



Project 1 - Using SNMP tools

MANAGING AND SECURING COMPUTER NETWORKS

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1 Retrieving variables manually

1.1 What is the system description (sysDescr) ?

We use the `snmpget` command which will get the value of the leaf "sysDescr" (1.3.6.1.2.1.1.0) on the OID tree.

```
snmpget hawk.run.montefiore.ulg.ac.be 1.3.6.1.2.1.1.0 -v 2c -c run69Zork!
```

This is the reply :

```
iso.3.6.1.2.1.1.0 = STRING: "Cisco Internetwork Operating System Software IOS
(tm) C2600 Software (C2600-IK803S-M), Version 12.2(11)T, RELEASE SOFTWARE (fc1)
TAC Support: http://www.cisco.com/tac Copyright (c) 1986-2002 by cisco Systems,
Inc. Compiled Thu 01-Aug-02 12:47 by cca"
```

1.2 Is IP forwarding enabled ?

In the same way we used `snmpget` previously, we get the value of the object "ipForwarding" (1.3.6.1.2.1.4.1.0).

```
snmpget hawk.run.montefiore.ulg.ac.be 1.3.6.1.2.1.4.1.0 -v 2c -c run69Zork!
```

This is the reply :

```
iso.3.6.1.2.1.4.1.0 = INTEGER: 1
```

The value 1 tells that the forwarding is active.¹

1.3 How many interfaces are present in that router ?

```
snmpget hawk.run.montefiore.ulg.ac.be 1.3.6.1.2.1.2.1.0 -v 2c -c run69Zork!
```

This is the reply :

```
iso.3.6.1.2.1.2.1.0 = INTEGER: 5
```

There are so 5 interfaces.

To get the informations about each entry, we use the `snmpwalk` command which will get the subtree from the OID node that is given to it, in our case `ifTable` (1.3.6.1.2.1.2.2) :

```
snmpwalk hawk.run.montefiore.ulg.ac.be 1.3.6.1.2.1.2.2 -v 2c -c run69Zork!
```

This is the reply :

```
iso.3.6.1.2.1.2.2.1.1.1 = INTEGER: 1
iso.3.6.1.2.1.2.2.1.1.2 = INTEGER: 2
iso.3.6.1.2.1.2.2.1.1.3 = INTEGER: 3
iso.3.6.1.2.1.2.2.1.1.4 = INTEGER: 4
iso.3.6.1.2.1.2.2.1.1.5 = INTEGER: 5
iso.3.6.1.2.1.2.2.1.2.1 = STRING: "FastEthernet0/0"
```

1. <http://tools.cisco.com/Support/SNMP/do/BrowseOID.do?local=en&translate=Translate&objectInput=1.3.6.1.2.1.4.1>

```

iso.3.6.1.2.1.2.2.1.2.2 = STRING: "Serial0/0"
iso.3.6.1.2.1.2.2.1.2.3 = STRING: "FastEthernet0/1"
iso.3.6.1.2.1.2.2.1.2.4 = STRING: "Serial0/1"
iso.3.6.1.2.1.2.2.1.2.5 = STRING: "Null0"
iso.3.6.1.2.1.2.2.1.3.1 = INTEGER: 6
iso.3.6.1.2.1.2.2.1.3.2 = INTEGER: 22
iso.3.6.1.2.1.2.2.1.3.3 = INTEGER: 6
iso.3.6.1.2.1.2.2.1.3.4 = INTEGER: 22
iso.3.6.1.2.1.2.2.1.3.5 = INTEGER: 1
iso.3.6.1.2.1.2.2.1.4.1 = INTEGER: 1500
iso.3.6.1.2.1.2.2.1.4.2 = INTEGER: 1500
iso.3.6.1.2.1.2.2.1.4.3 = INTEGER: 1500
iso.3.6.1.2.1.2.2.1.4.4 = INTEGER: 1500
iso.3.6.1.2.1.2.2.1.4.5 = INTEGER: 1500
iso.3.6.1.2.1.2.2.1.5.1 = Gauge32: 100000000
iso.3.6.1.2.1.2.2.1.5.2 = Gauge32: 40000000
iso.3.6.1.2.1.2.2.1.5.3 = Gauge32: 100000000
iso.3.6.1.2.1.2.2.1.5.4 = Gauge32: 1544000
iso.3.6.1.2.1.2.2.1.5.5 = Gauge32: 4294967295
iso.3.6.1.2.1.2.2.1.6.1 = Hex-STRING: 00 07 85 A8 83 20
iso.3.6.1.2.1.2.2.1.6.2 = ""
iso.3.6.1.2.1.2.2.1.6.3 = Hex-STRING: 00 07 85 A8 83 21
iso.3.6.1.2.1.2.2.1.6.4 = ""
iso.3.6.1.2.1.2.2.1.6.5 = ""
iso.3.6.1.2.1.2.2.1.7.1 = INTEGER: 1
iso.3.6.1.2.1.2.2.1.7.2 = INTEGER: 1
iso.3.6.1.2.1.2.2.1.7.3 = INTEGER: 1
iso.3.6.1.2.1.2.2.1.7.4 = INTEGER: 2
iso.3.6.1.2.1.2.2.1.7.5 = INTEGER: 1
iso.3.6.1.2.1.2.2.1.8.1 = INTEGER: 1
iso.3.6.1.2.1.2.2.1.8.2 = INTEGER: 1
iso.3.6.1.2.1.2.2.1.8.3 = INTEGER: 1
iso.3.6.1.2.1.2.2.1.8.4 = INTEGER: 2
iso.3.6.1.2.1.2.2.1.8.5 = INTEGER: 1
iso.3.6.1.2.1.2.2.1.9.1 = Timeticks: (3227) 0:00:32.27
iso.3.6.1.2.1.2.2.1.9.2 = Timeticks: (2928) 0:00:29.28
iso.3.6.1.2.1.2.2.1.9.3 = Timeticks: (3228) 0:00:32.28
iso.3.6.1.2.1.2.2.1.9.4 = Timeticks: (2769) 0:00:27.69
iso.3.6.1.2.1.2.2.1.9.5 = Timeticks: (0) 0:00:00.00
iso.3.6.1.2.1.2.2.1.10.1 = Counter32: 273891205
iso.3.6.1.2.1.2.2.1.10.2 = Counter32: 52262172
iso.3.6.1.2.1.2.2.1.10.3 = Counter32: 76235583
iso.3.6.1.2.1.2.2.1.10.4 = Counter32: 0
iso.3.6.1.2.1.2.2.1.10.5 = Counter32: 0
iso.3.6.1.2.1.2.2.1.11.1 = Counter32: 1684121
iso.3.6.1.2.1.2.2.1.11.2 = Counter32: 385624
iso.3.6.1.2.1.2.2.1.11.3 = Counter32: 468126
iso.3.6.1.2.1.2.2.1.11.4 = Counter32: 0
iso.3.6.1.2.1.2.2.1.11.5 = Counter32: 0

```

```
iso.3.6.1.2.1.2.2.1.12.1 = Counter32: 1869685
iso.3.6.1.2.1.2.2.1.12.2 = Counter32: 132715
iso.3.6.1.2.1.2.2.1.12.3 = Counter32: 136332
    iso.3.6.1.2.1.2.2.1.12.4 = Counter32: 0
    iso.3.6.1.2.1.2.2.1.12.5 = Counter32: 0
    iso.3.6.1.2.1.2.2.1.13.1 = Counter32: 0
    iso.3.6.1.2.1.2.2.1.13.2 = Counter32: 0
    iso.3.6.1.2.1.2.2.1.13.3 = Counter32: 0
    iso.3.6.1.2.1.2.2.1.13.4 = Counter32: 0
    iso.3.6.1.2.1.2.2.1.13.5 = Counter32: 0
    iso.3.6.1.2.1.2.2.1.14.1 = Counter32: 0
    iso.3.6.1.2.1.2.2.1.14.2 = Counter32: 1
    iso.3.6.1.2.1.2.2.1.14.3 = Counter32: 0
    iso.3.6.1.2.1.2.2.1.14.4 = Counter32: 0
    iso.3.6.1.2.1.2.2.1.14.5 = Counter32: 0
    iso.3.6.1.2.1.2.2.1.15.1 = Counter32: 0
    iso.3.6.1.2.1.2.2.1.15.2 = Counter32: 3
    iso.3.6.1.2.1.2.2.1.15.3 = Counter32: 0
    iso.3.6.1.2.1.2.2.1.15.4 = Counter32: 0
    iso.3.6.1.2.1.2.2.1.15.5 = Counter32: 0
iso.3.6.1.2.1.2.2.1.16.1 = Counter32: 143253584
iso.3.6.1.2.1.2.2.1.16.2 = Counter32: 54688364
iso.3.6.1.2.1.2.2.1.16.3 = Counter32: 112095835
    iso.3.6.1.2.1.2.2.1.16.4 = Counter32: 0
    iso.3.6.1.2.1.2.2.1.16.5 = Counter32: 0
iso.3.6.1.2.1.2.2.1.17.1 = Counter32: 1051186
iso.3.6.1.2.1.2.2.1.17.2 = Counter32: 702708
iso.3.6.1.2.1.2.2.1.17.3 = Counter32: 623349
    iso.3.6.1.2.1.2.2.1.17.4 = Counter32: 0
    iso.3.6.1.2.1.2.2.1.17.5 = Counter32: 0
iso.3.6.1.2.1.2.2.1.18.1 = Counter32: 272692
    iso.3.6.1.2.1.2.2.1.18.2 = Counter32: 0
iso.3.6.1.2.1.2.2.1.18.3 = Counter32: 443574
    iso.3.6.1.2.1.2.2.1.18.4 = Counter32: 0
    iso.3.6.1.2.1.2.2.1.18.5 = Counter32: 0
    iso.3.6.1.2.1.2.2.1.19.1 = Counter32: 0
    iso.3.6.1.2.1.2.2.1.19.2 = Counter32: 0
    iso.3.6.1.2.1.2.2.1.19.3 = Counter32: 0
    iso.3.6.1.2.1.2.2.1.19.4 = Counter32: 0
    iso.3.6.1.2.1.2.2.1.19.5 = Counter32: 0
    iso.3.6.1.2.1.2.2.1.20.1 = Counter32: 0
    iso.3.6.1.2.1.2.2.1.20.2 = Counter32: 0
    iso.3.6.1.2.1.2.2.1.20.3 = Counter32: 0
    iso.3.6.1.2.1.2.2.1.20.4 = Counter32: 0
    iso.3.6.1.2.1.2.2.1.20.5 = Counter32: 0
    iso.3.6.1.2.1.2.2.1.21.1 = Gauge32: 0
    iso.3.6.1.2.1.2.2.1.21.2 = Gauge32: 0
    iso.3.6.1.2.1.2.2.1.21.3 = Gauge32: 0
    iso.3.6.1.2.1.2.2.1.21.4 = Gauge32: 0
```

```
iso.3.6.1.2.1.2.2.1.21.5 = Gauge32: 0
iso.3.6.1.2.1.2.2.1.22.1 = OID: ccitt.0
iso.3.6.1.2.1.2.2.1.22.2 = OID: ccitt.0
iso.3.6.1.2.1.2.2.1.22.3 = OID: ccitt.0
iso.3.6.1.2.1.2.2.1.22.4 = OID: ccitt.0
iso.3.6.1.2.1.2.2.1.22.5 = OID: ccitt.0
```

1.4 What is the MAC address of FastEthernet0/0 ?

We saw that "FastEthernet0/0" is the number 1 entry in the table. Knowing that the MAC address is contained in "ifPhysAddress" (OID : 1.3.6.1.2.1.2.2.1.6), we can access the information using :

```
snmpget hawk.run.montefiore.ulg.ac.be 1.3.6.1.2.1.2.2.1.6.1 -v 2c -c run69Zork!
```

This is the reply :

```
iso.3.6.1.2.1.2.2.1.6.1 = Hex-STRING: 00 07 85 A8 83 20
```

1.5 What is the MTU of Serial0/1 ?

We saw that "Serial0/1" is the number 4 entry in the table. Knowing that the MTU is contained in "ifMtu" (OID : 1.3.6.1.2.1.2.2.1.4), we can access the information using :

```
snmpget hawk.run.montefiore.ulg.ac.be 1.3.6.1.2.1.2.2.1.4.1 -v 2c -c run69Zork!
```

This is the reply :

```
iso.3.6.1.2.1.2.2.1.4.1 = INTEGER: 1500
```

1.6 What is the default IP TTL ?

The information is contained in the "ipDefaultTTL" (OID : 1.3.6.1.2.1.4.2).

```
snmpget hawk.run.montefiore.ulg.ac.be 1.3.6.1.2.1.4.2.0 -v 2c -c run69Zork!
```

```
iso.3.6.1.2.1.4.2.0 = INTEGER: 255
```

The TTL is so of 255.

1.7 Set the default IP TTL to a different value

2 Retrieving variables from a script