System info Host, CPU, memory

CONCEPTS

Most of these tools just format files under /proc and /sys, so the same data is available to scripts.

Load average counts runnable tasks: compare it with nproc, not with 1.

free's available column, not free, tells how much memory new programs can still get; cache is reclaimable.

SYSTEM AND OS

`uname -a`
Kernel name, release, arch and host

`uname -r`
Kernel release only

`uname -m`
Machine architecture (x86_64, aarch64)

`hostnamectl`
Hostname, OS, kernel, virtualization

`hostname`
Print the current hostname

`cat /etc/os-release`
Distro name and version (ID, VERSION_ID)

UPTIME AND LOAD

`uptime`
Time up, users, load averages (1/5/15 min)

`uptime -s`
Boot time as a timestamp

`w`
Who is logged in and what they run

MEMORY

`free -h`
Memory and swap, human-readable

`free -h -s` *`<sec>`*
Repeat every <sec> seconds

CPU

`lscpu`
Model, sockets, cores, threads, caches

`nproc`
CPUs usable by this process

VMSTAT

`vmstat` *`<sec> <count>`*
Sample every <sec>, stop after <count>

`vmstat 1`
Sample every second until Ctrl+C

The first vmstat line is an average since boot; judge the lines after it.

HARDWARE

`lspci`
List PCI devices (GPU, NIC, controllers)

`lspci -nnk`
IDs and the kernel driver in use

`lsusb`
List USB devices

KERNEL LOG (DMESG)

`dmesg -T`
Log with readable timestamps

`dmesg --level=err,warn`
Only errors and warnings

USERS AND SESSIONS

`whoami`
Name of the current user

`id`
UID, GID and all groups

RECIPES

Quick host report

```
uname -srm
grep PRETTY_NAME /etc/os-release
uptime -p
nproc
free -h | head -2
```