SS Inspect sockets

Socket type -t -u -x -4 -6 → `state / -l / -a` → **State filter** state established → `expression` → **Address filter** sport = :443 → `-n -p -e -i` → **Output** columns + extras

CONCEPTS

With no options ss shows only connected sockets. Add -l for listening ones, -a for both.

Process info (-p) only shows sockets you own unless you run ss as root.

SELECT SOCKETS

`ss -t`
TCP connections

`ss -u`
UDP sockets

`ss -x`
Unix domain sockets

`ss -l`
Only listening sockets

`ss -a`
Listening and connected

`ss -4 / ss -6`
Only IPv4 / IPv6

`ss -w`
Raw sockets

`ss -0`
Packet sockets

`ss -A <type>,<type>`
Pick socket types by name

`ss -f <family>`
Only one address family

OUTPUT CONTROL

`ss -n`
Numeric ports and addresses

`ss -p`
Show owning process

`ss -r`
Resolve host names

`ss -H`
No header line

`ss -O`
One line per socket

`ss -e`
Extended info (uid, inode)

`ss -o`
Show timers (keepalive, timewait)

`ss -m`
Socket memory usage

`ss -i`
TCP internals (rtt, cwnd, retrans)

`ss -s`
Summary of socket counts

FILTER BY STATE

`ss -t state established`
Only established

`ss -t state listening`
Only listening TCP

FILTER BY STATE (cont.)

`ss -t state time-wait`
Sockets in TIME-WAIT

`ss -t state close-wait`
Peer closed, app has not

`ss -t state syn-recv`
Half-open incoming handshakes

`ss -t state connected`
Any non-listening state

`ss -t exclude <state>`
Everything except a state

FILTER BY ADDRESS

`ss -tn 'sport = :<port>'`
Local port equals

`ss -tn 'dport = :<port>'`
Remote port equals

`ss -tn dst <ip>`
Remote address

`ss -tn src <ip>`
Local address

`ss -tn dst <net>/<mask>`
Remote subnet

`ss -tn dst <ip>:<port>`
Remote host and port

`ss -tn 'sport > :1024'`
Port comparison

FILTER BY ADDRESS (cont.)

`ss -tn '( sport = :80 or sport = :443 )'`
Combine with or / and

`ss -tn 'dport = :ssh'`
Service name instead of number

`ss -x src <path>`
Unix socket by path

READING THE TABLE

Columns

Column	Meaning
`Netid`	Socket type: tcp, udp, u_str
`State`	LISTEN, ESTAB, TIME-WAIT…
`Recv-Q`	Bytes not yet read by the app
`Send-Q`	Bytes not yet acked by the peer
`Local Address:Port`	This end of the socket
`Peer Address:Port`	Remote end; * if none
`Process`	users:((name,pid,fd)) with -p

READING THE TABLE (cont.)

On a LISTEN socket

Column	Means
`Recv-Q`	Connections waiting for accept()
`Send-Q`	Configured backlog size

Local 0.0.0.0 or [::] means all interfaces; 127.0.0.1 is reachable only from this host.

RECIPES

What is using port 8080?

```
sudo ss -ltnp 'sport
= :8080'
# no output means nothing is
listening
```

Count connections per state

```
ss -tanH | awk '{print $1}'
| sort | uniq -c | sort -rn
```

Top remote hosts by connections

```
ss -tnH state established |
awk '{print $4}' \
  | cut -d: -f1 | sort |
uniq -c | sort -rn | head
```

Watch listeners live

```
watch -n 1 'ss -tulpn'
# slow connection: ss -ti
dst <ip>
```