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UNIX / Linux: 10 Netstat Command Examples

by SATHIYAMOORTHY *on* MARCH 29, 2010

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Netstat command displays various network related information such as network connections, routing tables, interface statistics, masquerade connections, multicast memberships etc.,

In this article, let us review 10 practical unix **netstat command** examples.

1. List All Ports (both listening and non listening ports)

List all ports using netstat -a

```
# netstat -a | more
Active Internet connections (servers and established)
Proto Recv-Q Send-Q Local Address          Foreign Address         State
tcp        0      0 localhost:30037         *:*                     LISTE
udp        0      0 *:bootpc                *:*


Active UNIX domain sockets (servers and established)
Proto RefCnt Flags       Type       State       I-Node    Path
unix  2      [ ACC ]     STREAM     LISTENING    6135      /tmp/.X11-unix
unix  2      [ ACC ]     STREAM     LISTENING    5140      /var/run/acpid
```

List all tcp ports using netstat -at

```
# netstat -at
Active Internet connections (servers and established)
Proto Recv-Q Send-Q Local Address          Foreign Address         State
```

```
tcp        0      0 localhost:30037          *:*                      LISTE
tcp        0      0 localhost:ipp            *:*                      LISTE
tcp        0      0 *:smtp                   *:*                      LISTE
tcp6       0      0 localhost:ipp            [::]:*                   LISTE
```

List all udp ports using netstat -au

```
# netstat -au
Active Internet connections (servers and established)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
udp        0      0 *:bootpc                 *:*
udp        0      0 *:49119                  *:*
udp        0      0 *:mdns                   *:*
```

2. List Sockets which are in Listening State

List only listening ports using netstat -l

```
# netstat -l
Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
tcp        0      0 localhost:ipp            *:*                      LISTE
tcp6       0      0 localhost:ipp            [::]:*                   LISTE
udp        0      0 *:49119                  *:*
```

List only listening TCP Ports using netstat -lt

```
# netstat -lt
Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
tcp        0      0 localhost:30037          *:*                      LISTE
tcp        0      0 *:smtp                   *:*                      LISTE
tcp6       0      0 localhost:ipp            [::]:*                   LISTE
```

List only listening UDP Ports using netstat -lu

```
# netstat -lu
Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
udp        0      0 *:49119                  *:*
udp        0      0 *:mdns                   *:*
```

List only the listening UNIX Ports using netstat -lx

```
# netstat -lx
Active UNIX domain sockets (only servers)
Proto RefCnt Flags       Type       State      I-Node   Path
unix  2      [ ACC ]     STREAM     LISTENING  6294     private/maildr
unix  2      [ ACC ]     STREAM     LISTENING  6203     public/cleanup
unix  2      [ ACC ]     STREAM     LISTENING  6302     private/ifmail
unix  2      [ ACC ]     STREAM     LISTENING  6306     private/bsmtp
```

3. Show the statistics for each protocol

Show statistics for all ports using netstat -s

```
# netstat -s
Ip:
    11150 total packets received
    1 with invalid addresses
    0 forwarded
    0 incoming packets discarded
    11149 incoming packets delivered
    11635 requests sent out
Icmp:
    0 ICMP messages received
    0 input ICMP message failed.
Tcp:
    582 active connections openings
    2 failed connection attempts
    25 connection resets received
Udp:
    1183 packets received
    4 packets to unknown port received.
.....
```

Show statistics for TCP (or) UDP ports using netstat -st (or) -su

```
# netstat -st


# netstat -su
```

4. Display PID and program names in netstat output using netstat -p

netstat -p option can be combined with any other netstat option. This will add the
"PID/Program Name" to the netstat output. This is very useful while debugging to identify
which program is running on a particular port.

```
# netstat -pt
Active Internet connections (w/o servers)
Proto Recv-Q Send-Q Local Address          Foreign Address         State
tcp        1      0 ramesh-laptop.loc:47212 192.168.185.75:www          CLO
tcp        0      0 ramesh-laptop.loc:52750 lax:www ESTABLISHED 2109/fire
```

5. Don't resolve host, port and user name in netstat output

When you don't want the name of the host, port or user to be displayed, use netstat -n
option. This will display in numbers, instead of resolving the host name, port name, user
name.

This also speeds up the output, as netstat is not performing any look-up.

```
# netstat -an
```

If you don't want only any one of those three items (ports, or hosts, or users) to be
resolved, use following commands.

```
# netsat -a --numeric-ports


# netsat -a --numeric-hosts


# netsat -a --numeric-users
```

6. Print netstat information continuously

netstat will print information continuously every few seconds.

```
# netstat -c

Active Internet connections (w/o servers)

Proto Recv-Q Send-Q Local Address          Foreign Address         State
tcp       0        0 ramesh-laptop.loc:36130 101-101-181-225.ama:www ESTAB
tcp       1        1 ramesh-laptop.loc:52564 101.11.169.230:www       CLOSI
tcp       0        0 ramesh-laptop.loc:43758 server-101-101-43-2:www ESTAB
tcp       1        1 ramesh-laptop.loc:42367 101.101.34.101:www       CLOSI
^C
```

7. Find the non supportive Address families in your system

```
netstat --verbose
```

At the end, you will have something like this.

```
    netstat: no support for `AF IPX' on this system.
    netstat: no support for `AF AX25' on this system.
    netstat: no support for `AF X25' on this system.
    netstat: no support for `AF NETROM' on this system.
```

8. Display the kernel routing information using netstat -r

```
# netstat -r

Kernel IP routing table

Destination      Gateway         Genmask         Flags   MSS Window  irtt
192.168.1.0      *               255.255.255.0   U         0 0          0
```

```
link-local       *                255.255.0.0    U        0 0          0
default          192.168.1.1      0.0.0.0        UG       0 0          0
```

Note: Use netstat -rn to display routes in numeric format without resolving for host-names.

9. Find out on which port a program is running

```
# netstat -ap | grep ssh
(Not all processes could be identified, non-owned process info
 will not be shown, you would have to be root to see it all.)
tcp        1      0 dev-db:ssh            101.174.100.22:39213         CLOS
tcp        1      0 dev-db:ssh            101.174.100.22:57643         CLOS
```

Find out which process is using a particular port:

```
# netstat -an | grep ':80'
```

10. Show the list of network interfaces

```
# netstat -i
Kernel Interface table
Iface    MTU Met   RX-OK RX-ERR RX-DRP RX-OVR    TX-OK TX-ERR TX-DRP TX-OV
eth0      1500 0        0       0      0 0            0       0       0
eth2      1500 0    26196       0      0 0        26883       6       0
lo       16436 0        4       0      0 0            4       0       0
```

Display extended information on the interfaces (similar to ifconfig) using netstat -ie:

```
# netstat -ie
Kernel Interface table
eth0      Link encap:Ethernet  HWaddr 00:10:40:11:11:11
          UP BROADCAST MULTICAST  MTU:1500  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
```

```
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)
          Memory:f6ae0000-f6b00000
```

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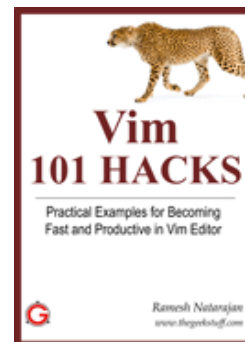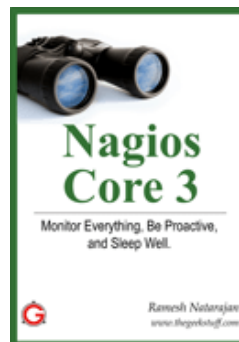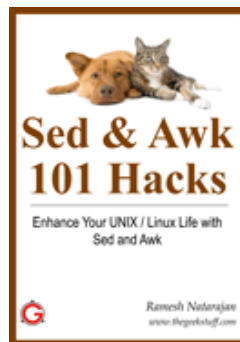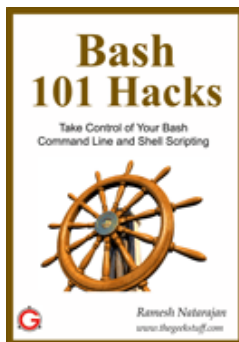
Tagged as: Linux netstat command, netstat command, Unix netstat command

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logoff   March 29, 2010, 2:31 am

my favourite netstat combination is sudo netstat -pnutl

it needs sudo to see all the applications names, but it works without it, but shows less information

Athul March 29, 2010, 3:06 am

Ramesh ,

Good stuff . Thing I wanted to try out , but felt too lazy to read the man.

Commy April 6, 2010, 12:21 am

Great stuff, so many things can be achieved by using netstat i.e 'netstat -ie' can
be used in the place of 'ifconfig ethX' and 'netstat -r' in the place of 'route -n'.

Thanx Ramesh.

diptanu April 6, 2010, 1:25 am

excellent article for network stuff specially the netsatat -pt and netstat -c..
But would like to also know (if possible) the meaning of timer in netstat and how to
interpret the same..In man page its showing (this needs to be written)
Thanking you all again

hideaki May 6, 2010, 4:32 pm

netstat is pretty archaic. You should be using /sbin/ss on Linux.

Prachi November 9, 2010, 11:33 pm

what is the output of the following command:
netstat -anp

Vimarsh   January 17, 2011, 11:05 am

netstat -l and netstat -p are not working on AIX. not sure about other flavors

Vimarsh   January 17, 2011, 11:05 am

$ netstat -p
netstat: A flag requires a parameter: p
usage: netstat [-Aan] [-f address_family] [core unix netinet addr]
[-D]
[-cCgimnrsPv] [-f address_family] [-p proto] [core unix netinet addr]
[-n] [-I interface] [interval] [core unix netinet addr]
$ uname
AIX
$ netstat -l
netstat: Not a recognized flag: l
usage: netstat [-Aan] [-f address_family] [core unix netinet addr]
[-D]
[-cCgimnrsPv] [-f address_family] [-p proto] [core unix netinet addr]
[-n] [-I interface] [interval] [core unix netinet addr]
$

Leon   February 7, 2011, 3:02 pm

i sometimes use the following command to see all active connections

$netstat -atnp |grep ESTA

or in realtime

$watch -d -n0 "netstat -atnp |grep ESTA"

cheers

Atul Khachanel   May 5, 2011, 9:14 am

Nice explanation on netstat 🙂

prathamesh   June 14, 2011, 8:46 pm

How you can add system time in netstat ? like system time .. netstat output..

vibhi   June 29, 2011, 6:38 am

explain netstat -plten

Dilip Bhapkar   September 13, 2011, 8:37 am

Overall Good site to brush Skill !! Well Gatering of information!!!

Abhijit   January 3, 2012, 2:39 pm

Awesome stuff !! Keep writing more Ramesh..

Adrian   January 9, 2012, 9:20 am

For a basic usage this is much better than reading the man page. Thank u very much!

Musab March 6, 2012, 10:07 am

Dear Ramesh
I cannot express my thanks and regards to you, what a beautiful work you are doing my friend.
Don't have any words to say
Thanks a ton for helping us

mina April 22, 2012, 6:00 am

that was great.thank u

venkata April 26, 2012, 3:13 pm

Nice clarification on Netstat.

Thanks

Mohamed April 30, 2012, 3:04 am

Great stuff, thanks for sharing

Thanks a lot

imtiyaj May 2, 2012, 4:51 am

Thankx for perfect explanation

Vj May 2, 2012, 10:38 am

Great stuff, pretty useful.
I have one question, can someone please help?

How do we find out the historic usage of a port.
For example I want to know what all processes/pids connected to particular port in last 24 hours?

cven June 28, 2012, 4:40 am

Pentastic , very much useful

Te July 1, 2012, 10:41 pm

Below is the output of the netstat command with -n & -r options in which the destination field shows compacted address (127.1/16). I wanted to know that is there any way or options available to netstat command to display entire Destination IP (127.1.0.0/16) rather than (127.1/16) ?

#netstat -r -n
Destination Gateway Flags Refs Use Mtu Interface
127.0.0.1 127.0.0.1 UH 110 296172 33212 lo0
127.1/16 link#7 UC 2 0 – vlan10

Plz Suggest….

Iranna G October 27, 2012, 1:43 am

Very informative article. Thanks.

sri December 8, 2012, 2:20 pm

I have output of netstat -nr as below
161.129/28 161.131.208.1 UG 0 534925 en1 – –
what does 161.129/28 mean ? Please clarify

kel December 30, 2012, 9:12 pm

hi，guys，very good article,but could you plz explain the output of netstat
for exapmle,the netstat -tunlp
there have some port dont have pid and program name,so ,tell me why
thanks~

vimal January 2, 2013, 10:21 am

Awesome Unix stuff……Superb……

Sanjay K January 20, 2013, 11:14 pm

What is the TIME_WAIT in netstat output ?

sai February 4, 2013, 11:26 pm

Great article ty for your efforts in making such an understandable article..

steve March 22, 2013, 2:00 am

this is great but misses a critical point… it is not enough to know the commands or visualize the output from those commands. Critical is to be able to interpret the meaning & impact of the intelligence

Q: is there a tutorial on this?

LINK

VasudevanRao April 8, 2013, 11:44 pm

Hi,

Wonderful and awesome Linux-Unix examples.

Vasu Rao

LINK

Mayur April 19, 2013, 6:09 am

i have thousands of zipped tarfiles(ab.tar.gz, km.tar.gz,.. etc) in a directory named say dir1 .now i want to find all files (along with path) in zipped tar files in which a particular word say 'mayur' is existing.

Which command we should use!!!

LINK

Ashish June 16, 2013, 6:15 pm

@Mayur

You can just zgrep mayur /path

LINK

Harish August 18, 2013, 10:50 pm

Very good stuff…….Thank u..

LINK

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duskoKoscica December 6, 2013, 6:22 am

Interesting story, but in Windows some things could be hidden beyond the reach
of this netstat thing.
How is it with Linux things.

LINK

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shanthan January 26, 2014, 9:28 am

I use netstat to check if the pythonscript is completely stoped check the port is
listening and getting traffic, i need to make sure traffic is zero before starting the script. if
not it iwll not start properly.
netatat -l | grep 1000 | wc -l
1000 is port and wc -l counts the traffic.

LINK

Anonymous June 25, 2014, 3:33 am

God Bless you Ramesh

LINK

Any July 3, 2014, 11:50 pm

netstat -tunap|grep vsftpd

or

netstat -tunap|grep Port

Lalu July 30, 2015, 4:45 am

Awesome Article about netstat.Thank you so much

Ricardo Altares May 19, 2016, 4:49 pm

Great and helpful hints

Meena March 15, 2017, 7:30 am

Hi all,
How to check packet loss with in Linux box?

siva May 9, 2017, 8:57 am

have a question here !!

how to check the process id with the port number in linux and AIX?

cat /proc/sys/kernel/threads-max what is the need of this file and if i change the value ,will it require reboot to reflect to process the jobs?

Madhavi ala July 28, 2017, 11:49 am

Excellent tutorial for Netstat commands

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My name is **Ramesh Natarajan**. I will be posting instruction guides, how-to, troubleshooting tips and tricks on Linux, database, hardware, security and web. My focus is to write articles that will either teach you or help you resolve a problem. Read more about Ramesh Natarajan and the blog.

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