

## TD SNMP

### Exercice 1:

Répondre par vrai ou faux en justifiant votre réponse:

1. SNMP permet de lancer une même requête pour modifier plusieurs objets en même temps.
2. Un manager qui a les droits de lecture peut lire n'importe quel objet de la MIB.
3. La taille d'un message SNMP est fixe.
4. Le manager communique directement avec les objets administrés.

### Exercice 2:

Soient les deux messages SNMP suivants représentant une requête et sa réponse :

```

Simple Network Management Protocol
  Version: 1
  Community: public
  PDU type: .....
  Request Id: 0x25
  Error Status: NO ERROR
  Error Index: 0
  Object identifier 1: 1.3.6.1.4.1.9.2.1.58.0 (SNMPv2-SMI::enterprises.9.2.1.58.0)
  Value: NULL
  Object identifier 2: 1.3.6.1.4.1.9.2.1.57.0 (SNMPv2-SMI::enterprises.9.2.1.57.0)
  Value: NULL
  Object identifier 3: 1.3.6.1.2.1.1.3.0 (SNMPv2-MIB::sysuptime.0)
  Value: NULL
Simple Network Management Protocol
  Version: 1
  Community: public
  PDU type: RESPONSE
  Request Id: 0x25
  Error Status: NO ERROR
  Error Index: 0
  Object identifier 1: 1.3.6.1.4.1.9.2.1.58.0 (SNMPv2-SMI::enterprises.9.2.1.58.0)
  Value: INTEGER: 16
  Object identifier 2: 1.3.6.1.4.1.9.2.1.57.0 (SNMPv2-SMI::enterprises.9.2.1.57.0)
  Value: INTEGER: 16
  Object identifier 3: 1.3.6.1.2.1.1.3.0 (SNMPv2-MIB::sysuptime.0)
  Value: Timeticks: (11915034) 1 day, 9:05:50.34

```

- 1- Déterminer la version de SNMP utilisée.
- 2- Préciser le type de la requête (simple ou multiple). Expliquer.
- 3- Préciser le « PDU type » du premier message (GET ou GET-NEXT ou SET). Expliquer.
- 4- Quelle est la signification de la valeur 11915034 dans le deuxième message? a-t-elle une relation avec le texte qui le suit ? Expliquer.

### Exercice 3:

Considérez la SMI d'une MIB d'un commutateur (bridge) donnée en annexe pour répondre aux questions suivantes :

1. Peut-on modifier la variable dot1dBaseBridgeAddress
2. Tracer l'arbre d'objets de cette MIB
3. En faisant appel aux messages SNMP (GET, SET, GET-NEXT...etc), écrire un algorithme permettant de récupérer le nombre de ports du bridge et le nombre de trames rejetées (frames discarded) pour chaque port.

## Annexe 2:

-- This mib was extracted from RFC 1493

```
BRIDGE-MIB DEFINITIONS ::= BEGIN
dot1dBridge OBJECT IDENTIFIER ::= { mib-2 17 }

-- groups in the Bridge MIB
dot1dBase OBJECT IDENTIFIER ::= { dot1dBridge 1 }
dot1dStp OBJECT IDENTIFIER ::= { dot1dBridge 2 }
dot1dSr OBJECT IDENTIFIER ::= { dot1dBridge 3 }
dot1dTp OBJECT IDENTIFIER ::= { dot1dBridge 4 }
dot1dStatic OBJECT IDENTIFIER ::= { dot1dBridge 5 }

-- the dot1dBase group
dot1dBaseBridgeAddress OBJECT-TYPE
    SYNTAX MacAddress
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "The MAC address used by this bridge when it must
        be referred to in a unique fashion. It is
        recommended that this be the numerically smallest
        MAC address of all ports that belong to this
        bridge. However it is only required to be unique.
        When concatenated with dot1dStpPriority a unique
        BridgeIdentifier is formed which is used in the
        Spanning Tree Protocol."
    REFERENCE
        "IEEE 802.1D-1990: Sections 6.4.1.1.3 and 3.12.5"
    ::= { dot1dBase 1 }

dot1dBaseNumPorts OBJECT-TYPE
    SYNTAX INTEGER
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "The number of ports controlled by this bridging
        entity."
    REFERENCE
        "IEEE 802.1D-1990: Section 6.4.1.1.3"
    ::= { dot1dBase 2 }

dot1dBaseType OBJECT-TYPE
    SYNTAX INTEGER {
        unknown(1),
        transparent-only(2),
        sourceroute-only(3),
        srt(4)
    }
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "Indicates what type of bridging this bridge can
        perform. If a bridge is actually performing a
        certain type of bridging this will be indicated by
        entries in the port table for the given type."
    ::= { dot1dBase 3 }

-- The Generic Bridge Port Table

dot1dBasePortTable OBJECT-TYPE
    SYNTAX SEQUENCE OF Dot1dBasePortEntry
```

ACCESS not-accessible  
STATUS mandatory  
DESCRIPTION  
    "A table that contains generic information about every port that is associated with this bridge. Transparent, source-route, and srt ports are included."  
::= { dot1dBase 4 }

dot1dBasePortEntry OBJECT-TYPE  
SYNTAX Dot1dBasePortEntry  
ACCESS not-accessible  
STATUS mandatory  
DESCRIPTION  
    "A list of information for each port of the bridge."  
REFERENCE  
    "IEEE 802.1D-1990: Section 6.4.2, 6.6.1"  
INDEX { dot1dBasePort }  
::= { dot1dBasePortTable 1 }

Dot1dBasePortEntry ::=

```
SEQUENCE {
    dot1dBasePort
        INTEGER,
    dot1dBasePortIfIndex
        INTEGER,
    dot1dBasePortCircuit
        OBJECT IDENTIFIER,
    dot1dBasePortDelayExceededDiscards
        Counter,
    dot1dBasePortMtuExceededDiscards
        Counter
}
```

dot1dBasePort OBJECT-TYPE  
SYNTAX INTEGER (1..65535)  
ACCESS read-only  
STATUS mandatory  
DESCRIPTION  
    "The port number of the port for which this entry contains bridge management information."  
::= { dot1dBasePortEntry 1 }

dot1dBasePortIfIndex OBJECT-TYPE  
SYNTAX INTEGER  
ACCESS read-only  
STATUS mandatory  
DESCRIPTION  
    "The value of the instance of the ifIndex object, defined in MIB-II, for the interface corresponding to this port."  
::= { dot1dBasePortEntry 2 }

dot1dBasePortCircuit OBJECT-TYPE  
SYNTAX OBJECT IDENTIFIER  
ACCESS read-only  
STATUS mandatory  
DESCRIPTION  
    "For a port which (potentially) has the same value of dot1dBasePortIfIndex as another port on the same bridge, this object contains the name of an object instance unique to this port. For example,

in the case where multiple ports correspond one-to-one with multiple X.25 virtual circuits, this value might identify an (e.g., the first) object instance associated with the X.25 virtual circuit corresponding to this port.

For a port which has a unique value of dot1dBasePortIfIndex, this object can have the value { 0 0 }."

::= { dot1dBasePortEntry 3 }

dot1dBasePortDelayExceededDiscards OBJECT-TYPE

SYNTAX Counter

ACCESS read-only

STATUS mandatory

DESCRIPTION

"The number of frames discarded by this port due to excessive transit delay through the bridge. It is incremented by both transparent and source route bridges."

REFERENCE

"IEEE 802.1D-1990: Section 6.6.1.1.3"

::= { dot1dBasePortEntry 4 }

dot1dBasePortMtuExceededDiscards OBJECT-TYPE

SYNTAX Counter

ACCESS read-only

STATUS mandatory

DESCRIPTION

"The number of frames discarded by this port due to an excessive size. It is incremented by both transparent and source route bridges."

REFERENCE

"IEEE 802.1D-1990: Section 6.6.1.1.3"

::= { dot1dBasePortEntry 5 }