

hyper-v ubuntu????????????sar tcpdump??

Hyper-V Ubuntu 18.04 “ ” “ ”

????????????“?????”?

“ ”

- TCP/UDP netstat ss
- Mbps pps
- /

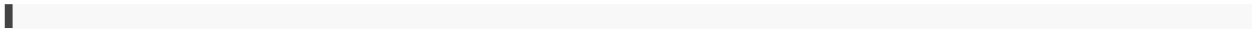
“ ”

- socket ulimit net.core.somaxconn
- 1 Gbps
- Hyper-V

????????????Ubuntu 18.04?

1. ?????????????“?????”?

```
# TCP  
ss -t | wc -l  
  
# ESTABLISHED “ ”  
ss -t state established | wc -l  
  
#  
ss -tulpn
```




```
cat /proc/sys/net/netfilter/nf_conntrack_max
```

```
#
```

```
cat /proc/sys/net/netfilter/nf_conntrack_count
```

```
nf_conntrack_count nf_conntrack_max
```

5. ??????????????????

```
iperf3
```

```
#
```

```
iperf3 -s
```

```
# Ubuntu
```

```
iperf3 -c <server_ip> -t 30 -P 8
```

```
TCP/UDP Mbps
```

? ??Hyper-V ???????

1. Integration Services

```
Ubuntu linux-virtual Hyper-V
```

```
lsmod | grep hv_
```

```
hv_netvsc hv_storvsc
```

2. ?????????

-
- /NAT

3. ?????????

```
Ubuntu
```

```
# GRO Generic Receive Offload
```

```
sudo ethtool -K eth0 gro off
```

? ?????????????????

```
/
```



```
# cat eth0
sar -n DEV 1 | grep eth0
```

? ????????

rxpck/s	██████████
txpck/s	██████████
rxkB/s	██████████ ≈███
txkB/s	██████████
rxerr/s	██████████████
txerr/s	██████████████
rxdrop/s	██████████████
txdrop/s	██████

```
“” rxerr/s rxdrop/s > 0 ████████████████████
```

? ????? tcpdump ????? TCP
????????????????

1. ??????????????

```
# cat 10.2.2.227 pcap
sudo tcpdump -i eth0 host 10.2.2.227 -w iperf_test.pcap
```

```
iperf3 -c 10.2.2.227 -P 8 -t 10 Ctrl+C
```

2. ??????????????????

```
# cat TCP Retransmission
sudo tcpdump -i eth0 host 10.2.2.227 -nn -q | grep -i "retrans"
```

```
# 检查 dup ack 是否 fast retransmit
sudo tcpdump -i eth0 host 10.2.2.227 -nn -q 'tcp[tcpflags] & (tcp-rst|tcp-syn) != 0 or tcp[13]
& 8 != 0'
```

3. tshark?Wireshark ??????????????

命令

```
sudo apt install tshark
```

命令

```
# 检查 TCP 重传
tshark -r iperf_test.pcap -Y "tcp.analysis.retransmission" | wc -l

# 检查 TCP Window Full
tshark -r iperf_test.pcap -Y "tcp.analysis.window_full"

# 检查 ACK 重复
tshark -r iperf_test.pcap -Y "tcp.analysis.duplicate_ack"
```

? ??????? TCP ???????????

1. ss ??????????????

```
# 检查 TCP 连接状态 rto/retrnsmt
ss -i state established

# 检查窗口
# cubic rto:204 rtt:4/2 cwnd:10 send 1.2Mbps rcv_space:14600
# -> 检查 rto 是否 retrnsmt > 0
```

2. ????? TCP ?????

```
# 检查 TCP 连接状态
cat /proc/net/netstat | grep TcpExt
```

```
# 
# TCPLostRetransmit, TCPFastRetrans, TCPSlowStartRetrans, TCPRenoRecovery, TCPSACKRecovery
# TCPTimeouts, TCPLossProbes, TCPRenoFailures
```

```
awk '/TcpExt/ {getline; print}' /proc/net/netstat
```

```
TcpExt: ... 0 5 0 0 12 ...
```

→ 2 TCPFastRetrans

? ??????????????????

sender Ubuntu receiver Windows telnet iperf3

? ????????

1. Ubuntu sender

```
#  sar 
sar -n DEV 1 > sar_log.txt &

# 
sudo tcpdump -i eth0 host 10.2.2.227 -w debug.pcap &

#  iperf3
iperf3 -c 10.2.2.227 -P 8 -t 10

# 
killall sar tcpdump
```

2.

- sar_log.txt rxerr/s rxdrop/s
- tshark debug.pcap

```
tshark -r debug.pcap -Y "tcp.analysis.retransmission" -T fields -e frame.time -e ip.src -e tcp.seq
```

- `sender` `receiver` `ACK` → `Windows`
- `→`

Hyper-V

```
# hv_netvsc
ethtool -i eth0 | grep driver

# vCPU
cat /proc/interrupts | grep eth0
```

Hyper-V vCPU CPU0

????????

+	<code>sar -n DEV 1</code>
	<code>tcpdump -i eth0 host 10.2.2.227 -w test.pcap</code>
	<code>tshark -r test.pcap -Y "tcp.analysis.retransmission"</code>
	<code>ss -i</code>
TCP	<code>cat /proc/net/netstat grep TcpExt</code>

receiver 0 Windows tcpdump

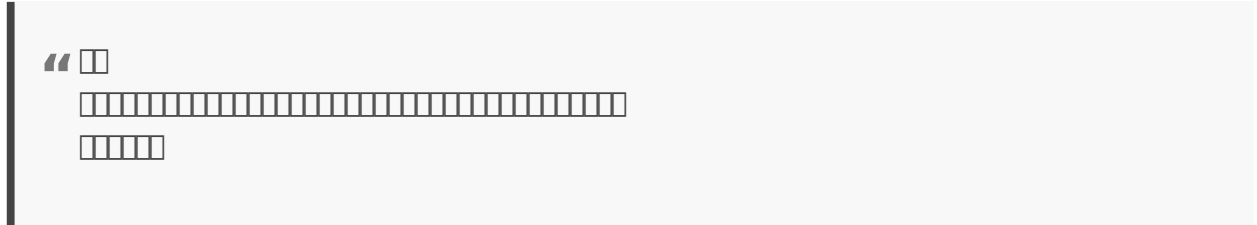
.pcap Wireshark GUI "Statistics → TCP Stream Graphs"

2026 1 14 18:00-19:00 -n DEV sar -n DEV 1 -f sar14

? ??????????

```
# 2026-01-14 18:00-19:00  
sar -n DEV -s 18:00:00 -e 19:00:00 -f /var/log/sysstat/sa14
```

```
#  
sar -n EDEV -s 18:00:00 -e 19:00:00 -f /var/log/sysstat/sa14
```



██████████ CPU ████████████████████

```
sar -u -s 18:00:00 -e 19:00:00 -f /var/log/sysstat/sa14 # CPU  
sar -r -s 18:00:00 -e 19:00:00 -f /var/log/sysstat/sa14 #
```

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