Rocky Enterprise Linux 9.2 Manual Pages on command 'netstat.8'

$ man netstat.8

NETSTAT(8) Linux System Administrator's Manual NETSTAT(8)

NAME

netstat - Print network connections, routing tables, interface statis?

tics, masquerade connections, and multicast memberships

SYNOPSIS

netstat [address_family_options] [--tcp|-t] [--udp|-u] [--udplite|-U]

[--sctp|-S] [--raw|-w] [--l2cap|-2] [--rfcomm|-f] [--listening|-l]

[--all|-a] [--numeric|-n] [--numeric-hosts] [--numeric-ports] [--nu?

meric-users] [--symbolic|-N] [--extend|-e[--extend|-e]] [--timers|-o]

[--program|-p] [--verbose|-v] [--continuous|-c] [--wide|-W] [delay]

netstat {--route|-r} [address_family_options] [--extend|-e[--ex?

tend|-e]] [--verbose|-v] [--numeric|-n] [--numeric-hosts] [--nu?

meric-ports] [--numeric-users] [--continuous|-c] [delay]

netstat {--interfaces|-I|-i} [--all|-a] [--extend|-e] [--verbose|-v]

[--program|-p] [--numeric|-n] [--numeric-hosts] [--numeric-ports]

[--numeric-users] [--continuous|-c] [delay]

netstat {--groups|-g} [--numeric|-n] [--numeric-hosts] [--nu?

meric-ports] [--numeric-users] [--continuous|-c] [delay]

netstat {--masquerade|-M} [--extend|-e] [--numeric|-n] [--nu?

meric-hosts] [--numeric-ports] [--numeric-users] [--continuous|-c] [de?

lay]

netstat {--statistics|-s} [--tcp|-t] [--udp|-u] [--udplite|-U]

[--sctp|-S] [--raw|-w] [delay]

netstat {--version|-V}

netstat {--help|-h}

address_family_options:

[-4|--inet] [-6|--inet6] [--proto?

col={inet,inet6,unix,ipx,ax25,netrom,ddp,bluetooth, ... }] [--unix|-x]

[--inet|--ip|--tcpip] [--ax25] [--x25] [--rose] [--ash] [--bluetooth]

[--ipx] [--netrom] [--ddp|--appletalk] [--econet|--ec]

NOTES

This program is mostly obsolete. Replacement for netstat is ss. Re?

placement for netstat -r is ip route. Replacement for netstat -i is ip

-s link. Replacement for netstat -g is ip maddr.

DESCRIPTION

Netstat prints information about the Linux networking subsystem. The

type of information printed is controlled by the first argument, as

follows:

(none)

By default, netstat displays a list of open sockets. If you don't

specify any address families, then the active sockets of all configured

address families will be printed.

--route, -r

Display the kernel routing tables. See the description in route(8) for

details. netstat -r and route -e produce the same output.

--groups, -g

Display multicast group membership information for IPv4 and IPv6.

--interfaces=iface , -I=iface , -i

Display a table of all network interfaces, or the specified iface.

--masquerade, -M

Display a list of masqueraded connections.

--statistics, -s

Display summary statistics for each protocol.

OPTIONS

--verbose, -v

Tell the user what is going on by being verbose. Especially print some useful information about unconfigured address families.

--wide, -W

Do not truncate IP addresses by using output as wide as needed. This is optional for now to not break existing scripts.

--numeric, -n

Show numerical addresses instead of trying to determine symbolic host, port or user names.

--numeric-hosts

shows numerical host addresses but does not affect the resolution of port or user names.

--numeric-ports

shows numerical port numbers but does not affect the resolution of host or user names.

--numeric-users

shows numerical user IDs but does not affect the resolution of host or port names.

--protocol=family, -A

Specifies the address families (perhaps better described as low level protocols) for which connections are to be shown. family is a comma (',') separated list of address family keywords like inet, inet6, unix, ipx, ax25, netrom, econet, ddp, and bluetooth. This has the same ef? fect as using the --inet|-4, --inet6|-6, --unix|-x, --ipx, --ax25, --netrom, --ddp, and --bluetooth options.

The address family inet (Iv4) includes raw, udp, udplite and tcp proto? col sockets.

The address family bluetooth (Iv4) includes l2cap and rfcomm protocol sockets.

-c, --continuous

This will cause netstat to print the selected information every second continuously.

-e, --extend

Display additional information. Use this option twice for maximum de? tail.

-o, --timers

Include information related to networking timers.

-p, --program

Show the PID and name of the program to which each socket belongs.

-l, --listening

Show only listening sockets. (These are omitted by default.)

-a, --all

Show both listening and non-listening (for TCP this means established connections) sockets. With the --interfaces option, show interfaces that are not up

-F

Print routing information from the FIB. (This is the default.)

-C

Print routing information from the route cache.

delay

Netstat will cycle printing through statistics every delay seconds.

OUTPUT

Active Internet connections (TCP, UDP, UDPLite, raw)

Proto

The protocol (tcp, udp, udpl, raw) used by the socket.

Recv-Q

Established: The count of bytes not copied by the user program con? nected to this socket. Listening: Since Kernel 2.6.18 this column con? tains the current syn backlog.

Send-Q

Established: The count of bytes not acknowledged by the remote host. Listening: Since Kernel 2.6.18 this column contains the maximum size of the syn backlog.

Local Address

Address and port number of the local end of the socket. Unless the --numeric (-n) option is specified, the socket address is resolved to its canonical host name (FQDN), and the port number is translated into the corresponding service name.

Foreign Address

Address and port number of the remote end of the socket. Analogous to "Local Address".

State

The state of the socket. Since there are no states in raw mode and usu? ally no states used in UDP and UDPLite, this column may be left blank. Normally this can be one of several values:

ESTABLISHED

The socket has an established connection.

SYN_SENT

The socket is actively attempting to establish a connection.

SYN_RECV

A connection request has been received from the network.

FIN_WAIT1

The socket is closed, and the connection is shutting down.

FIN_WAIT2

Connection is closed, and the socket is waiting for a shutdown from the remote end.

TIME_WAIT

The socket is waiting after close to handle packets still in the network.

CLOSE The socket is not being used.

CLOSE_WAIT

The remote end has shut down, waiting for the socket to close.

LAST_ACK

The remote end has shut down, and the socket is closed. Waiting for acknowledgement.

LISTEN The socket is listening for incoming connections. Such sockets

are not included in the output unless you specify the --listen?
ing (-l) or --all (-a) option.

CLOSING

Both sockets are shut down but we still don't have all our data sent.

UNKNOWN

The state of the socket is unknown.

User

The username or the user id (UID) of the owner of the socket.

PID/Program name

Slash-separated pair of the process id (PID) and process name of the process that owns the socket. --program causes this column to be in? cluded. You will also need superuser privileges to see this informa? tion on sockets you don't own. This identification information is not yet available for IPX sockets.

Timer

TCP timer associated with this socket. The format is timer(a/b/c). The timer is one of the following values:

off There is no timer set for this socket.

on The retransmission timer is active for the socket.

keepalive

The keepalive timer is active for the socket.

timewait

The connection is closing and the timewait timer is active for the socket.

The values in the brackets:

a Timer value.

b Number of retransmissions sent.

c Number of keepalives sent.

Active UNIX domain Sockets

Proto

The protocol (usually unix) used by the socket.

RefCnt

The reference count (i.e. attached processes via this socket).

Flags

The flags displayed is SO_ACCEPTON (displayed as ACC), SO_WAITDATA (W) or SO_NOSPACE (N). SO_ACCECPTON is used on unconnected sockets if their corresponding processes are waiting for a connect request. The other flags are not of normal interest.

Type

There are several types of socket access:

SOCK_DGRAM

The socket is used in Datagram (connectionless) mode.

SOCK_STREAM

This is a stream (connection) socket.

SOCK_RAW

The socket is used as a raw socket.

SOCK_RDM

This one serves reliably-delivered messages.

SOCK_SEQPACKET

This is a sequential packet socket.

SOCK_PACKET

Raw interface access socket.

UNKNOWN

Who ever knows what the future will bring us - just fill in here :-)

State

This field will contain one of the following Keywords:

FREE The socket is not allocated

LISTENING

The socket is listening for a connection request. Such sockets are only included in the output if you specify the --listening (-l) or --all (-a) option.

CONNECTING

The socket is about to establish a connection.

CONNECTED

The socket is connected.

DISCONNECTING

The socket is disconnecting.

(empty)

The socket is not connected to another one.

UNKNOWN

This state should never happen.

PID/Program name

Process ID (PID) and process name of the process that has the socket open. More info available in Active Internet connections section writ? ten above.

Path

This is the path name as which the corresponding processes attached to the socket.

Active IPX sockets

(this needs to be done by somebody who knows it)

Active NET/ROM sockets

(this needs to be done by somebody who knows it)

Active AX.25 sockets

(this needs to be done by somebody who knows it)

FILES

/etc/services -- The services translation file

/proc -- Mount point for the proc filesystem, which gives access to kernel status information via the following files.

/proc/net/dev -- device information

/proc/net/raw -- raw socket information

/proc/net/tcp -- TCP socket information

/proc/net/udp -- UDP socket information

/proc/net/udplite -- UDPLite socket information

/proc/net/igmp -- IGMP multicast information

/proc/net/unix -- Unix domain socket information

/proc/net/ipx -- IPX socket information

/proc/net/ax25 -- AX25 socket information

/proc/net/appletalk -- DDP (appletalk) socket information

/proc/net/nr -- NET/ROM socket information

/proc/net/route -- IP routing information

/proc/net/ax25_route -- AX25 routing information

/proc/net/ipx_route -- IPX routing information

/proc/net/nr_nodes -- NET/ROM nodelist

/proc/net/nr_neigh -- NET/ROM neighbours

/proc/net/ip_masquerade -- masqueraded connections

/sys/kernel/debug/bluetooth/l2cap -- Bluetooth L2CAP information

/sys/kernel/debug/bluetooth/rfcomm -- Bluetooth serial connections

/proc/net/snmp -- statistics

SEE ALSO

route(8), ifconfig(8), iptables(8), proc(5) ss(8) ip(8)

BUGS

Occasionally strange information may appear if a socket changes as it is viewed. This is unlikely to occur.

AUTHORS

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