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10 "netstat" Command Usage Examples in Linux

by linuxcmd2

12-16 minutes

This tutorial explains Linux “netstat” command, options and its usage with examples.

netstat – Print network connections, routing tables, interface statistics, masquerade connections, and multicast memberships

DESCRIPTION

netstat (network statistics) is a command line tool for monitoring network connections both incoming and outgoing as well as viewing routing tables, interface statistics etc. netstat is available on all Unix-like Operating Systems and also available on Windows OS as well. It is very useful in terms of network troubleshooting and performance measurement. netstat is one of the most basic network service debugging tools, telling you what ports are open and whether any programs are listening on ports.

SYNOPSIS

netstat [-a] [-n] [-v]

netstat [-g | -m | -p | -s | -f address_family] [-n] [-P protocol]

netstat [-i] [-I interface] [interval]

netstat -r [-a] [-n] [-v]

netstat -M [-n] [-s]

netstat -D [-I interface]

OPTIONS :

-a

Show the state of all sockets and all routing table entries; normally, sockets used by server processes are not shown and only interface, host, network, and default routes are shown.

-n

Show network addresses as numbers. netstat normally displays addresses as symbols. This option may be used with any of the display formats.

-v

Verbose. Show additional information for the sockets and the routing table.

-g

Show the multicast group memberships for all interfaces.

-m

Show the STREAMS statistics.

-p

Show the address resolution (ARP) tables.

-s

Show per-protocol statistics. When used with the -M option, show multicast routing statistics instead.

-i

Show the state of the interfaces that are used for TCP/IP traffic.

-r

Show the routing tables.

-M

Show the multicast routing tables. When used with the -s option, show multicast routing statistics instead.

-d

Show the state of all interfaces that are under Dynamic Host Configuration Protocol (DHCP) control.

-D

Show the status of DHCP configured interfaces.

-f address_family

imit statistics or address control block reports to those of the specified address_family, which can be one of:

inet For the AF_INET address family

unix For the AF_Unix address family

-P protocol

Limit display of statistics or state of all sockets to those applicable to protocol.

– I interface

Show the state of a particular interface. interface can be any valid interface such as ie0 or

le0.

EXAMPLES

1. Listing Various Listening Ports

Listing all the LISTENING Ports of TCP and UDP connections

```
# netstat -a | more

Active Internet connections (servers and
established)
Proto Recv-Q Send-Q Local Address
```

```
Foreign Address                State
tcp        0      0 *:sunrpc
*:*                            LISTEN
tcp        0     52 192.168.0.2:ssh
192.168.0.1:egs                ESTABLISHED
tcp        1      0 192.168.0.2:59292
www.gov.com:http               CLOSE_WAIT
tcp        0      0 localhost:smtp
*:*                            LISTEN
tcp        0      0 *:59482
*:*                            LISTEN
udp        0      0 *:35036
*:*
udp        0      0 *:npmp-local
*:*

Active UNIX domain sockets (servers and
established)
Proto RefCnt Flags       Type       State
I-Node Path
unix  2      [ ACC ]     STREAM     LISTENING
16972  /tmp/orbit-root/linc-76b-0-6fa08790553d6
unix  2      [ ACC ]     STREAM     LISTENING
17149  /tmp/orbit-root/linc-794-0-7058d584166d2
unix  2      [ ACC ]     STREAM     LISTENING
17161  /tmp/orbit-root/linc-792-0-546fe905321cc
unix  2      [ ACC ]     STREAM     LISTENING
15938  /tmp/orbit-root/linc-74b-0-415135cb6aeab
```

Listing TCP Ports connections

```
# netstat -at

Active Internet connections (servers and
established)
Proto Recv-Q Send-Q Local Address
Foreign Address             State
tcp        0      0 *:ssh
*:*                         LISTEN
tcp        0      0 localhost:ipp
*:*                         LISTEN
tcp        0      0 localhost:smtp
*:*                         LISTEN
tcp        0     52 192.168.0.2:ssh
192.168.0.1:egs             ESTABLISHED
tcp        1      0 192.168.0.2:59292
www.gov.com:http            CLOSE_WAIT
```

Listing UDP Ports connections

```
# netstat -au

Active Internet connections (servers and
established)
Proto Recv-Q Send-Q Local Address
Foreign Address             State
udp        0      0 *:35036
*:*
udp        0      0 *:npmp-local
*:*
udp        0      0 *:mdns
*:*
```

2. Listing various Listening connections

Listing all LISTENING Connections

```
# netstat -l

Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address
Foreign Address             State
tcp        0      0 *:sunrpc
*:*                         LISTEN
tcp        0      0 *:58642
*:*                         LISTEN
tcp        0      0 *:ssh
*:*                         LISTEN
udp        0      0 *:35036
*:*
udp        0      0 *:npmp-local
*:*

Active UNIX domain sockets (only servers)
Proto RefCnt Flags       Type       State
I-Node Path
unix  2      [ ACC ]     STREAM     LISTENING
16972  /tmp/orbit-root/linc-76b-0-6fa08790553d6
unix  2      [ ACC ]     STREAM     LISTENING
17149  /tmp/orbit-root/linc-794-0-7058d584166d2
unix  2      [ ACC ]     STREAM     LISTENING
17161  /tmp/orbit-root/linc-792-0-546fe905321cc
unix  2      [ ACC ]     STREAM     LISTENING
15938  /tmp/orbit-root/linc-74b-0-415135cb6aeab
```

Listing all TCP Listening Ports

Listing all active listening TCP ports by using option netstat -lt.

```
# netstat -lt

Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address
Foreign Address             State
tcp        0      0 *:dctp
*:*                         LISTEN
tcp        0      0 *:mysql
*:*                         LISTEN
tcp        0      0 *:sunrpc
*:*                         LISTEN
tcp        0      0 *:munin
*:*                         LISTEN
tcp        0      0 *:ftp
*:*                         LISTEN
tcp        0      0 localhost.localdomain:ipp
*:*                         LISTEN
tcp        0      0 localhost.localdomain:smtp
*:*                         LISTEN
tcp        0      0 *:http
*:*                         LISTEN
tcp        0      0 *:ssh
*:*                         LISTEN
tcp        0      0 *:https
*:*                         LISTEN
```

Listing all UDP Listening Ports

Listing all active listening UDP ports by using option netstat -lu.

```
# netstat -lu

Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address
Foreign Address             State
udp        0      0 *:39578
*:*
udp        0      0 *:meregister
*:*
udp        0      0 *:vpps-qua
*:*
udp        0      0 *:openvpn
*:*
udp        0      0 *:mdns
*:*
udp        0      0 *:sunrpc
*:*
udp        0      0 *:ipp
*:*
udp        0      0 *:60222
*:*
udp        0      0 *:mdns
*:*
```

3. Showing Statistics by Different Protocols

Showing statistics of all protocols

```
# netstat -s
```

```
Ip:
    2461 total packets received
    0 forwarded
    0 incoming packets discarded
    2431 incoming packets delivered
    2049 requests sent out
Icmp:
    0 ICMP messages received
    0 input ICMP message failed.
    ICMP input histogram:
    1 ICMP messages sent
    0 ICMP messages failed
    ICMP output histogram:
        destination unreachable: 1
Tcp:
    159 active connections openings
    1 passive connection openings
    4 failed connection attempts
    0 connection resets received
    1 connections established
    2191 segments received
    1745 segments send out
    24 segments retransmited
    0 bad segments received.
    4 resets sent
Udp:
    243 packets received
    1 packets to unknown port received.
    0 packet receive errors
    281 packets sent
```

Showing Statistics by TCP Protocol

```
# netstat -st

Tcp:
    2805201 active connections openings
    1597466 passive connection openings
    1522484 failed connection attempts
    37806 connection resets received
    1 connections established
    57718706 segments received
    64280042 segments send out
    3135688 segments retransmited
    74 bad segments received.
    17580 resets sent
```

Showing Statistics by UDP Protocol

```
# netstat -su

Udp:
    1774823 packets received
    901848 packets to unknown port received.
    0 packet receive errors
    2968722 packets sent
```

4. Displaying Service name with PID

```
# netstat -tp

Active Internet connections (w/o servers)
Proto Recv-Q Send-Q Local Address
Foreign Address             State
```

```
PID/Program name
tcp        0      0 192.168.0.2:ssh
192.168.0.1:egs             ESTABLISHED 2179/sshd
tcp        1      0 192.168.0.2:59292
www.gov.com:http            CLOSE_WAIT
1939/clock-applet
```

5. Display Kernel IP routing table

```
# netstat -r

Kernel IP routing table
Destination     Gateway         Genmask
Flags   MSS Window  irtt Iface
192.168.0.0     *               255.255.255.0   U
0 0          0 eth0
link-local      *               255.255.0.0     U
0 0          0 eth0
default         192.168.0.1     0.0.0.0         UG
0 0          0 eth0
```

6. Showing network interface packet transactions

```
# netstat -i

Kernel Interface table
Iface       MTU Met    RX-OK RX-ERR RX-DRP RX-OVR
TX-OK TX-ERR TX-DRP TX-OVR Flg
eth0       1500   0     4459      0      0      0
4057      0      0      0 BMRU
lo        16436   0        8      0      0      0
8      0      0      0 LRU
```

7. Showing Kernel interface table, similar to ifconfig command.

```
# netstat -ie

Kernel Interface table
eth0      Link encap:Ethernet  HWaddr
00:0C:29:B4:DA:21
          inet addr:192.168.0.2
Bcast:192.168.0.255  Mask:255.255.255.0
          inet6 addr: fe80::20c:29ff:feb4:da21/64
Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500
Metric:1
          RX packets:4486 errors:0 dropped:0
overruns:0 frame:0
          TX packets:4077 errors:0 dropped:0
overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:2720253 (2.5 MiB)  TX
bytes:1161745 (1.1 MiB)
          Interrupt:18 Base address:0x2000

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:16436  Metric:1
          RX packets:8 errors:0 dropped:0
overruns:0 frame:0
          TX packets:8 errors:0 dropped:0
overruns:0 carrier:0
```

```
          collisions:0 txqueuelen:0
          RX bytes:480 (480.0 b)  TX bytes:480
(480.0 b)
```

8. Print Netstat Information Continuously

```
# netstat -c

Active Internet connections (w/o servers)
Proto Recv-Q Send-Q Local Address
Foreign Address             State
tcp        0      0 tecmint.com:http
sg2nlhg007.shr.prod.s:36944 TIME_WAIT
tcp        0      0 tecmint.com:http
sg2nlhg010.shr.prod.s:42110 TIME_WAIT
tcp        0    132 tecmint.com:ssh
115.113.134.3.static-:64662 ESTABLISHED
tcp        0      0 tecmint.com:http   crawl-
66-249-71-240.g:41166 TIME_WAIT
tcp        0      0 localhost.localdomain:54823
localhost.localdomain:smtp  TIME_WAIT
tcp        0      0 localhost.localdomain:54822
localhost.localdomain:smtp  TIME_WAIT
tcp        0      0 tecmint.com:http
sg2nlhg010.shr.prod.s:42091 TIME_WAIT
tcp        0      0 tecmint.com:http
sg2nlhg007.shr.prod.s:36998 TIME_WAIT
```

9. Finding Listening Programs

```
# netstat -ap | grep http
```

```
tcp        0      0 *:http
*:*                         LISTEN      9056/httpd
tcp        0      0 *:https
*:*                         LISTEN      9056/httpd
tcp        0      0 tecmint.com:http
sg2nlhg008.shr.prod.s:35248 TIME_WAIT   -
tcp        0      0 tecmint.com:http
sg2nlhg007.shr.prod.s:57783 TIME_WAIT   -
tcp        0      0 tecmint.com:http
sg2nlhg007.shr.prod.s:57769 TIME_WAIT   -
tcp        0      0 tecmint.com:http
sg2nlhg008.shr.prod.s:35270 TIME_WAIT   -
tcp        0      0 tecmint.com:http
sg2nlhg009.shr.prod.s:41637 TIME_WAIT   -
tcp        0      0 tecmint.com:http
sg2nlhg009.shr.prod.s:41614 TIME_WAIT   -
unix  2      [ ]         STREAM     CONNECTED
88586726 10394/httpd
```

10. Displaying RAW Network Statistics

```
# netstat --statistics --raw

Ip:
    62175683 total packets received
    52970 with invalid addresses
    0 forwarded
Icmp:
    875519 ICMP messages received
        destination unreachable: 901671
        echo request: 8
```

```
        echo replies: 16253
IcmpMsg:
        InType0: 83
IpExt:
    InMcastPkts: 117
```

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