# ··tmpfs·····

·····tmpfs·····OOM·····

····· tmpfs ·····tmpfs ·····
· swap ····· size ····· RAM·····
· tmpfs ···

·····

····· /tmp · /dev/shm ····· findmnt·df · du·df ·····du ·····
····· PID·cgroup v2 ····· ID···
·····

·· | ····· | ·····

df / du | ····· | ·····

·· RSS | ····· | ····· cgroup

memory.current / peak | cgroup ····· | ··· tmpfs·RSS ·····

memory.events | ··· OOM ···· | ·····

·····

····· cgroup v2 ···· SNAP ·····CG ·····
·····

```
set -euo pipefail
: "${PID:?·····PID}" "${TMPBASE:?·····}"   "${CG:?·····cgroup v2··}" "${SNAP:?·····}"
[[ "$PID" =~ ^[1-9][0-9]*$ ]] || exit 2
test -r "/proc/$PID/status" && test -d "$TMPBASE"
test -r "$CG/memory.current"
test ! -e "$SNAP" && test ! -L "$SNAP" || exit 2
mkdir -p "$(dirname "$SNAP")"; mkdir "$SNAP"
date -Is > "$SNAP/time.txt"
findmnt --target "$TMPBASE" -o TARGET,SOURCE,FSTYPE,OPTIONS > "$SNAP/mount.txt"
df -B1 "$TMPBASE" > "$SNAP/df.txt"
du -s -B1 "$TMPBASE" > "$SNAP/du.txt"
cat "/proc/$PID/cgroup" > "$SNAP/process-cgroup.txt"
grep -E '^(VmRSS|VmSwap|RssAnon|RssFile|RssShmem):'   "/proc/$PID/status" > "$SNAP/process-memory.txt" || true
for f in memory.current memory.max memory.peak memory.stat memory.events memory.swap.current; do
  if test -r "$CG/$f"; then cat "$CG/$f" > "$SNAP/$f"; fi
done
```

·····cgroup ·····
····· PID·memory.peak ····· memory.current ·····

## ····· tmpfs ····

· samtools sort ···-T ····· TMPBASE·····
·····TMPBASE ···· tmpfs ·····

```
set -euo pipefail
: "${TMPBASE:?·····}" "${RESULTS:?·····}"   "${BAM:?·····BAM}" "${THREADS:?·····}" "${MEM:?·····256M}"
[[ "$THREADS" =~ ^[1-9][0-9]*$ ]] || exit 2
test -d "$TMPBASE" && test -s "$BAM"
mkdir -p "$RESULTS"
run=$(mktemp -d "$RESULTS/sort-check.XXXXXX")
tmp=$(mktemp -d "$TMPBASE/sort-tmp.XXXXXX")
samtools --version > "$run/version.txt"
samtools quickcheck -v "$BAM"
/usr/bin/time -v -o "$run/time.txt"   samtools sort -@ "$THREADS" -m "$MEM" -T "$tmp/prefix"   -o "$run/sorted.bam" "$BAM" > "$run/stdout.txt" 2> "$run/stderr.tx
t"
samtools quickcheck -v "$run/sorted.bam"
printf 'result=%s
tmp=%s
' "$run" "$tmp"
```

samtools · -m ····· cgroup ···tmpfs df/du···
····· header····· quickcheck ·····
·····

·····

· df ····· du ····· cgroup ···· m
emory.max · OOM ····· tmpfs ·····
·····

tmpfs ……
…… ID……
……

## ….

Linux····tmpfs··  https://docs.kernel.org/filesystems/tmpfs.html

Linux····cgroup v2·····  https://docs.kernel.org/admin-guide/cgroup-v2.html

samtools sort·····-m··-T·····  https://www.htslib.org/doc/samtools-sort.html