EX.NO:4

WIRESHARK

AIM:

Experiments on Packet capture tool: Wireshark

Packet Sniffer

- Sniffs messages being sent/received from/by your computer
- Store and display the contents of the various protocol fields in the messages
- Passive program
  - – never sends packets itself
  - – no packets addressed to it
  - – receives a copy of all packets (sent/received)

Packet Sniffer Structure Diagnostic Tools

- Tcpdump
  - – E.g. tcpdump -enx host 10.129.41.2 -w exe3.out
- Wireshark
  - – wireshark -r exe3.out and equipment location.

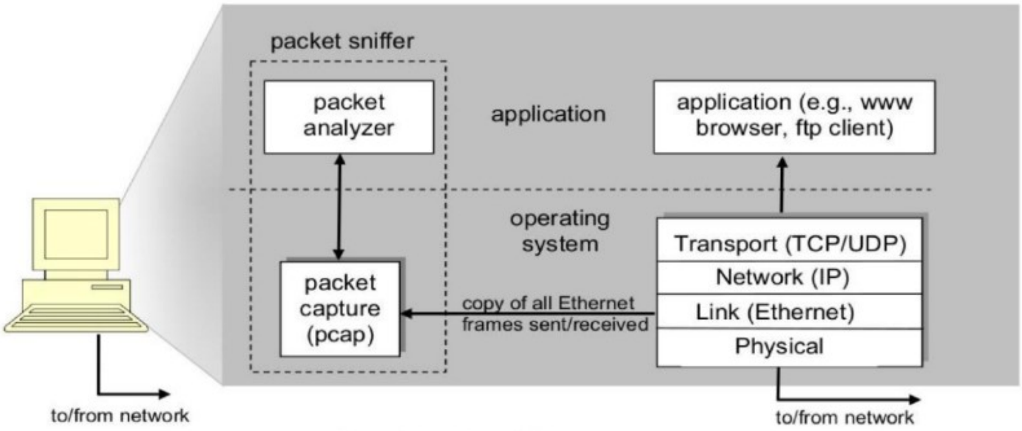


Figure 1: Packet sniffer structure

DESCRIPTION:

WIRESHARK

Wireshark, a network analysis tool formerly known as Ethereal, captures packets in real time and display them in human-readable format. Wireshark includes filters, color coding, and other features that let you dig deep into network traffic and inspect individual packets. You can use Wireshark to inspect a suspicious program’s network traffic, analyze the traffic flow on your network, or troubleshoot network problems.

What we can do with Wireshark:

- □ Capture network traffic
- □ Decode packet protocols using dissectors
- □ Define filters – capture and display
- □ Watch smart statistics
- □ Analyze problems
- □ Interactively browse that traffic

Wireshark used for:

- □ Network administrators: troubleshoot network problems
- □ Network security engineers: examine security problems
- □ Developers: debug protocol implementations
- □ People: learn network protocol internals

Getting Wireshark

Wireshark can be downloaded for Windows or macOS from its official website. For Linux or another UNIX-like system, Wireshark will be found in its package repositories. For Ubuntu, Wireshark will be found in the Ubuntu Software Center.

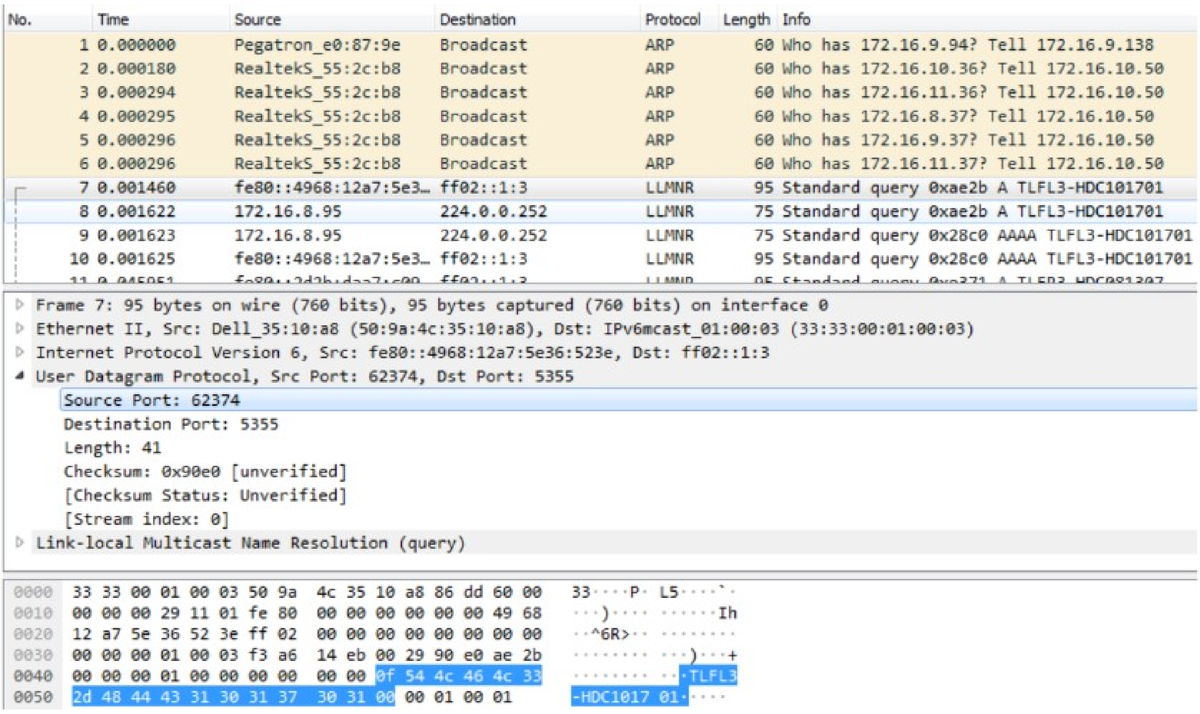
CAPTURING AND ANALYSING PACKETS USING WIRESHARK TOOL

To filter, capture, view, packets in Wireshark Tool.

Capture 100 packets from the Ethernet: IEEE 802.3 LAN Interface and save it.

Procedure

- □ Select Local Area Connection in Wireshark.
- □ Go to capture ➡ option
- □ Select stop capture automatically after 100 packets.
- □ Then click Start capture.
- □ Save the packets.



```
No.    Time        Source               Destination   Protocol Length Info
     1 0.000000    Pegatron_e0:87:9e    Broadcast     ARP        60 Who has 172.16.9.94? Tell 172.16.9.138
     2 0.000180    RealtekS_55:2c:b8    Broadcast     ARP        60 Who has 172.16.10.36? Tell 172.16.10.50
     3 0.000294    RealtekS_55:2c:b8    Broadcast     ARP        60 Who has 172.16.11.36? Tell 172.16.10.50
     4 0.000295    RealtekS_55:2c:b8    Broadcast     ARP        60 Who has 172.16.8.37? Tell 172.16.10.50
     5 0.000296    RealtekS_55:2c:b8    Broadcast     ARP        60 Who has 172.16.9.37? Tell 172.16.10.50
     6 0.000296    RealtekS_55:2c:b8    Broadcast     ARP        60 Who has 172.16.11.37? Tell 172.16.10.50
     7 0.001460    fe80::4968:12a7:5e3… ff02::1:3     LLMNR      95 Standard query 0xae2b A TLFL3-HDC101701
     8 0.001622    172.16.8.95          224.0.0.252   LLMNR      75 Standard query 0xae2b A TLFL3-HDC101701
     9 0.001623    172.16.8.95          224.0.0.252   LLMNR      75 Standard query 0x28c0 AAAA TLFL3-HDC101701
    10 0.001625    fe80::4968:12a7:5e3… ff02::1:3     LLMNR      95 Standard query 0x28c0 AAAA TLFL3-HDC101701
```

```
▷ Frame 7: 95 bytes on wire (760 bits), 95 bytes captured (760 bits) on interface 0
▷ Ethernet II, Src: Dell_35:10:a8 (50:9a:4c:35:10:a8), Dst: IPv6mcast_01:00:03 (33:33:00:01:00:03)
▷ Internet Protocol Version 6, Src: fe80::4968:12a7:5e36:523e, Dst: ff02::1:3
◢ User Datagram Protocol, Src Port: 62374, Dst Port: 5355
    Source Port: 62374
    Destination Port: 5355
    Length: 41
    Checksum: 0x90e0 [unverified]
    [Checksum Status: Unverified]
    [Stream index: 0]
▷ Link-local Multicast Name Resolution (query)
```

```
0000  33 33 00 01 00 03 50 9a  4c 35 10 a8 86 dd 60 00   33····P· L5····`·
0010  00 00 00 29 11 01 fe 80  00 00 00 00 00 00 49 68   ···)···· ······Ih
0020  12 a7 5e 36 52 3e ff 02  00 00 00 00 00 00 00 00   ··^6R>·· ········
0030  00 00 00 01 00 03 f3 a6  14 eb 00 29 90 e0 ae 2b   ········ ···)···+
0040  00 00 00 01 00 00 00 00  00 00 0f 54 4c 46 4c 33   ········ ··TLFL3
0050  2d 48 44 43 31 30 31 37  30 31 00 00 01 00 01      -HDC1017 01·····
```

1. Create a Filter to display only TCP/UDP packets, inspect the packets and provide the flow graph

Procedure

- ➢ □ Select Local Area Connection in Wireshark.
- ➢ □ Go to capture ➡ option.
- ➢ □ Select stop capture automatically after 100 packets.
- ➢ □ Then click Start capture.
- ➢ □ Search TCP packets in search bar.
- ➢ □ To see flow graph click Statistics□ Flow graph.
- ➢ □ Save the packets.

2. Create a Filter to display only ARP packets and inspect the packets.

Procedure

- □ Go to capture □ → option
- □ Select stop capture automatically after 100 packets.
- □ Then click Start capture.
- □ Search ARP packets in search bar.
- □ Save the packets.

3. Create a Filter to display only DNS packets and provide the flow graph.

Procedure

- □ Go to capture □ → option
- □ Select stop capture automatically after 100 packets.
- □ Then click Start capture.
- □ Search DNS packets in search bar.
- □ To see flow graph click Statistics□ Flow graph.
- □ Save the packets.

4. Create a Filter to display only HTTP packets and inspect the packets

Procedure

- □ Select Local Area Connection in Wireshark.
- □ Go to capture □ option
- □ Select stop capture automatically after 100 packets.
- □ Then click Start capture.
- □ Search HTTP packets in search bar.
- □ Save the packets.

5. Create a Filter to display only IP/ICMP packets and inspect the packets.

Procedure

- □ Select Local Area Connection in Wireshark.
- □ Go to capture □ option
- □ Select stop capture automatically after 100 packets.
- □ Then click Start capture.
- □ Search ICMP/IP packets in search bar.

- □ Save the packets

6. Create a Filter to display only DHCP packets and inspect the packets.

Procedure

- □ Select Local Area Connection in Wireshark.
- □ Go to capture □ option
- □ Select stop capture automatically after 100 packets.
- □ Then click Start capture.
- □ Search DHCP packets in search bar.
- □ Save the packets

RESULT:

Experiments on Packet capture tool: Wireshark was completed.