.kame.net/**
[3] IPv6 Google search: **http://ipv6.google.com/**
[4] FreeBSD IPv6 Configuration Guide: **http://www.kame.net/~suz/freebsd-ipv6-config-guide.txt**