

2nd ISSNSM's Tutorial on

Do you know SNMP?

(Tutorial T5)

Speaker:

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Do you know SNMP?

Lab exercises

2nd International Summer School on Network and Service Management

ISSNSM 2008

Zurich

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09:00 - 12:30

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On the next pages you'll find 4 exercises. Divide your time roughly as follows:

Exercise 1: 90 minutes maximum

Exercise 2: 45 minutes maximum

Exercise 3: 30 minutes maximum

Exercise 4: 15 minutes

Exercise 1: Create a MIB module definition

Consider a MIB that consists of the following objects:

- an IP address,
- a string with the system's name,
- an object that shows how long the system is already operational,
- a routing table.

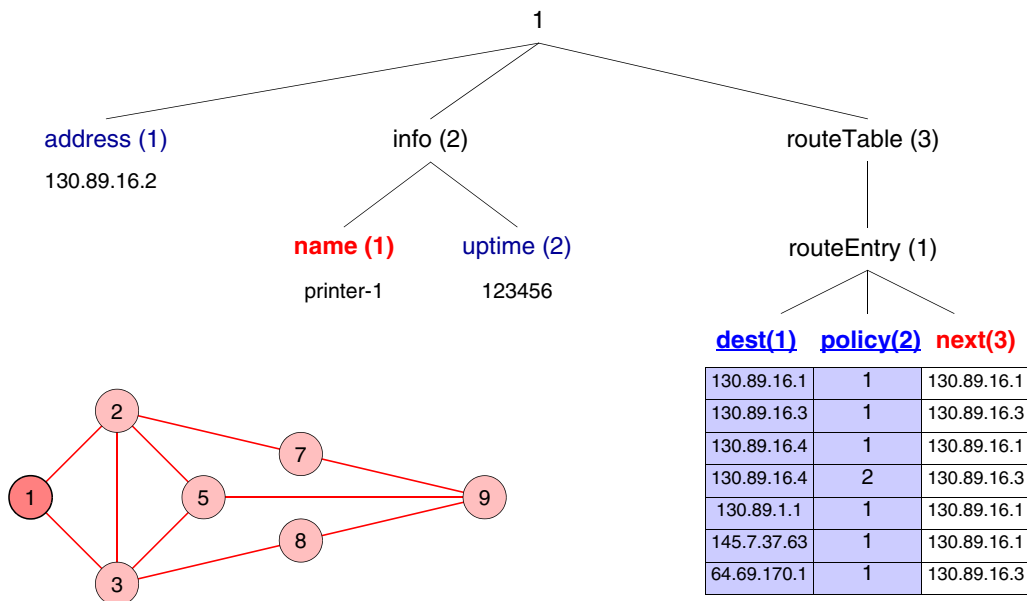
The routing table has three columns:

- destination IP address,
- routing policy, and the
- IP address of the next hop.

The routing table is indexed by the destination address and policy.

The naming tree for this MIB is shown in the picture below.

The exercise is now to write the complete MIB definition (in the SMIV2 syntax), including IMPORT statements and a MODULE IDENTITY (you may register this MIB under "enterprises ut(785) 8"). Make sure you check the syntax of this MIB using the MIB module validator at: <http://www.simpleweb.org/ietf/mibs/validate/>



References:

- Slides: <http://www.simpleweb.org/tutorials/smi/smi.pdf>
- Podcast: <http://www.simpleweb.org/tutorials/video/05-smi.m4v>, or
- REAL video: <http://www.simpleweb.org/tutorials/video/05-smi.zip>

Exercise 2: MIB Questions

In this exercise you have to retrieve certain MIB values to answer a number of questions.

To retrieve the requested values, you have to:

- Go to the MIB overview page at: <http://www.simpleweb.org/ietf/mibs/>
- Select the appropriate MIB module for that question and press “*Show*”
- Select from the list at the left side of the next web page the appropriate MIB object
- Select from the bottom-right side of the web page the device to test

The following questions should be answered:

1. When (day, hour & minute) was the last reset of (the management portion of) the 3Com hub?
2. How many Ethernet interfaces has the Cabletron router
3. What is the speed (in Mbps) of these interfaces?
4. How many octets have been received by the interface that received most octets?
5. What is the MAC address of this interface?
6. Draw a picture that shows how the various interfaces relate to each other (which interface is on top of which other)
7. What IP address belongs to that interface that received most octets?

References:

- Slides: <http://www.simpleweb.org/tutorials/slides.html>
- Podcast: <http://www.simpleweb.org/podcasts/tutorials/07-mibintro.m4v> or
- REAL video: <http://www.simpleweb.org/tutorials/video/07-mibintro.zip>

Exercise 3: SNMP questions

In this exercise you have to perform a number of SNMP operations on a demo MIB, and compare the results for the different versions of SNMP.

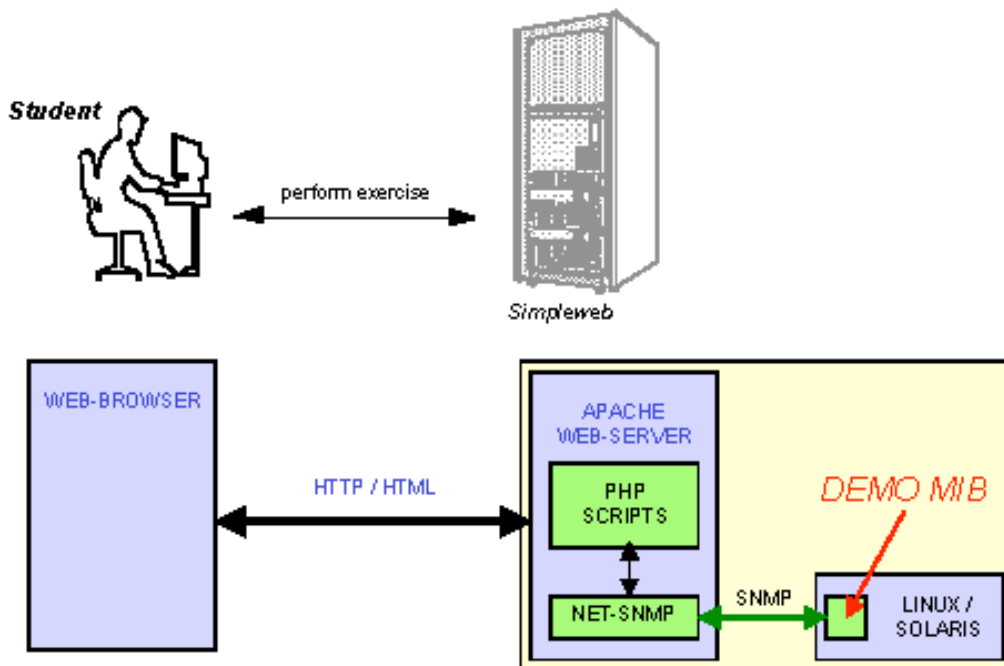
To answer these questions, you have to start from the following links:

- SNMPv1: <http://www.simpleweb.org/tutorials/demo/snmp/v1>
- SNMPv2C: <http://www.simpleweb.org/tutorials/demo/snmp/v2c/>
- SNMPv3: <http://www.simpleweb.org/tutorials/demo/snmp/v3/>
Security name = demo, MD5 key = abcdefghi, DES key = abcdefghi

The following questions should be answered:

1. Use snmpv1 and snmpv2 to perform a get operation on oid=7.1.
What are the results? Explain the difference!
2. Use snmpv1 pdu(s) to quickly download all route-table values.
Which type of pdu & which parameters do you use? Motivate!
How many requests do you need?
3. Use snmpv2 pdu(s) to quickly download all route-table values.
Which type of pdu & which parameters do you use? Motivate!
How many requests do you need?
4. Use snmpv3 pdu(s) to quickly download all route-table values.
Which pdus & parameters do you use? Motivate!
How many requests do you need?
5. Use snmpv1 and snmpv2 to perform a set operation on oid=7.2.1.0
What are the results? Explain the difference!
6. Use snmpv1 and snmpv2 to perform a set operation on oid=7.1.0
What are the results? Explain the difference!

The configuration for this exercise is showed below.



Exercise 4: ASN.1 Question

The following SNMP message has been captured:

```
30 29 02 01 00 04 06 70 75 62 6c 69 63 a0 1c 02 04 4f 89 fb dd
02 01 00 02 01 00 30 0e 30 0c 06 08 2b 06 01 02 01 01 05 00 05 00
```

Decode this message to find

1. the community string, the oid(s) etc.

References:

- RFC 3416: <http://www.simpleweb.org/ietf/rfc3416.txt>
Version 2 of the protocol operations for the simple network management protocol