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CISCO Academy

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Packet Tracer - Identify MAC and IP Addresses

Objectives

Part 1: Gather PDU Information for Local Network Communication

Part 2: Gather PDU Information for Remote Network Communication

Background

This activity is optimized for viewing PDUs. The devices are already configured. You will gather PDU information in simulation mode and answer a series of questions about the data you collect.

Instructions

Part 1: Gather PDU Information for Local Network Communication

Note: Review the Reflection Questions in Part 3 before proceeding with Part 1. It will give you an idea of the type of information you will need to gather PDU information as a packet travels from 172.16.31.5 to 172.16.31.2.

a. Click **172.16.31.5** and open the **Command Prompt**.

b. Enter the **ping 172.16.31.2** command.

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 172.16.31.2

Pinging 172.16.31.2 with 32 bytes of data:

Reply from 172.16.31.2: bytes=32 time=1ms TTL=128
Reply from 172.16.31.2: bytes=32 time<1ms TTL=128
Reply from 172.16.31.2: bytes=32 time=14ms TTL=128
Reply from 172.16.31.2: bytes=32 time=14ms TTL=128

Ping statistics for 172.16.31.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 14ms, Average = 7ms

C:\>
```

c. Switch to simulation mode and repeat the **ping 172.16.31.2** command. A PDU appears next to **172.16.31.5**.

d. Click the PDU and note the following information from the **OSI Model** and **Outbound PDU Layer** tabs:

o Destination MAC Address: **000C:85CC:1DA7**

o Source MAC Address: **00D0:D311:C788**

o Source IP Address: **172.16.31.5**

o Destination IP Address: **172.16.31.2**

o At Device: **172.16.31.5**

Out Layers

Layer7
Layer6
Layer5
Layer4
Layer 3: IP Header Src. IP:
172.16.31.5, Dest. IP: 172.16.31.2
ICMP Message Type: 8

Layer 2: Ethernet II Header
00D0.D311.C788 >> 000C.85CC.1DA7

Layer 1: Port(s): GigabitEthernet0

Event List

At Device

172.16.31.5

PDU Information at Device: 172.16.31.5

OSI Model   Outbound PDU Details

PDU Formats

EthernetII
0   4   8   Bytes

| PREAMBLE: 101010..10 | SF D | DEST ADDR:000C.85CC. 1DA7 | |
| SRC ADDR:00D 0.D311.C788 | TYPE:0 x0800 | DATA (VARIABLE LENGTH) | FCS:0x0000000 0 |

e. Click **Capture / Forward (the right arrow followed by a vertical bar)** to move the PDU to the next device. Gather the same information from Step 1d. Repeat this process until the PDU reaches its destination. Record the PDU information you gathered into a spreadsheet using a format like the table shown below:

PDU Information at Device: Switch1

OSI Model   Inbound PDU Details   Outbound PDU Details

PDU Formats

EthernetII
0   4   8   Bytes

| PREAMBLE: 101010..10 | SF D | DEST ADDR:000C.85CC. 1DA7 | |
| SRC ADDR:00D 0.D311.C788 | TYPE:0 x0800 | DATA (VARIABLE LENGTH) | FCS:0x0000000 0 |

IP
0   4   8   16   20   24   Bits

VER:4	IHL:5	DSCP:0x00	TL:128
ID:0x0005		FLAGS: 0x0	FRAG OFFSET:0x000
TTL:128	PRO:0x01	CHKSUM
SRC IP:172.16.31.5
DST IP:172.16.31.2
DATA (VARIABLE LENGTH)

ICMP
0   8   16   Bits

PDU Information at Device: Hub

OSI Model   Inbound PDU Details   Outbound PDU Details

At Device: Hub
Source: 172.16.31.5
Destination: 172.16.31.2

In Layers	Out Layers
Layer7	Layer7
Layer6	Layer6
Layer5	Layer5
Layer4	Layer4
Layer3	Layer3
Layer2	Layer2
Layer 1: Port FastEthernet0	Layer 1: Port(s): FastEthernet1 FastEthernet2

1. FastEthernet0 receives the frame.

PDU Information at Device: 172.16.31.2

OSI Model   Inbound PDU Details   Outbound PDU Details

At Device: 172.16.31.2
Source: 172.16.31.5
Destination: 172.16.31.2

In Layers	Out Layers
Layer7	Layer7
Layer6	Layer6
Layer5	Layer5
Layer4	Layer4
Layer 3: IP Header Src. IP: 172.16.31.5, Dest. IP: 172.16.31.2 ICMP Message Type: 8	Layer 3: IP Header Src. IP: 172.16.31.2, Dest. IP: 172.16.31.5 ICMP Message Type: 0
Layer 2: Ethernet II Header 00D0.D311.C788 >> 000C.85CC.1DA7	Layer 2: Ethernet II Header 000C.85CC.1DA7 >> 00D0.D311.C788
Layer 1: Port FastEthernet0	Layer 1: Port(s): FastEthernet0

Example Spreadsheet Format

At Device	Dest. MAC	Src MAC	Src IPv4	Dest IPv4
172.16.31.5	000C:85CC:1DA7	00D0:D311:C788	172.16.31.5	172.16.31.2
Switch1	000C:85CC:1DA7	00D0:D311:C788	N/A	N/A
Hub	N/A	N/A	N/A	N/A
172.16.31.2	00D0:D311:C788	000C:85CC:1DA7	172.16.31.2	172.16.31.5

Step 2: Gather additional PDU information from other pings.

Repeat the process in Step 1 and gather the information for the following tests:

- Ping 172.16.31.2 from 172.16.31.3.

```
Pinging 172.16.31.2 with 32 bytes of data:

Reply from 172.16.31.2: bytes=32 time<lms TTL=128
Reply from 172.16.31.2: bytes=32 time<lms TTL=128
Reply from 172.16.31.2: bytes=32 time<lms TTL=128
Reply from 172.16.31.2: bytes=32 time=10ms TTL=128

Ping statistics for 172.16.31.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 10ms, Average = 2ms

C:\>ping 172.16.31.2

Pinging 172.16.31.2 with 32 bytes of data:
```

PDU Information at Device: 172.16.31.3

OSI Model   Outbound PDU Details

At Device: 172.16.31.3
Source: 172.16.31.3
Destination: 172.16.31.2

In Layers	Out Layers
Layer7	Layer7
Layer6	Layer6
Layer5	Layer5
Layer4	Layer4
Layer3	Layer 3: IP Header Src. IP: 172.16.31.3, Dest. IP: 172.16.31.2 ICMP Message Type: 8
Layer2	Layer 2: Ethernet II Header 0060.7036.2849 >> 000C.85CC.1DA7
Layer1	Layer 1: Port(s): FastEthernet0

1. The Ping process starts the next ping request.
2. The Ping process creates an ICMP Echo Request message and sends it to the lower process.
3. The source IP address is not specified. The device sets it to the port's IP address.
4. The destination IP address is in the same subnet. The device sets the next-hop to destination.

PDU Information at Device: Hub

OSI Model   Inbound PDU Details   Outbound PDU Details

At Device: Hub
Source: 172.16.31.3
Destination: 172.16.31.2

In Layers	Out Layers
Layer7	Layer7
Layer6	Layer6
Layer5	Layer5
Layer4	Layer4
Layer3	Layer3
Layer2	Layer2
Layer 1: Port FastEthernet2	Layer 1: Port(s): FastEthernet0 FastEthernet1

1. FastEthernet2 receives the frame.

PDU Information at Device: Hub

OSI Model   Inbound PDU Details   Outbound PDU Details

PDU Formats

EthernetII

0 4 8				Bytes
PREAMBLE: 101010..10	SFD	DEST ADDR:000C.85CC.1DA7		
SRC ADDR:0060.7036.2849	TYPE:0x0800	DATA (VARIABLE LENGTH)	FCS:0x00000000	

IP

0 4 8 16 20 24			Bits
VER:4	IHL:5	DSCP:0x00	TL:128
ID:0x0005		FLAGS:0x0	FRAG OFFSET:0x000
TTL:128	PRO:0x01	CHKSUM	
SRC IP:172.16.31.3			
DST IP:172.16.31.2			
DATA (VARIABLE LENGTH)			

ICMP

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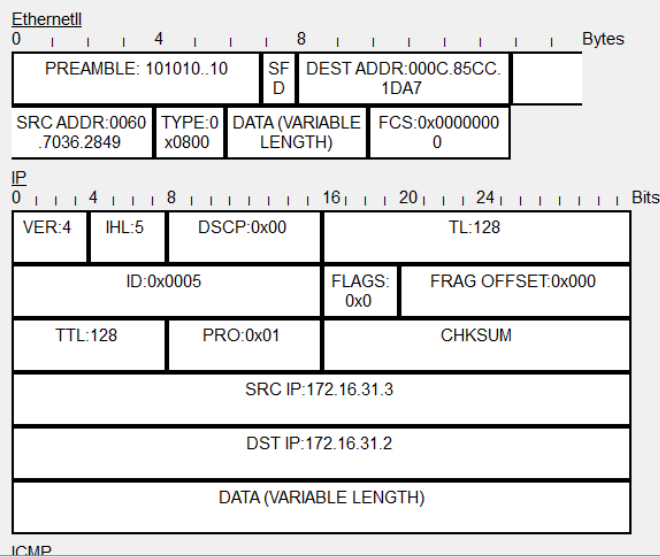
Packet Tracer - Identify MAC and IP Addresses

PDU Information at Device: 172.16.31.2 ✕

OSI Model | Inbound PDU Details | Outbound PDU Details

At Device: 172.16.31.2
Source: 172.16.31.3
Destination: 172.16.31.2

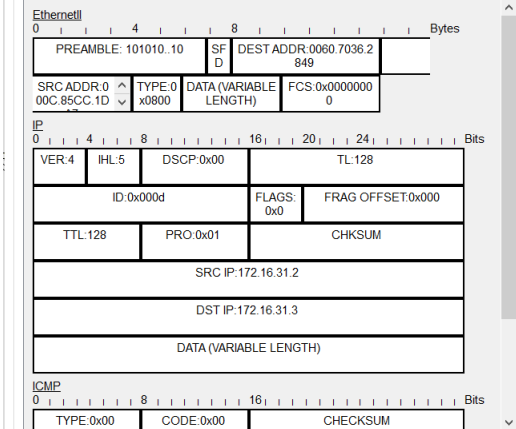| In Layers	Out Layers
Layer7	Layer7
Layer6	Layer6
Layer5	Layer5
Layer4	Layer4
Layer 3: IP Header Src. IP: 172.16.31.3, Dest. IP: 172.16.31.2 ICMP Message Type: 8	Layer 3: IP Header Src. IP: 172.16.31.2, Dest. IP: 172.16.31.3 ICMP Message Type: 0
Layer 2: Ethernet II Header 0060.7036.2849 >> 000C.85CC.1DA7	Layer 2: Ethernet II Header 000C.85CC.1DA7 >> 0060.7036.2849
Layer 1: Port FastEthernet0	Layer 1: Port(s): FastEthernet0

1. FastEthernet0 receives the frame.

PDU Information at Device: 172.16.31.2 ✕

OSI Model | Inbound PDU Details | Outbound PDU Details

PDU Formats

EthernetII

PREAMBLE: 101010..10	SFD	DEST ADDR:0060.7036.2849
SRC ADDR:0 00C.85CC.1D	TYPE:0 x0800	DATA (VARIABLE LENGTH)	FCS:0x0000000 0

IP

VER:4	IHL:5	DSCP:0x00	TL:128
ID:0x000d		FLAGS: 0x0	FRAG OFFSET:0x000
TTL:128	PRO:0x01		CHKSUM
SRC IP:172.16.31.2			
DST IP:172.16.31.3			
DATA (VARIABLE LENGTH)			

ICMP

TYPE:0x00	CODE:0x00	CHECKSUM

- Ping 172.16.31.4 from 172.16.31.5.

PDU Information at Device: 172.16.31.5 ✕

OSI Model | Outbound PDU Details

At Device: 172.16.31.5
Source: 172.16.31.5
Destination: 172.16.31.4

In Layers	Out Layers
Layer7	Layer7
Layer6	Layer6
Layer5	Layer5
Layer4	Layer4
Layer3	Layer 3: IP Header Src. IP: 172.16.31.5, Dest. IP: 172.16.31.4 ICMP Message Type: 8
Layer2	Layer 2: Ethernet II Header 00D0.D311.C788 >> 000C.CF0B.BC80
Layer1	Layer 1: Port(s): GigabitEthernet0

1. The Ping process starts the next ping request.
2. The Ping process creates an ICMP Echo Request message and sends it to the lower process.
3. The source IP address is not specified. The device sets it to the port's IP address.
4. The destination IP address is in the same subnet. The device sets the next-hop to destination.

172.16.31.5 — □ ✕

Physical | Config | Desktop | Programming | Attributes

Command Prompt ✕

```
Pinging 172.16.31.2 with 32 bytes of data:

Reply from 172.16.31.2: bytes=32 time=33ms TTL=128
Reply from 172.16.31.2: bytes=32 time<1ms TTL=128
Reply from 172.16.31.2: bytes=32 time<1ms TTL=128
Reply from 172.16.31.2: bytes=32 time<1ms TTL=128

Ping statistics for 172.16.31.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 33ms, Average = 8ms

C:\>ping 172.16.31.4

Pinging 172.16.31.4 with 32 bytes of data:

Reply from 172.16.31.4: bytes=32 time<1ms TTL=128
Reply from 172.16.31.4: bytes=32 time<1ms TTL=128
Reply from 172.16.31.4: bytes=32 time<1ms TTL=128
Reply from 172.16.31.4: bytes=32 time=13ms TTL=128

Ping statistics for 172.16.31.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 13ms, Average = 3ms

C:\>ping 172.16.31.4

Pinging 172.16.31.4 with 32 bytes of data:

Ping statistics for 172.16.31.4:
```

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PDU Information at Device: 172.16.31.5

OSI Model   Outbound PDU Details

PDU Formats

EthernetII

0 ——— 4 ——— 8 ——— Bytes

PREAMBLE: 101010..10 | SFD | DEST ADDR:000C.CF0B.BC80

SRC ADDR:00D0.D311.C788 | TYPE:0x0800 | DATA (VARIABLE LENGTH) | FCS:0x00000000

IP

0 — 4 — 8 — 16 — 20 — 24 — Bits

VER:4 | IHL:5 | DSCP:0x00 | TL:128

ID:0x0013 | FLAGS:0x0 | FRAG OFFSET:0x000

TTL:128 | PRO:0x01 | CHKSUM

SRC IP:172.16.31.5

DST IP:172.16.31.4

DATA (VARIABLE LENGTH)

ICMP

0 — 8 — 16 — Bits

TYPE:0x08 | CODE:0x00 | CHECKSUM

PDU Information at Device: Switch1

OSI Model   Inbound PDU Details   Outbound PDU Details

At Device: Switch1
Source: 172.16.31.5
Destination: 172.16.31.4

In Layers	Out Layers
Layer7	Layer7
Layer6	Layer6
Layer5	Layer5
Layer4	Layer4
Layer3	Layer3
Layer 2: Ethernet II Header 00D0.D311.C788 >> 000C.CF0B.BC80	Layer 2: Ethernet II Header 00D0.D311.C788 >> 000C.CF0B.BC80
Layer 1: Port GigabitEthernet1/1	Layer 1: Port(s): GigabitEthernet2/1

1. GigabitEthernet1/1 receives the frame.

PDU Information at Device: Switch1

OSI Model   Inbound PDU Details   Outbound PDU Details

PDU Formats

EthernetII

0 ——— 4 ——— 8 ——— Bytes

PREAMBLE: 101010..10 | SFD | DEST ADDR:000C.CF0B.BC80

SRC ADDR:00D0.D311.C788 | TYPE:0x0800 | DATA (VARIABLE LENGTH) | FCS:0x00000000

IP

0 — 4 — 8 — 16 — 20 — 24 — Bits

VER:4 | IHL:5 | DSCP:0x00 | TL:128

ID:0x0013 | FLAGS:0x0 | FRAG OFFSET:0x000

TTL:128 | PRO:0x01 | CHKSUM

SRC IP:172.16.31.5

DST IP:172.16.31.4

DATA (VARIABLE LENGTH)

ICMP

0 — 8 — 16 — Bits

PDU Information at Device: 172.16.31.4

OSI Model   Inbound PDU Details   Outbound PDU Details

At Device: 172.16.31.4
Source: 172.16.31.5
Destination: 172.16.31.4

In Layers	Out Layers
Layer7	Layer7
Layer6	Layer6
Layer5	Layer5
Layer4	Layer4
Layer 3: IP Header Src. IP: 172.16.31.5, Dest. IP: 172.16.31.4 ICMP Message Type: 8	Layer 3: IP Header Src. IP: 172.16.31.4, Dest. IP: 172.16.31.5 ICMP Message Type: 0
Layer 2: Ethernet II Header 00D0.D311.C788 >> 000C.CF0B.BC80	Layer 2: Ethernet II Header 000C.CF0B.BC80 >> 00D0.D311.C788
Layer 1: Port GigabitEthernet0	Layer 1: Port(s): GigabitEthernet0

1. GigabitEthernet0 receives the frame.

PDU Information at Device: 172.16.31.4

OSI Model   Inbound PDU Details   Outbound PDU Details

PDU Formats

EthernetII

0 ——— 4 ——— 8 ——— Bytes

PREAMBLE: 101010..10 | SFD | DEST ADDR:00D0.D311.C788

SRC ADDR:000C.CF0B.BC80 | TYPE:0x0800 | DATA (VARIABLE LENGTH) | FCS:0x00000000

IP

0 — 4 — 8 — 16 — 20 — 24 — Bits

VER:4 | IHL:5 | DSCP:0x00 | TL:128

ID:0x000b | FLAGS:0x0 | FRAG OFFSET:0x000

TTL:128 | PRO:0x01 | CHKSUM

SRC IP:172.16.31.4

DST IP:172.16.31.5

DATA (VARIABLE LENGTH)

ICMP

0 — 8 — 16 — Bits

TYPE:0x00 | CODE:0x00 | CHECKSUM

Return to Realtime mode.

Part 2: Gather PDU Information for Remote Network Communication

In order to communicate with remote networks, a gateway device is necessary. Study the process that takes place to communicate with devices on the remote network. Pay close attention to the MAC addresses used.

Step 1: Gather PDU information as a packet travels from 172.16.31.5 to 10.10.10.2.

a.   Click **172.16.31.5** and open the **Command Prompt**.

b.   Enter the **ping 10.10.10.2** command.

```
C:\>ping 10.10.10.2

Pinging 10.10.10.2 with 32 bytes of data:

Reply from 10.10.10.2: bytes=32 time=43ms TTL=127
Reply from 10.10.10.2: bytes=32 time=28ms TTL=127
Reply from 10.10.10.2: bytes=32 time=12ms TTL=127
Reply from 10.10.10.2: bytes=32 time=54ms TTL=127

Ping statistics for 10.10.10.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 12ms, Maximum = 54ms, Average = 34ms

C:\>
```

c.   Switch to simulation mode and repeat the **ping 10.10.10.2** command. A PDU appears next to **172.16.31.5**.

d.   Click the PDU and note the following information from the **Outbound PDU Layer** tab:

- Destination MAC Address: 00D0:BA8E:741A

- Source MAC Address: 00D0:D311:C788

- Source IP Address: 172.16.31.5

- Destination IP Address: 10.10.10.2

- At Device: 172.16.31.5

What device has the destination MAC that is shown?

e.   Click **Capture / Forward (the right arrow followed by a vertical bar)** to move the PDU to the next

device. Gather the same information from Step 1d. Repeat this process until the PDU reaches its destination. Record the PDU information you gathered from pinging 172.16.31.5 to 10.10.10.2 into a spreadsheet using a format like the sample table shown below:

PDU Information at Device: Switch1

OSI Model   Inbound PDU Details   Outbound PDU Details

At Device: Switch1
Source: 172.16.31.5
Destination: 10.10.10.2

In Layers

Layer7
Layer6
Layer5
Layer4
Layer3
Layer 2: Ethernet II Header
00D0.D311.C788 >> 00D0.BA8E.741A
Layer 1: Port GigabitEthernet1/1

Out Layers

Layer7
Layer6
Layer5
Layer4
Layer3
Layer 2: Ethernet II Header
00D0.D311.C788 >> 00D0.BA8E.741A
Layer 1: Port(s): FastEthernet0/1

1. GigabitEthernet1/1 receives the frame.

PDU Information at Device: Switch1

OSI Model   Inbound PDU Details   Outbound PDU Details

PDU Formats

EthernetII

| PREAMBLE: 101010..10 | SFD | DEST ADDR:00D0.BA8E.741A | |
| SRC ADDR:00D0.D311.C788 | TYPE:0x0800 | DATA (VARIABLE LENGTH) | FCS:0x00000000 |

IP

VER:4	IHL:5	DSCP:0x00	TL:128
ID:0x001c		FLAGS:0x0	FRAG OFFSET:0x000
TTL:128	PRO:0x01		CHKSUM
SRC IP:172.16.31.5			
DST IP:10.10.10.2			
DATA (VARIABLE LENGTH)			

ICMP

PDU Information at Device: Router

OSI Model   Inbound PDU Details   Outbound PDU Details

At Device: Router
Source: 172.16.31.5
Destination: 10.10.10.2

In Layers

Layer7
Layer6
Layer5
Layer4
Layer 3: IP Header Src. IP: 172.16.31.5, Dest. IP: 10.10.10.2 ICMP Message Type: 8

Layer 2: Ethernet II Header 00D0.D311.C788 >> 00D0.BA8E.741A

Layer 1: Port FastEthernet1/0

Out Layers

Layer7
Layer6
Layer5
Layer4
Layer 3: IP Header Src. IP: 172.16.31.5, Dest. IP: 10.10.10.2 ICMP Message Type: 8

Layer 2: Ethernet II Header 00D0.588C.2401 >> 0060.2F84.4AB6

Layer 1: Port(s): FastEthernet0/0

1. FastEthernet1/0 receives the frame.

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PDU Information at Device: Router ✕

OSI Model   Inbound PDU Details   **Outbound PDU Details**

PDU Formats

EthernetII
0   4   8   Bytes

| PREAMBLE: 101010..10 | SF D | DEST ADDR:0060.2F84.4 AB6 | |
| SRC ADDR:00D 0.588C.2401 | TYPE:0 x0800 | DATA (VARIABLE LENGTH) | FCS:0x0000000 0 |

IP
0   4   8   16   20   24   Bits

VER:4	IHL:5	DSCP:0x00	TL:128
ID:0x001c		FLAGS: 0x0	FRAG OFFSET:0x000
TTL:127	PRO:0x01	CHKSUM
SRC IP:172.16.31.5
DST IP:10.10.10.2
DATA (VARIABLE LENGTH)

ICMP
0   8   16   Bits

| TYPE:0x08 | CODE:0x00 | CHECKSUM |

PDU Information at Device: Switch0 ✕

OSI Model   Inbound PDU Details   Outbound PDU Details

At Device: Switch0
Source: 172.16.31.5
Destination: 10.10.10.2

In Layers	Out Layers
Layer7	Layer7
Layer6	Layer6
Layer5	Layer5
Layer4	Layer4
Layer3	Layer3
Layer 2: Ethernet II Header 00D0.588C.2401 >> 0060.2F84.4AB6	Layer 2: Ethernet II Header 00D0.588C.2401 >> 0060.2F84.4AB6
Layer 1: Port FastEthernet0/1	Layer 1: Port(s): FastEthernet0/2

1. FastEthernet0/1 receives the frame.

PDU Information at Device: Switch0 ✕

OSI Model   Inbound PDU Details   **Outbound PDU Details**

PDU Formats

EthernetII
0   4   8   Bytes

| PREAMBLE: 101010..10 | SF D | DEST ADDR:0060.2F84.4 AB6 | |
| SRC ADDR:00D 0.588C.2401 | TYPE:0 x0800 | DATA (VARIABLE LENGTH) | FCS:0x0000000 0 |

IP
0   4   8   16   20   24   Bits

VER:4	IHL:5	DSCP:0x00	TL:128
ID:0x001c		FLAGS: 0x0	FRAG OFFSET:0x000
TTL:127	PRO:0x01	CHKSUM
SRC IP:172.16.31.5
DST IP:10.10.10.2
DATA (VARIABLE LENGTH)

ICMP
0   8   16   Bits

PDU Information at Device: Access Point

OSI Model | Inbound PDU Details | Outbound PDU Details

At Device: Access Point
Source: 172.16.31.5
Destination: 10.10.10.2

In Layers

Layer7
Layer6
Layer5
Layer4
Layer3
Layer2
Layer 1: Port Port 0

Out Layers

Layer7
Layer6
Layer5
Layer4
Layer3
Layer2
Layer 1: Port(s): Port 1

1. Port 0 receives the frame.

PDU Information at Device: Access Point

OSI Model | Inbound PDU Details | Outbound PDU Details

PDU Formats

802.11 Wireless
0 .... 16 .... Bits

| FRAME CONTROL | DURATION/ID |

ADDRESS 1:0060.2F84.4AB6

ADDRESS 2:0050.0FAB.6C82

ADDRESS 3:00D0.588C.2401

SEQUENCE CONTROL

ADDRESS 4:

DATA (VARIABLE LENGTH)

PDU Information at Device: 10.10.10.2

OSI Model | Inbound PDU Details | Outbound PDU Details

At Device: 10.10.10.2
Source: 172.16.31.5
Destination: 10.10.10.2

In Layers

Layer7
Layer6
Layer5
Layer4
Layer 3: IP Header Src. IP: 172.16.31.5, Dest. IP: 10.10.10.2 ICMP Message Type: 8
Layer 2: Wireless
Layer 1: Port Wireless0

Out Layers

Layer7
Layer6
Layer5
Layer4
Layer 3: IP Header Src. IP: 10.10.10.2, Dest. IP: 172.16.31.5 ICMP Message Type: 0
Layer 2: Wireless
Layer 1: Port(s):

1. Wireless0 receives the frame.

PDU Information at Device: 10.10.10.2

OSI Model | Inbound PDU Details | Outbound PDU Details

PDU Formats

802.11 Wireless
0 .... 16 .... Bits

| FRAME CONTROL | DURATION/ID |

ADDRESS 1:0050.0FAB.6C82

ADDRESS 2:0060.2F84.4AB6

ADDRESS 3:00D0.588C.2401

SEQUENCE CONTROL

ADDRESS 4:

DATA (VARIABLE LENGTH)

FCS

At Device	Dest. MAC	Src MAC	Src IPv4	Dest IPv4
172.16.31.5	00D0:BA8E:741A	00D0:D311:C788	172.16.31.5	10.10.10.2
Switch1	00D0:BA8E:741A	00D0:D311:C788	N/A	N/A
Router	0060:2F84:4AB6	00D0:588C:2401	172.16.31.5	10.10.10.2
Switch0	0060:2F84:4AB6	00D0:588C:2401	N/A	N/A
Access Point	N/A	N/A	N/A	N/A
10.10.10.2	00D0:588C:2401	0060:2F84:4AB6	10.10.10.2	172.16.31.5

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Reflection Questions

Answer the following questions regarding the captured data:

1. Were there different types of cables/media used to connect devices?
Copper and fiber

2. Did the cables change the handling of the PDU in any way?
No

3. Did the **Hub** lose any of the information that it received?
No

4. What does the **Hub** do with MAC addresses and IP addresses?
Nothing

5. Did the wireless **Access Point** do anything with the information given to it?
Yes, it repackaged it

6. Was any MAC or IP address lost during the wireless transfer?
No

7. What was the highest OSI layer that the **Hub** and **Access Point** used?
Layer 1

8. Did the **Hub** or **Access Point** ever replicate a PDU that was rejected with a red "X"?
Yes

9. When examining the **PDU Details** tab, which MAC address appeared first, the source or the destination?
Destination

10. Why would the MAC addresses appear in this order?
A switch can begin forwarding a frame to a known MAC address more quickly if the destination is listed first

11. Was there a pattern to the MAC addressing in the simulation?
No

12. Did the switches ever replicate a PDU that was rejected with a red "X"?
No

13. Every time that the PDU was sent between the 10 network and the 172 network, there was a point where the MAC addresses suddenly changed. Where did that occur?
At the Router

14. Which device uses MAC addresses that start with 00D0:BA?
The Router

15. What devices did the other MAC addresses belong to?
To the sender and receiver

16. Did the sending and receiving IPv4 addresses change fields in any of the PDUs?
No

17. When you follow the reply to a ping, sometimes called a *pong*, do you see the sending and receiving IPv4 addresses switch?
Yes

18. What is the pattern to the IPv4 addressing used in this simulation?
Each port of the router requires a set of non-overlapping addresses

19. Why do different IP networks need to be assigned to different ports of a router?
Inter-connect different IP networks

20. If this simulation was configured with IPv6 instead of IPv4, what would be different?

It would be replaced with each other, but everything else would be the same

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