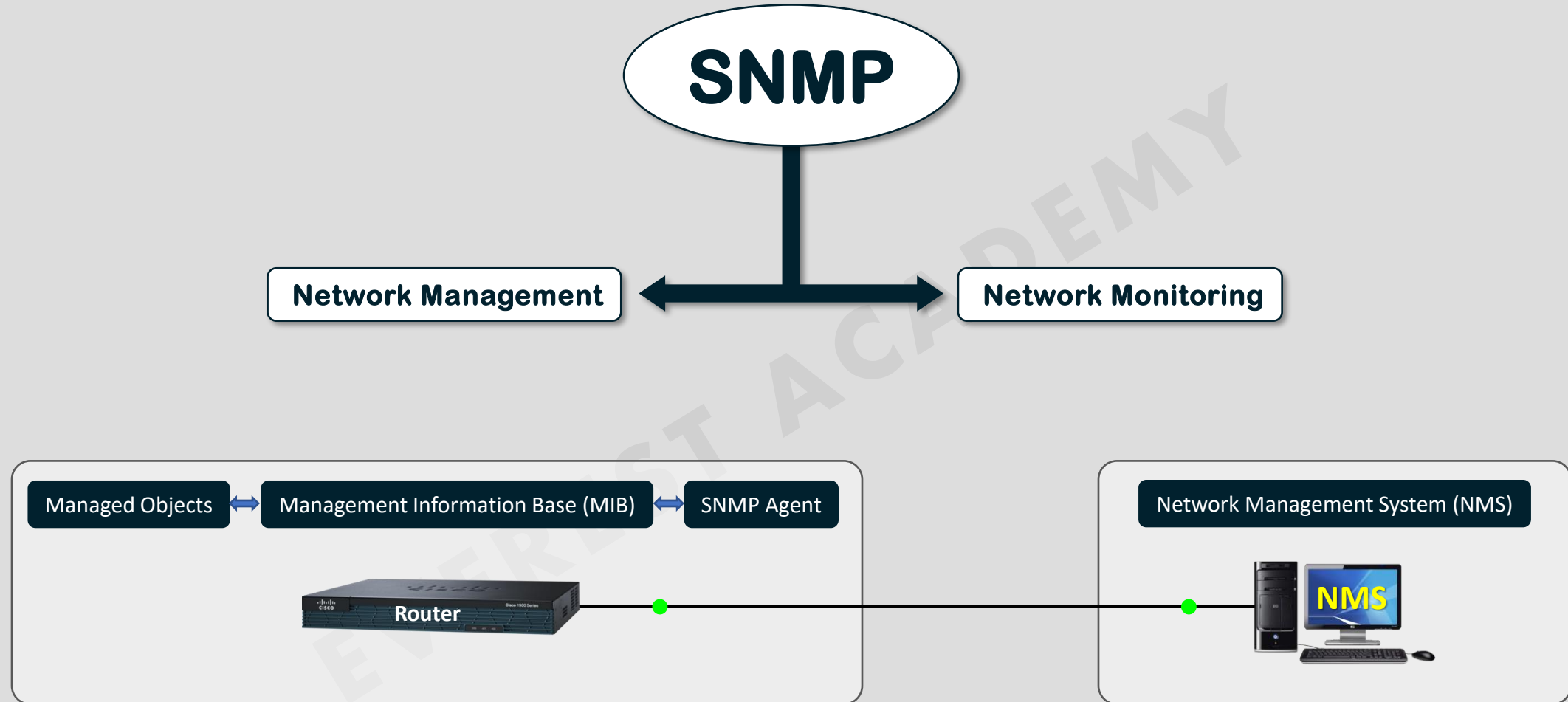
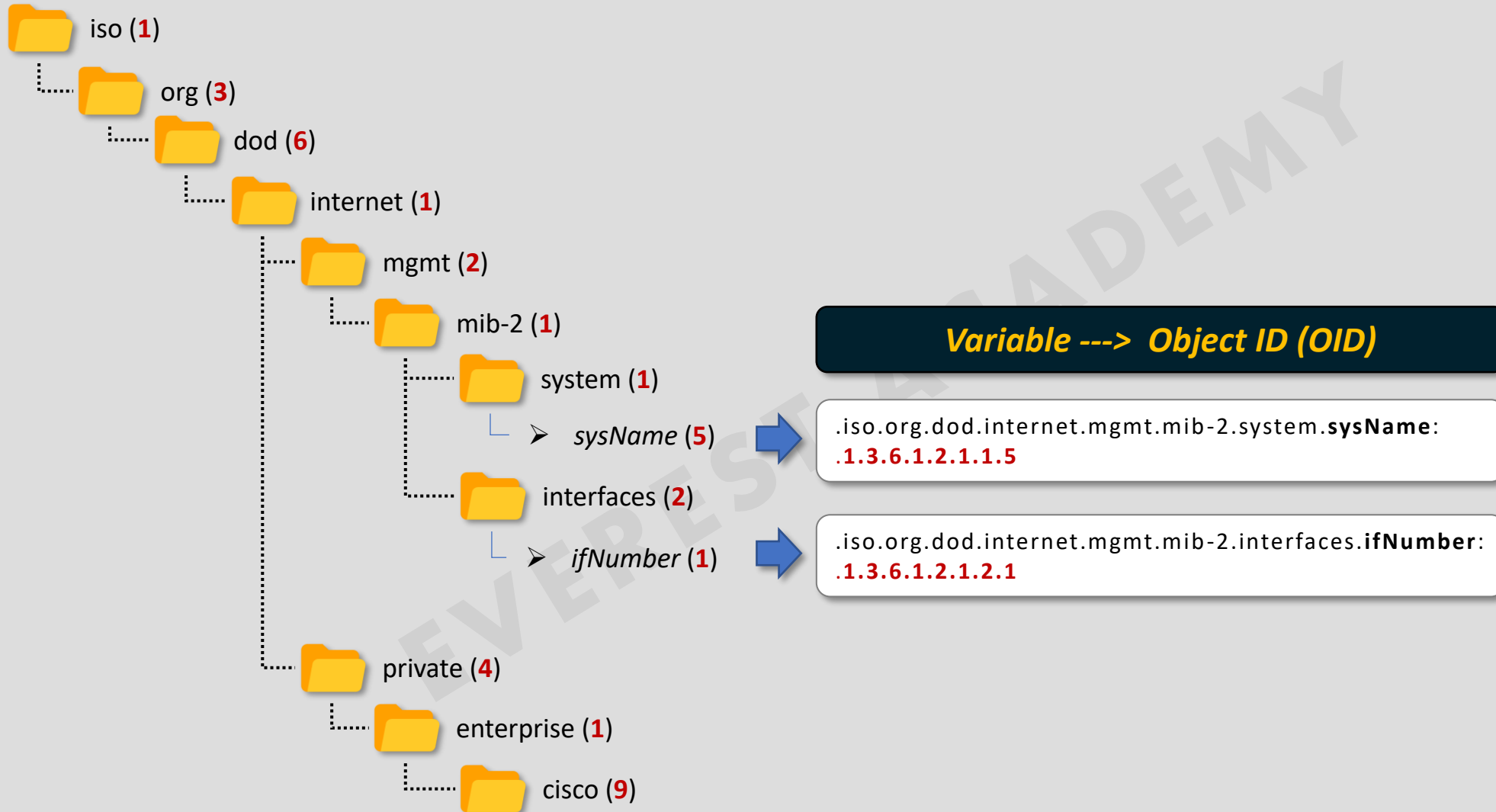


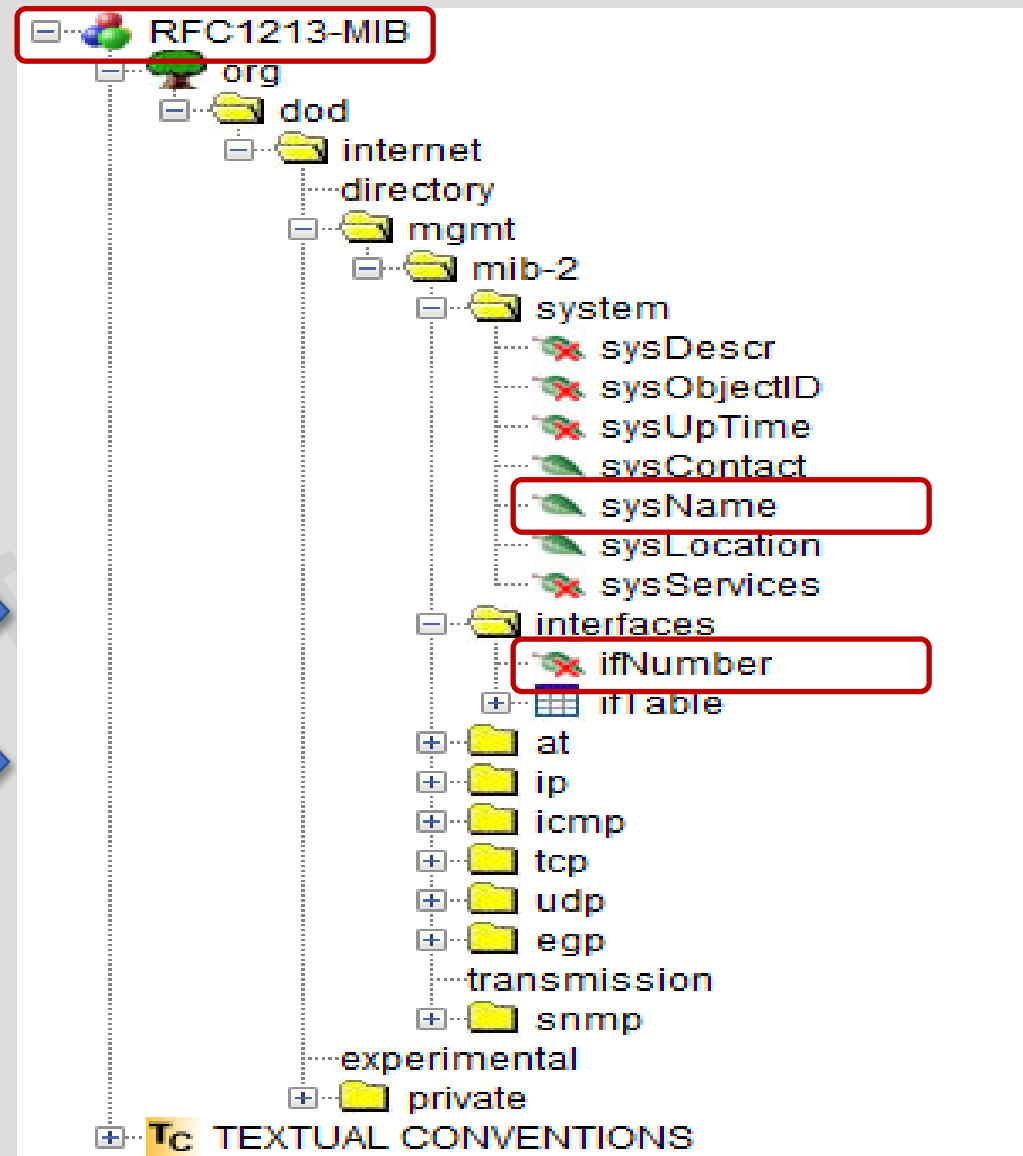
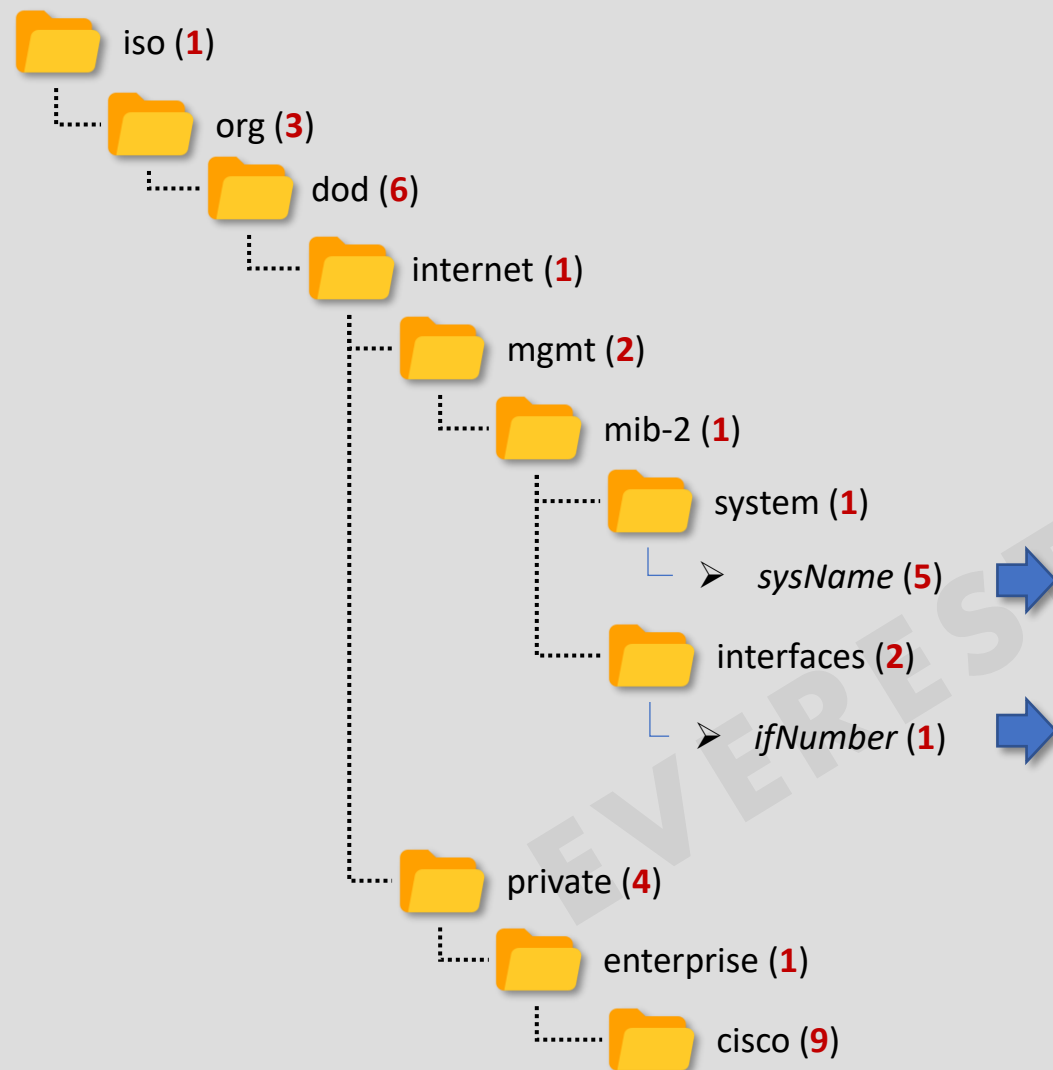
Simple Network Management Protocol (SNMP)



Management Information Base (MIB)



Management Information Base (MIB)



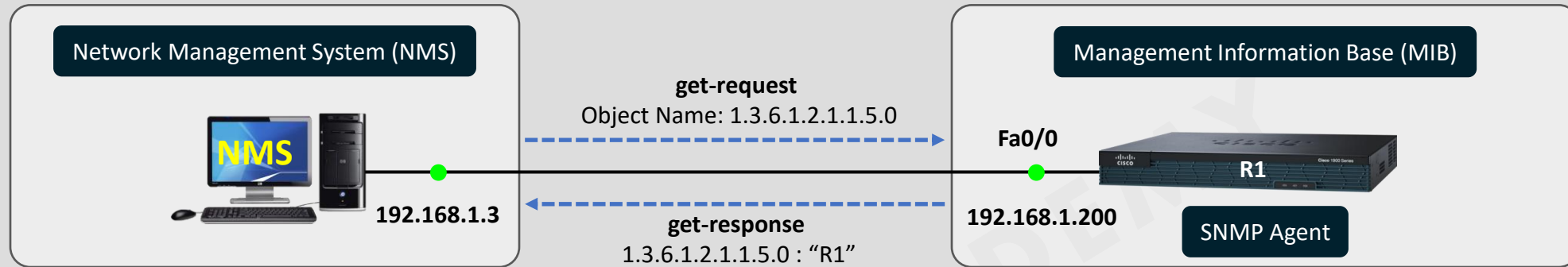
SNMP Versions



- ☐ **SNMPv1** Supports plaintext authentication with community strings.
- ☐ **SNMPv2c** Supports plaintext authentication with community strings with no encryption but provides GET BULK. It offers a more detailed error message via a reporting method called INFORM.
- ☐ **SNMPv3** Supports strong authentication with MD5 or SHA, providing confidentiality (encryption) and data integrity of messages via DES or DES-256 encryption between agents and managers.



SNMP Messages : Get-request and Get-response



Source	Destination	Protocol	Object Name	Value (OctetString)	data
192.168.1.3	192.168.1.200	SNMP	iso.3.6.1.2.1.1.5.0		get-request

```

> Frame 110: 81 bytes on wire (648 bits), 81 bytes captured (648 bits) on interface \Device\NPF{...}
> Ethernet II, Src: Pegatron_bd:2d:31 (38:60:77:bd:2d:31), Dst: ca:01:04:e2:00:00 (ca:01:04:e2:00:00)
> Internet Protocol Version 4, Src: 192.168.1.3, Dst: 192.168.1.200
> User Datagram Protocol, Src Port: 60322, Dst Port: 161
v Simple Network Management Protocol
  version: version-1 (0)
  community: read
  data: get-request (0)
    get-request
      request-id: 2388
      error-status: noError (0)
      error-index: 0
      variable-bindings: 1 item
        1.3.6.1.2.1.1.5.0: Value (Null)
          Object Name: 1.3.6.1.2.1.1.5.0 (iso.3.6.1.2.1.1.5.0)
          Value (Null)
    
```

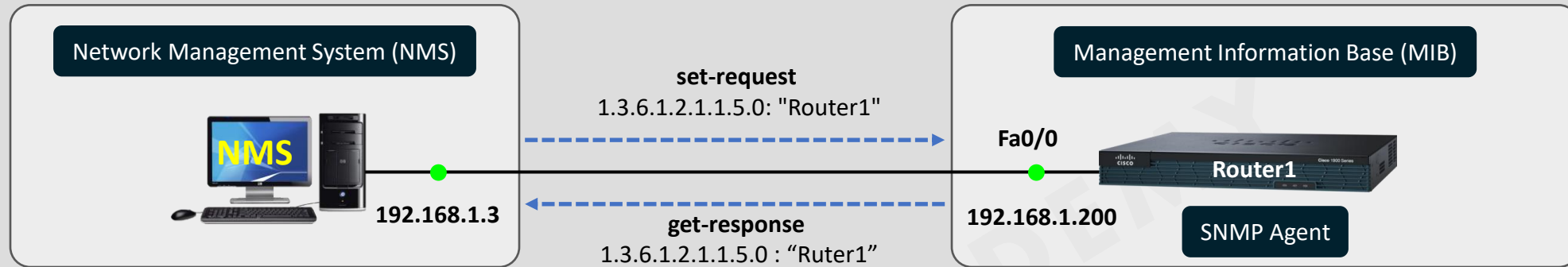
Source	Destination	Protocol	Object Name	Value (OctetString)	data
192.168.1.200	192.168.1.3	SNMP	iso.3.6.1.2.1.1.5.0	"R1"	get-response

```

> Frame 112: 83 bytes on wire (664 bits), 83 bytes captured (664 bits) on interface \Device\NPF{...}
> Ethernet II, Src: ca:01:04:e2:00:00 (ca:01:04:e2:00:00), Dst: Pegatron_bd:2d:31 (38:60:77:bd:2d:31)
> Internet Protocol Version 4, Src: 192.168.1.200, Dst: 192.168.1.3
> User Datagram Protocol, Src Port: 161, Dst Port: 60322
v Simple Network Management Protocol
  version: version-1 (0)
  community: read
  data: get-response (2)
    get-response
      request-id: 2388
      error-status: noError (0)
      error-index: 0
      variable-bindings: 1 item
        1.3.6.1.2.1.1.5.0: "R1"
          Object Name: 1.3.6.1.2.1.1.5.0 (iso.3.6.1.2.1.1.5.0)
          Value (OctetString): "R1"
    
```



SNMP Messages : Set-request



Source	Destination	Protocol	Object Name	Value (OctetString)	data
192.168.1.3	192.168.1.200	SNMP	iso.3.6.1.2.1.1.5.0	"Router1"	set-request

```

> Frame 37: 89 bytes on wire (712 bits), 89 bytes captured (712 bits) on interface \Device\NPF{...}
> Ethernet II, Src: Pegatron_bd:2d:31 (38:60:77:bd:2d:31), Dst: ca:01:04:e2:00:00 (ca:01:04:e2:00:00)
> Internet Protocol Version 4, Src: 192.168.1.3, Dst: 192.168.1.200
> User Datagram Protocol, Src Port: 60322, Dst Port: 161
> Simple Network Management Protocol
  > version: version-1 (0)
  > community: write
  > data: set-request (3)
    > set-request
      > request-id: 2389
      > error-status: noError (0)
      > error-index: 0
      > variable-bindings: 1 item
        > 1.3.6.1.2.1.1.5.0: "Router1"
          > Object Name: 1.3.6.1.2.1.1.5.0 (iso.3.6.1.2.1.1.5.0)
          > Value (OctetString): "Router1"
  
```

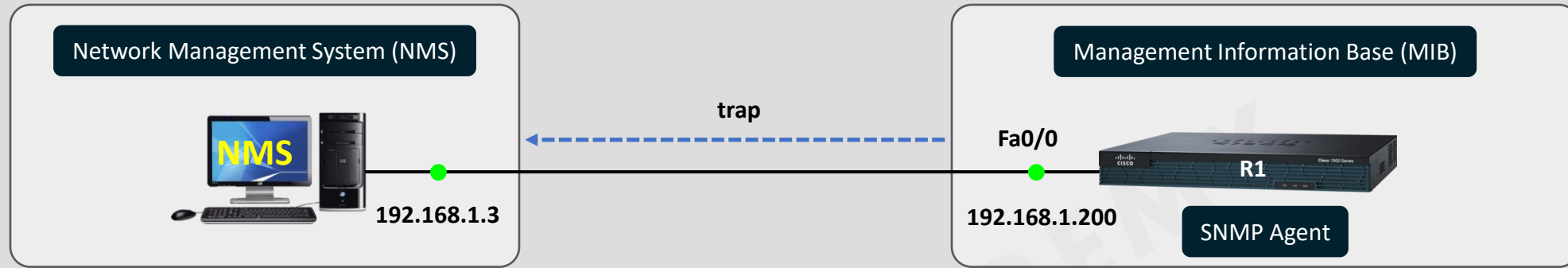
Source	Destination	Protocol	Object Name	Value (OctetString)	data
192.168.1.200	192.168.1.3	SNMP	iso.3.6.1.2.1.1.5.0	"Router1"	get-response

```

> Frame 39: 89 bytes on wire (712 bits), 89 bytes captured (712 bits) on interface \Device\NPF{...}
> Ethernet II, Src: ca:01:04:e2:00:00 (ca:01:04:e2:00:00), Dst: Pegatron_bd:2d:31 (38:60:77:bd:2d:31)
> Internet Protocol Version 4, Src: 192.168.1.200, Dst: 192.168.1.3
> User Datagram Protocol, Src Port: 161, Dst Port: 60322
> Simple Network Management Protocol
  > version: version-1 (0)
  > community: write
  > data: get-response (2)
    > get-response
      > request-id: 2389
      > error-status: noError (0)
      > error-index: 0
      > variable-bindings: 1 item
        > 1.3.6.1.2.1.1.5.0: "Router1"
          > Object Name: 1.3.6.1.2.1.1.5.0 (iso.3.6.1.2.1.1.5.0)
          > Value (OctetString): "Router1"
  
```



SNMP Messages : SNMP Trap



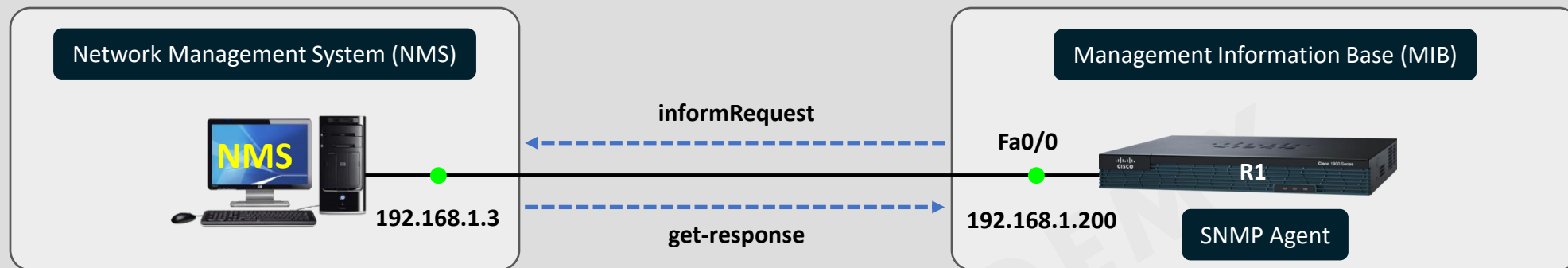
Source	Destination	Protocol	data
192.168.1.200	192.168.1.3	SNMP	trap


```

> Frame 35: 235 bytes on wire (1880 bits), 235 bytes captured (1880 bits) on interface
> Ethernet II, Src: ca:01:04:e2:00:00 (ca:01:04:e2:00:00), Dst: Pegatron_bd:2d:31 (38
> Internet Protocol Version 4, Src: 192.168.1.200, Dst: 192.168.1.3
> User Datagram Protocol, Src Port: 51343, Dst Port: 162
v Simple Network Management Protocol
  version: version-1 (0)
  community: read
  v data: trap (4)
    v trap
      enterprise: 1.3.6.1.4.1.9.9.41.2 (iso.3.6.1.4.1.9.9.41.2)
      agent-addr: 192.168.1.200
      generic-trap: enterpriseSpecific (6)
      specific-trap: 1
      time-stamp: 14858
      v variable-bindings: 5 items
        > 1.3.6.1.4.1.9.9.41.1.2.3.1.2.11: "SYS"
        > 1.3.6.1.4.1.9.9.41.1.2.3.1.3.11: 6
        > 1.3.6.1.4.1.9.9.41.1.2.3.1.4.11: "CONFIG_I"
        > 1.3.6.1.4.1.9.9.41.1.2.3.1.5.11: "Configured from console by console"
        > 1.3.6.1.4.1.9.9.41.1.2.3.1.6.11: 14855
    
```



SNMP Messages : SNMP Inform



Source	Destination	Protocol	data
192.168.1.3	192.168.1.200	SNMP	get-response

> Frame 35: 260 bytes on wire (2080 bits), 260 bytes captured (2080 bits) on interface \Device\NPF{...}			
> Ethernet II, Src: Pegatron_bd:2d:31 (38:60:77:bd:2d:31), Dst: ca:01:04:e2:00:00 (ca:01:04:e2:00:00)			
> Internet Protocol Version 4, Src: 192.168.1.3, Dst: 192.168.1.200			
> User Datagram Protocol, Src Port: 162, Dst Port: 57270			
> Simple Network Management Protocol			
version: v2c (1)			
community: read			
> data: get-response (2)			
> get-response			
request-id: 3			
error-status: noError (0)			
error-index: 0			
> variable-bindings: 7 items			
> 1.3.6.1.2.1.1.3.0: 25328			
> 1.3.6.1.6.3.1.1.4.1.0: 1.3.6.1.4.1.9.9.41.2.0.1 (iso.3.6.1.4.1.9.9.41.2.0.1)			
> 1.3.6.1.4.1.9.9.41.1.2.3.1.2.7: "SYS"			
> 1.3.6.1.4.1.9.9.41.1.2.3.1.3.7: 6			
> 1.3.6.1.4.1.9.9.41.1.2.3.1.4.7: "CONFIG_I"			
> 1.3.6.1.4.1.9.9.41.1.2.3.1.5.7: "Configured from console by console"			
> 1.3.6.1.4.1.9.9.41.1.2.3.1.6.7: 25327			

Source	Destination	Protocol	data
192.168.1.200	192.168.1.3	SNMP	informRequest

> Frame 33: 260 bytes on wire (2080 bits), 260 bytes captured (2080 bits) on interface \Device\NPF{...}			
> Ethernet II, Src: ca:01:04:e2:00:00 (ca:01:04:e2:00:00), Dst: Pegatron_bd:2d:31 (38:60:77:bd:2d:31)			
> Internet Protocol Version 4, Src: 192.168.1.200, Dst: 192.168.1.3			
> User Datagram Protocol, Src Port: 57270, Dst Port: 162			
> Simple Network Management Protocol			
version: v2c (1)			
community: read			
> data: informRequest (6)			
> informRequest			
request-id: 3			
error-status: noError (0)			
error-index: 0			
> variable-bindings: 7 items			
> 1.3.6.1.2.1.1.3.0: 25328			
> 1.3.6.1.6.3.1.1.4.1.0: 1.3.6.1.4.1.9.9.41.2.0.1 (iso.3.6.1.4.1.9.9.41.2.0.1)			
> 1.3.6.1.4.1.9.9.41.1.2.3.1.2.7: "SYS"			
> 1.3.6.1.4.1.9.9.41.1.2.3.1.3.7: 6			
> 1.3.6.1.4.1.9.9.41.1.2.3.1.4.7: "CONFIG_I"			
> 1.3.6.1.4.1.9.9.41.1.2.3.1.5.7: "Configured from console by console"			
> 1.3.6.1.4.1.9.9.41.1.2.3.1.6.7: 25327			