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Subject: CN

Roll No: 46

Division: TE4

Batch: D

Experiment: 11

Aim: To study and implement SNM

THEORY:

SNMP defines the format of packets exchanged between a manager and an agent. It reads and changes the status of objects (values of variables) in SNMP packets. SMI defines the general rules for naming objects, defining object types (including range and length), and showing how to encode objects and values. SMI is a guideline for SNMP. It emphasizes three attributes to handle an object: name, data type, and encoding method.

Encoding Method

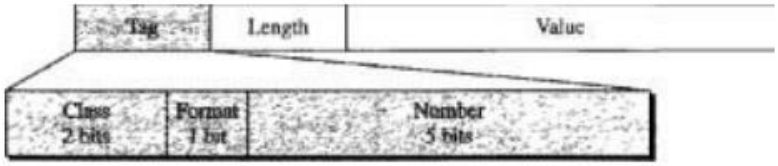
SMI uses another standard, Basic Encoding Rules (BER), to encode data to be transmitted over the network. BER specifies that each piece of data be encoded in triplet format: tag, length, and value. The tag is a 1-byte field that defines the type of data. The length field is 1 or more bytes. If it is 1 byte, the most significant bit must be 0. The other 7 bits define the length of the data. Ifit is more than 1 byte, the most significant bit of the first byte must be 1. The other 7 bits of the first byte define the number of bytes needed to define the length

Data Types Tag

Type	Size
Integer	4 bytes
OCTET STRING	Variable
OBJECT IDENTIFIER	Variable
IPAddress	4 bytes

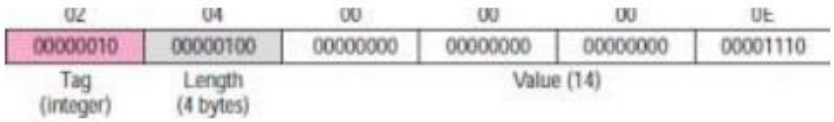
Type	Tag (Hex)
Integer	02
OCTET STRING	04
OBJECT IDENTIFIER	06
IPAddress	40

Encoding Method:

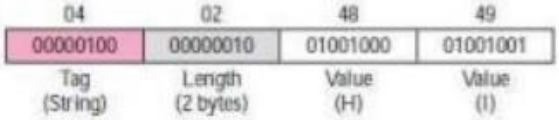


Encoding Method:

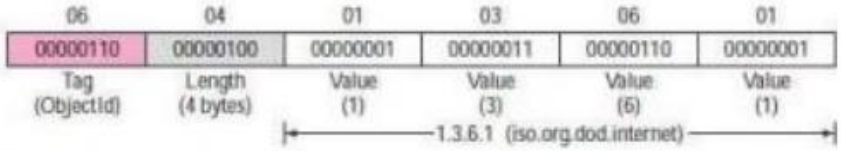
INTEGER 14



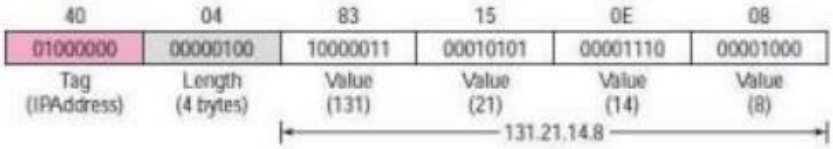
OCTET 'HI'



OBJECT IDENTIFIER 1.3.6.1



IPAddress 131.21.14.8



CONCLUSION:

SMI names objects, defines the type of data that can be stored in an object, and encodes the data. SMI uses Basic Encoding Rules (BER) to encode data