

# CPU load investigation

In some cases, it is necessary to investigate which WCS thread loads servers' CPU and how much. To do this:

1. Find WCS core pid with command

```
ps aux | grep java
```

or

```
top
```

2. Get the process thread dump with jstack

```
jstack 4240 >> 4240.jstack
```

Here 4240 is WCS pid found on step 1.

The file received as a result of executing this command will be the following

```
2018-08-21 09:44:05
Full thread dump Java HotSpot(TM) 64-Bit Server VM (25.161-b12 mixed mode):

"Attach Listener" #213 daemon prio=9 os_prio=0 tid=0x00007f6bb8341800 nid=0x4f0b
waiting on condition [0x0000000000000000]
  java.lang.Thread.State: RUNNABLE

"process reaper" #119 daemon prio=10 os_prio=0 tid=0x0000000000257a00 nid=0x7196
waiting on condition [0x00007f6bac072000]
  java.lang.Thread.State: TIMED_WAITING (parking)
    at sun.misc.Unsafe.park(Native Method)
      - parking to wait for <0x00000000f3d49ac8> (a java.util.concurrent.Synchron
hronousQueue$TransferStack)
    at java.util.concurrent.locks.LockSupport.parkNanos(LockSupport.java:215
)
    at java.util.concurrent.SynchronousQueue$TransferStack.awaitFulfill(Sync
hronousQueue.java:460)
    at java.util.concurrent.SynchronousQueue$TransferStack.transfer(Synchron
ousQueue.java:362)
    at java.util.concurrent.SynchronousQueue.poll(SynchronousQueue.java:941)
    at java.util.concurrent.ThreadPoolExecutor.getTask(ThreadPoolExecutor.ja
va:1073)
    at java.util.concurrent.ThreadPoolExecutor.runWorker(ThreadPoolExecutor.
java:1134)
```

Here you can get thread names, states and its identifiers in hexadecimal form in 'nid' field

3. Execute the command

```
top -H -p 4240
```

Here 4240 is WCS pid found on step 1.

The process threads will be displayed to console with their CPU and memory consumption

```
top - 11:59:35 up 134 days, 14:13, 1 user, load average: 0.00, 0.01, 0.05
Threads: 50 total, 0 running, 50 sleeping, 0 stopped, 0 zombie
%Cpu(s): 0.8 us, 1.5 sy, 0.0 ni, 97.7 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
KiB Mem : 1883696 total, 76664 free, 1636952 used, 170080 buff/cache
KiB Swap: 2097148 total, 2016960 free, 80188 used. 75508 avail Mem
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
4301	root	20	0	2965436	1.003g	19112	S	0.3	55.9	0:52.40	java
7018	root	20	0	2965436	1.003g	19112	S	0.3	55.9	0:04.60	java
4240	root	20	0	2965436	1.003g	19112	S	0.0	55.9	0:00.00	java
4241	root	20	0	2965436	1.003g	19112	S	0.0	55.9	0:02.63	java
4243	root	20	0	2965436	1.003g	19112	S	0.0	55.9	0:00.23	java
4244	root	20	0	2965436	1.003g	19112	S	0.0	55.9	0:00.23	java
4245	root	20	0	2965436	1.003g	19112	S	0.0	55.9	0:00.30	java
4246	root	20	0	2965436	1.003g	19112	S	0.0	55.9	0:00.85	java
4247	root	20	0	2965436	1.003g	19112	S	0.0	55.9	0:00.02	java
4248	root	20	0	2965436	1.003g	19112	S	0.0	55.9	0:00.03	java
4249	root	20	0	2965436	1.003g	19112	S	0.0	55.9	0:00.00	java
4250	root	20	0	2965436	1.003g	19112	S	0.0	55.9	0:00.00	java
4251	root	20	0	2965436	1.003g	19112	S	0.0	55.9	0:23.22	java
4252	root	20	0	2965436	1.003g	19112	S	0.0	55.9	0:03.99	java
4253	root	20	0	2965436	1.003g	19112	S	0.0	55.9	0:00.00	java
4254	root	20	0	2965436	1.003g	19112	S	0.0	55.9	0:00.00	java
4255	root	20	0	2965436	1.003g	19112	S	0.0	55.9	0:00.00	java

Threads identifiers in decimal form are in the 'PID' column. The thread can be found by this identifier in file formed on step 2, so the tread name can be defined.

4. If it is necessary, send to [support@flashphoner.com](mailto:support@flashphoner.com) for further investigation

- The file formed on step 2
- Top command screenshot from step 3
- Thread name defined on step 3