

# PROXMOX

- Proxmox
  - Disk monitor Disk

# Proxmox

Proxmox

Stable

Disk

mo

|               |          |          |                         |
|---------------|----------|----------|-------------------------|
| Proxmox       | monitor  | resource | CPU , Load , Ram , Netw |
| 1             | monitor  | Proxmox  | read-write activity     |
| Disk          | access   | vm       |                         |
| ( version 8 ) | Proxmox  | IO delay | %                       |
|               | Activity | Disk     | monitor Disk            |

1. iostat

iostat read-write Disk

```
$ ssh root@xxx.xxx.xxx.xxx ( Proxmox )

# apt install sysstat ( )

# iostat

# watch -n 1 iostat ( 1 )

# iostat -t ( )

# iostat -m ( MB )

# iostat -p nvme0n1 ( nvme0n1 )
```

```

root@:~# iostat
Linux 5.15.39-4-pve ( ) 04/08/2024 _x86_64_ (12 CPU)

avg-cpu:  %user   %nice %system %iowait  %steal   %idle
           5.22    0.00    1.40    0.46    0.00   92.92

Device            tps    kB_read/s    kB_wrtn/s    kB_dscd/s    kB_read    kB_wrtn    kB_dscd
nvme0n1          124.19      134.80      3763.61      697.81    42129918    1176235864    218087024
nvme1n1          127.93      148.59      3763.61      697.82    46438366    1176235864    218088112
zd0              0.00        0.00        0.00        0.00         116          0          0
zd112            0.00        0.00        0.00        0.00         244          0          0
zd128            0.45        2.05        4.05        0.00     641585    1265916          0
zd144            0.32        0.84        2.08        0.00     262027     649492          0
zd16             0.55        1.77        4.30        0.00     551767    1343392          0
zd160            1.56        1.31       67.08        0.00     409887    20964213          0
zd176            0.00        0.03        0.00        0.00        9024          0          0
zd32             0.00        0.01        0.00        0.00        3763          0          0
zd48            60.18        1.90    1819.15        0.00     592723    568537600          0
zd64             3.09        2.49     16.02        0.00     779422    5007413          0
zd80             0.00        0.02        0.00        0.00        6282          0          0
zd96             3.49        5.97     19.92        0.00    1865906    6224656          0

```

## 2. atop

atop                    activity ( read-write )                    Disk                    CPU , Mem , Swap , Disk , NIC

\$ ssh root@xxx.xxx.xxx.xxx (                    Proxmox )

# apt install atop (                    )

# atop

# atop -x (                    color                    critical activity )

# atop -x 1 (                    1                    )

| 2024/04/08 12:49:58         |           |        |         |       |         |        |        |        |        | 10s elapsed |        |          |         |         |         |             |      |  |  |
|-----------------------------|-----------|--------|---------|-------|---------|--------|--------|--------|--------|-------------|--------|----------|---------|---------|---------|-------------|------|--|--|
| PRC                         | sys       | 2.64s  | user    | 7.84s | #proc   | 376    | #trun  | 5      | #tslpi | 410         | #tslpu | 0        | #zombie | 0       | #exit   | 676         |      |  |  |
| CPU                         | sys       | 20%    | user    | 74%   | irq     | 1%     | idle   | 1102%  | wait   | 2%          | ipc    | 0.62     | curf    | 3.07GHz | curscal | 7%          |      |  |  |
| CPL                         | avg1      | 0.98   | avg5    | 1.07  | avg15   | 1.02   |        |        | csw    | 252961      | intr   | 122908   |         |         | numcpu  | 12          |      |  |  |
| MEM                         | tot       | 31.3G  | free    | 3.1G  | cache   | 293.3M | buff   | 0.7M   | slab   | 1.1G        | vmbal  | 0.0M     | zfarc   | 15.6G   | hptot   | 0.0M        |      |  |  |
| SWP                         | tot       | 0.0M   | free    | 0.0M  |         |        | swcac  | 0.0M   |        |             |        |          | vmcom   | 25.5G   | vmlim   | 15.6G       |      |  |  |
| PSI                         | cpusome   | 0%     | memsome | 0%    | memfull | 0%     | iosome | 0%     | iofull | 0%          | cs     | 0/0/0    | ms      | 0/0/0   | is      | 0/0/0       |      |  |  |
| DSK                         | nvme0n1   |        | busy    | 6%    | read    | 200    | write  | 962    | KiB/w  | 44          | MBr/s  | 0.0      | MBw/s   | 4.2     | avio    | 0.52 ms     |      |  |  |
| DSK                         | nvme1n1   |        | busy    | 4%    | read    | 196    | write  | 1054   | KiB/w  | 40          | MBr/s  | 0.0      | MBw/s   | 4.2     | avio    | 0.34 ms     |      |  |  |
| NET                         | transport |        | tcpi    | 42    | tcpo    | 103    | udpi   | 4      | udpo   | 4           | tcpao  | 2        | tcpo    | 0       | tcpr    | 0           |      |  |  |
| NET                         | network   |        | ipi     | 8272  | ipo     | 113    | ipfrw  | 0      | deliv  | 103         |        |          | icmpi   | 24      | icmpo   | 0           |      |  |  |
| NET                         | eth88tn   | ----   | pcki    | 3880  | pcko    | 3121   | sp     | 0 Mbps | si     | 447 Kbps    | so     | 298 Kbps | erri    | 0       | erro    | 0           |      |  |  |
| NET                         | tap102i   | ----   | pcki    | 2905  | pcko    | 3659   | sp     | 0 Mbps | si     | 227 Kbps    | so     | 412 Kbps | erri    | 0       | erro    | 0           |      |  |  |
| Window resized to 139x35... |           |        |         |       |         |        |        |        |        |             |        |          |         |         |         |             |      |  |  |
| PID                         | SYSCPU    | USRCPU | RDELAY  | VGROW | RGROW   | RDDSK  | WRDSK  | RUID   | EUID   | ST          | EXC    | THR      | S       | CPUNR   | CPU     | CMD         | 1/42 |  |  |
| 4595                        | 0.32s     | 6.29s  | 0.01s   | 0K    | 0K      | 0K     | 23016K | root   | root   | --          | -      | 14       | S       | 2       | 67%     | kvm         |      |  |  |
| 91                          | 1.04s     | 0.00s  | 0.00s   | 0K    | 0K      | 0K     | 0K     | root   | root   | --          | -      | 1        | S       | 3       | 11%     | ksmd        |      |  |  |
| 4415                        | 0.17s     | 0.31s  | 0.00s   | 0K    | 0K      | 0K     | 24K    | root   | root   | --          | -      | 10       | S       | 8       | 5%      | kvm         |      |  |  |
| 16646                       | 0.18s     | 0.26s  | 0.00s   | 0K    | 0K      | 0K     | 0K     | root   | root   | --          | -      | 14       | S       | 8       | 4%      | kvm         |      |  |  |
| 15834                       | 0.16s     | 0.25s  | 0.00s   | 0K    | 0K      | 0K     | 0K     | root   | root   | --          | -      | 14       | S       | 9       | 4%      | kvm         |      |  |  |
| 19241                       | 0.07s     | 0.25s  | 0.00s   | 0K    | 0K      | 0K     | 372K   | root   | root   | --          | -      | 12       | S       | 7       | 3%      | kvm         |      |  |  |
| 38174                       | 0.04s     | 0.27s  | 0.00s   | 0K    | 0K      | 0K     | 1402K  | root   | root   | --          | -      | 9        | S       | 10      | 3%      | kvm         |      |  |  |
| 23405                       | 0.05s     | 0.07s  | 0.00s   | 0K    | 0K      | 0K     | 0K     | root   | root   | --          | -      | 8        | S       | 9       | 1%      | kvm         |      |  |  |
| 4706                        | 0.10s     | 0.00s  | 0.00s   | 0K    | 0K      | 0K     | 0K     | root   | root   | --          | -      | 1        | S       | 1       | 1%      | vhost-4595  |      |  |  |
| 4187                        | 0.01s     | 0.07s  | 0.00s   | 0K    | 0K      | 0K     | 0K     | root   | root   | --          | -      | 9        | S       | 9       | 1%      | corosync    |      |  |  |
| 4234                        | 0.01s     | 0.05s  | 0.00s   | 0K    | 0K      | 258K   | 0K     | root   | root   | --          | -      | 1        | S       | 11      | 1%      | pvestatd    |      |  |  |
| 22333                       | 0.05s     | 0.00s  | 0.00s   | 0K    | 0K      | 0K     | 0K     | root   | root   | --          | -      | 1        | S       | 7       | 1%      | vhost-19241 |      |  |  |
| 24016                       | 0.05s     | 0.00s  | 0.00s   | 0K    | 0K      | 0K     | 0K     | root   | root   | --          | -      | 1        | S       | 1       | 1%      | vhost-23405 |      |  |  |
| 2449430                     | 0.03s     | 0.01s  | 0.00s   | 1512K | 1608K   | 627K   | 0K     | root   | root   | --          | -      | 1        | R       | 3       | 0%      | atop        |      |  |  |
| 39                          | 0.04s     | 0.00s  | 0.00s   | 0K    | 0K      | 0K     | 0K     | root   | root   | --          | -      | 1        | S       | 4       | 0%      | ksoftirqd/4 |      |  |  |
| 4443                        | 0.04s     | 0.00s  | 0.00s   | 0K    | 0K      | 0K     | 0K     | root   | root   | --          | -      | 1        | S       | 5       | 0%      | vhost-4415  |      |  |  |
| 15944                       | 0.04s     | 0.00s  | 0.00s   | 0K    | 0K      | 0K     | 0K     | root   | root   | --          | -      | 1        | S       | 9       | 0%      | vhost-15834 |      |  |  |
| 16799                       | 0.04s     | 0.00s  | 0.00s   | 0K    | 0K      | 0K     | 0K     | root   | root   | --          | -      | 1        | S       | 1       | 0%      | vhost-16646 |      |  |  |
| 38902                       | 0.04s     | 0.00s  | 0.00s   | 0K    | 0K      | 0K     | 0K     | root   | root   | --          | -      | 1        | S       | 9       | 0%      | vhost-38174 |      |  |  |
| 339                         | 0.02s     | 0.00s  | 0.00s   | 0K    | 0K      | 4K     | 14394K | root   | root   | --          | -      | 1        | S       | 3       | 0%      | zvol        |      |  |  |

### 3. iotop

iotop      activity ( read-write )      Disk      application ( & service )

\$ ssh root@xxx.xxx.xxx.xxx (      Proxmox )

# apt install iotop (      )

# iotop

| Total DISK READ:   |      | 0.00 B/s |           | Total DISK WRITE:   |               | 4.44 M/s          |                              |
|--------------------|------|----------|-----------|---------------------|---------------|-------------------|------------------------------|
| Current DISK READ: |      | 0.00 B/s |           | Current DISK WRITE: |               | 26.48 M/s         |                              |
| TID                | PRI  | USER     | DISK READ | DISK WRITE          | SWAPIN        | IO>               | COMMAND                      |
| 339                | be/0 | root     | 0.00 B/s  | 1309.80 K/s         | ?unavailable? |                   | [zvol]                       |
| 2433134            | be/4 | root     | 0.00 B/s  | 14.68 K/s           | ?unavailable? | kvm -id 103 -name | type=pc+pve0 [iou-wrk-4415]  |
| 2386293            | be/4 | root     | 0.00 B/s  | 818.17 K/s          | ?unavailable? | kvm -id 102 -name | type=pc+pve0 [iou-wrk-4595]  |
| 2401642            | be/4 | root     | 0.00 B/s  | 264.16 K/s          | ?unavailable? | kvm -id 102 -name | type=pc+pve0 [iou-wrk-4595]  |
| 2406726            | be/4 | root     | 0.00 B/s  | 132.08 K/s          | ?unavailable? | kvm -id 102 -name | type=pc+pve0 [iou-wrk-4595]  |
| 2408613            | be/4 | root     | 0.00 B/s  | 565.01 K/s          | ?unavailable? | kvm -id 102 -name | type=pc+pve0 [iou-wrk-4595]  |
| 2421074            | be/4 | root     | 0.00 B/s  | 249.49 K/s          | ?unavailable? | kvm -id 102 -name | type=pc+pve0 [iou-wrk-4595]  |
| 2431253            | be/4 | root     | 0.00 B/s  | 1185.06 K/s         | ?unavailable? | kvm -id 102 -name | type=pc+pve0 [iou-wrk-4595]  |
| 2435082            | be/4 | root     | 0.00 B/s  | 7.34 K/s            | ?unavailable? | kvm -id 104 -name | type=pc+pve0 [iou-wrk-19241] |
| 1                  | be/4 | root     | 0.00 B/s  | 0.00 B/s            | ?unavailable? | init              |                              |
| 2                  | be/4 | root     | 0.00 B/s  | 0.00 B/s            | ?unavailable? | [kthreadd]        |                              |
| 3                  | be/4 | root     | 0.00 B/s  | 0.00 B/s            | ?unavailable? | [rcu_gp]          |                              |
| 4                  | be/4 | root     | 0.00 B/s  | 0.00 B/s            | ?unavailable? | [rcu_par_gp]      |                              |

## 4. dstat

dstat                      activity ( read-write )                      Disk

\$ ssh root@xxx.xxx.xxx.xxx (                      Proxmox )

# apt install dstat (                      )

# dstat

# dstat -c -d -g -l -m -n -r -s -t (                      )

```
root@limitrack-server1:~# dstat -c -d -g -l -m -n -r -s -t
```

| --total-cpu-usage-- |     |     |     | --dsk/total-- |       |       |    | --paging-- |      |      |      | --load-avg-- |       |      |      | --memory-usage-- |       |      |      | --net/total-- |      | --io/total-- |   | --swap-- |   | --system--        |  |
|---------------------|-----|-----|-----|---------------|-------|-------|----|------------|------|------|------|--------------|-------|------|------|------------------|-------|------|------|---------------|------|--------------|---|----------|---|-------------------|--|
| usr                 | sys | idl | wai | stl           | read  | writ  | in | out        | 1m   | 5m   | 15m  | used         | free  | buff | cach | recv             | send  | read | writ | used          | free |              |   |          |   | time              |  |
| 5                   | 1   | 93  | 0   | 0             | 578k  | 17M   | 0  | 0          | 1.20 | 1.10 | 1.09 | 27.9G        | 3167M | 696k | 264M | 0                | 0     | 88.6 | 460  | 0             | 0    | 0            | 0 | 0        | 0 | 08-04 13:04:48    |  |
| 4                   | 1   | 94  | 0   | 0             | 0     | 24M   | 0  | 0          | 1.11 | 1.08 | 1.08 | 27.9G        | 3166M | 696k | 264M | 319k             | 409k  | 88.0 | 296  | 0             | 0    | 0            | 0 | 0        | 0 | 08-04 13:04:49    |  |
| 5                   | 2   | 93  | 0   | 0             | 0     | 8548k | 0  | 0          | 1.11 | 1.08 | 1.08 | 27.9G        | 3180M | 696k | 264M | 211k             | 252k  | 76.0 | 175  | 0             | 0    | 0            | 0 | 0        | 0 | 08-04 13:04:50    |  |
| 4                   | 2   | 94  | 0   | 0             | 0     | 8200k | 0  | 0          | 1.11 | 1.08 | 1.08 | 27.9G        | 3177M | 696k | 264M | 345k             | 457k  | 68.0 | 161  | 0             | 0    | 0            | 0 | 0        | 0 | 08-04 13:04:51    |  |
| 4                   | 2   | 94  | 1   | 0             | 0     | 43M   | 0  | 0          | 1.11 | 1.08 | 1.08 | 27.9G        | 3179M | 696k | 264M | 296k             | 384k  | 112  | 1604 | 0             | 0    | 0            | 0 | 0        | 0 | 08-04 13:04:52    |  |
| 4                   | 1   | 95  | 0   | 0             | 0     | 7600k | 0  | 0          | 1.11 | 1.08 | 1.08 | 27.9G        | 3179M | 696k | 264M | 248k             | 317k  | 88.0 | 180  | 0             | 0    | 0            | 0 | 0        | 0 | 08-04 13:04:53    |  |
| 5                   | 1   | 94  | 0   | 0             | 0     | 9466k | 0  | 0          | 1.02 | 1.06 | 1.08 | 27.9G        | 3182M | 696k | 264M | 291k             | 380k  | 76.0 | 185  | 0             | 0    | 0            | 0 | 0        | 0 | 08-04 13:04:54    |  |
| 4                   | 1   | 95  | 0   | 0             | 0     | 10M   | 0  | 0          | 1.02 | 1.06 | 1.08 | 27.9G        | 3184M | 696k | 264M | 331k             | 444k  | 60.0 | 224  | 0             | 0    | 0            | 0 | 0        | 0 | 08-04 13:04:55    |  |
| 5                   | 2   | 92  | 0   | 0             | 8192k | 9084k | 0  | 0          | 1.02 | 1.06 | 1.08 | 27.9G        | 3188M | 696k | 264M | 921k             | 1334k | 82.0 | 193  | 0             | 0    | 0            | 0 | 0        | 0 | 08-04 13:04:56    |  |
| 8                   | 2   | 89  | 1   | 0             | 0     | 44M   | 0  | 0          | 1.02 | 1.06 | 1.08 | 27.9G        | 3190M | 696k | 264M | 868k             | 1262k | 76.0 | 1633 | 0             | 0    | 0            | 0 | 0        | 0 | 08-04 13:04:57    |  |
| 12                  | 1   | 86  | 0   | 0             | 0     | 10M   | 0  | 0          | 1.02 | 1.06 | 1.08 | 27.9G        | 3192M | 696k | 264M | 317k             | 420k  | 104  | 222  | 0             | 0    | 0            | 0 | 0        | 0 | 08-04 13:04:58    |  |
| 6                   | 1   | 92  | 0   | 0             | 0     | 12M   | 0  | 0          | 0.94 | 1.05 | 1.07 | 27.9G        | 3192M | 696k | 264M | 293k             | 387k  | 96.0 | 226  | 0             | 0    | 0            | 0 | 0        | 0 | 08-04 13:04:59    |  |
| 9                   | 2   | 89  | 0   | 0             | 0     | 8392k | 0  | 0          | 0.94 | 1.05 | 1.07 | 27.9G        | 3190M | 696k | 264M | 364k             | 454k  | 72.0 | 163  | 0             | 0    | 0            | 0 | 0        | 0 | 08-04 13:05:00    |  |
| 6                   | 3   | 90  | 0   | 0             | 0     | 11M   | 0  | 0          | 0.94 | 1.05 | 1.07 | 27.9G        | 3188M | 696k | 264M | 329k             | 424k  | 56.0 | 180  | 0             | 0    | 0            | 0 | 0        | 0 | 08-04 13:05:01    |  |
| 3                   | 2   | 93  | 1   | 0             | 24k   | 52M   | 0  | 0          | 0.94 | 1.05 | 1.07 | 27.9G        | 3176M | 696k | 264M | 353k             | 457k  | 100  | 1805 | 0             | 0    | 0            | 0 | 0        | 0 | 08-04 13:05:02    |  |
| 5                   | 1   | 94  | 0   | 0             | 0     | 9640k | 0  | 0          | 0.94 | 1.05 | 1.07 | 27.9G        | 3179M | 696k | 264M | 295k             | 383k  | 68.0 | 173  | 0             | 0    | 0            | 0 | 0        | 0 | 08-04 13:05:03    |  |
| 5                   | 1   | 93  | 0   | 0             | 0     | 10M   | 0  | 0          | 0.86 | 1.03 | 1.07 | 27.9G        | 3193M | 696k | 264M | 300k             | 390k  | 72.0 | 183  | 0             | 0    | 0            | 0 | 0        | 0 | 08-04 13:05:04    |  |
| 3                   | 1   | 95  | 0   | 0             | 0     | 4652k | 0  | 0          | 0.86 | 1.03 | 1.07 | 27.9G        | 3193M | 696k | 264M | 246k             | 311k  | 72.0 | 163  | 0             | 0    | 0            | 0 | 0        | 0 | 08-04 13:05:05    |  |
| 4                   | 1   | 94  | 0   | 0             | 0     | 14M   | 0  | 0          | 0.86 | 1.03 | 1.07 | 27.9G        | 3193M | 696k | 264M | 287k             | 372k  | 64.0 | 208  | 0             | 0    | 0            | 0 | 0        | 0 | 08-04 13:05:06    |  |
| 5                   | 1   | 92  | 1   | 0             | 0     | 40M   | 0  | 0          | 0.86 | 1.03 | 1.07 | 27.9G        | 3182M | 696k | 264M | 356k             | 478k  | 96.0 | 1469 | 0             | 0    | 0            | 0 | 0        | 0 | 08-04 13:05:07    |  |
| 4                   | 1   | 95  | 0   | 0             | 16k   | 4149k | 0  | 0          | 0.86 | 1.03 | 1.07 | 27.9G        | 3181M | 696k | 264M | 343k             | 453k  | 96.0 | 143  | 0             | 0    | 0            | 0 | 0        | 0 | 08-04 13:05:08    |  |
| 5                   | 2   | 94  | 0   | 0             | 0     | 11M   | 0  | 0          | 0.95 | 1.04 | 1.07 | 27.9G        | 3196M | 696k | 264M | 318k             | 429k  | 64.0 | 171  | 0             | 0    | 0            | 0 | 0        | 0 | 08-04 13:05:09    |  |
| 7                   | 2   | 91  | 0   | 0             | 0     | 7024k | 0  | 0          | 0.95 | 1.04 | 1.07 | 27.9G        | 3182M | 696k | 265M | 380k             | 494k  | 64.0 | 139  | 0             | 0    | 0            | 0 | 0        | 0 | 08-04 13:05:10    |  |
| 4                   | 2   | 94  | 0   | 0             | 0     | 5580k | 0  | 0          | 0.95 | 1.04 | 1.07 | 27.9G        | 3180M | 696k | 265M | 400k             | 527k  | 76.0 | 139  | 0             | 0    | 0            | 0 | 0        | 0 | 08-04 13:05:11    |  |
| 6                   | 2   | 91  | 1   | 0             | 0     | 50M   | 0  | 0          | 0.95 | 1.04 | 1.07 | 27.9G        | 3191M | 696k | 265M | 351k             | 465k  | 100  | 1433 | 0             | 0    | 0            | 0 | 0        | 0 | 08-04 13:05:12 ^C |  |

## 5. ioping

ioping                      Latency                      Disk                      (                      IO delay                      Proxmox                      )

\$ ssh root@xxx.xxx.xxx.xxx (                      Proxmox )

# apt install ioping (                      )

# ioping /dev/nvme0n1

```
root@ [REDACTED]:~# ioping /dev/nvme0n1
4 KiB <<< /dev/nvme0n1 (block device 476.9 GiB): request=1 time=185.3 us (warmup)
4 KiB <<< /dev/nvme0n1 (block device 476.9 GiB): request=2 time=304.7 us
4 KiB <<< /dev/nvme0n1 (block device 476.9 GiB): request=3 time=122.8 us
4 KiB <<< /dev/nvme0n1 (block device 476.9 GiB): request=4 time=246.2 us
4 KiB <<< /dev/nvme0n1 (block device 476.9 GiB): request=5 time=244.0 us
4 KiB <<< /dev/nvme0n1 (block device 476.9 GiB): request=6 time=196.2 us
4 KiB <<< /dev/nvme0n1 (block device 476.9 GiB): request=7 time=216.8 us
```