



Troubleshooting Service Failures

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Identifying Memory Allocations for Processes

You can identify the allocation, limit, memory allocation, and usage for each process in the memory. The following is a sample output from the `show processes memory` command. This output has been abbreviated to make the example more concise.

```
switch# show processes memory
PID MemAlloc MemLimit MemUsed StackBase/Ptr Process
-----
1 159744 0 2027520 ff808d30/ffffffff init
2 0 0 0 0/0 kthreadd
3 0 0 0 0/0 migration/0
4 0 0 0 0/0 ksoftirqd/0
5 0 0 0 0/0 watchdog/0
6 0 0 0 0/0 migration/1
7 0 0 0 0/0 ksoftirqd/1
8 0 0 0 0/0 watchdog/1
9 0 0 0 0/0 migration/2
10 0 0 0 0/0 ksoftirqd/2
11 0 0 0 0/0 watchdog/2
12 0 0 0 0/0 migration/3
13 0 0 0 0/0 ksoftirqd/3
14 0 0 0 0/0 watchdog/3
15 0 0 0 0/0 migration/4
16 0 0 0 0/0 ksoftirqd/4
17 0 0 0 0/0 watchdog/4
18 0 0 0 0/0 migration/5
19 0 0 0 0/0 ksoftirqd/5
20 0 0 0 0/0 watchdog/5
21 0 0 0 0/0 migration/6
22 0 0 0 0/0 ksoftirqd/6
23 0 0 0 0/0 watchdog/6
24 0 0 0 0/0 migration/7
25 0 0 0 0/0 ksoftirqd/7
26 0 0 0 0/0 watchdog/7
```

```

27          0 0          0          0/0 events/0
28          0 0          0          0/0 events/1
29          0 0          0          0/0 events/2
30          0 0          0          0/0 events/3
31          0 0          0          0/0 events/4
32          0 0          0          0/0 events/5
33          0 0          0          0/0 events/6
34          0 0          0          0/0 events/7
35          0 0          0          0/0 khelper
36          0 0          0          0/0 netns
37          0 0          0          0/0 kblockd/0
    
```

The **show processes memory** command includes the following keywords:

| Keyword | Description |
|---------|--------------------------------------|
| > | Redirects the output to a file. |
| >> | Adds the output to an existing file. |
| shared | Displays shared memory information. |

Identifying CPU Utilization for Processes

You can identify the CPU utilization for running process in the memory. The following is a sample output from the **show processes cpu** command. This output has been abbreviated to make the example more concise.

```
switch# show processes cpu
```

```
CPU utilization for five seconds: 0%/0%; one minute: 1%; five minutes: 2%
```

```

PID      Runtime(ms) Invoked  uSecs  5Sec   1Min   5Min   TTY  Process
-----
1         28660    405831    70    0.00%  0.00%  0.00%  -    init
2          21      1185     18    0.00%  0.00%  0.00%  -    kthreadd
3          468    36439     12    0.00%  0.00%  0.00%  -    migration/0
4         79725   8804385    9    0.00%  0.00%  0.00%  -    ksoftirqd/0
5           0         4      65    0.00%  0.00%  0.00%  -    watchdog/0
6          472    35942     13    0.00%  0.00%  0.00%  -    migration/1
7        33967   953376     35    0.00%  0.00%  0.00%  -    ksoftirqd/1
8           0         11      3    0.00%  0.00%  0.00%  -    watchdog/1
9          424    35558     11    0.00%  0.00%  0.00%  -    migration/2
10        58084   7683251    7    0.00%  0.00%  0.00%  -    ksoftirqd/2
11           0         3        1    0.00%  0.00%  0.00%  -    watchdog/2
12         381    29760     12    0.00%  0.00%  0.00%  -    migration/3
13        17258   265884     64    0.00%  0.00%  0.00%  -    ksoftirqd/3
14           0         2        0    0.00%  0.00%  0.00%  -    watchdog/3
15        46558  1300598     35    0.00%  0.00%  0.00%  -    migration/4
16       1332913  4354439   306    0.00%  0.00%  0.00%  -    ksoftirqd/4
17           0         6        2    0.00%  0.00%  0.00%  -    watchdog/4
18        45808  1283581     35    0.00%  0.00%  0.00%  -    migration/5
19       981030  1973423   497    0.00%  0.00%  0.00%  -    ksoftirqd/5
20           0         16      3    0.00%  0.00%  0.00%  -    watchdog/5
21        48019  1334683     35    0.00%  0.00%  0.00%  -    migration/6
22       1084448  2520990   430    0.00%  0.00%  0.00%  -    ksoftirqd/6
23           0         31      3    0.00%  0.00%  0.00%  -    watchdog/6
24        46490  1306203     35    0.00%  0.00%  0.00%  -    migration/7
    
```

| | | | | | | | | |
|----|---------|---------|------|-------|-------|-------|---|-------------|
| 25 | 1187547 | 2867126 | 414 | 0.00% | 0.00% | 0.00% | - | ksoftirqd/7 |
| 26 | 0 | 16 | 3 | 0.00% | 0.00% | 0.00% | - | watchdog/7 |
| 27 | 21249 | 2024626 | 10 | 0.00% | 0.00% | 0.00% | - | events/0 |
| 28 | 8503 | 1990090 | 4 | 0.00% | 0.00% | 0.00% | - | events/1 |
| 29 | 11675 | 1993684 | 5 | 0.00% | 0.00% | 0.00% | - | events/2 |
| 30 | 9090 | 1973913 | 4 | 0.00% | 0.00% | 0.00% | - | events/3 |
| 31 | 74118 | 2956999 | 25 | 0.00% | 0.00% | 0.00% | - | events/4 |
| 32 | 76281 | 2837641 | 26 | 0.00% | 0.00% | 0.00% | - | events/5 |
| 33 | 129651 | 3874436 | 33 | 0.00% | 0.00% | 0.00% | - | events/6 |
| 34 | 8864 | 2077714 | 4 | 0.00% | 0.00% | 0.00% | - | events/7 |
| 35 | 0 | 8 | 23 | 0.00% | 0.00% | 0.00% | - | khelper |
| 36 | 234 | 34 | 6884 | 0.00% | 0.00% | 0.00% | - | netns |

The `show processes cpu` command includes the following keywords:

| Keyword | Description |
|---------|---|
| > | Redirects the output to a file. |
| >> | Adds the output to an existing file. |
| history | Displays information about the CPU utility. |
| sort | Sorts the list based on the memory usage. |

Monitoring Process Core Files

You can monitor the process core files by using the `show cores` command.

```
switch# show cores
Module Instance Process-name PID Date (Year-Month-Day Time)
-----
28 1 bgp-64551 5179 2013-11-08 23:51:26
```

The output shows all cores that are presently available for upload from the active supervisor.

Processing the Crash Core Files

You can process the crash core files by using the `show processes log` command.

```
switch# show process log
Process PID Normal-exit Stack-trace Core Log-create-time
-----
ntp 919 N N N Jun 27 04:08
snsm 972 N Y N Jun 24 20:50
```

Clearing the Core

You can clear the core by using the `clear cores` command.

```
switch# clear cores
```

Enabling Auto-Copy for Core Files

You can enter the `system cores` command to enable the automatic copy of core files to a TFTP server, the flash drive, or a file.

```
switch(config)# system cores tftp://10.1.1.1/cores
```