

ip route

```
[root@ITBD-Server ~]# ip route
default via 192.168.0.1 dev eth0 proto dhcp src 192.168.0.164 metric 100
192.168.0.0/24 dev eth0 proto kernel scope link src 192.168.0.164 metric 100
192.168.122.0/24 dev virbr0 proto kernel scope link src 192.168.122.1 linkdown
```

ip -6 route

```
[root@ITBD-Server ~]# ip -6 route
::1 dev lo proto kernel metric 256 pref medium
fe80::/64 dev eth0 proto kernel metric 1024 pref medium
```

tracepath access.redhat.com

```
[root@ITBD-Server ~]# tracepath access.redhat.com
 1?: [LOCALHOST]                                pmtu 1500
 1: TOTOLINK.itotolink.net                      1.249ms
 1: TOTOLINK.itotolink.net                      0.823ms
 2: 10.20.2.1                                     2.317ms
 3: 10.20.2.1                                     2.394ms pmtu 1492
 3: 10.20.30.1                                    2.399ms
 4: 103.95.208.49                                 2.845ms
 5: 103.95.208.49                                 2.777ms pmtu 1458
 5: 11.11.100.41                                  3.962ms
 6: 172.22.22.1                                   4.741ms
 7: 10.11.1.1                                     3.963ms
 8: 10.131.159.69                                5.329ms
 9: 103.7.251.121                                5.317ms
10: 103.179.62.195                               9.582ms
11: 103.7.248.123                                11.650ms
12: lo1.r04.stem01.ccu01.fab.netarch.akamai.com   11.541ms
13: lo1.r01.spine04.ccu01.fab.netarch.akamai.com   11.771ms
14: lo1.r02.leaf01.ccu01.fab.netarch.akamai.com    11.664ms
15: vlan100.r06.tor01.ccu01.fab.netarch.akamai.com 10.992ms
16: a23-223-245-53.deploy.static.akamaitechnologies.com 12.002ms reached
Resume: pmtu 1458 hops 16 back 16
```

tracepath6 2001:db8:0:2::451

TROUBLESHOOTING PORTS AND SERVICES TCP

services use sockets as end points for communication and are made up of an IP address, protocol, and port number. Services typically listen on standard ports while clients use a random available port. Well-known names for standard ports are listed in the /etc/services file.

The ss command is used to display socket statistics. The ss command is meant to replace the older tool netstat, part of the net-tools package, which may be more familiar to some system administrators but which is not always installed.

```
[user@host ~]$ ss -ta
```

```
nmcli device status
```

```
[root@ITBD-Server ~]# nmcli device status
DEVICE  TYPE      STATE          CONNECTION
eth0    ethernet  connected      eth0
virbr0  bridge    connected (externally) virbr0
lo     loopback  unmanaged     --
```

```
[root@ITBD-Server ~]# nmcli connection
add      delete   edit      help      load      modify   reload   up
clone    down     export    import    migrate   monitor  show
[root@ITBD-Server ~]# nmcli connection show
NAME      UUID            TYPE      DEVICE
eth0      d3efc8d5-d075-42e1-8daf-168b7edd453f  ethernet  eth0
virbr0   4b4a5632-917c-4da2-9108-06e5d543c040  bridge   virbr0
```

```
nmcli connection add type ethernet con-name static ifname eth0 ipv4.addresses
10.1.1.10/24 ipv4.gateway 10.1.1.1 ipv4.dns 1.1.1.1
```

nmcli connection show

```
[root@ITBD-Server ~]# nmcli connection show
NAME      UUID                                  TYPE      DEVICE
eth0      d3efc8d5-d075-42e1-8daf-168b7edd453f  ethernet  eth0
virbr0    4b4a5632-917c-4da2-9108-06e5d543c040  bridge    virbr0
static    46c0611c-7a7f-4fd0-8d85-3cf08cd3b229  ethernet  --
```

ip a s eth0

```
[root@ITBD-Server ~]# ip a s eth0
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc mq state UP group default qlen 1000
    link/ether 00:15:5d:7b:19:0c brd ff:ff:ff:ff:ff:ff
        inet 192.168.0.164/24 brd 192.168.0.255 scope global dynamic noprefixroute eth0
            valid_lft 4901sec preferred_lft 4901sec
        inet6 fe80::215:5dff:fe7b:190c/64 scope link noprefixroute
            valid_lft forever preferred_lft forever
[root@ITBD-Server ~]
```

cat /etc/sysconfig/network-scripts/ifcfg-static

```
[root@ITBD-Server ~]# cat /etc/sysconfig/network-scripts/ifcfg-static
TYPE=Ethernet
PROXY_METHOD=none
BROWSER_ONLY=no
BOOTPROTO=dhcp
IPADDR=10.1.1.10
PREFIX=24
GATEWAY=10.1.1.1
DNS1=172.25.250.254
DEFROUTE=yes
IPV4_FAILURE_FATAL=no
IPV6INIT=yes
IPV6_AUTOCONF=yes
IPV6_DEFROUTE=yes
IPV6_FAILURE_FATAL=no
IPV6_ADDR_GEN_MODE=default
NAME=static
UUID=ea7a362b-4655-4f50-bc24-20ce3c4dc74a
DEVICE=eth0
ONBOOT=yes
```

nmcli connection up static

```
[root@ITBD-Server ~]# nmcli connection up static
Connection successfully activated (D-Bus active path: /org/freedesktop/NetworkManager/ActiveConnection/3)
```

nmcli connection show

```
[root@ITBD-Server ~]# nmcli connection show
NAME      UUID                                  TYPE      DEVICE
static    46c0611c-7a7f-4fd0-8d85-3cf08cd3b229  ethernet  eth0
virbr0   4b4a5632-917c-4da2-9108-06e5d543c040  bridge    virbr0
eth0      d3efc8d5-d075-42e1-8daf-168b7edd453f  ethernet  --
[root@ITBD-Server ~]
```

ip a s eth0

```
[root@ITBD-Server ~]# ip a s eth0
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc mq state UP group default qlen 1000
  link/ether 00:15:5d:7b:19:0c brd ff:ff:ff:ff:ff:ff
    inet 10.1.1.10/24 brd 10.1.1.255 scope global noprefixroute eth0
      valid_lft forever preferred_lft forever
    inet 192.168.0.164/24 brd 192.168.0.255 scope global dynamic noprefixroute eth0
      valid_lft 7176sec preferred_lft 7176sec
    inet6 fe80::a3cb:8417:7d3e:848a/64 scope link noprefixroute
      valid_lft forever preferred_lft forever
```

nmcli con show --active

```
[root@ITBD-Server ~]# nmcli con show
NAME      UUID                                  TYPE      DEVICE
static    ea7a362b-4655-4f50-bc24-20ce3c4dc74a  ethernet  eth0
virbr0   4b4a5632-917c-4da2-9108-06e5d543c040  bridge    virbr0
eth0      d3efc8d5-d075-42e1-8daf-168b7edd453f  ethernet  --
[root@ITBD-Server ~]#
[root@ITBD-Server ~]# nmcli con show --active
NAME      UUID                                  TYPE      DEVICE
static    ea7a362b-4655-4f50-bc24-20ce3c4dc74a  ethernet  eth0
virbr0   4b4a5632-917c-4da2-9108-06e5d543c040  bridge    virbr0
```

```
nmcli device show eth0
```

```
[root@ITBD-Server ~]# nmcli device show eth0
GENERAL.DEVNAME:                         eth0
GENERAL.TYPE:                            ethernet
GENERAL.HWADDR:                          00:15:5D:7B:19:0C → MAC Address
GENERAL.MTU:                             1500
GENERAL.STATE:                           100 (connected)
GENERAL.CONNECTION:                      static
GENERAL.CON-PATH:                        /org/freedesktop/NetworkManager/ActiveConnection/6
WIRED-PROPERTIES.CARRIER:                on
IP4.ADDRESS[1]:                          192.168.0.164/24 → IPv4 Address
IP4.ADDRESS[2]:                          10.1.1.10/24
IP4.GATEWAY:                            10.1.1.1 → Gateway
IP4.ROUTE[1]:                           dst = 10.1.1.0/24, nh = 0.0.0.0, mt = 100
IP4.ROUTE[2]:                           dst = 0.0.0.0/0, nh = 10.1.1.1, mt = 100
IP4.ROUTE[3]:                           dst = 192.168.0.0/24, nh = 0.0.0.0, mt = 100
IP4.DNS[1]:                            172.25.250.254 → DNS
IP4.DNS[2]:                            192.168.0.1
IP4.DOMAIN[1]:                          itotolink.net
IP6.ADDRESS[1]:                          fe80::e44a:a396:c384:3924/64
IP6.GATEWAY:                            --
IP6.ROUTE[1]:                           dst = fe80::/64, nh = ::, mt = 1024
```

```
nmcli connection modify static ipv4.addresses 192.168.1.1 0/24 ipv4.gateway 192.168.1.1
ipv4.dns 8.8.8.8 ipv4.method manual && nmcli connection down static && nmcli
connection up static
```

```
[root@ITBD-Server ssh]# ip a s eth0
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc mq state UP group default qlen 1000
  link/ether 00:15:5d:7b:19:0c brd ff:ff:ff:ff:ff:ff
    inet 192.168.1.10/24 brd 192.168.1.255 scope global noprefixroute eth0
      valid_lft forever preferred_lft forever
    inet6 fe80::e44a:a396:c384:3924/64 scope link noprefixroute
      valid_lft forever preferred_lft forever
```

```
[root@ITBD-Server ssh]# ip route
default via 192.168.1.1 dev eth0 proto static metric 100
192.168.1.0/24 dev eth0 proto kernel scope link src 192.168.1.10 metric 100
192.168.122.0/24 dev virbr0 proto kernel scope link src 192.168.122.1 linkdown
```

```
[root@ITBD-Server ssh]# nmcli connection down static
Connection 'static' successfully deactivated (D-Bus active path: /org/freedesktop/NetworkManager/ActiveConnection/4)
```

```
[root@ITBD-Server ssh]# nmcli connection show
NAME      UUID                                  TYPE      DEVICE
virbr0   4b4a5632-917c-4da2-9108-06e5d543c040  bridge    virbr0
eth0     d3efc8d5-d075-42e1-8daf-168b7edd453f  ethernet  --
static   46c0611c-7a7f-4fd0-8d85-3cf08cd3b229  ethernet  --
```

```
[root@ITBD-Server ssh]# nmcli connection show
NAME      UUID                                  TYPE      DEVICE
eth0     d3efc8d5-d075-42e1-8daf-168b7edd453f  ethernet  eth0
virbr0   4b4a5632-917c-4da2-9108-06e5d543c040  bridge    virbr0
static   46c0611c-7a7f-4fd0-8d85-3cf08cd3b229  ethernet  --
```

```
[root@ITBD-Server ssh]# ip a s eth0
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc mq state UP group default qlen 1000
    link/ether 00:15:5d:7b:19:0c brd ff:ff:ff:ff:ff:ff
        inet 192.168.0.164/24 brd 192.168.0.255 scope global dynamic noprefixroute eth0
            valid_lft 7192sec preferred_lft 7192sec
        inet6 fe80::215:5dff:fe7b:190c/64 scope link noprefixroute
            valid_lft forever preferred_lft forever
```

```
[root@ITBD-Server ~]# nmcli connection delete static
Connection 'static' (46c0611c-7a7f-4fd0-8d85-3cf08cd3b229) successfully deleted.
```

There is no 'static' connection in your system.

```
[root@ITBD-Server ~]# nmcli connection show
NAME      UUID                                  TYPE      DEVICE
eth0     d3efc8d5-d075-42e1-8daf-168b7edd453f  ethernet  eth0
virbr0   4b4a5632-917c-4da2-9108-06e5d543c040  bridge    virbr0
```

nmcli con mod "static" ipv4.dns 172.25.250.254

```
[root@ITBD-Server ~]# nmcli device show | grep DNS
IP4.DNS[1]:                           172.25.250.254
IP4.DNS[2]:                           192.168.0.1
```

```
[root@ITBD-Server ~]# cat /etc/resolv.conf
# Generated by NetworkManager
search itotolink.net
nameserver 172.25.250.254
nameserver 192.168.0.1
```

```
nmcli connection add type ethernet con-name "my-dhcp" ifname eth0 ipv4.method auto
nmcli connection add type pppoe con-name "my-pppoe" ifname eth0 username "your-
username" password "your-password" ipv4.method auto
```

```
[root@ITBD-Server ~]# hostname
ITBD-Server
[root@ITBD-Server ~]#
[root@ITBD-Server ~]# hostnamectl set-hostname server@itbangladesh.tech
[root@ITBD-Server ~]#
[root@ITBD-Server ~]# hostname
serveritbangladesh.tech
[root@ITBD-Server ~]#
```

```
[root@serveritbangladesh ~]# cat /etc/hostname
serveritbangladesh.tech
[root@serveritbangladesh ~]#
```

```
[root@serveritbangladesh ~]# hostnamectl status
    Static hostname: serveritbangladesh.tech
    Pretty hostname: server@itbangladesh.tech
Transient hostname: status
    Icon name: computer-vm
    Chassis: vm
    Machine ID: 07fa01dfed994616b443e356439b9613
    Boot ID: ec3b7055f06a433d80ab7cba33d317dd
Virtualization: microsoft
Operating System: Red Hat Enterprise Linux 8.7 (Ootpa)
    CPE OS Name: cpe:/o:redhat:enterprise_linux:8::baseos
    Kernel: Linux 4.18.0-425.3.1.el8.x86_64
Architecture: x86-64
```

```
[root@serveritbangladesh ~]# echo "192.168.0.164 itbd-server itbd-server.itbd.tech" >> /etc/hosts
[root@serveritbangladesh ~]# cat /etc/hosts
127.0.0.1 localhost localhost.localdomain localhost4 localhost4.localdomain4
::1 localhost localhost.localdomain localhost6 localhost6.localdomain6
192.168.0.164 itbd-server itbd-server.itbd.tech
[root@serveritbangladesh ~]#
[root@serveritbangladesh ~]# ping itbd-server
PING itbd-server (192.168.0.164) 56(84) bytes of data.
64 bytes from itbd-server (192.168.0.164): icmp_seq=1 ttl=64 time=0.036 ms
64 bytes from itbd-server (192.168.0.164): icmp_seq=2 ttl=64 time=0.096 ms
64 bytes from itbd-server (192.168.0.164): icmp_seq=3 ttl=64 time=0.100 ms
64 bytes from itbd-server (192.168.0.164): icmp_seq=4 ttl=64 time=0.099 ms
^C
--- itbd-server ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3109ms
rtt min/avg/max/mdev = 0.036/0.082/0.100/0.029 ms
[root@serveritbangladesh ~]# ping itbd-server.itbd.tech
PING itbd-server (192.168.0.164) 56(84) bytes of data.
64 bytes from itbd-server (192.168.0.164): icmp_seq=1 ttl=64 time=0.036 ms
64 bytes from itbd-server (192.168.0.164): icmp_seq=2 ttl=64 time=0.099 ms
64 bytes from itbd-server (192.168.0.164): icmp_seq=3 ttl=64 time=0.099 ms
64 bytes from itbd-server (192.168.0.164): icmp_seq=4 ttl=64 time=0.100 ms
^C
--- itbd-server ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3053ms
rtt min/avg/max/mdev = 0.036/0.083/0.100/0.028 ms
[root@serveritbangladesh ~]#
```