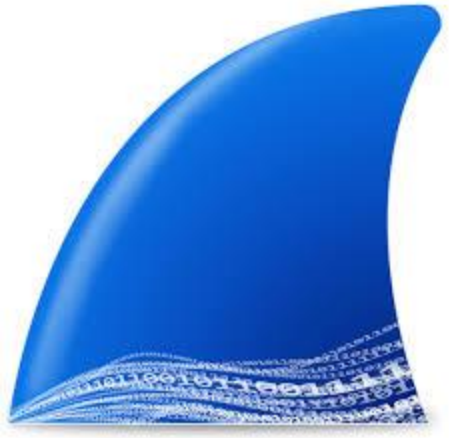
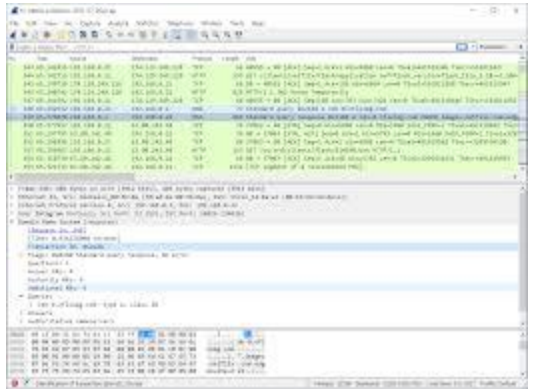

Wireshark

What is Wireshark?



Wireshark is a free, open-source network protocol analyser.



you capture and inspect network traffic in real time. Every single packet is captured

Think of it as a microscope for your network — zooming in on every packet!

WHY ?

- Learn how protocols work.
- Debug network applications.
- Follow streams like conversations

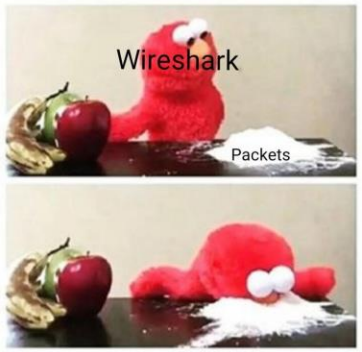
- Troubleshoot network issues.
- Spot suspicious or malicious traffic
- Debugging apps

Guys we did it we found the intruder

- Finding slow networks.
- Detecting intrusions or malware traffic
- Analysing VoIP (record and play back phone calls or determine quality to fix)
- Learning networking

HOW DOES IT WORK

Decodes hundreds of protocols (TCP, HTTP, DNS, etc.). By capturing packets live, Display & capture filters.



1. Captures (sniffs) packets from network interfaces.

2. Decodes protocol layers.

3. Applies filters to narrow results.

4. Displays packet metadata + payload.

5. Allows analysis, exporting, and reporting

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You get to see what devices are really saying behind the scenes.

Feels like hacking in a movie (but legal!).

You can follow streams like reading a conversation.

Spot weird traffic, misbehaving apps, or even memes being sent over HTTP.

Limitations:

- HTTPS sites are encrypted (SSL/TLS)
  - Can be unencrypted if you own the web server
  - Other protocols aren't – DNS packets show the websites people are accessing on the network you're connected to
- Requires admin permissions
- Can be overwhelming for beginners

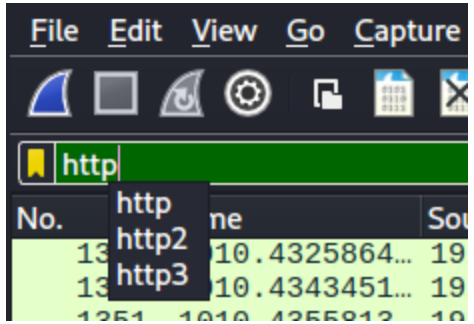
Pros:

- Free, powerful, open-source
- Deep protocol support
- Great for learning

Wireshark Filters/Tips

Play around with filters — it's like magic!

Filter
http
DNS
tcp.port == 80
ip.addr == 8.8.8.8
tcp.flags.syn == 1



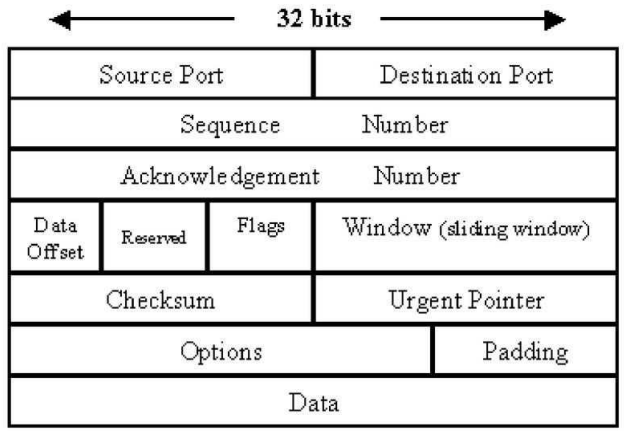
- Use capture filters to reduce noise.
- Save large captures in segments.
- Use colour rules to highlight patterns.
- Learn display filters—they're powerful!
- Be mindful of sensitive captured data.

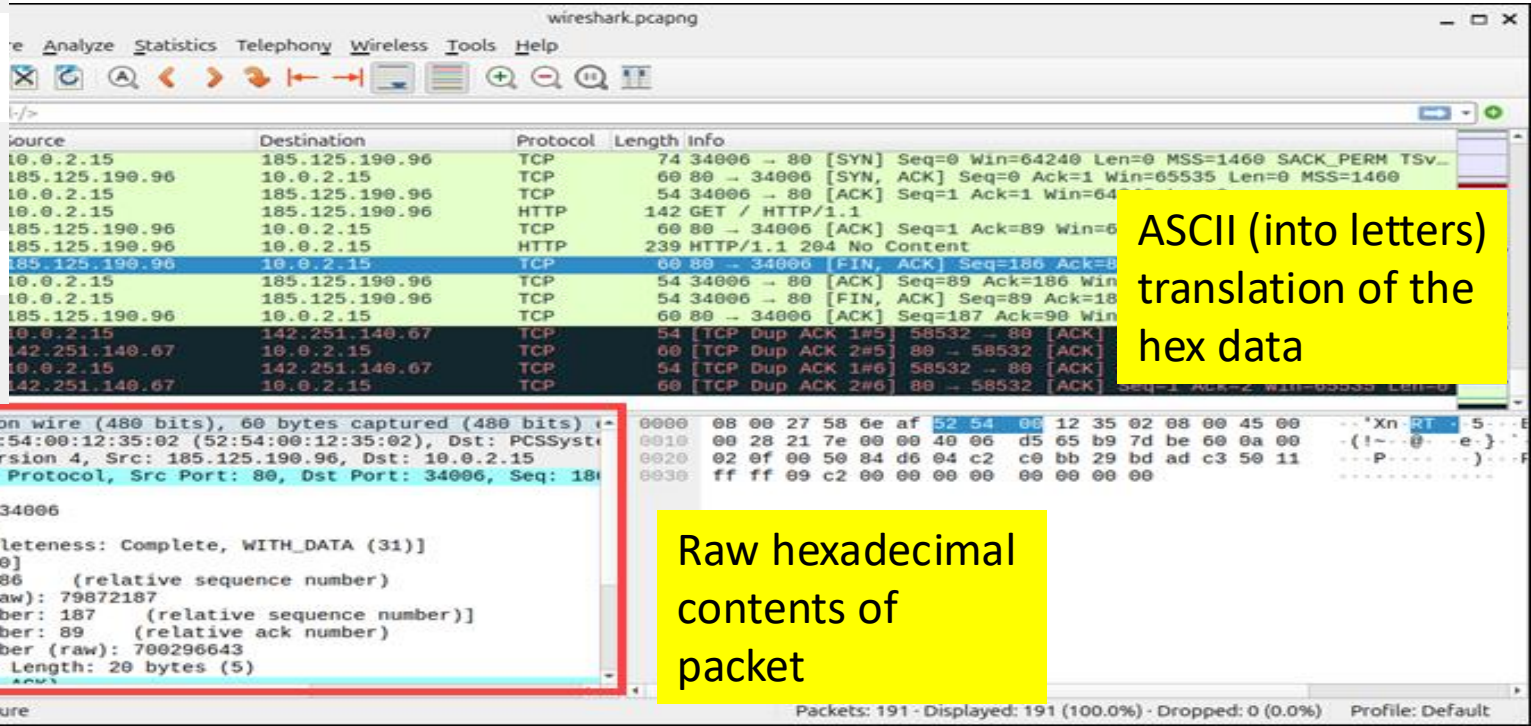
Interface

No.	Time	Source	Destination	Protocol	Length	Info
2731	8.625194349	2.19.252.91	192.168.60.1	TCP	1514	443 → 57369 [PSH, ACK]
2732	8.625194373	2.19.252.91	192.168.60.1	TCP	1514	443 → 57369 [PSH, ACK]

Column	Description
No.	The packet number in the capture sequence.
Time	The time elapsed since the start of the capture.
Source	The IP or MAC address from which the packet originated.
Destination	The IP or MAC address to which the packet is being sent.
Protocol	The protocol type, for example, TLS v1.2, TCP, ICMP, etc.
Length	The size of the packet in bytes.
Info	A summary of the packet's function or contents.

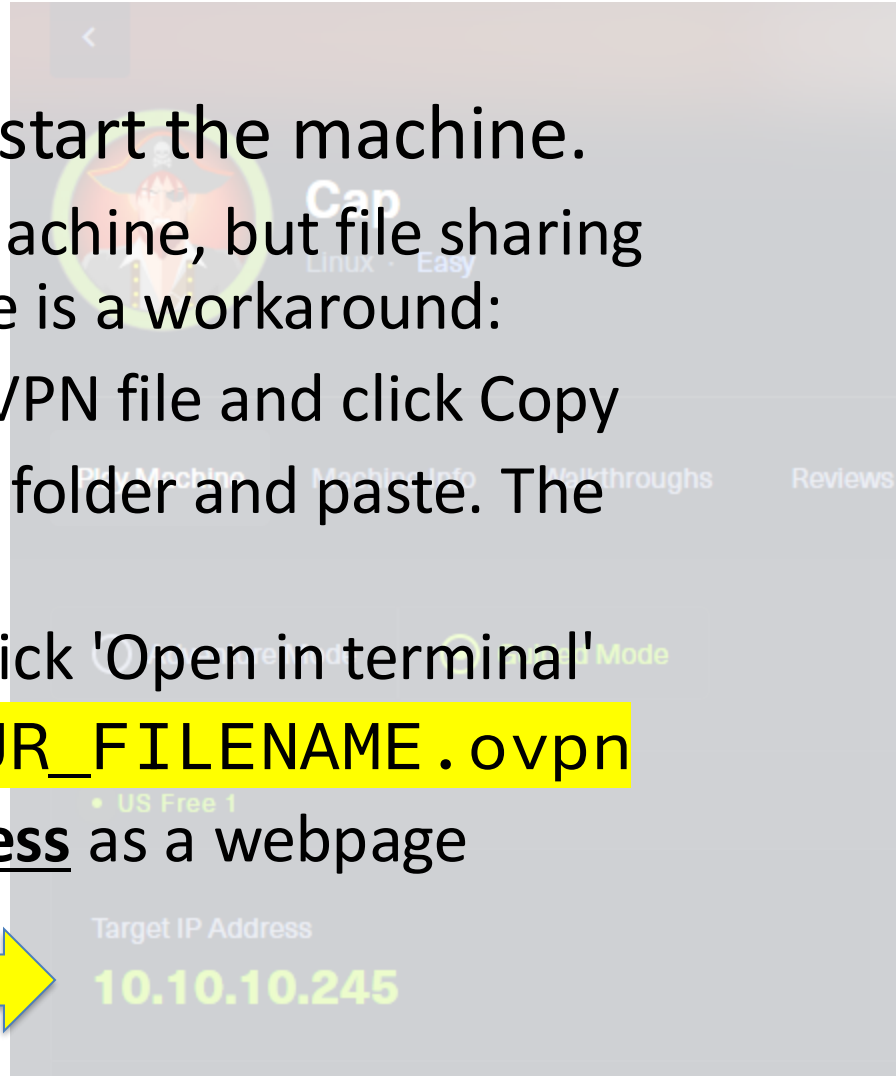
TCP Packet header





Cap - HTB

- [Hack The Box :: Hack The Box]
- Download the OpenVPN file (top right) then start the machine.
  - You need to run the OpenVPN file on your Kali machine, but file sharing between VM and your desktop is restricted. Here is a workaround:
  - On your Windows machine, right click the OpenVPN file and click Copy
  - On the Kali VM, right click on the desktop or any folder and paste. The clipboard is shared between VM and host.
  - Right click the same folder/desktop again, and click 'Open in terminal'
  - In the terminal, enter `sudo openvpn ./YOUR_FILENAME.ovpn`
  - Open Firefox in Kali and open the **target IP address** as a webpage



Task Knowledge

- OSI Model – psychical, data, network, transport, session, presentation, application
- TCP/IP - link, internet, transport, application
- Linux
- Ports
- Wireshark
- tcpdump and tshark