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Exploring Linux Practicum, Part Two

System Inspection

Presented by CSCNSI

The Sections

- Part 1: System Status
- Part 2: Processes
- Part 3: Special Filesystems
- Part 4: Logging Infrastructure
- Part 5: System Control

Part 1: System Status

- Try out the following commands so you can answer these questions:
 - **uptime**: How long has your system been running for? What is its load? What does the load tell you about the system?
 - **uname**: What kernel version is your system running? What chip architecture is it running on?
 - **df**, **du**, and **free**: How much free storage space does your system have in its root filesystem? Which toplevel directory in its root filesystem is taking up the most space? How much total memory does your system have?
 - **w** and **last**: How many people are currently logged in to your system? Who has logged in over the last four hours?
 - **mount**: How many filesystems (real or virtual) are mounted on your system? What type of filesystem is mounted on your root directory (/)?
 - **top**: What are some of the processes frequently see at the top of the process list?

Part 2: Processes

- Try out the following variations of `ps` so you can answer these questions:
 - `ps`: What is the process ID of your current shell (bash) process? What is the process ID of the `ps` command you just ran?
 - `ps -e`: Did your shell's process ID change? Did the `ps` process ID change? How many processes are currently running on your system?
 - `ps -eF`: How many different users own processes currently running on your system? Who owns the most of them?
 - `ps -e1F`: Adding `-1` didn't really do much, did it? But it's useful when you need it.
 - `ps -e1F --forest`: What's the process lineage of your `ps` command?
- Kill a process using `kill`:
 - `kill <pid>` : That wasn't very nice, was it?

Part 3: Special Filesystems

- Examine the following directories so you can answer these questions:
 - **/proc**: Can you find your shell process's directory? What are some of the non-process files included in /proc?
 - **/proc/<pid>**: What file do you think will show you the environment your shell ran with? What does that environment look like?
 - **/proc/cpuinfo**: How many cores does your system have? How fast is your processor?
 - **/proc/meminfo**: What is the total amount of memory on your system? How do the numbers in /proc/meminfo compare to the numbers displayed by free?
 - **/sys**: What information can you find about your main network interface (em2) from /sys/class/net?
 - **/dev**: How many partitions does your root disk (/dev/sda) have?

Part 4: Logging Infrastructure

- Try out the following commands so you can answer these questions:
 - `dmesg`: Which gets initialized first at boot: USB devices or your root disk (`sda`)?
 - `journalctl`: When do your `journald` logs start? When do they end?
 - `journalctl -u`: When did your `sshd` server start?
 - `journalctl --since` and `--until`: How would you display all of the logs that have come in since this practicum session started?

Part 5: System Control

- When you're done with all of the other sections, you should reboot your system! Try it both ways:
 - `reboot`
 - `systemctl reboot`

Questions?