IUS
INSTITUT
UNIVERSITAIRE
DES SCIENCES

Faculté des Sciences de Technologies

Rapport TD3 Reseau1

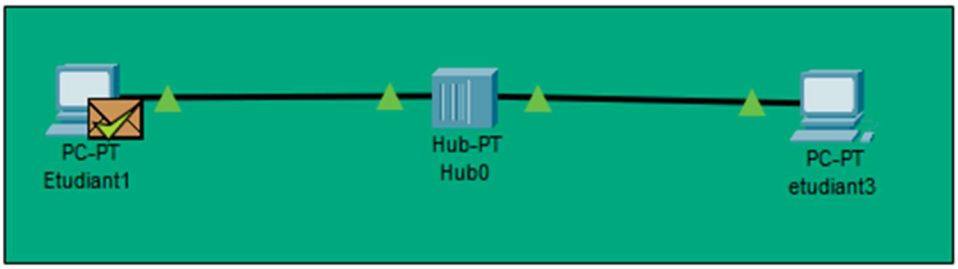
Nom : PIERRE

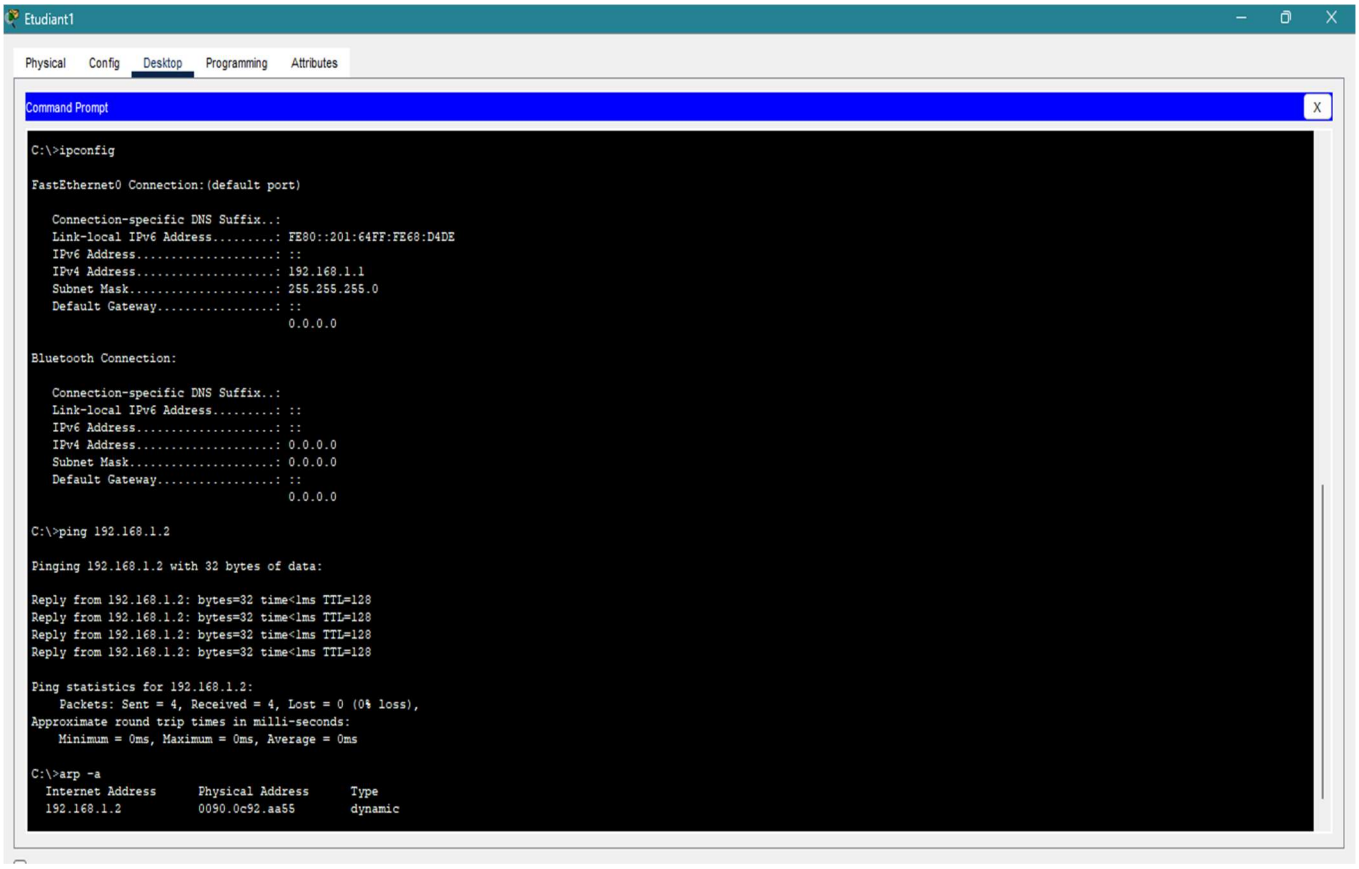
Prénom : Yann Lelay

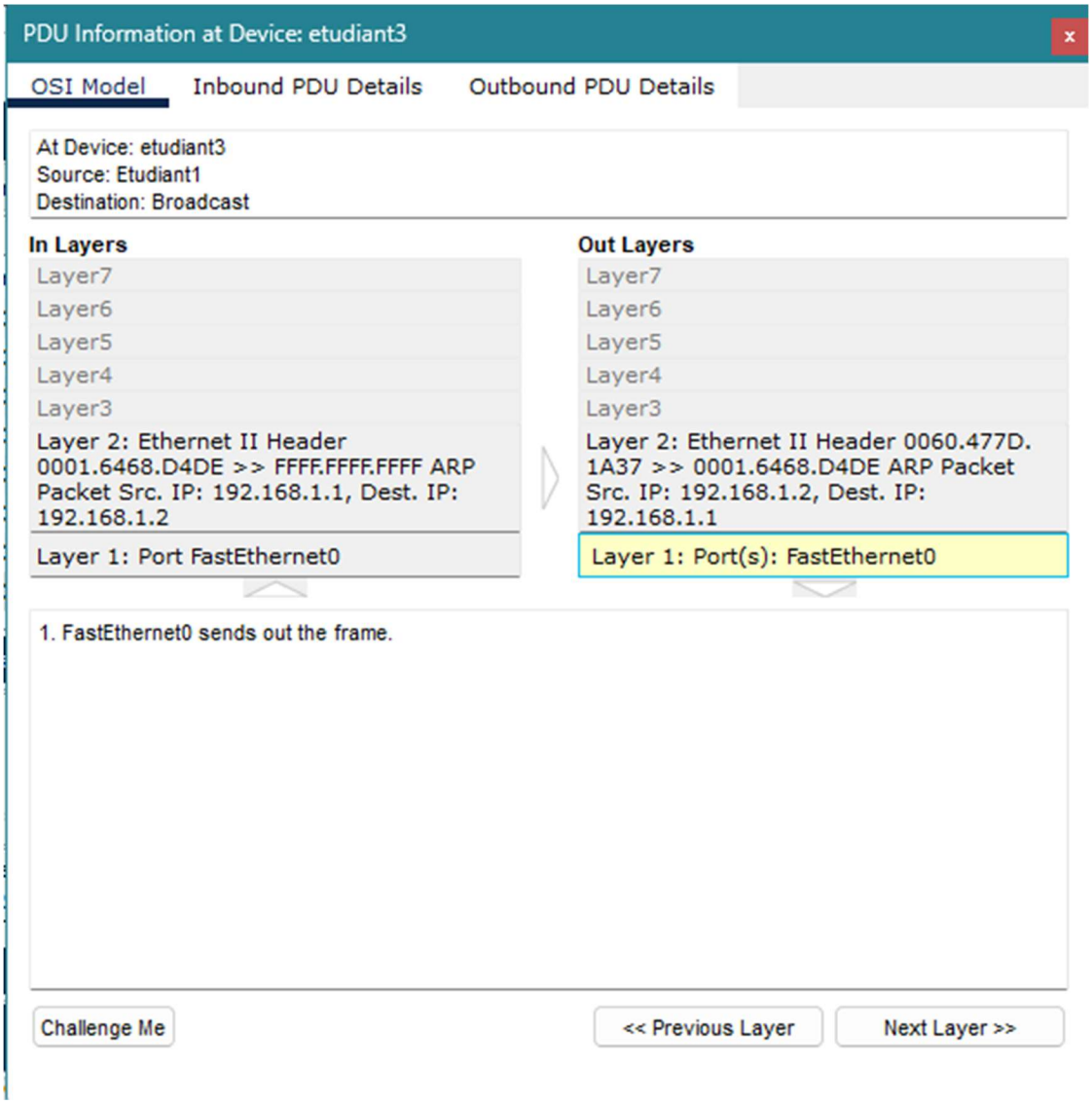
Niveau : L3-Sciences Informatiques

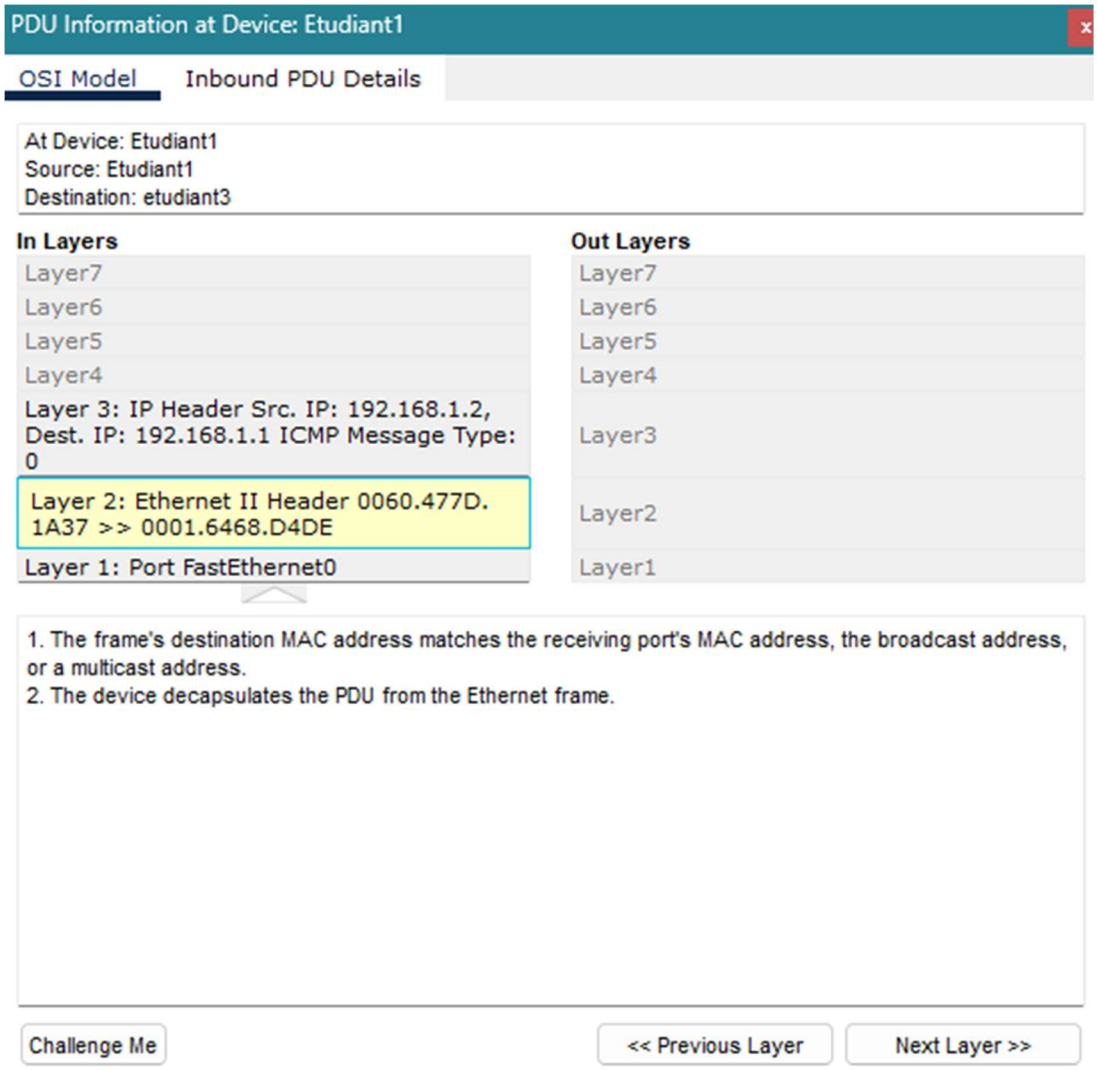
Description :

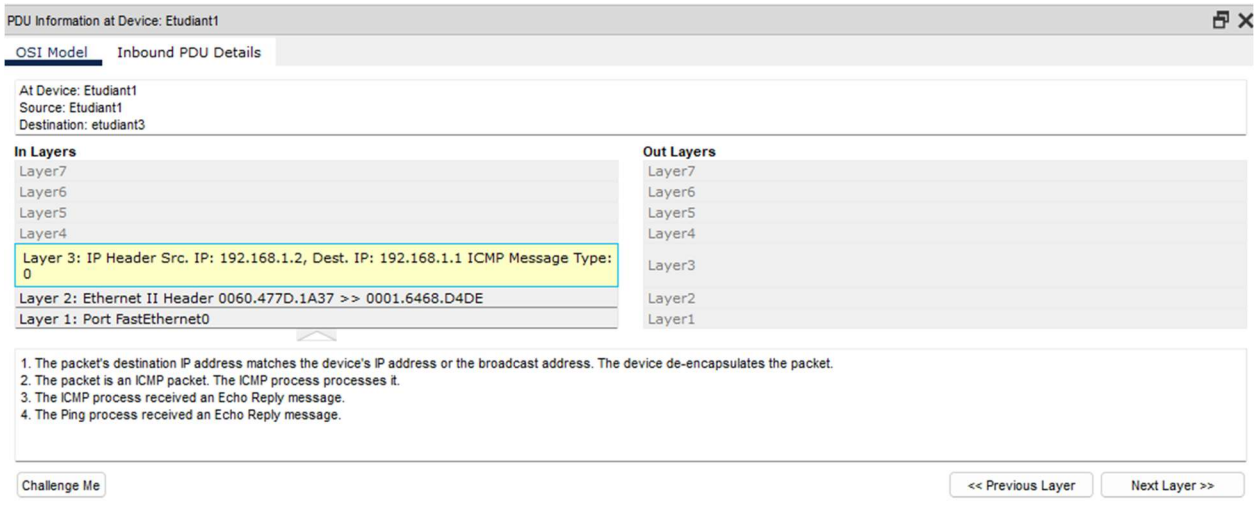
- Comprendre le protocol ARP et savoir faire communiquer des PC entre eux

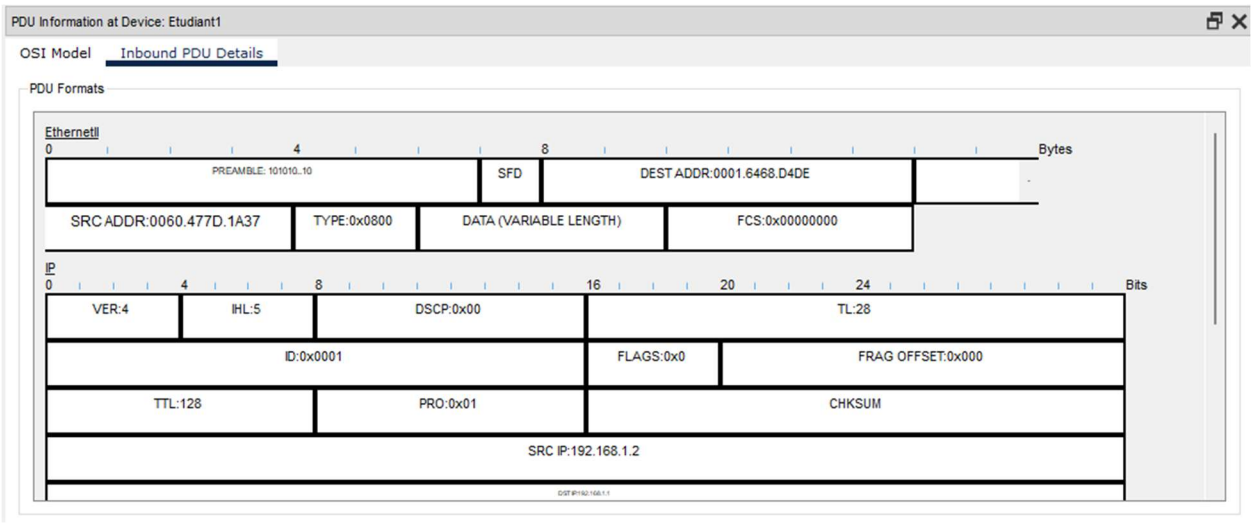




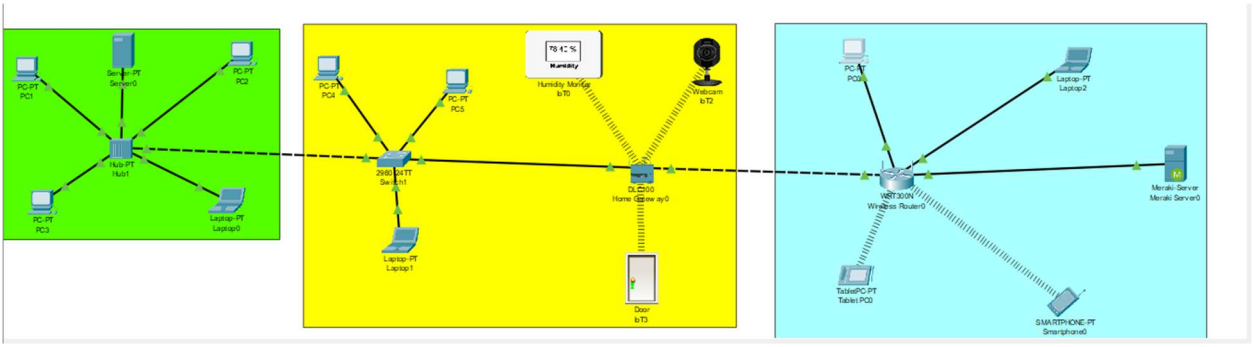

PDU Information at Device: etudiant3
OSI Model
Inbound PDU Details
Outbound PDU Details
At Device: etudiant3
Source: Etudiant1
Destination: Broadcast
In Layers
Out Layers
Layer7
Layer6
Layer5
Layer4
Layer3
Layer 2: Ethernet II Header 0001.6468.D4DE >> FFFF.FFFF.FFFF ARP Packet Src. IP: 192.168.1.1, Dest. IP: 192.168.1.2
Layer 2: Ethernet II Header 0060.477D.1A37 >> 0001.6468.D4DE ARP Packet Src. IP: 192.168.1.2, Dest. IP: 192.168.1.1
Layer 1: Port FastEthernet0
Layer 1: Port(s): FastEthernet0
1. FastEthernet0 sends out the frame.
Challenge Me
<< Previous Layer
Next Layer >>


PDU Information at Device: Etudiant1
OSI Model
Inbound PDU Details
At Device: Etudiant1
Source: Etudiant1
Destination: etudiant3
In Layers
Out Layers
Layer7
Layer6
Layer5
Layer4
Layer 3: IP Header Src. IP: 192.168.1.2, Dest. IP: 192.168.1.1 ICMP Message Type: 0
Layer3
Layer 2: Ethernet II Header 0060.477D.1A37 >> 0001.6468.D4DE
Layer2
Layer 1: Port FastEthernet0
Layer1
1. The frame's destination MAC address matches the receiving port's MAC address, the broadcast address, or a multicast address.
2. The device decapsulates the PDU from the Ethernet frame.
Challenge Me
<< Previous Layer
Next Layer >>


PDU Information at Device: Etudiant1
OSI Model
Inbound PDU Details
At Device: Etudiant1
Source: Etudiant1
Destination: etudiant3
In Layers
Out Layers
Layer7
Layer6
Layer5
Layer4
Layer 3: IP Header Src. IP: 192.168.1.2, Dest. IP: 192.168.1.1 ICMP Message Type: 0
Layer3
Layer 2: Ethernet II Header 0060.477D.1A37 >> 0001.6468.D4DE
Layer2
Layer 1: Port FastEthernet0
Layer1
1. The packet's destination IP address matches the device's IP address or the broadcast address. The device de-encapsulates the packet.
2. The packet is an ICMP packet. The ICMP process processes it.
3. The ICMP process received an Echo Reply message.
4. The Ping process received an Echo Reply message.
Challenge Me
<< Previous Layer
Next Layer >>

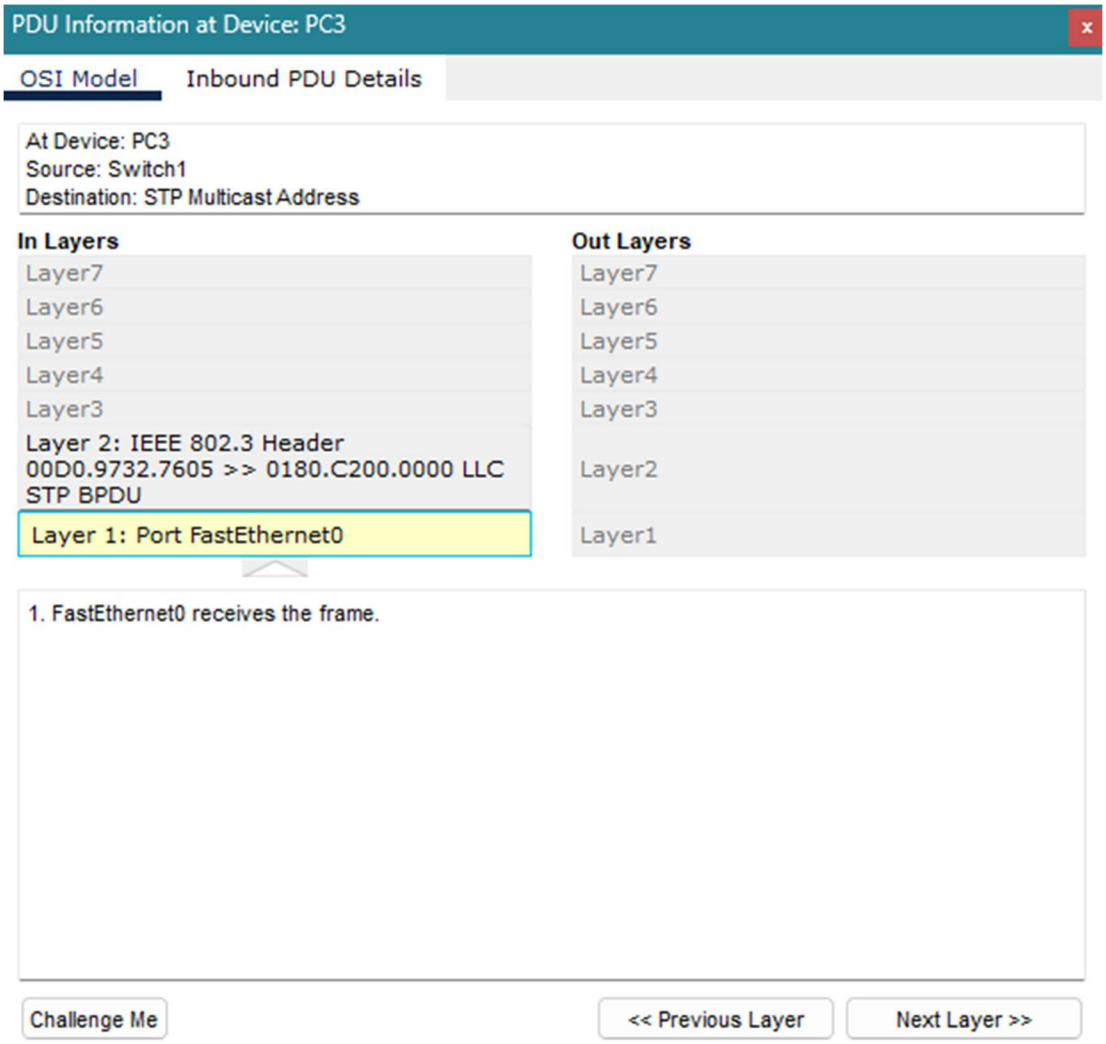

PDU Information at Device: Etudiant1
OSI Model
Inbound PDU Details
PDU Formats
EthernetII
0
4
8
Bytes
PREAMBLE: 101010..10
SFD
DEST ADDR:0001.6468.D4DE
SRC ADDR:0060.477D.1A37
TYPE:0x0800
DATA (VARIABLE LENGTH)
FCS:0x00000000
IP
0
4
8
16
20
24
Bits
VER:4
IHL:5
DSCP:0x00
TL:28
ID:0x0001
FLAGS:0x0
FRAG OFFSET:0x000
TTL:128
PRO:0x01
CHKSUM
SRC IP:192.168.1.2

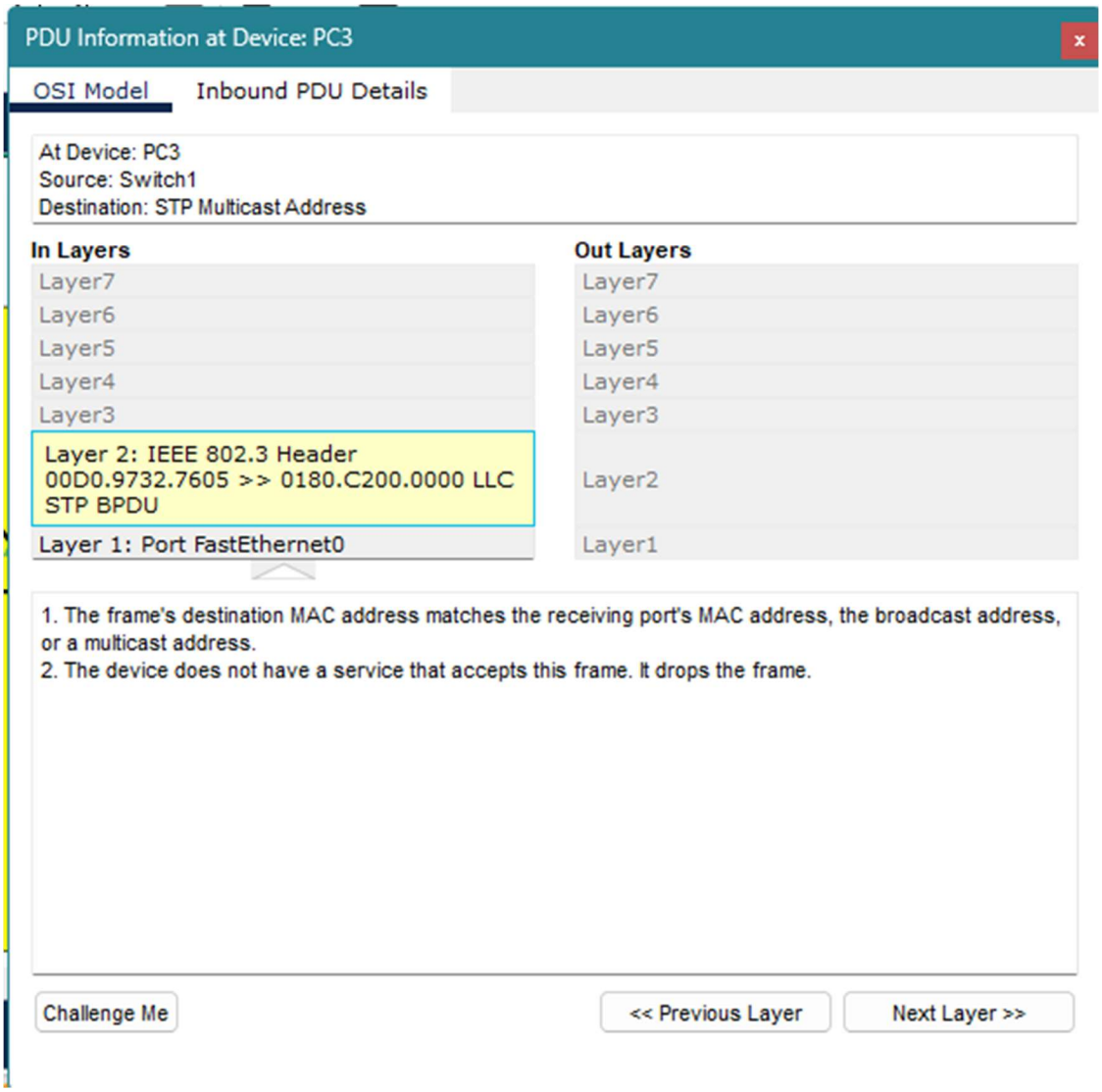
2-

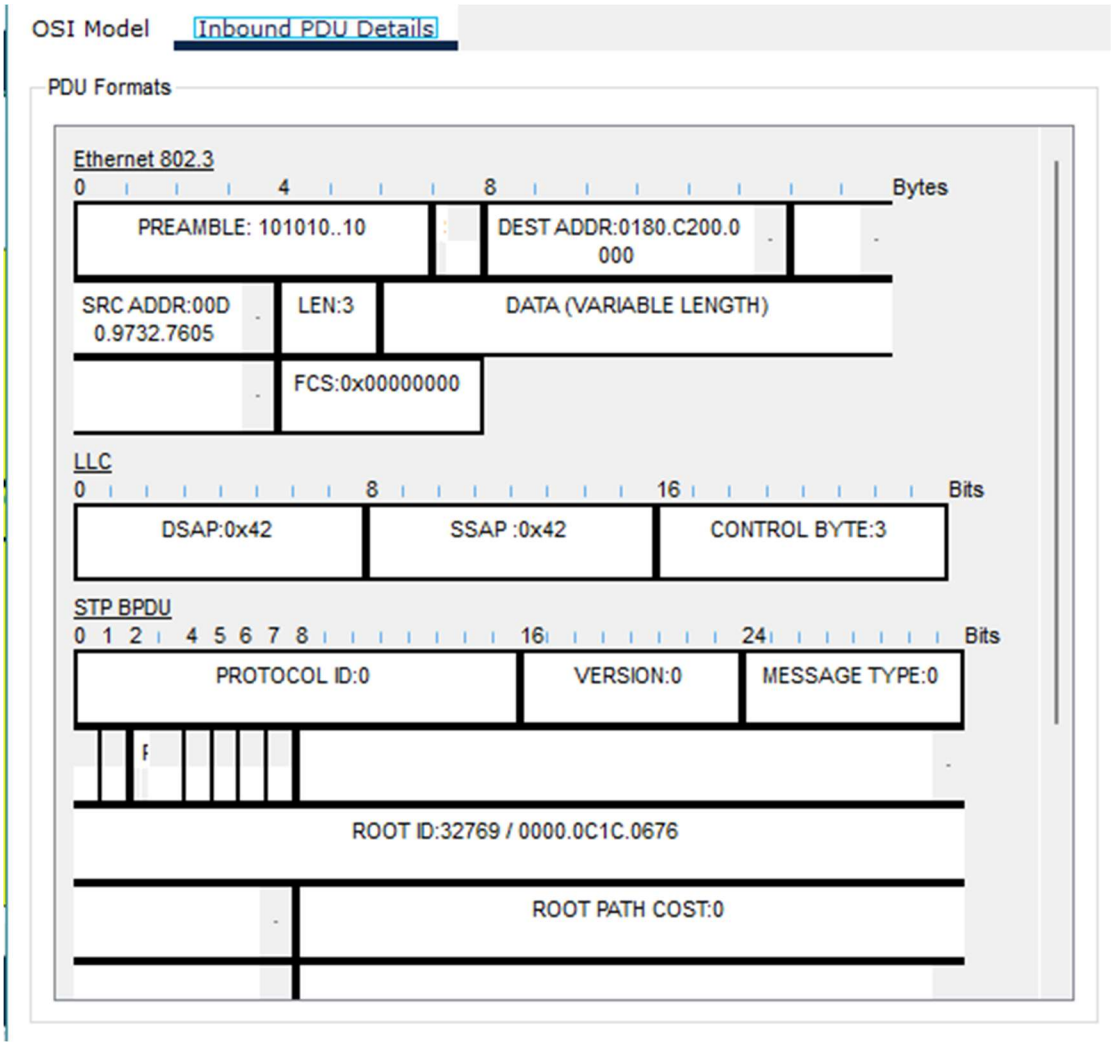


```
C:\>ipconfig

FastEthernet0 Connection:(default port)

   Connection-specific DNS Suffix..:
   Link-local IPv6 Address.....: FE80::2D0:D3FF:FE2B:3A41
   IPv6 Address.....: ::
   IPv4 Address.....: 192.168.1.3
   Subnet Mask.....: 255.255.255.0
   Default Gateway.....: ::
                                 0.0.0.0

Bluetooth Connection:

   Connection-specific DNS Suffix..:
   Link-local IPv6 Address.....: ::
   IPv6 Address.....: ::
   IPv4 Address.....: 0.0.0.0
   Subnet Mask.....: 0.0.0.0
   Default Gateway.....: ::
                                 0.0.0.0

C:\>ping 192.168.1.8

Pinging 192.168.1.8 with 32 bytes of data:

Reply from 192.168.1.8: bytes=32 time<1ms TTL=128
Reply from 192.168.1.8: bytes=32 time<1ms TTL=128
Reply from 192.168.1.8: bytes=32 time<1ms TTL=128
Reply from 192.168.1.8: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.8:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>arp -a
  Internet Address      Physical Address      Type
  192.168.1.8           00d0.97a6.6e82        dynamic
```

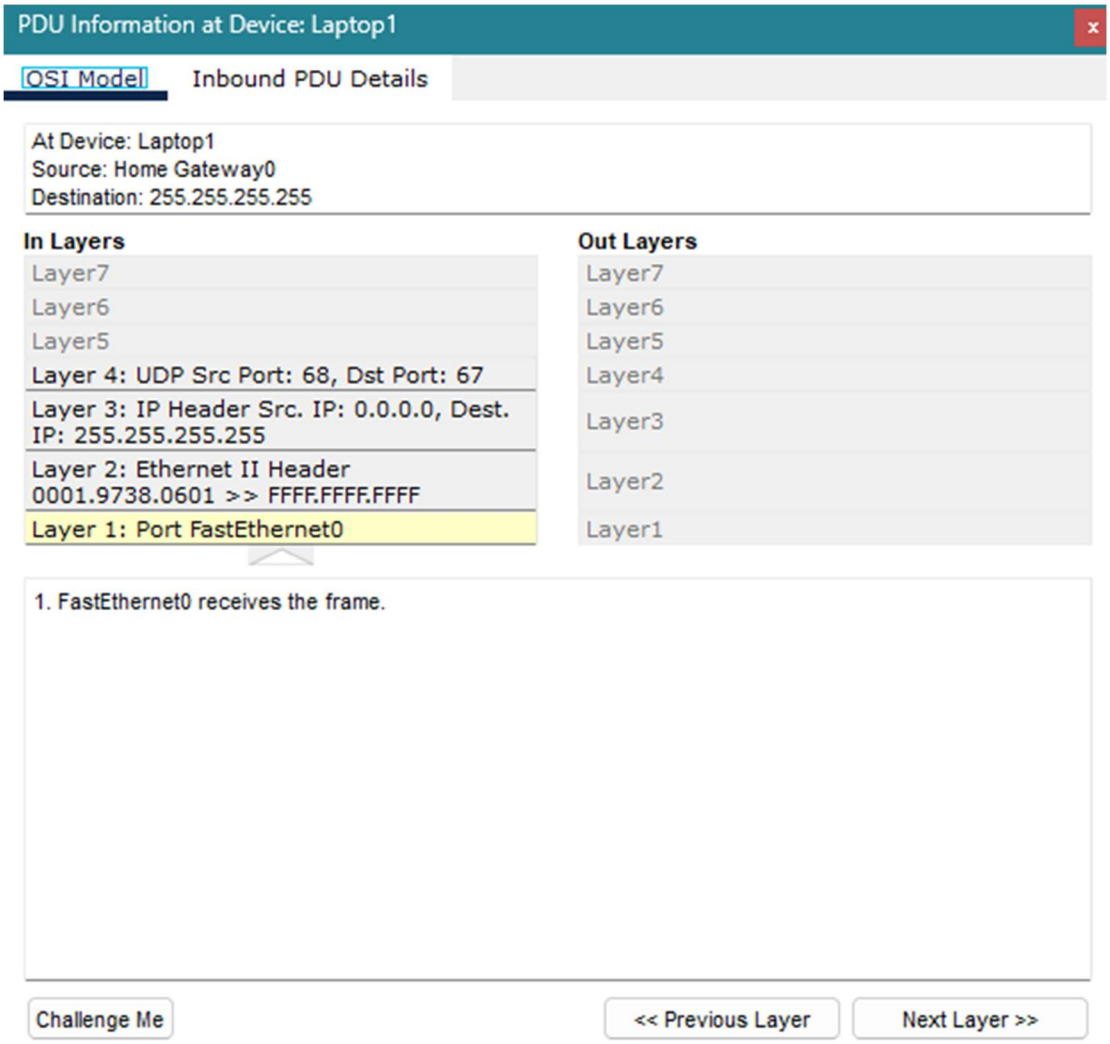
Observer les parquets STP

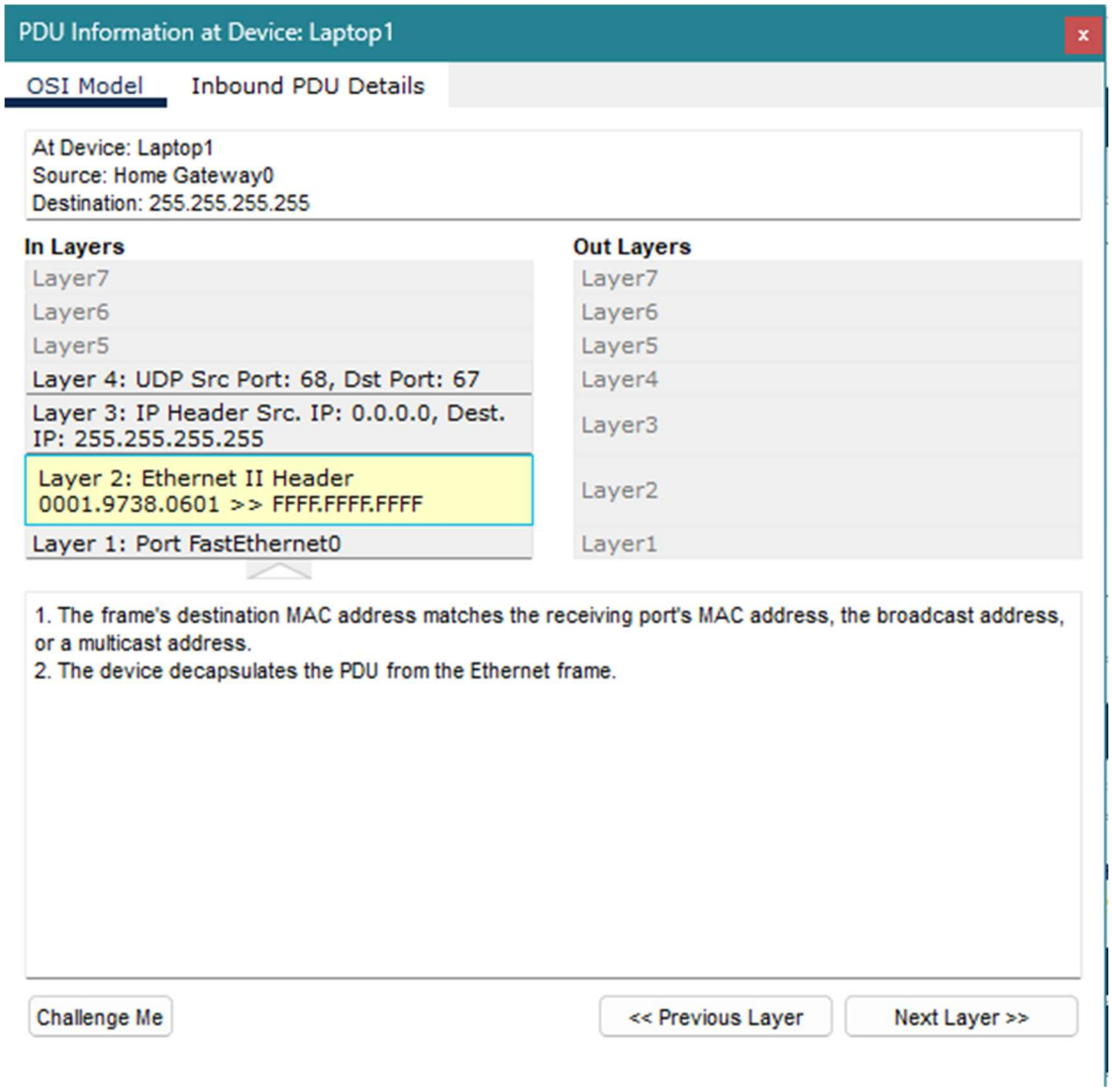

PDU Information at Device: PC3
OSI Model
Inbound PDU Details
At Device: PC3
Source: Switch1
Destination: STP Multicast Address
In Layers
Out Layers
Layer7
Layer6
Layer5
Layer4
Layer3
Layer 2: IEEE 802.3 Header 00D0.9732.7605 >> 0180.C200.0000 LLC STP BPDU
Layer 1: Port FastEthernet0
Layer7
Layer6
Layer5
Layer4
Layer3
Layer2
Layer1
1. FastEthernet0 receives the frame.
Challenge Me
<< Previous Layer
Next Layer >>

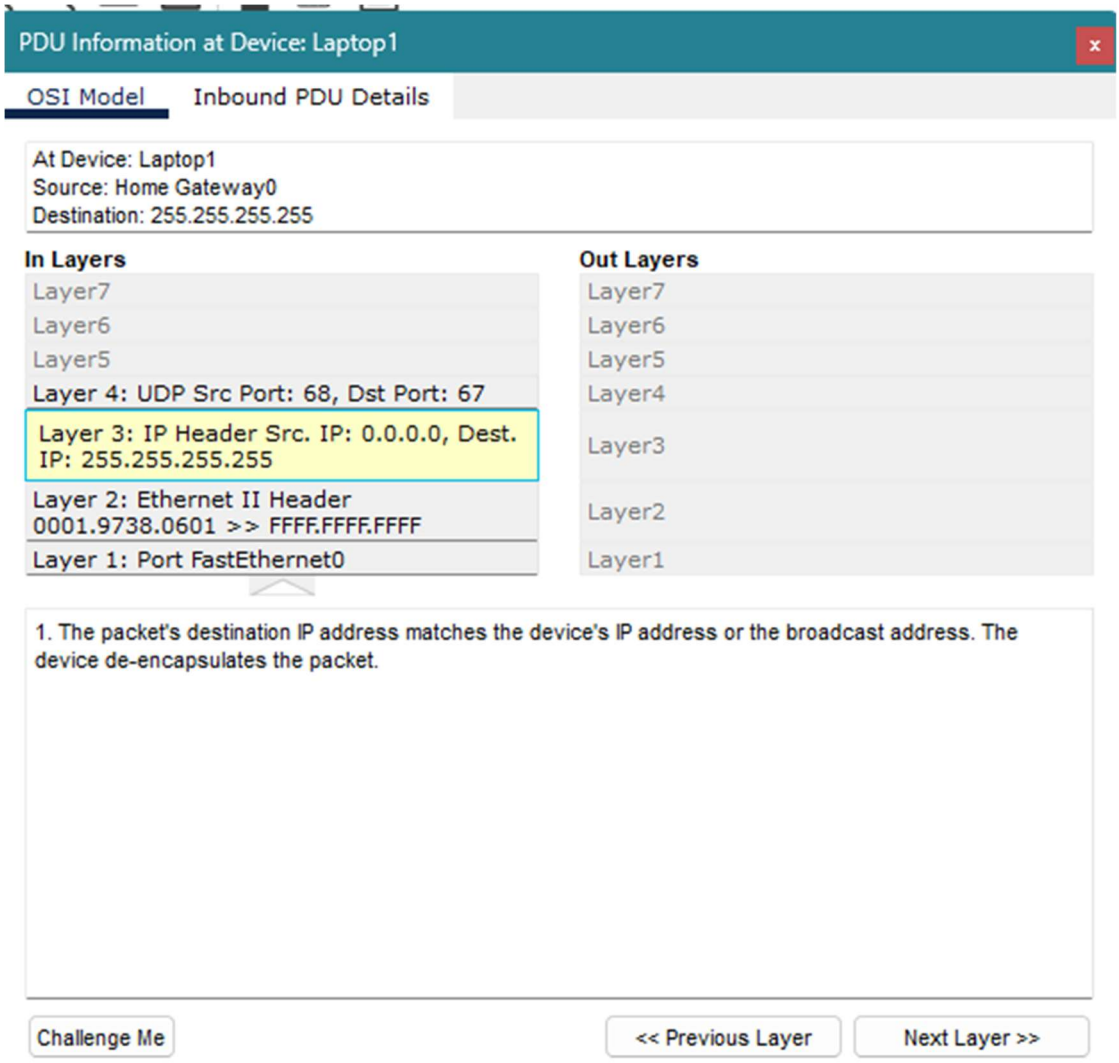

PDU Information at Device: PC3
OSI Model
Inbound PDU Details
At Device: PC3
Source: Switch1
Destination: STP Multicast Address
In Layers
Out Layers
Layer7
Layer6
Layer5
Layer4
Layer3
Layer 2: IEEE 802.3 Header
00D0.9732.7605 >> 0180.C200.0000 LLC
STP BPDU
Layer2
Layer 1: Port FastEthernet0
Layer1
1. The frame's destination MAC address matches the receiving port's MAC address, the broadcast address, or a multicast address.
2. The device does not have a service that accepts this frame. It drops the frame.
Challenge Me
<< Previous Layer
Next Layer >>

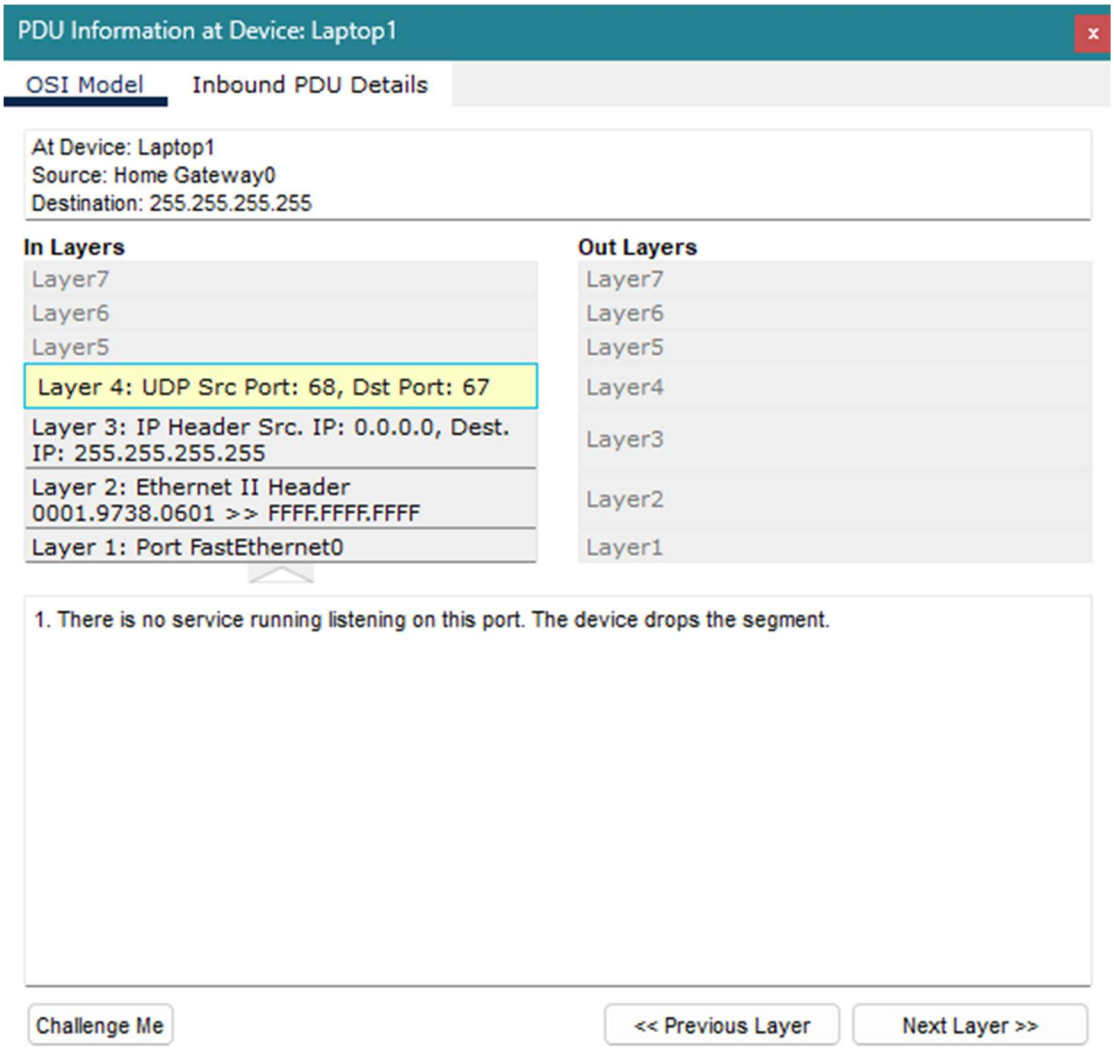


Observation des parquets


PDU Information at Device: Laptop1
OSI Model
Inbound PDU Details
At Device: Laptop1
Source: Home Gateway0
Destination: 255.255.255.255
In Layers
Out Layers
Layer7
Layer6
Layer5
Layer 4: UDP Src Port: 68, Dst Port: 67
Layer 3: IP Header Src. IP: 0.0.0.0, Dest. IP: 255.255.255.255
Layer 2: Ethernet II Header 0001.9738.0601 >> FFFF.FFFF.FFFF
Layer 1: Port FastEthernet0
Layer7
Layer6
Layer5
Layer4
Layer3
Layer2
Layer1
1. FastEthernet0 receives the frame.
Challenge Me
<< Previous Layer
Next Layer >>


PDU Information at Device: Laptop1
OSI Model
Inbound PDU Details
At Device: Laptop1
Source: Home Gateway0
Destination: 255.255.255.255
In Layers
Out Layers
Layer7
Layer6
Layer5
Layer 4: UDP Src Port: 68, Dst Port: 67
Layer 3: IP Header Src. IP: 0.0.0.0, Dest. IP: 255.255.255.255
Layer 2: Ethernet II Header 0001.9738.0601 >> FFFF.FFFF.FFFF
Layer 1: Port FastEthernet0
Layer7
Layer6
Layer5
Layer4
Layer3
Layer2
Layer1
1. The frame's destination MAC address matches the receiving port's MAC address, the broadcast address, or a multicast address.
2. The device decapsulates the PDU from the Ethernet frame.
Challenge Me
<< Previous Layer
Next Layer >>


PDU Information at Device: Laptop1
OSI Model
Inbound PDU Details
At Device: Laptop1
Source: Home Gateway0
Destination: 255.255.255.255
In Layers
Out Layers
Layer7
Layer6
Layer5
Layer 4: UDP Src Port: 68, Dst Port: 67
Layer 3: IP Header Src. IP: 0.0.0.0, Dest. IP: 255.255.255.255
Layer 2: Ethernet II Header 0001.9738.0601 >> FFFF.FFFF.FFFF
Layer 1: Port FastEthernet0
Layer4
Layer3
Layer2
Layer1
1. The packet's destination IP address matches the device's IP address or the broadcast address. The device de-encapsulates the packet.
Challenge Me
<< Previous Layer
Next Layer >>


PDU Information at Device: Laptop1
OSI Model
Inbound PDU Details
At Device: Laptop1
Source: Home Gateway0
Destination: 255.255.255.255
In Layers
Out Layers
Layer7
Layer6
Layer5
Layer 4: UDP Src Port: 68, Dst Port: 67
Layer 3: IP Header Src. IP: 0.0.0.0, Dest. IP: 255.255.255.255
Layer 2: Ethernet II Header 0001.9738.0601 >> FFFF.FFFF.FFFF
Layer 1: Port FastEthernet0
Layer7
Layer6
Layer5
Layer4
Layer3
Layer2
Layer1
1. There is no service running listening on this port. The device drops the segment.
Challenge Me
<< Previous Layer
Next Layer >>

PDU Information at Device: Laptop1

OSI Model | Inbound PDU Details

PDU Formats

Ethernetll

0	4	8	Bytes
PREAMBLE: 101010..10		DEST ADDR:FFFF.FFFF.FFFF	
SRC ADDR:0001.9738.0601	TYPE:0x	DATA (VARIABLE LENGTH)	FCS:0x00000000

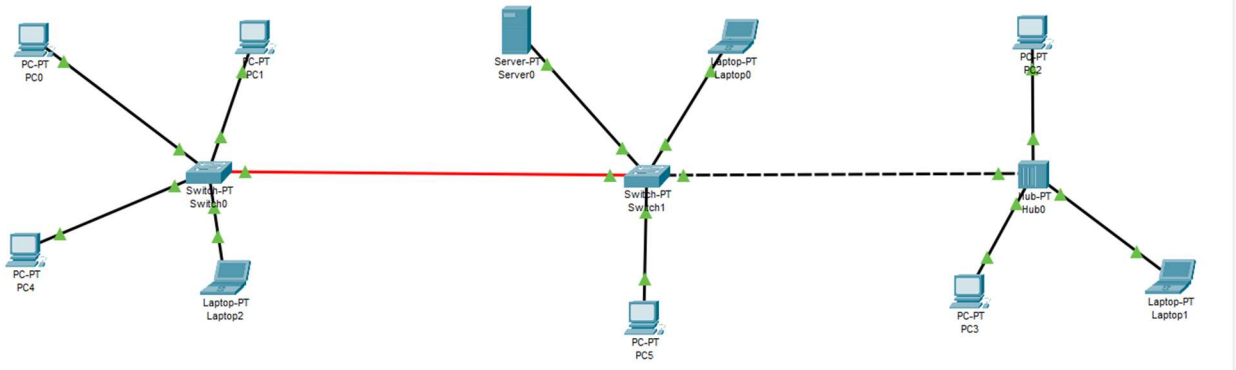
IP

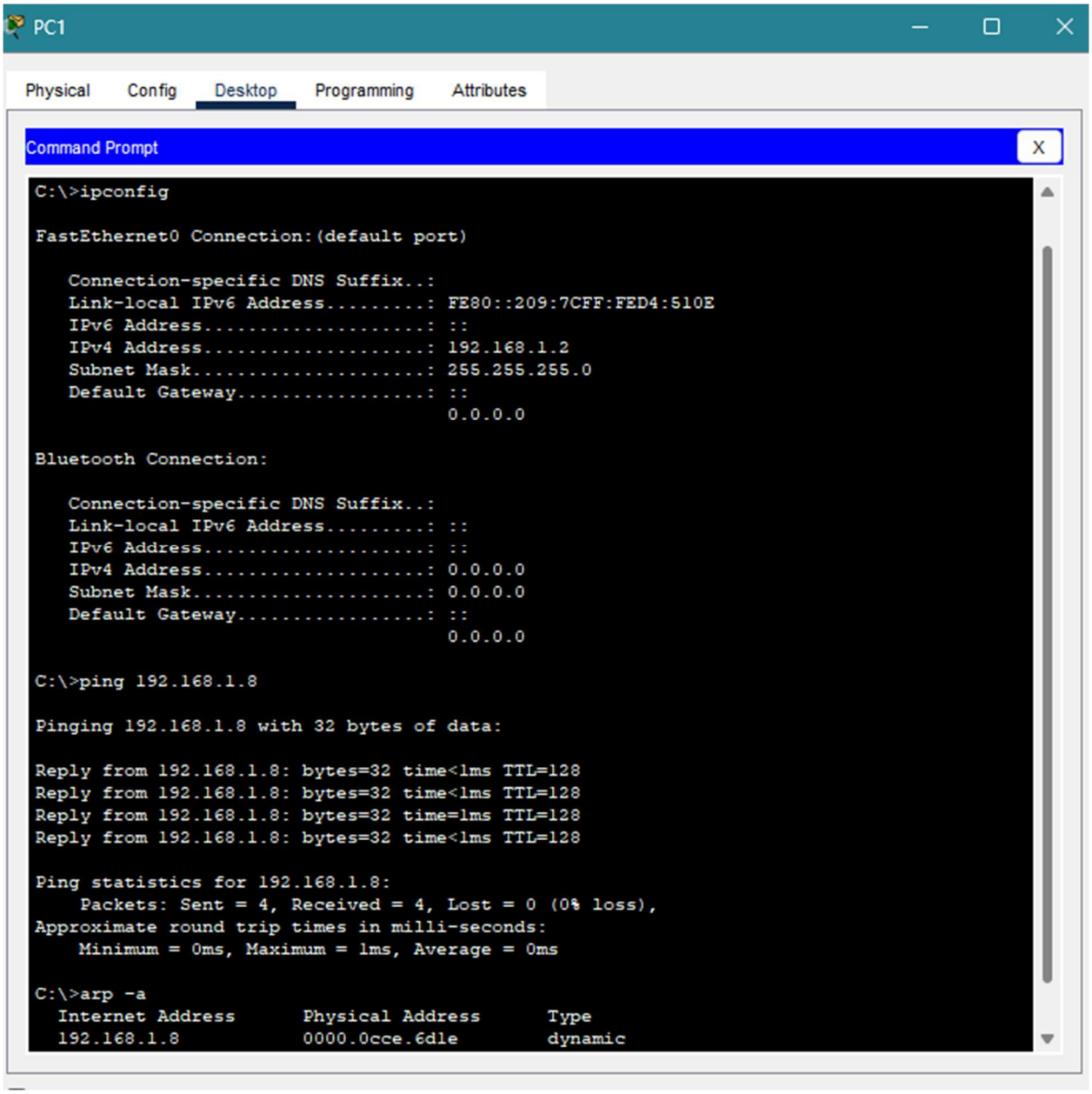
0	4	8	16	20	24	Bits
VER:4	IHL:5	DSCP:0x00	TL:89			
ID:0x0053			FLAGS:0	FRAG OFFSET:0x000		
TTL:255	PRO:0x11	CHKSUM				
SRC IP:0.0.0.0						
DST IP:255.255.255.255						
DATA (VARIABLE LENGTH)						

UDP

0	16	Bits
SOURCE PORT:68	DESTINATION PORT:67	

Créer un reseau de votre choix





Parquet ICMP

PDU Information at Device: PC1

OSI Model | Outbound PDU Details

At Device: PC1
Source: PC1
Destination: Laptop1

In Layers	Out Layers
Layer7	Layer7
Layer6	Layer6
Layer5	Layer5
Layer4	Layer4
Layer3	Layer 3: IP Header Src. IP: 192.168.1.2, Dest. IP: 192.168.1.8 ICMP Message Type: 8
Layer2	Layer 2: Ethernet II Header 0009.7CD4.510E >> 0000.0CCE.6D1E
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 device sets TTL in the packet header.
5. The destination IP address is in the same subnet. The device sets the next-hop to destination.

Challenge Me | << Previous Layer | Next Layer >>

PDU Information at Device: PC1

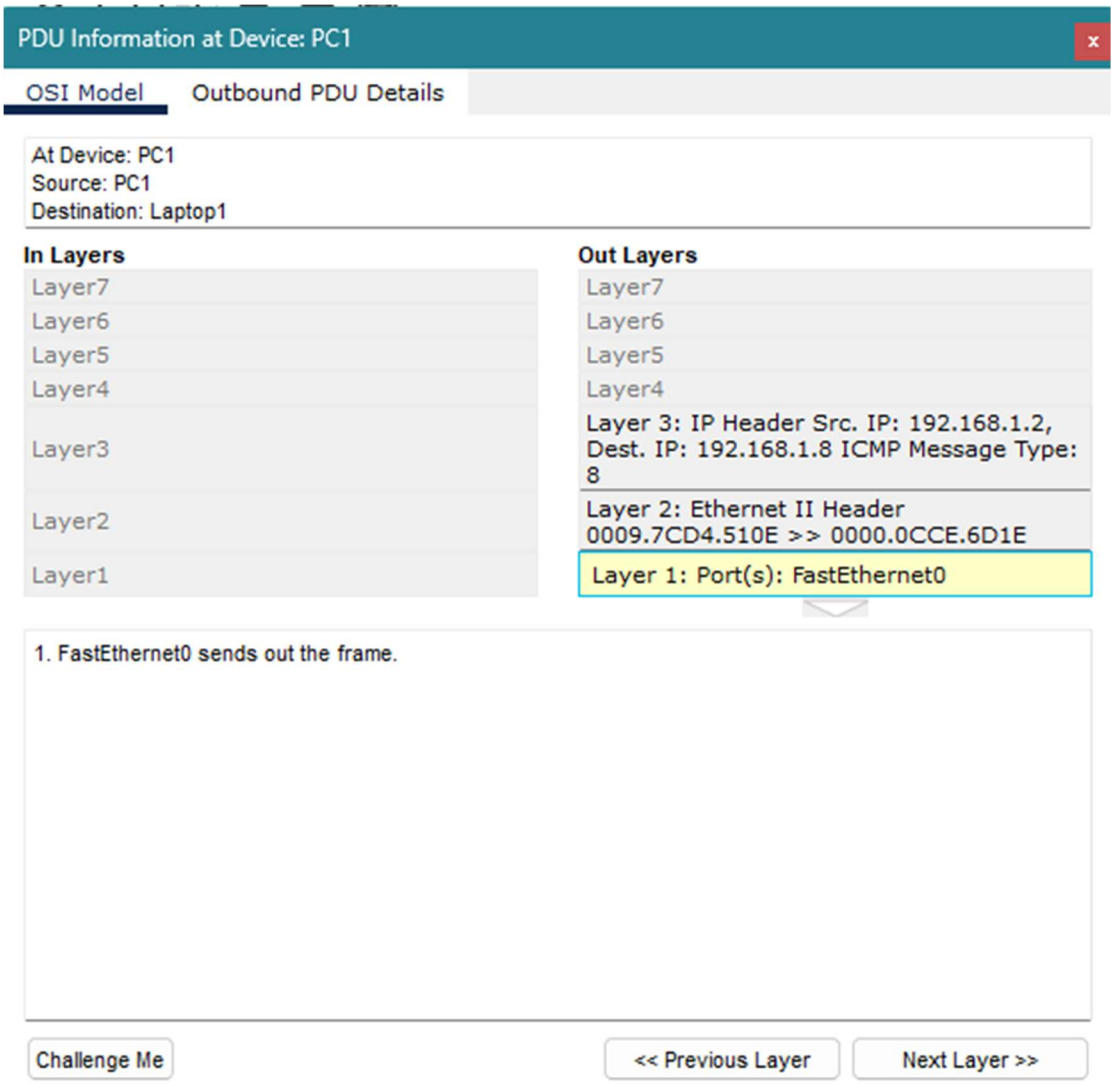
OSI Model | Outbound PDU Details

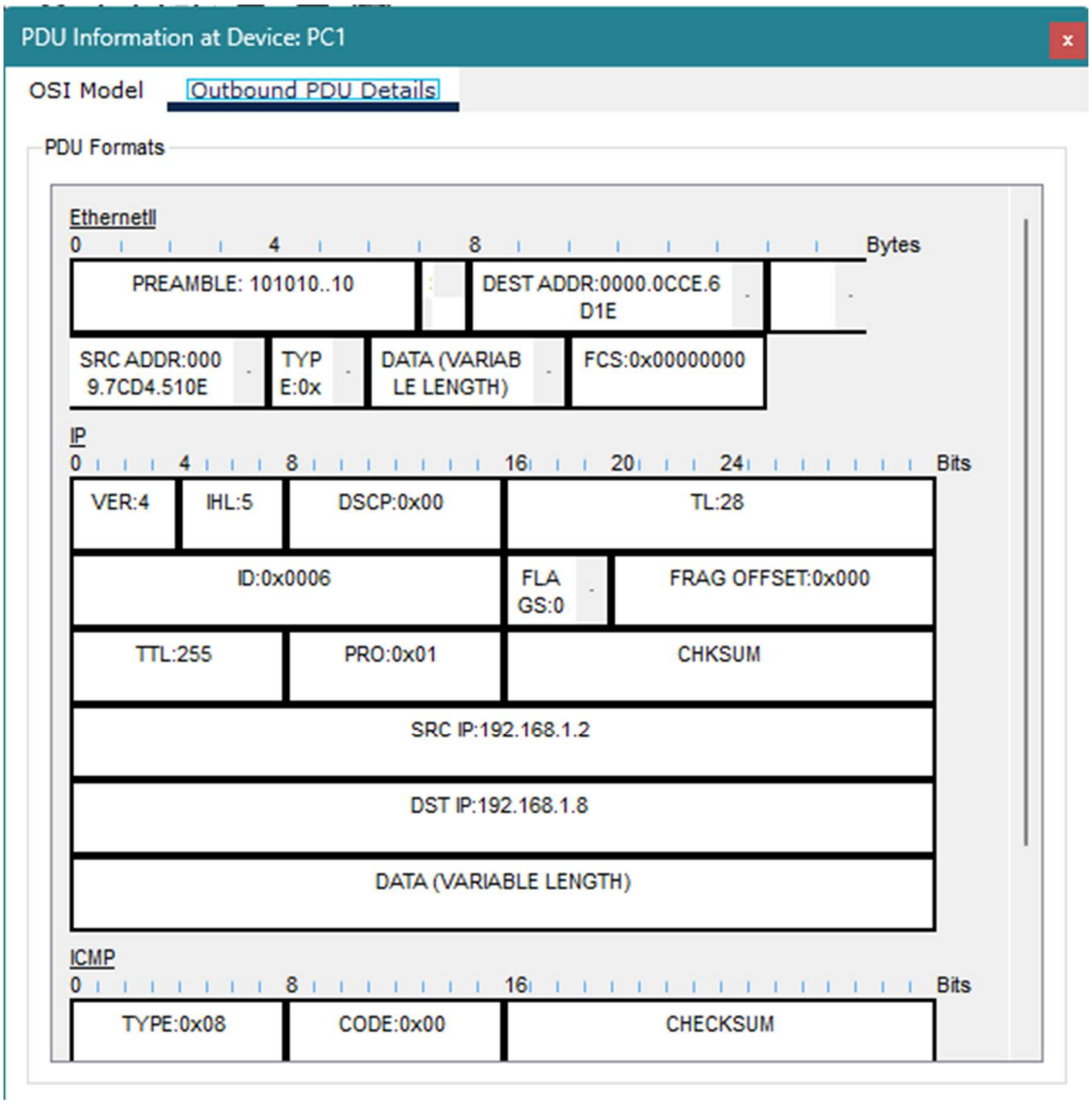
At Device: PC1
Source: PC1
Destination: Laptop1

In Layers	Out Layers
Layer7	Layer7
Layer6	Layer6
Layer5	Layer5
Layer4	Layer4
Layer3	Layer 3: IP Header Src. IP: 192.168.1.2, Dest. IP: 192.168.1.8 ICMP Message Type: 8
Layer2	Layer 2: Ethernet II Header 0009.7CD4.510E >> 0000.0CCE.6D1E
Layer1	Layer 1: Port(s): FastEthernet0

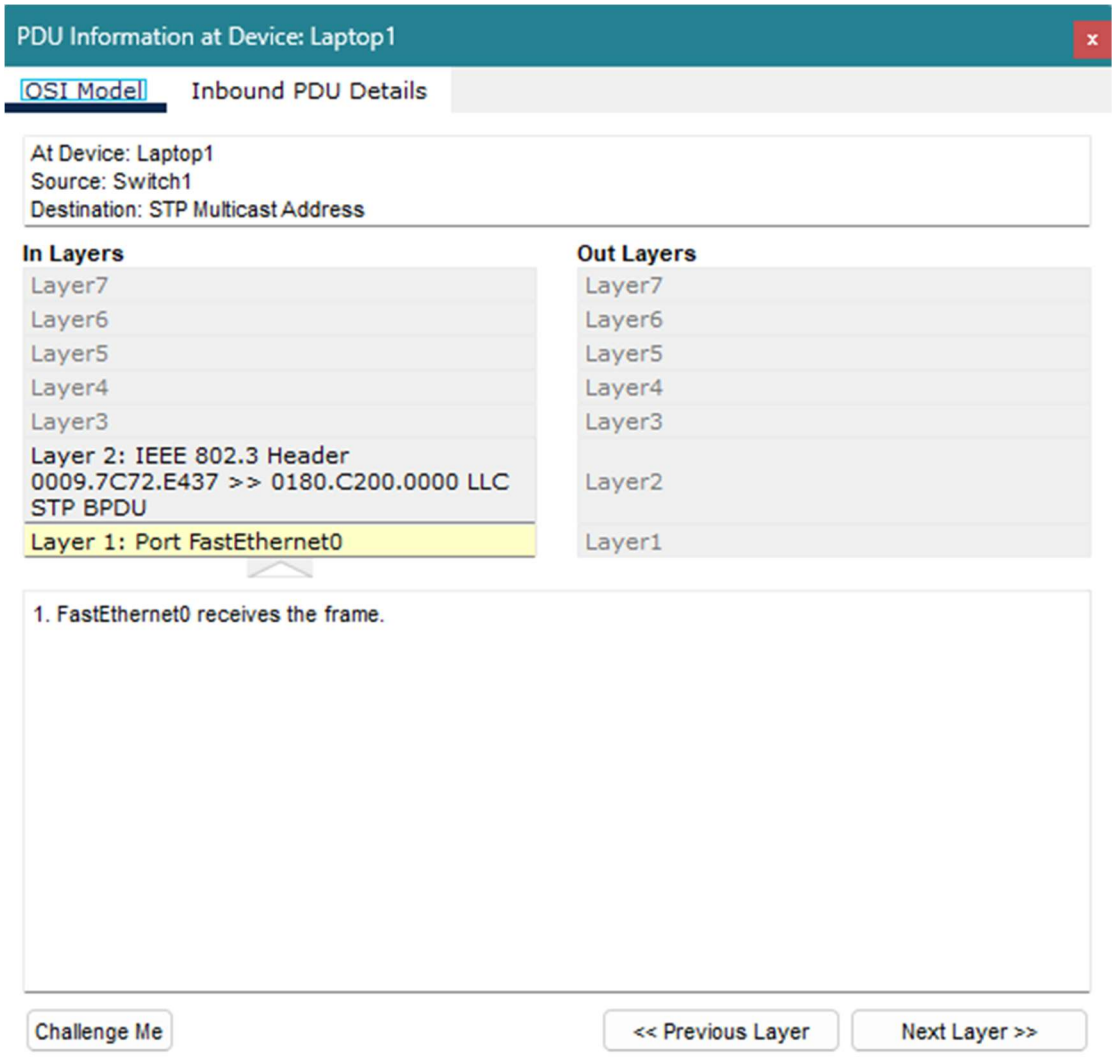
1. The next-hop IP address is a unicast. The ARP process looks it up in the ARP table.
2. The next-hop IP address is in the ARP table. The ARP process sets the frame's destination MAC address to the one found in the table.
3. The device encapsulates the PDU into an Ethernet frame.

Challenge Me | << Previous Layer | Next Layer >>


PDU Information at Device: PC1
OSI Model
Outbound PDU Details
At Device: PC1
Source: PC1
Destination: Laptop1
In Layers
Out Layers
Layer7
Layer6
Layer5
Layer4
Layer3
Layer2
Layer1
Layer7
Layer6
Layer5
Layer4
Layer 3: IP Header Src. IP: 192.168.1.2, Dest. IP: 192.168.1.8 ICMP Message Type: 8
Layer 2: Ethernet II Header 0009.7CD4.510E >> 0000.0CCE.6D1E
Layer 1: Port(s): FastEthernet0
1. FastEthernet0 sends out the frame.
Challenge Me
<< Previous Layer
Next Layer >>


PDU Information at Device: PC1
OSI Model
Outbound PDU Details
PDU Formats
EthernetII
0
4
8
Bytes
PREAMBLE: 101010..10
DEST ADDR:0000.0CCE.6D1E
SRC ADDR:0009.7CD4.510E
TYPE:0x
DATA (VARIABLE LENGTH)
FCS:0x00000000
IP
0
4
8
16
20
24
Bits
VER:4
IHL:5
DSCP:0x00
TL:28
ID:0x0006
FLAGS:0
FRAG OFFSET:0x000
TTL:255
PRO:0x01
CHKSUM
SRC IP:192.168.1.2
DST IP:192.168.1.8
DATA (VARIABLE LENGTH)
ICMP
0
8
16
Bits
TYPE:0x08
CODE:0x00
CHECKSUM

Parquet STP


PDU Information at Device: Laptop1
OSI Model
Inbound PDU Details
At Device: Laptop1
Source: Switch1
Destination: STP Multicast Address
In Layers
Out Layers
Layer7
Layer6
Layer5
Layer4
Layer3
Layer 2: IEEE 802.3 Header
0009.7C72.E437 >> 0180.C200.0000 LLC
STP BPDU
Layer2
Layer 1: Port FastEthernet0
Layer1
1. FastEthernet0 receives the frame.
Challenge Me
<< Previous Layer
Next Layer >>

PDU Information at Device: Laptop1

OSI Model | Inbound PDU Details

At Device: Laptop1
Source: Switch1
Destination: STP Multicast Address

In Layers	Out Layers
Layer7	Layer7
Layer6	Layer6
Layer5	Layer5
Layer4	Layer4
Layer3	Layer3
Layer 2: IEEE 802.3 Header 0009.7C72.E437 >> 0180.C200.0000 LLC STP BPDU	Layer2
Layer 1: Port FastEthernet0	Layer1

1. The frame's destination MAC address matches the receiving port's MAC address, the broadcast address, or a multicast address.
2. The device does not have a service that accepts this frame. It drops the frame.

Challenge Me | << Previous Layer | Next Layer >>

PDU Information at Device: Laptop1

OSI Model | Inbound PDU Details

PDU Formats