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fastdpi_stat.log

It is located in the folder: /var/log/dpi/fastdpi_stat.log\\. This log contains statistics on the traffic processed by SSG DPI

```
[STAT    ][2022/04/07-13:36:24:608426] Memory usage : 'Virtual'/'Resident'  
177805156352/3238039552  
[STAT    ][2022/04/07-13:36:24:608441] CPU statistics :  
  cpu_total : 18.8%us  1.7%sy  0.0%ni 79.5%id  0.0%wa  
    cpu0    :  4.6%us  2.7%sy  0.0%ni 92.8%id  0.0%wa  
    cpu1    : 20.1%us  0.4%sy  0.0%ni 79.5%id  0.0%wa  
    cpu2    : 19.5%us  0.4%sy  0.0%ni 80.1%id  0.0%wa  
    cpu3    : 23.4%us  2.1%sy  0.0%ni 74.5%id  0.0%wa
```

This site has a stat log:

[2022/04/07-13:36:24:608426] — date and time of data capture

'Virtual'/'Resident' — memory type.

Virtual — virtual process size. Shows the total amount of memory that the program is able to address at a given time

Resident — shows how much physical memory the process uses.

This parameter is followed by specific values

CPU statistics — CPU utilization statistics

cpu_total — total CPU utilization

cpu0, cpu1, cpu2, cpu3 — kernel-specific loading

us — how much is currently in use

sy — how much the system is currently using

id — how much is currently available

wa — shows the percentage of operations ready to be executed by the processor but pending from the disk

Interface information:

```
[STAT    ][2022/04/08-16:25:25:309501] Interface statistics :  
  Cluster #0 Absolute Stats Rcvd: [5000 pkts][527701 bytes][1+2=3 pkts  
dropped]  
  Cluster #0 : IF 01-00.0 (01:00.0):  
    Absolute Stats Rcvd: [4873 pkts][507823 bytes][0 pkts  
dropped]  
    Send: [127 pkts][19878 bytes]  
    Esnd: [0 err_pkts][0.00 %]  
    Drop: [0 pkts][0 bytes]  
    Pthr: [0 pkts][0 bytes]  
    Emit: [0 pkts][0 bytes]  
    Eemt: [0 err_pkts][0.00 %]  
  Actual   Stats Rcvd: [0 bytes][0.00 Mbit/sec]  
            [0 pkts ][0.00 pkt/sec]  
            Send: [0 bytes][0.00 Mbit/sec]
```

```

[0 pkts ][0.00 pkt/sec]
Esnd: [0 err_pkts][0.00 %]
Drop: [0 bytes][0.00 %]
[0 pkts ][0.00 %]
Pthr: [0 bytes][0.00 %]
[0 pkts ][0.00 %]
Emit: [0 bytes][0.00 Mbit/sec]
[0 pkts ][0.00 pkt/sec]
Eemt: [0 err_pkts][0.00 %]
Cluster #0 : IF 01-00.1 (01:00.1):
  Absolute Stats Rcvd: [127 pkts][19878 bytes][0 pkts dropped]
  Send: [4873 pkts][507823 bytes]
  Esnd: [0 err_pkts][0.00 %]
  Drop: [0 pkts][0 bytes]
  Pthr: [0 pkts][0 bytes]
  Emit: [0 pkts][0 bytes]
  Eemt: [0 err_pkts][0.00 %]
  Actual Stats Rcvd: [0 bytes][0.00 Mbit/sec]
  [0 pkts ][0.00 pkt/sec]
  Send: [0 bytes][0.00 Mbit/sec]
  [0 pkts ][0.00 pkt/sec]
  Esnd: [0 err_pkts][0.00 %]
  Drop: [0 bytes][0.00 %]
  [0 pkts ][0.00 %]
  Pthr: [0 bytes][0.00 %]
  [0 pkts ][0.00 %]
  Emit: [0 bytes][0.00 Mbit/sec]
  [0 pkts ][0.00 pkt/sec]
  Eemt: [0 err_pkts][0.00 %]
Cluster #0 : Aggregated Actual stats: [Captured 0.00
pkt/sec][Processed 0.00 pkt/sec][Send 0.00 pkt/sec]

```

Absolute Stats Rcvd — total statistics of received packets/bytes, blocked packets on all interfaces, since the last restart of the fastDPI process

[1+2=3 pkts dropped]

1 — losses on the port (not even read, buffer overflowed)

2 — SSG couldn't process

This is followed by information on each specific interface

Cluster #0 : IF 01-00.0 (01:00.0):

Absolute Stats — full statistics of received packets/bytes, blocked packets on interface 01-00.0

- Rcvd: [4873 pkts][507823 bytes][0 pkts dropped] — received packets/bytes
- Send: [127 pkts][19878 bytes] — packets/bytes transmitted
- Esnd: [0 err_pkts][0.00 %] — errors that occurred when sending packets
- Drop: [0 pkts][0 bytes] — dropped packets/bytes, as a result of filtering/policing, etc. (“good” drops)
- Pthr: [0 pkts][0 bytes] — number of packets/bytes passing without analysis and processing
- Emit: [0 pkts][0 bytes] — the packets that the SSG generated

- Eemt: [0 err_pkts][0.00 %] — errors occurred when sending SSG-generated packets

Actual Stats — actual statistics of received packets/bytes, blocked packets on interface 01-00.0

Aggregated Actual stats — aggregate statistics per cluster: how many packets captured, processed, sent/sec.

```
[STAT ] [2022/04/08-16:25:25:309514] [HAL] DPKDK device statistics:
dev 01-00.0 (01:00.0)
  RX pkt/bytes abs (delta):          4873/390871      (0/0)
  TX pkt/bytes abs (delta):          127/16830       (0/0)
  Error pkts, abs/delta: rx_queue_full=0/0, bad_pkt=0/0,
tx_fail=0/0, rx_nombuf=0/0
dev 01-00.1 (01:00.1)
  RX pkt/bytes abs (delta):          127/16830       (0/0)
  TX pkt/bytes abs (delta):          4873/390871      (0/0)
  Error pkts, abs/delta: rx_queue_full=0/0, bad_pkt=0/0,
tx_fail=0/0, rx_nombuf=0/0

[STAT ] [2022/04/08-16:25:25:309514] [HAL] DPKDK device statistics:
dev 01-00.0 (01:00.0)
  RX pkt/bytes abs (delta):          4873/390871      (0/0)
  TX pkt/bytes abs (delta):          127/16830       (0/0)
  Error pkts, abs/delta: rx_queue_full=0/0, bad_pkt=0/0,
tx_fail=0/0, rx_nombuf=0/0
dev 01-00.1 (01:00.1)
  RX pkt/bytes abs (delta):          127/16830       (0/0)
  TX pkt/bytes abs (delta):          4873/390871      (0/0)
  Error pkts, abs/delta: rx_queue_full=0/0, bad_pkt=0/0,
tx_fail=0/0, rx_nombuf=0/0
[STAT ] [2022/04/08-16:25:25:309644] [HAL][DPDK] Dispatcher statistics
abs/delta:
|          drop (worker queue full)          | empty NIC RX
|          RX packets                         |
|          Cluster #0:                        | 0/0          0.0%/ 0.0% | 100.0%/100.0%
|          5000/0                             |
```

Above are the statistics for the interfaces:

RX pkt/bytes abs (delta): 4873/390871 (0/0) — packets/byte received

4873/390871 — from the start

(0/0) — for the last 15 sec (since the last stat log output)

TX pkt/bytes abs (delta): — packets sent/byte

```
Error pkts, abs/delta: rx_queue_full=0/0, bad_pkt=0/0, tx_fail=0/0,
rx_nombuf=0/0
```

rx_queue_full=0/0 — dispatcher queue overflow

bad_pkt=0/0 — bad packages

tx_fail=0/0 — sending errors

rx_nombuf=0/0 — there wasn't enough buffer for reception

drop (worker queue full) — illegitimate drops (handler overflow)

empty NIC RX — percentage of idle polling of rx queues of cards - absolute percentage (since the beginning of SSG operation) and relative (delta since the last output to stat-log). 100% - means that there are no input packets, the dispatcher is idle

```
[STAT ] [2022/04/08-16:25:25:309647] [HAL] [DPDK/SQRX] Mempool state:
cluster #0: avail_count=24448, in-use_count=8319
```

Memory Pool Utilization `dpdk_mempool_size`:

`avail_count` — available for use

`in-use_count` — currently in use

The plot below shows statistics on packet sizes, and Jumbo Frames ranges have also been added

```
[STAT ] [2022/04/08-16:25:25:309650] Packet size (abs/delta, in %):
      <=64      <=128      <=256      <=512
<=1024  <=2048  <=4096  <=8192  >8192
subs->inet:  0.5/0.0  98.7/0.0  0.6/0.0  0.2/0.0
0.0/0.0  0.0/0.0  0.0/0.0  0.0/0.0  0.0/0.0
inet->subs: 17.3/0.0  51.2/0.0  25.2/0.0  6.3/0.0
0.0/0.0  0.0/0.0  0.0/0.0  0.0/0.0  0.0/0.0
```

The following are statistics on protocols

IP statistics:

This shows the number of streams (flow) and information about them

```
[STAT ] [2022/04/08-16:25:25:309664] IPv4_Statistics 'flow nodes' :
IPv4_thread_slave=#0 : 0/0/505/0/0 ( 180/0/325 ) ( 0-0/0-0/0-0/0-0 )
      0/0/66666/66666 ( 0/0 0/0 0/0/0 )
IPv4_thread_slave=#1 : 0/0/1796/0/0 ( 436/0/1360 ) ( 0-0/0-0/0-0/0-0 )
      0/0/66666/66666 ( 0/0 0/0 0/0/0 )
IPv4_total : allocate=616/4896000 ( 0/0/2301/0/0/0 ) ( 616/0/1685 ) (
0-0/0-0/0-0/0-0 )
      0/0/133332/133332 ( 0/0 0/0 0/0/0 )
IPv4_actual: new=0 [0 flw/sec] close=0 [0 flw/sec] rei=0 [0 flw/sec]
```

`IPv4_total : allocate=616/4896000` — shows allocated memory occupancy for IPv4 flow 616 — busy, 4896000 — total. This parameter is set in the total file. This parameter is set in the `/etc/dpi/fastdpi.conf` file (`mem_tracking_flow`)

```
IPv4_actual: new=0 [0 flw/sec] close=0 [0 flw/sec] rei=0 [0 flw/sec]
```

`new` — number of new flows

`close` — flow rate

`rei` — ready for reuse

```
[STAT ] [2022/04/12-11:15:31:688997] IPv4_Statistics_error :
IPv4_ste_flow : 0/0/0
```

```
IPv4_ste_invlen : 0/0/0
```

IPv4_ste_flow — processing errors. This is a critical counter. It should be zero (everything is fine here)

IPv4_ste_invlen — errors of read lengths from the input frame (when the actual length diverges from the length specified in the header). I.e. the reason is in the package

0/0/0 — ip/tcp/udp

Blocking statistics:

These parameters are scheduled for each specific thread (thread_slave), as well as the total value (Total)

```
[STAT    ][2022/04/12-11:15:31:688999] Detailed statistics on HTTP :
thread_slave=0 :
  url/lock=28/0 ( 12,0,0 )( 1,1,0 )
  ssl/lock=191/0 ( 0,54,0 )( 1,17,16 )
    cna/lock=4/0 ( 0,37 )
    sni/lock=187/0 ( 0,17 )
  quic/lock=0/0 ( 1,0,0 )( 0,0,0 )
  chnprc=0
  ccheck/ip_check/lock=2203/579/0 0/0/0
thread_slave=1 :
  url/lock=187/0 ( 1287,0,0 )( 1,1,0 )
  ssl/lock=268/2 ( 0,313,0 )( 2,36,34 )
    cna/lock=1/0 ( 0,171 )
    sni/lock=267/2 ( 0,142 )
  quic/lock=9/0 ( 0,0,0 )( 0,0,0 )
  chnprc=0
  ccheck/ip_check/lock=9404/747/0 0/0/0
Total :
  url/lock=215/0 ( 1299,0,0 )( 2,2,0,98879 )
  ssl/lock=459/2 ( 0,367,0 )( 3,53,50,392183 )
    cna/lock=5/0 ( 0,208 )
    sni/lock=454/2 ( 0,159 )
  quic/lock=9/0 ( 1,0,0 )( 0,0,0,0 )
  chnprc=0
  ccheck/ip_check/lock=11607/1326/0 0/0/0
```

url/lock — URL checked / blocked (similar for ssl, cna, sni, quic)

chnprc=0 — change parser http ↔ https

ccheck/ip_check/lock=11607/1326/0 — IP/port check statistics

11607 — should have run an IP check

1326 — how many times the test was actually performed

0 — blocked packets

Below are the statistics on firewall and syn packages:

```
[STAT    ][2022/04/12-11:15:31:689052] FRWL statistics : 0/0/0
[STAT    ][2022/04/12-11:15:31:689054] Statistics SYN :
```

```
total : syn=1, syn_ack=1 (0/0/0/0 0/0)
actual: syn=0 [0 syn/sec] syn_ack=0 [0 syn_ack/sec] [prcnt=0%]
(0/0/0/0 0/0)
[STAT   ][2022/04/12-11:15:31:689052] FRWL statistics : <wrap
hi>0/0/0</wrap>
[STAT   ][2022/04/12-11:15:31:689054] Statistics SYN :
total : syn=1, syn_ack=1 (0/0/0/0 0/0)
actual: syn=0 [0 syn/sec] syn_ack=0 [0 syn_ack/sec] [prcnt=0%]
(0/0/0/0 0/0)
```

total : syn=1 — total SYN packets

syn_ack — total SYN-ACK packets

actual: — the same, only for the last 15 seconds (since the last output to stat log) + number of SYN/SYN-ACK per second