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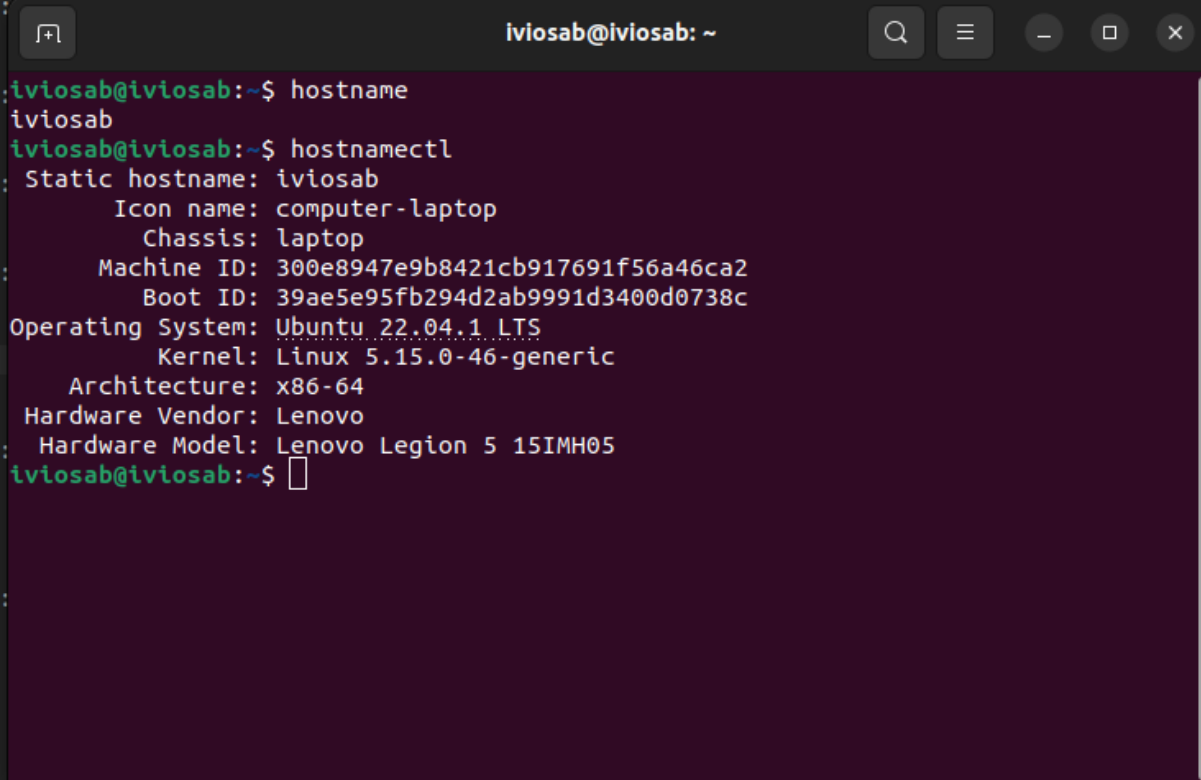
**Group: B20-SD-01**

**Lab 1: Introduction to Linux**

**Q1:** What is your machine hostname? How did you check it?

**Answer:**

ivosab, by using "hostname" command or "hostnamectl" for more information other than only the hostname

A terminal window with a dark purple background. The title bar at the top shows 'ivosab@ivosab: ~' and standard window controls. The terminal displays the following commands and output:

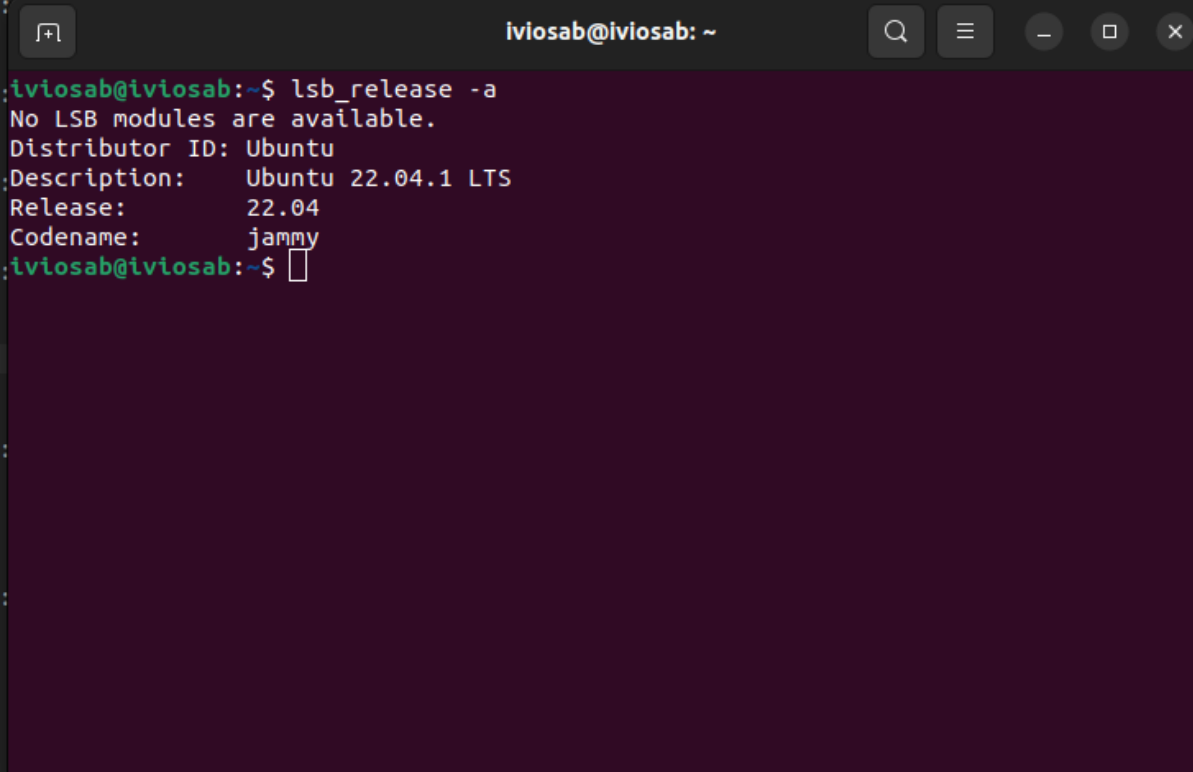
```
ivosab@ivosab:~$ hostname
ivosab
ivosab@ivosab:~$ hostnamectl
Static hostname: ivosab
    Icon name: computer-laptop
    Chassis: laptop
    Machine ID: 300e8947e9b8421cb917691f56a46ca2
    Boot ID: 39ae5e95fb294d2ab9991d3400d0738c
Operating System: Ubuntu 22.04.1 LTS
    Kernel: Linux 5.15.0-46-generic
    Architecture: x86-64
    Hardware Vendor: Lenovo
    Hardware Model: Lenovo Legion 5 15IMH05
ivosab@ivosab:~$
```

**Q2: What distribution of Linux did you install, and what is the version?**

**Answer:**

Ubuntu, version 22.04

You can view information about the OS with `lsb_release`.

A terminal window titled 'ivosab@ivosab: ~' with standard window controls. The terminal shows the command 'lsb\_release -a' and its output: 'No LSB modules are available.', 'Distributor ID: Ubuntu', 'Description: Ubuntu 22.04.1 LTS', 'Release: 22.04', and 'Codename: jammy'. The prompt is 'ivosab@ivosab:~\$' with a cursor.

```
ivosab@ivosab:~$ lsb_release -a
No LSB modules are available.
Distributor ID: Ubuntu
Description:   Ubuntu 22.04.1 LTS
Release:      22.04
Codename:     jammy
ivosab@ivosab:~$
```

**Q3: What is the root directory on your machine?**

**Answer:**

/root which is represented as / and can be accessed by "cd /". it is the top-most directory in the hierarchy.



```
ivosab@ivosab: /
ivosab@ivosab:~$ ls
ClionProjects  Documents  Music      Postman    seaborn-data  Templates
Desktop        Downloads  Pictures   Public     snap          Videos
ivosab@ivosab:~$ cd ..
ivosab@ivosab:/home$ ls
ivosab
ivosab@ivosab:/home$ cd ..
ivosab@ivosab:/$ ls
bin    dev    lib    libx32  mnt    root   snap    sys    var
boot  etc    lib32  lost+found  opt    run    srv     tmp
cdrom  home  lib64  media    proc   sbin   swapfile  usr
ivosab@ivosab:/$ cd ..
ivosab@ivosab:/$ ls
bin    dev    lib    libx32  mnt    root   snap    sys    var
boot  etc    lib32  lost+found  opt    run    srv     tmp
cdrom  home  lib64  media    proc   sbin   swapfile  usr
ivosab@ivosab:/$ cd home/ivosab/
ivosab@ivosab:~$ ls
ClionProjects  Documents  Music      Postman    seaborn-data  Templates
Desktop        Downloads  Pictures   Public     snap          Videos
ivosab@ivosab:~$ cd /
ivosab@ivosab:/$ ls
bin    dev    lib    libx32  mnt    root   snap    sys    var
boot  etc    lib32  lost+found  opt    run    srv     tmp
cdrom  home  lib64  media    proc   sbin   swapfile  usr
ivosab@ivosab:/$
```

**Q4: What is the difference between `/bin/bash` and `/bin/sh`?**

**Answer:**

Implementation-wise there are too many differences to name, because bash is essentially a superset of sh.

But basically:

Bash is sh, but with more features and better syntax. While on the other hand sh is just scripting in any shell. On most systems `/bin/sh` is a symbolic link and will not invoke sh.

In ubuntu `/bin/sh` used to link to bash but now it links to another shell called dash.

**Q5: Read the manual for `bash`. List three options and describe what they do.**

**Answer:**

- x Print commands and their arguments as they are executed.
- v Print shell input lines as they are read.
- l Make bash act as if it had been invoked as a login shell. A login shell is one whose first character of argument zero is a -, or one started with the `--login` option.

**Q6: Write five (5) Linux distributions you want to try. Write short notes on their purposes.**

**Answer:**

- 1- mint: it minimizes the learning curve when switching from windows to linux, thanks to its simple ui and ease of use.
- 2- redhat: used for diverse purposes for the development and operation of software and hardware and it is known for its reliability and fast speed
- 3- OpenSUSE: offers a stable environment for its users and works well with almost all of the best Linux desktop apps.
- 4- fedora: it has great graphical tools and useful software for office work
- 5- CentOS: it runs faster than other distros thanks to its lightweight and reliable software

**Q7: What is the POSIX standard?**

**Answer:**

POSIX is a family of standards, used to clarify and make uniform the application programming interface.

The reason behind it is to be able to port programs easily among UNIX derivatives.

**Q8: What are the advantages of the POSIX standard?**

**Answer:**

With POSIX you are not dependent on any one entity to have thought of a comprehensive and robust set of application APIs. The POSIX standard is powerful and feature rich.

Having a rich and well proven set of APIs will speed up development time, which, in turn, reduces engineering costs.

**Q9: Write the differences between Slackware and Debian.**

**Answer:**

The packaging system is pretty much the biggest difference between Debian and Slackware, and is also what makes Debian superior.

It's much easier managing packages with dpkg and apt than the way slackware does it.

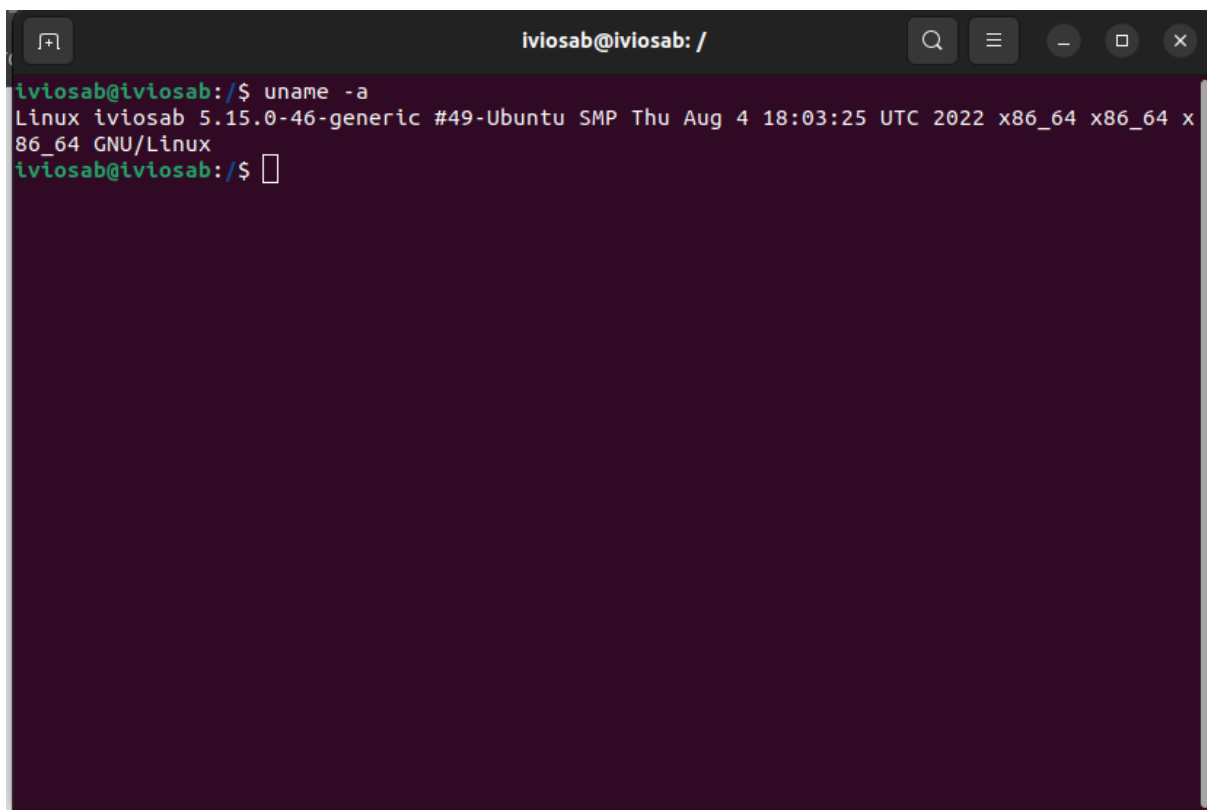
But on the other hand Slackware gives a lot more control to the user.

**Q10: Explain all the details of the output from the command `uname -a`.**

**Answer:**

It displays the operating system name as well as the system node, operating system release, operating system version, hardware name, processor type and hardware platform

**note:** processor type and hardware platform are not portable and omitted if they're unknown.



```
ivosab@ivosab: /  
ivosab@ivosab:/$ uname -a  
Linux ivosab 5.15.0-46-generic #49-Ubuntu SMP Thu Aug 4 18:03:25 UTC 2022 x86_64 x86_64 x86_64 GNU/Linux  
ivosab@ivosab:/$
```