

Prerequisites:

- Python 3.9 at minimum is installed
- Scapy installed
  - Pip install scapy
- Clone the repository
  - Git clone <repo-url>
  - Cd osi-encapsulation-explorer

Running

- Visualize Encapsulation
  - Python osi\_explorer.py simulate –payload “Hello, OSI!”
- Visualize Decapsulation
  - Python osi\_explorer.py simulate –payload “Hello” –direction up
- Generate PCAP(basic synthetic headers)
  - Python osi\_explorer.py pcap –payload “PCAP demo” –out demo.pcap
- Generate PCAP(advanced realistic headers)
  - Python osi\_explorer.py pcap –payload “Advanced PCAP” –out advanced.pcap  
--advanced --proto tcp --src-ip 10.0.0.1 --dst-ip 10.0.0.2 --src-port 12345  
--dst-port 80
- Show OSI vs TCP/IP Comparison
  - Python osi\_explorer.py compare