

This article describes the system management features that you can use to monitor and manage service failures in Cisco NX-OS devices.

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Identify Memory Allocations for Processes

1. Identify the allocation, the limit, memory allocation, and the usage for each process in the memory. The following is a sample output from the **show processes memory** command. This output has been abbreviated 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 thereby providing more information for you to troubleshoot:

Keyword	Description
>	Redirects the output to a file.
>>	Adds the output to an existing file.
shared	Displays shared memory information.
sort	Sorts the list based on the memory usage.

Identify CPU Utilization for Processes

2. 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 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 thereby providing more information for you to troubleshoot:

Keyword	Description
1min	Sorts the output based on the processes that use the memory for one minute.
5min	Sorts the output based on the processes that use the memory for five minutes.
5sec	Sorts the output based on the processes that use the memory for five seconds.
>	Redirects the output to a file.
>>	Adds the output to an existing file.
history	Displays information about the CPU utility.
module	Displays information about CPU processes.
sort	Sorts the list based on the memory usage.

Monitor Process Core Files

3. Monitor the process core files using the **show cores** command.

switch# **show cores**

```

Module-num      Process-name      PID      Core-create-time
-----
5               fspf              1524     Jan 9 03:11
6               fcc               919      Jan 9 03:09
8               acltcam           285      Jan 9 03:09
8               fib               283      Jan 9 03:08

```

The output shows all cores that are presently available for upload from the active supervisor. The module-num column shows the slot number on which the core was generated. In the previous example, an FSPF core was generated on the active supervisor module in slot 5. An FCC core was generated on the standby supervisory module in slot 6. Core dumps generated on the module in slot 8 include ACLTCAM and FIB.

Process the Crash Core Files

4. Process the crash core files 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        Jan 27 04:08
snsm            972      N            Y            N        Jan 24 20:50

```

Clear the Core

5. Clear the core using the **clear cores** command to display information about the core files. This example

shows how to clear the core file:

```
Switch# clear cores
```

Enable Auto-Copy for Core Files

6. Enter the **system cores** command to enable the automatic copy of core files to a TFTP or SCP server, or to the flash drive, or to a file.

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