Task 5: Capture and Analyze Network Traffic Using Wireshark.

1. Install Wireshark and tshark (if not already)

- $sudo apt upgrade
- $sudo apt install -y wireshark tshark

```
Session  Actions  Edit  View  Help
┌──(kalix㉿KaliX)-[~]
└─$ sudo apt install -y wireshark tshark
[sudo] password for kalix:
wireshark is already the newest version (4.4.9-1).
tshark is already the newest version (4.4.9-1).
tshark set to manually installed.
The following package was automatically installed and is no longer required:
  libjs-jquery-ui
Use 'sudo apt autoremove' to remove it.

Summary:
  Upgrading: 0, Installing: 0, Removing: 0, Not Upgrading: 0

┌──(kalix㉿KaliX)-[~]
└─$
```

Add your user to the wireshark group (so you can run captures without sudo):

- $sudo usermod -aG wireshark $USER

  # Apply group immediately for current shell:
- $getent group wireshark

```
Session  Actions  Edit  View  Help
  -l, --login NEW_LOGIN         new value of the login name
  -L, --lock                    lock the user account
  -m, --move-home               move contents of the home directory to the
                                new location (use only with -d)
  -o, --non-unique              allow using duplicate (non-unique) UID
  -p, --password PASSWORD       use encrypted password for the new password
  -P, --prefix PREFIX_DIR       prefix directory where are located the /etc/* files
  -r, --remove                  remove the user from only the supplemental GROUPS
                                mentioned by the -G option without removing
                                the user from other groups
  -R, --root CHROOT_DIR         directory to chroot into
  -s, --shell SHELL             new login shell for the user account
  -u, --uid UID                 new UID for the user account
  -U, --unlock                  unlock the user account
  -v, --add-subuids FIRST-LAST  add range of subordinate uids
  -V, --del-subuids FIRST-LAST  remove range of subordinate uids
  -w, --add-subgids FIRST-LAST  add range of subordinate gids
  -W, --del-subgids FIRST-LAST  remove range of subordinate gids
  -Z, --selinux-user SEUSER     new SELinux user mapping for the user account
      --selinux-range SERANGE   new SELinux MLS range for the user account


┌──(kalix㉿KaliX)-[~]
└─$ getent group wireshark
wireshark:x:124:kalix,root

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┌──(kalix㉿KaliX)-[~]
└─$
```
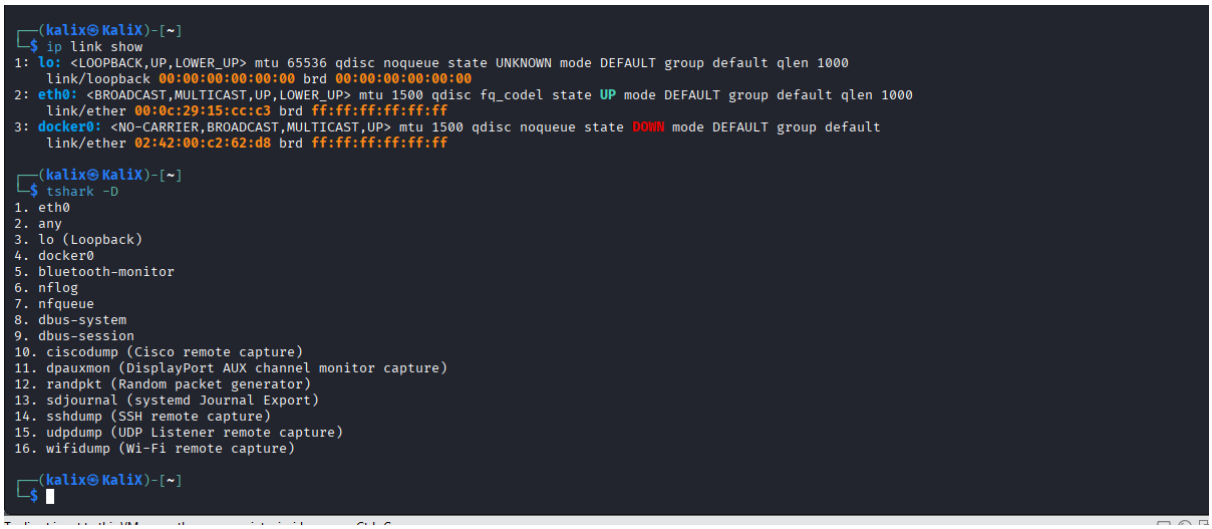

2. Identify your active interface

List interfaces:

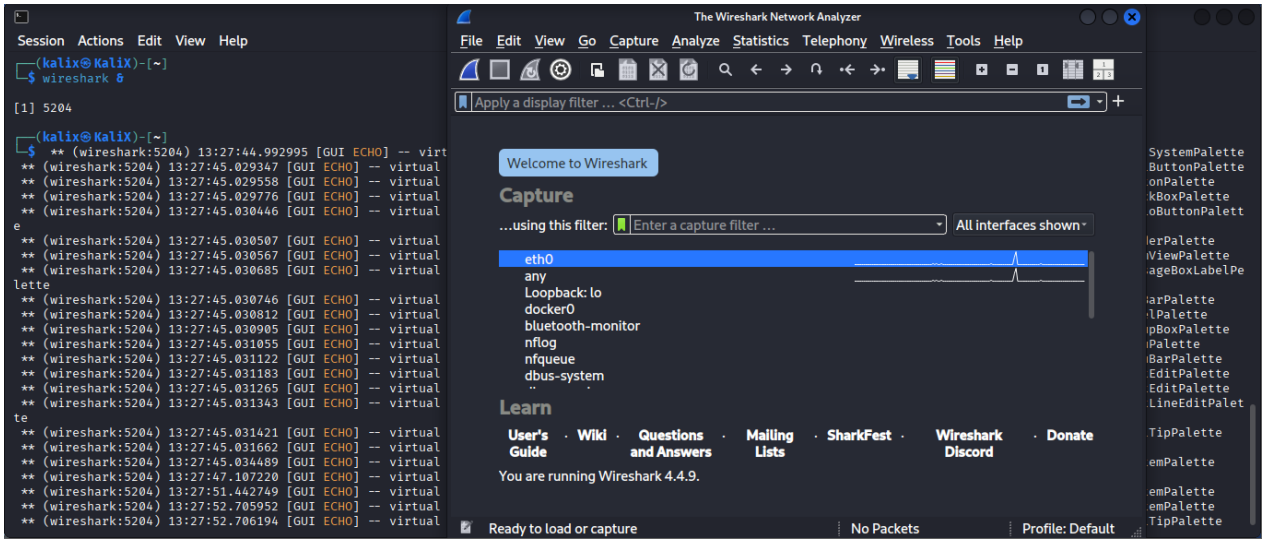
- $ ip link show # lists all interfaces or with tshark
- $tshark -D



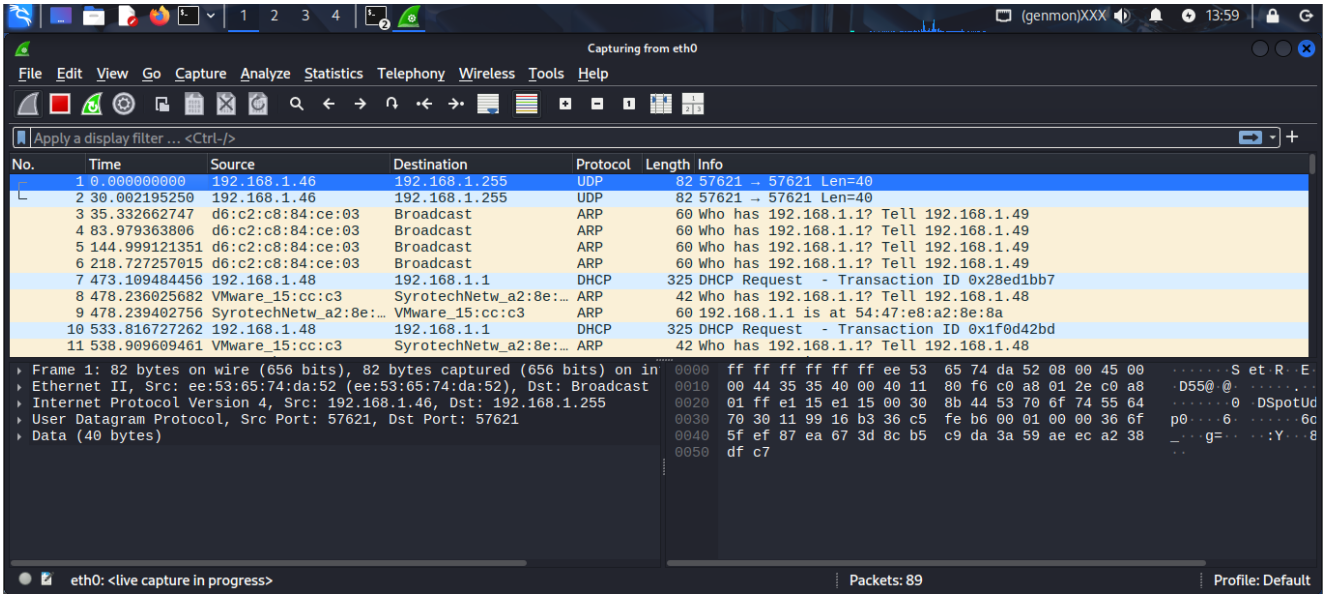
Common names: eth0, ens33, wlan0, wlp3s0.

3. GUI capture with Wireshark

- Start Wireshark
  $wireshark &



- Select the interface (e.g., `wlan0` or `eth0`) and click the blue shark-fin to **Start** capturing.
- (Optional) Set a **capture filter** to limit what is recorded (see below).



- Generate traffic (see step 4).
- Click the red square to **Stop** capture.
- Save capture: `File → Save As...` → choose `capture.pcap` or `capture.pcapng`, save to `~/wireshark-task/captures/capture.pcap`.

4. Generate traffic to create packets

Open another terminal while capturing, run a few commands to generate different protocols:

1. DNS lookup (UDP)

$dig @8.8.8.8 example.com

2. Ping (ICMP)

$ping -c 5 8.8.8.8

3. HTTP request (un-encrypted)

$curl -I http://example.com

4. HTTPS request (TLS)

$curl -I https://example.com

5. SSH attempt (TCP) - optional if you have a host

$ssh -o BatchMode=yes user@remote-host true

6. Simple apt update to create TLS + HTTP traffic (will generate DNS and TLS)

$sudo apt update -y

- Run a few of these (mix them) while the capture is running for ~1 minute.

5. **Stop capture and save pcapng / pcap**

   If using GUI — click Stop and File → Save As....

   If using CLI — capture will stop automatically if you used -a duration or press Ctrl+C to stop tshark/dumpcap.