

The LNM Institute of Information Technology, Jaipur

Computer Networks Lab

Lab Assignment 9

Objective: Introduction to Networking Tools

Task 1: Physical and Data link layer

1. Find out what network cards your machine has. (Hint: lspci)
2. What is the current speed of the network interface? (Hint: ethtool, mii-tool)
3. Find out the physical address of your machine? How many bytes did your network interface receive since boot? (Hint: ifconfig)
4. What is the MTU setting for your network interface? (Hint: ip link, ifconfig)

Task 2: Network Layer

1. What is your machine's network address (IPv4 and IPv6)? What is the default gateway (IP address and MAC address) of your network? (Hint: ifconfig, ip route, route, ip neigh)
2. Show the arp entries in your machine. (Hint: arp, ip neigh)
3. Perform a traceroute/mtr to any web address. Provide the full traceroute/mtr output. Show how mtr and traceroute is working by packet capturing tools. (Hint: mtr, traceroute)
4. How many IP packets has received by your machine after current boot process? (Hint: ifconfig, netstat)

Task 3: Transport layer

1. Find the active TCP connection on your machine? (Hint: netstat)
2. How many sockets are currently open on your machine? (Hint: netstat)
3. How many applications on your machine accessing network services? Also identify their access protocol. (Hint: lsof)

Task 4: Packet Capture and Packet Analyser (wireshark)

1. Access web page and capture associated packet and answer following:
 1. What is the MAC address of your Host? You can find this in the frame level information.
 2. List the different protocols that appear in the protocol column
 3. What is the IP address of the accessed web page?
 4. List out all header fields information of captured packet.