



## **COMPUTER NETWORKS**

### **LAB REPORT # 11**

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## **TASK # 11.1:**

### **CODE:**

```
#include <arpa/inet.h>
#include <sys/ioctl.h>
#include <sys/socket.h>
#include <sys/types.h>
#include <errno.h>
#include <arpa/inet.h>
#include <net/if.h>
#include <netinet/ether.h>
#include <string.h>
#include <cstring>
#include <unistd.h>
#include <stdlib.h>

#include <iostream>

#define Buffer 1024

using namespace std;
int main(int argc, char *argv[]){
    int sockfd;
    int ret;
    char ifName[65536];
    ssize_t numbytes;
    uint8_t buf[Buffer];

    if(argc > 1){
        strcpy(ifName, argv[1]);
    }
    else{
        cout << "USAGE: ProgName IfaceName: Exiting..." << endl;
        exit(-1);
    }

    if((sockfd = socket(PF_PACKET, SOCK_RAW, htons(ETH_P_IP))) == -1){
        perror("listener: socket");
        return -1;
    }
    if(setsockopt(sockfd, SOL_SOCKET, SO_BINDTODEVICE, ifName,
IFNAMSIZ-1) == -1){
        perror("SO_BINDTODEVICE");
        close(sockfd);
        exit(EXIT_FAILURE);
    }

    cout << "Socket Ready, Waiting to Receive Packets..." << endl;

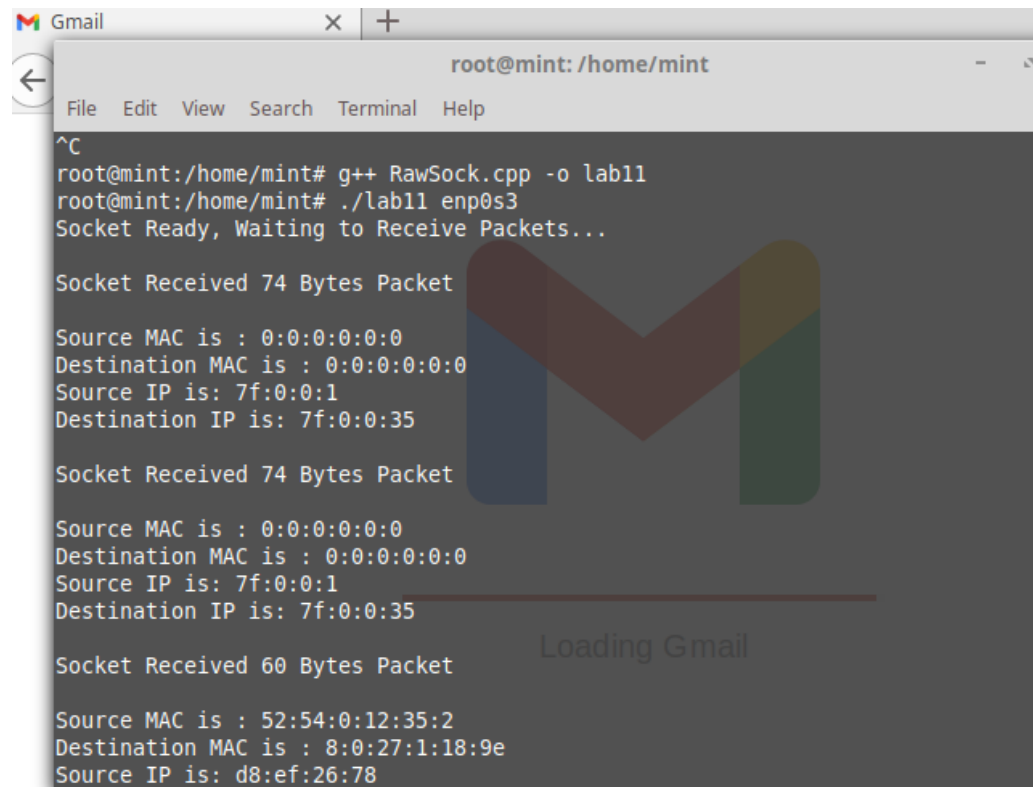
    while(1){
        numbytes = recvfrom(sockfd, buf, Buffer, 0, NULL, NULL);
        cout << endl << "Socket Received " << numbytes << " Bytes
Packet" << endl;
        printf("\nSource MAC is : %x:%x:%x:%x:%x:%x\t", buf[6], buf[7],
buf[8], buf[9], buf[10], buf[11]);
        printf("\nDestination MAC is : %x:%x:%x:%x:%x:%x\t", buf[0],
buf[1], buf[2], buf[3], buf[4], buf[5]);
```

```

        printf("\nSource IP is: %x:%x:%x:%x\t", buf[26], buf[27],
buf[28], buf[29]);
        printf("\nDestination IP is: %x:%x:%x:%x\t", buf[30], buf[31],
buf[32], buf[33]);
        cout << endl;
    }
}

```

## OUTPUT:



```

root@mint: /home/mint
File Edit View Search Terminal Help
^C
root@mint:/home/mint# g++ RawSock.cpp -o lab11
root@mint:/home/mint# ./lab11 enp0s3
Socket Ready, Waiting to Receive Packets...

Socket Received 74 Bytes Packet

Source MAC is : 0:0:0:0:0:0
Destination MAC is : 0:0:0:0:0:0
Source IP is: 7f:0:0:1
Destination IP is: 7f:0:0:35

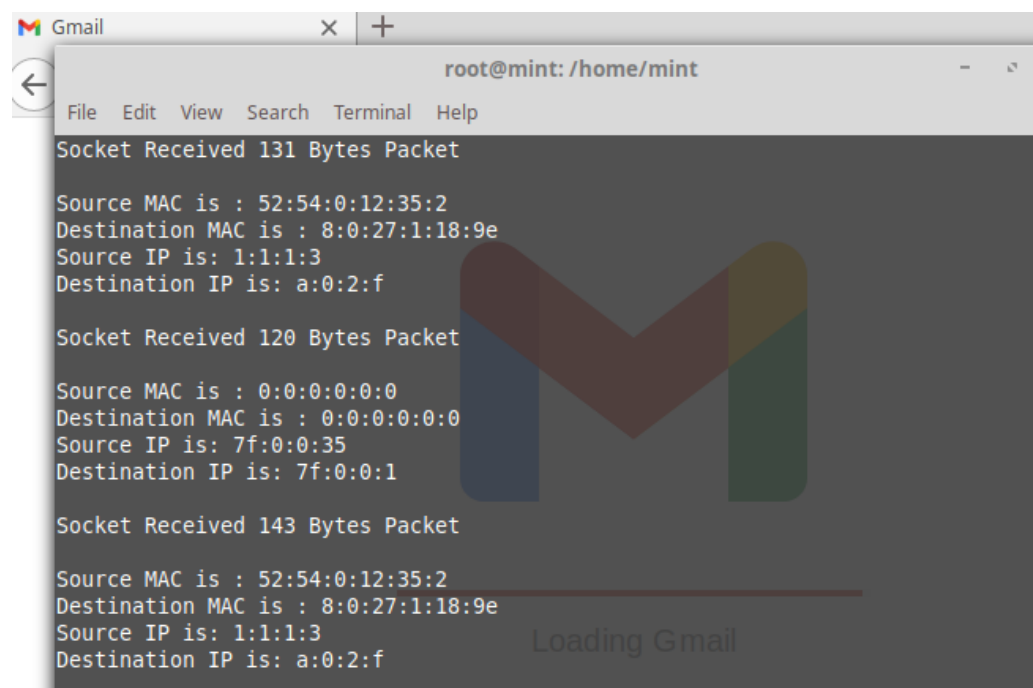
Socket Received 74 Bytes Packet

Source MAC is : 0:0:0:0:0:0
Destination MAC is : 0:0:0:0:0:0
Source IP is: 7f:0:0:1
Destination IP is: 7f:0:0:35

Socket Received 60 Bytes Packet

Source MAC is : 52:54:0:12:35:2
Destination MAC is : 8:0:27:1:18:9e
Source IP is: d8:ef:26:78

```



```

root@mint: /home/mint
File Edit View Search Terminal Help
Socket Received 131 Bytes Packet

Source MAC is : 52:54:0:12:35:2
Destination MAC is : 8:0:27:1:18:9e
Source IP is: 1:1:1:3
Destination IP is: a:0:2:f

Socket Received 120 Bytes Packet

Source MAC is : 0:0:0:0:0:0
Destination MAC is : 0:0:0:0:0:0
Source IP is: 7f:0:0:35
Destination IP is: 7f:0:0:1

Socket Received 143 Bytes Packet

Source MAC is : 52:54:0:12:35:2
Destination MAC is : 8:0:27:1:18:9e
Source IP is: 1:1:1:3
Destination IP is: a:0:2:f

```

```
Google
x +
root@mint: /home/mint
File Edit View Search Terminal Help
Socket Received 60 Bytes Packet
Source MAC is : 52:54:0:12:35:2
Destination MAC is : 8:0:27:1:18:9e
Source IP is: d8:3a:d0:ee
Destination IP is: a:0:2:f
^C
root@mint:/home/mint# ifconfig
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 10.0.2.15 netmask 255.255.255.0 broadcast 10.0.2.255
    inet6 fe80::273:9ba3:4950:8919 prefixlen 64 scopeid 0x20<link>
    ether 08:00:27:01:18:9e txqueuelen 1000 (Ethernet)
    RX packets 31406 bytes 34483750 (34.4 MB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 19310 bytes 1900947 (1.9 MB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 1573 bytes 139322 (139.3 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 1573 bytes 139322 (139.3 KB)
```

We can see that the red underline addresses are tallied by us shows that destination address which is our PC is correct, same way we also tallied destination IP address with our IP address. It can be seen that IP Address caught is a:0:2:f, this is in HEX when changed to binary it gives 10.0.2.15 which is same as we found through ifconfig.