

Laboratório 2 - Gerência de redes

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1 - Fazendo consultas a um equipamento local.

A)

```
xxxx@xxxx-370E4K:~$ snmpget -v 2c -c testepublic localhost RFC1213-MIB::sysContact.0
SNMPv2-MIB::sysContact.0 = STRING: "Roberto Coutinho"
```

B)

```
xxxx@xxxx-370E4K:~$ snmpget -v 2c -c testepublic localhost RFC1213-MIB::sysUpTime.0
DISMAN-EVENT-MIB::sysUpTimeInstance = Timeticks: (1503014) 4:10:30.14
```

C)

```
xxxx@xxxx-370E4K:~$ snmpget -v 2c -c testepublic localhost RFC1213-MIB::sysName.0
SNMPv2-MIB::sysName.0 = STRING: xxxx-370E4K
```

D)

```
xxxx@xxxx-370E4K:~$ snmpget -v 2c -c testepublic localhost RFC1213-MIB::ifNumber.0
IF-MIB::ifNumber.0 = INTEGER: 3
```

2 - Variações na forma como o resultado da consulta é mostrado.

A)

```
xxxx@xxxx-370E4K:~$ snmpget -v 2c -c testepublic localhost RFC1213-MIB::ifInOctets.2
IF-MIB::ifInOctets.2 = Counter32: 0
```

B)

```
xxxx@xxxx-370E4K:~$ snmpget -Of -v 2c -c testepublic localhost RFC1213-MIB::ifInOctets.2
.iso.org.dod.internet.mgmt.mib-2.interfaces.ifTable.ifEntry.ifInOctets.2 = Counter32: 0
```

C)

```
xxxx@xxxx-370E4K:~$ snmpget -On -v 2c -c testepublic localhost RFC1213-MIB::ifInOctets.2
.1.3.6.1.2.1.2.2.1.10.2 = Counter32: 0
```

D)

```
xxxx@xxxx-370E4K:~$ snmpget -Oqn -v 2c -c testepublic localhost RFC1213-MIB::ifInOctets.2
.1.3.6.1.2.1.2.2.1.10.2 0
```

E)

```
xxxx@xxxx-370E4K:~$ snmpget -Ov -v 2c -c testepublic localhost RFC1213-MIB::ifInOctets.2
Counter32: 0
```

3 - Consultas avançadas ao host local.

A)

```
xxxx@xxxx-370E4K:~$ snmpget -v 2c -c testepublic localhost RFC1213-MIB::sysContact.0
SNMPv2-MIB::sysContact.0 = STRING: "Roberto Coutinho"
```

B)

```
xxxx@xxxx-370E4K:~$ snmpget -v 2c -c testepublic localhost RFC1213-MIB::sysUpTime.0
DISMAN-EVENT-MIB::sysUpTimeInstance = Timeticks: (1682392) 4:40:23.92
```

C)

```
xxxx@xxxx-370E4K:~$ snmpget -v 2c -c testepublic localhost RFC1213-MIB::sysName.0
SNMPv2-MIB::sysName.0 = STRING: xxxx-370E4K
```

D)

```
xxxx@xxxx-370E4K:~$ snmpget -v 2c -c testepublic localhost memTotalReal.0
UCD-SNMP-MIB::memTotalReal.0 = INTEGER: 3910768 kB
```

E)

```
xxxx@xxxx-370E4K:~$ snmpget -v 2c -c testepublic localhost memAvailReal.0
UCD-SNMP-MIB::memAvailReal.0 = INTEGER: 145844 kB
```

F)

```
xxxx@xxxx-370E4K:~$ while true
> do
> snmpget -v 2c -c testepublic localhost memAvailReal.0
> sleep 2
> done
UCD-SNMP-MIB::memAvailReal.0 = INTEGER: 234312 kB
UCD-SNMP-MIB::memAvailReal.0 = INTEGER: 234312 kB
UCD-SNMP-MIB::memAvailReal.0 = INTEGER: 234312 kB
UCD-SNMP-MIB::memAvailReal.0 = INTEGER: 245056 kB
UCD-SNMP-MIB::memAvailReal.0 = INTEGER: 245056 kB
UCD-SNMP-MIB::memAvailReal.0 = INTEGER: 245056 kB
UCD-SNMP-MIB::memAvailReal.0 = INTEGER: 245056 kB
UCD-SNMP-MIB::memAvailReal.0 = INTEGER: 244896 kB
UCD-SNMP-MIB::memAvailReal.0 = INTEGER: 244896 kB
```

G)

```
xxxx@xxxx-370E4K:~$ snmpget -v 2c -c testepublic localhost dskTotal.1
UCD-SNMP-MIB::dskTotal.1 = INTEGER: 309222004
```

H)

```
xxxx@xxxx-370E4K:~$ snmpget -v 2c -c testepublic localhost dskUsed.1
UCD-SNMP-MIB::dskUsed.1 = INTEGER: 267022524
```

I)

```
xxxx@xxxx-370E4K:~$ snmpget -v 2c -c testepublic localhost dskAvail.1
UCD-SNMP-MIB::dskAvail.1 = INTEGER: 26418596
```

J)

```
xxxx@xxxx-370E4K:~$ snmpget -v 2c -c testepublic localhost dskPercent.1
UCD-SNMP-MIB::dskPercent.1 = INTEGER: 86
```

K)

```
xxxx@xxxx-370E4K:~$ df /
Sist. Arq.      Blocos de 1K      Usado Disponível Uso% Montado em
/dev/sda7        309222004 267022648   26418492   91% /
xxxx@xxxx-370E4K:~$
```

O tamanho total do disco foi o mesmo em ambos os comando, porém o percentual de ocupação do disco teve um diferença de 5% entre os comandos.

4 - Consulta a um host remoto

A)

```
xxxx@xxxx-370E4K:~$ snmpget -v 2c -c testepublic 192.168.1.4 RFC1213-MIB::sysContact.0
SNMPv2-MIB::sysContact.0 = STRING: teste2
```

B)

```
xxxx@xxxx-370E4K:~$ snmpget -v 2c -c testepublic 192.168.1.4 RFC1213-MIB::sysUpTime.0
DISMAN-EVENT-MIB::sysUpTimeInstance = Timeticks: (12753) 0:02:07.53
```

C)

```
xxxx@xxxx-370E4K:~$ snmpget -v 2c -c testepublic 192.168.1.4 RFC1213-MIB::sysName.0
SNMPv2-MIB::sysName.0 = STRING: SUPTOPCON-021.topsys.com
```

D)

```
xxxx@xxxx-370E4K:~$ snmpget -v 2c -c testepublic 192.168.1.4 RFC1213-MIB::ifNumber.0
IF-MIB::ifNumber.0 = INTEGER: 53
```

E)

```
xxxx@xxxx-370E4K:~$ snmpget -v 2c -c testepublic 192.168.1.4 RFC1213-MIB::ifType.1
IF-MIB::ifType.1 = INTEGER: softwareLoopback(24)
```

F)

```
xxxx@xxxx-370E4K:~$ snmpget -v 2c -c testepublic 192.168.1.4 RFC1213-MIB::ifType.2
IF-MIB::ifType.2 = INTEGER: tunnel(131)
xxxx@xxxx-370E4K:~$ snmpget -v 2c -c testepublic 192.168.1.4 RFC1213-MIB::ifType.3
IF-MIB::ifType.3 = INTEGER: tunnel(131)
xxxx@xxxx-370E4K:~$ snmpget -v 2c -c testepublic 192.168.1.4 RFC1213-MIB::ifType.4
IF-MIB::ifType.4 = INTEGER: ieee80211(71)
```

G)

```
xxxx@xxxx-370E4K:~$ snmpget -v 2c -c testepublic 192.168.1.4 RFC1213-MIB::ifDescr.1
IF-MIB::ifDescr.1 = STRING: Software Loopback Interface 1.
xxxx@xxxx-370E4K:~$ snmpget -v 2c -c testepublic 192.168.1.4 RFC1213-MIB::ifDescr.2
IF-MIB::ifDescr.2 = STRING: Microsoft 6to4 Adapter.
```

H)

```
xxxx@xxxx-370E4K:~$ snmpwalk -v 2c -c testepublic 192.168.1.4 RFC1213-MIB::ifDescr
IF-MIB::ifDescr.1 = STRING: Software Loopback Interface 1.
IF-MIB::ifDescr.2 = STRING: Microsoft 6to4 Adapter.
IF-MIB::ifDescr.3 = STRING: WAN Miniport (PPTP).
IF-MIB::ifDescr.4 = STRING: Microsoft Wi-Fi Direct Virtual Adapter.
IF-MIB::ifDescr.5 = STRING: Bluetooth Device (Personal Area Network).
IF-MIB::ifDescr.6 = STRING: WAN Miniport (SSTP).
IF-MIB::ifDescr.7 = STRING: WAN Miniport (IKEv2).
IF-MIB::ifDescr.8 = STRING: Microsoft IP-HTTPS Platform Adapter.
IF-MIB::ifDescr.9 = STRING: WAN Miniport (IPv6).
IF-MIB::ifDescr.10 = STRING: WAN Miniport (Network Monitor).
IF-MIB::ifDescr.11 = STRING: VirtualBox Host-Only Ethernet Adapter.
IF-MIB::ifDescr.12 = STRING: Microsoft Teredo Tunneling Adapter.
IF-MIB::ifDescr.13 = STRING: WAN Miniport (IP).
IF-MIB::ifDescr.14 = STRING: Microsoft Wi-Fi Direct Virtual Adapter #2.
IF-MIB::ifDescr.15 = STRING: Intel(R) Wireless-AC 9462.
IF-MIB::ifDescr.16 = STRING: TAP-Windows Adapter V9 for OpenVPN Connect.
IF-MIB::ifDescr.17 = STRING: WAN Miniport (PPPOE).
IF-MIB::ifDescr.18 = STRING: Realtek PCIe GbE Family Controller.
IF-MIB::ifDescr.19 = STRING: WAN Miniport (L2TP).
IF-MIB::ifDescr.20 = STRING: Microsoft Kernel Debug Network Adapter.
IF-MIB::ifDescr.21 = STRING: VirtualBox Host-Only Ethernet Adapter-WFP Native MAC Layer LightWeight Filter-0000.
IF-MIB::ifDescr.22 = STRING: VirtualBox Host-Only Ethernet Adapter-QoS Packet Scheduler-0000.
IF-MIB::ifDescr.23 = STRING: VirtualBox Host-Only Ethernet Adapter-WFP 802.3 MAC Layer LightWeight Filter-0000.
IF-MIB::ifDescr.24 = STRING: TAP-Windows Adapter V9 for OpenVPN Connect-WFP Native MAC Layer LightWeight Filter-0000.
IF-MIB::ifDescr.25 = STRING: TAP-Windows Adapter V9 for OpenVPN Connect-VirtualBox NDIS Light-Weight Filter-0000.
IF-MIB::ifDescr.26 = STRING: TAP-Windows Adapter V9 for OpenVPN Connect-QoS Packet Scheduler-0000.
IF-MIB::ifDescr.27 = STRING: TAP-Windows Adapter V9 for OpenVPN Connect-WFP 802.3 MAC Layer LightWeight Filter-0000.
IF-MIB::ifDescr.28 = STRING: Realtek PCIe GbE Family Controller-WFP Native MAC Layer LightWeight Filter-0000.
IF-MIB::ifDescr.29 = STRING: Realtek PCIe GbE Family Controller-VirtualBox NDIS Light-Weight Filter-0000.
IF-MIB::ifDescr.30 = STRING: Realtek PCIe GbE Family Controller-QoS Packet Scheduler-0000.
IF-MIB::ifDescr.31 = STRING: Realtek PCIe GbE Family Controller-WFP 802.3 MAC Layer LightWeight Filter-0000.
IF-MIB::ifDescr.32 = STRING: Intel(R) Wireless-AC 9462-WFP Native MAC Layer LightWeight Filter-0000.
IF-MIB::ifDescr.33 = STRING: Intel(R) Wireless-AC 9462-Virtual WiFi Filter Driver-0000.
IF-MIB::ifDescr.34 = STRING: Intel(R) Wireless-AC 9462-Native WiFi Filter Driver-0000.
IF-MIB::ifDescr.35 = STRING: Intel(R) Wireless-AC 9462-VirtualBox NDIS Light-Weight Filter-0000.
```

I)

```
xxxx@xxxx-370E4K:~$ snmpget -v 2c -c testepublic 192.168.1.4 RFC1213-MIB::ifOutOctets.2
IF-MIB::ifOutOctets.2 = Counter32: 0
```

J)

```
xxxx@xxxx-370E4K:~$ snmpget -v 2c -c testepublic 192.168.1.4 RFC1213-MIB::ifInOctets.2
IF-MIB::ifInOctets.2 = Counter32: 0
```

K)

```
xxxx@xxx-370E4K:~$ snmpwalk -v 2c -c testepublic 192.168.1.4 RFC1213-MIB::ifSpeed
IF-MIB::ifSpeed.1 = Gauge32: 1073741824
IF-MIB::ifSpeed.2 = Gauge32: 0
IF-MIB::ifSpeed.3 = Gauge32: 0
IF-MIB::ifSpeed.4 = Gauge32: 0
IF-MIB::ifSpeed.5 = Gauge32: 0
IF-MIB::ifSpeed.6 = Gauge32: 0
IF-MIB::ifSpeed.7 = Gauge32: 0
IF-MIB::ifSpeed.8 = Gauge32: 0
IF-MIB::ifSpeed.9 = Gauge32: 0
IF-MIB::ifSpeed.10 = Gauge32: 0
IF-MIB::ifSpeed.11 = Gauge32: 1000000000
IF-MIB::ifSpeed.12 = Gauge32: 0
IF-MIB::ifSpeed.13 = Gauge32: 0
IF-MIB::ifSpeed.14 = Gauge32: 0
IF-MIB::ifSpeed.15 = Gauge32: 72200000
IF-MIB::ifSpeed.16 = Gauge32: 1000000000
IF-MIB::ifSpeed.17 = Gauge32: 0
IF-MIB::ifSpeed.18 = Gauge32: 0
IF-MIB::ifSpeed.19 = Gauge32: 0
IF-MIB::ifSpeed.20 = Gauge32: 0
IF-MIB::ifSpeed.21 = Gauge32: 1000000000
IF-MIB::ifSpeed.22 = Gauge32: 1000000000
IF-MIB::ifSpeed.23 = Gauge32: 1000000000
IF-MIB::ifSpeed.24 = Gauge32: 1000000000
IF-MIB::ifSpeed.25 = Gauge32: 1000000000
IF-MIB::ifSpeed.26 = Gauge32: 1000000000
IF-MIB::ifSpeed.27 = Gauge32: 1000000000
IF-MIB::ifSpeed.28 = Gauge32: 0
IF-MIB::ifSpeed.29 = Gauge32: 0
IF-MIB::ifSpeed.30 = Gauge32: 0
IF-MIB::ifSpeed.31 = Gauge32: 0
IF-MIB::ifSpeed.32 = Gauge32: 72200000
IF-MIB::ifSpeed.33 = Gauge32: 72200000
IF-MIB::ifSpeed.34 = Gauge32: 72200000
IF-MIB::ifSpeed.35 = Gauge32: 72200000
```

5 - Consultando tabelas da MIB

A)

```

xxxx@xxxx-370E4K:~$ snmpwalk -v 2c -c testepublic -Os localhost sysORTable
SNMP table: sysORTable

      sysORID                                     sysORDescr  sysORUpTime
snmpFrameworkMIBCompliance                      The SNMP Management Architecture MIB. 0:0:00:00:07
  snmpMPDCompliance                             The MIB for Message Processing and Dispatching. 0:0:00:00:07
    usmMIBCompliance The management information definitions for the SNMP User-based Security Model. 0:0:00:00:07
      snmpMIB                                     The MIB module for SNMPv2 entities 0:0:00:00:07
        vacmBasicGroup View-based Access Control Model for SNMP. 0:0:00:00:07
          tcpMIB                                  The MIB module for managing TCP implementations 0:0:00:00:07
            ip                                    The MIB module for managing IP and ICMP implementations 0:0:00:00:07
              udpMIB                             The MIB module for managing UDP implementations 0:0:00:00:07
                snmpNotifyFullCompliance The MIB modules for managing SNMP Notification, plus filtering. 0:0:00:00:07
                  notificationLogMIB          The MIB module for logging SNMP Notifications. 0:0:00:00:07

```

B)

```
xxxx@xxx-370E4K:~$ snmptable -v 2c -c testepublic -Os -Cw 70 localhost sysORTable
SNMP table: sysORTable
```

```

sysORID
snmpFrameworkMIBCompliance
    snmpMPDCompliance
        usmMIBCompliance
            snmpMIB
                vacmBasicGroup
                    tcpMIB
                        ip
                            udpMIB
                                snmpNotifyFullCompliance
                                    notificationLogMIB

```

SNMP table sysORTable, part 2

	sysORDescr
	The SNMP Management Architecture MIB.
	The MIB for Message Processing and Dispatching.
The management information definitions for the SNMP User-based Security Model.	
	The MIB module for SNMPv2 entities
	View-based Access Control Model for SNMP.
	The MIB module for managing TCP implementations
The MIB module for managing IP and ICMP implementations	
	The MIB module for managing UDP implementations
The MIB modules for managing SNMP Notification, plus filtering.	
	The MIB module for logging SNMP Notifications.

SNMP table sysORTable, part 3

[illegible]

C)

```
xxxx@xxxx-370E4K:~$ snmptable -v 2c -c testepublic -Os -Cw 70 -Ci localhost sysORTable
SNMP table: sysORTable
```

index	sysORID
1	snmpFrameworkMIBCompliance
2	snmpMPDCompliance
3	usmMIBCompliance
4	snmpMIB
5	vacmBasicGroup
6	tcpMIB
7	ip
8	udpMIB
9	snmpNotifyFullCompliance
10	notificationLogMIB

SNMP table sysORTable, part 2

index	sysORDescr
1	The SNMP Management Architecture MIB.
2	The MIB for Message Processing and Dispatching.
3	The management information definitions for the SNMP User-based Security Model.
4	The MIB module for SNMPv2 entities
5	View-based Access Control Model for SNMP.
6	The MIB module for managing TCP implementations
7	The MIB module for managing IP and ICMP implementations
8	The MIB module for managing UDP implementations
9	The MIB modules for managing SNMP Notification, plus filtering.
10	The MIB module for logging SNMP Notifications.

SNMP table sysORTable, part 3

index	sysORUpTime
1	0:0:00:00.07
2	0:0:00:00.07
3	0:0:00:00.07
4	0:0:00:00.07
5	0:0:00:00.07
6	0:0:00:00.07
7	0:0:00:00.07
8	0:0:00:00.07
9	0:0:00:00.07
10	0:0:00:00.07

6 - Consultas a descrição da MIB

A)

```
xxxx@xxxx-370E4K:~$ snmptranslate -On -IR sysUpTime
.1.3.6.1.2.1.1.3
xxxx@xxxx-370E4K:~$
```

B)

```
xxxx@xxxx-370E4K:~$ snmptranslate -Of -IR sysUpTime
.iso.org.dod.internet.mgmt.mib-2.system.sysUpTime
xxxx@xxxx-370E4K:~$
```

C)

```
xxxx@xxxx-370E4K:~$ snmptranslate -On -Td -Ib sysUpTime
.1.3.6.1.2.1.1.3
sysUpTime OBJECT-TYPE
    -- FROM          SNMPv2-MIB
    SYNTAX            TimeTicks
    MAX-ACCESS        read-only
    STATUS            current
    DESCRIPTION       "The time (in hundredths of a second) since the
                        network management portion of the system was last
                        re-initialized."
 ::= { iso(1) org(3) dod(6) internet(1) mgmt(2) mib-2(1) system(1) 3 }
```

D)

```
xxxx@xxxx-370E4K:~$ snmptranslate -On -Td -Ib ifInOctets
.1.3.6.1.2.1.2.2.1.10
ifInOctets OBJECT-TYPE
    -- FROM          IF-MIB
    SYNTAX            Counter32
    MAX-ACCESS        read-only
    STATUS            current
    DESCRIPTION       "The total number of octets received on the interface,
                        including framing characters.

                        Discontinuities in the value of this counter can occur at
                        re-initialization of the management system, and at other
                        times as indicated by the value of
                        ifCounterDiscontinuityTime."
 ::= { iso(1) org(3) dod(6) internet(1) mgmt(2) mib-2(1) interfaces(2) ifTable(2) ifEntry(1) 10 }
```

```
xxxx@xxxx-370E4K:~$ snmptranslate -On -Td -Ib ifOutOctets
.1.3.6.1.2.1.2.2.1.16
ifOutOctets OBJECT-TYPE
    -- FROM          IF-MIB
    SYNTAX            Counter32
    MAX-ACCESS        read-only
    STATUS            current
    DESCRIPTION       "The total number of octets transmitted out of the
                        interface, including framing characters.

                        Discontinuities in the value of this counter can occur at
                        re-initialization of the management system, and at other
                        times as indicated by the value of
                        ifCounterDiscontinuityTime."
 ::= { iso(1) org(3) dod(6) internet(1) mgmt(2) mib-2(1) interfaces(2) ifTable(2) ifEntry(1) 16 }
```

```
xxxx@xxxx-370E4K:~$ snmptranslate -On -Td -Ib ifSpeed
.1.3.6.1.2.1.2.2.1.5
ifSpeed OBJECT-TYPE
    -- FROM          IF-MIB
    SYNTAX            Gauge32
    MAX-ACCESS        read-only
    STATUS            current
    DESCRIPTION       "An estimate of the interface's current bandwidth in bits
                        per second. For interfaces which do not vary in bandwidth
                        or for those where no accurate estimation can be made, this
                        object should contain the nominal bandwidth. If the
                        bandwidth of the interface is greater than the maximum value
                        reportable by this object then this object should report its
                        maximum value (4,294,967,295) and ifHighSpeed must be used
                        to report the interface's speed. For a sub-layer which has
                        no concept of bandwidth, this object should be zero."
 ::= { iso(1) org(3) dod(6) internet(1) mgmt(2) mib-2(1) interfaces(2) ifTable(2) ifEntry(1) 5 }
```



```

xxxx@xxxx-370E4K:~$ snmptranslate -On -Id -Ib iftype
.1.3.6.1.2.1.2.2.1.3
ifType OBJECT-TYPE
-- FROM IF-MIB
-- TEXTUAL CONVENTION IANAifType
SYNTAX INTEGER {other(1), regular1822(2), hdh1822(3), ddnX25(4), rfc87X25(5), ethernetCsmacd(6), iso88023Csmacd(7), iso88024TokenBus(8), iso88025TokenRing(9), iso88026Man(10), starLan(11), proteon10Mbit(12), proteon80Mbit(13), hyperchannel(14), fddi(15), lapb(16), sdlc(17), ds1(18), e1(19), basicISDN(20), primaryISDN(21), propPointToPointSerial(22), ppp(23), softwareLoopback(24), eon(25), ethernet3Mbit(26), nsip(27), slip(28), ultra(29), ds3(30), sip(31), frameRelay(32), rs232(33), para(34), arcnet(35), arcnetPlus(36), atm(37), miox25(38), sonet(39), x25ple(40), iso88022llc(41), localTalk(42), smdsDxi(43), frameRelayService(44), v35(45), hssi(46), hippi(47), modem(48), aal5(49), sonetPath(50), sonetVT(51), smdsIcip(52), propVirtual(53), propMultiplexor(54), ieee80212(55), fibreChannel(56), hippiInterface(57), frameRelayInterconnect(58), aplane8023(59), aplane8025(60), cctEmul(61), fastEther(62), isdn(63), v11(64), v36(65), g703at64k(66), g703at2mb(67), qlc(68), fastEtherFX(69), channel(70), ieee80211(71), lbn370parChan(72), escon(73), dlsW(74), isdns(75), isdnu(76), lapd(77), ipSwitch(78), rsrb(79), atmLogical(80), ds0(81), ds0Bundle(82), bsc(83), async(84), cnr(85), iso88025Dtr(86), eplrs(87), arap(88), propCnls(89), hostPad(90), termPad(91), frameRelayMPI(92), x213(93), adsl(94), radsl(95), sdsl(96), vdsl(97), iso88025CRFInt(98), myrinet(99), voiceEM(100), voiceFX0(101), voiceFXS(102), voiceEncap(103), voiceOverIp(104), atmDxi(105), atmFuni(106), atmIma(107), ppPmultilinkBundle(108), ipOverCdlc(109), ipOverClaw(110), stackToStack(111), virtualIpAddress(112), mpc(113), ipOverAtm(114), iso88025Fiber(115), tdlc(116), gigabitEthernet(117), hdlc(118), lapf(119), v37(120), x25mlp(121), x25huntGroup(122), transpHdlc(123), interleave(124), fast(125), ip(126), docsCableMacLayer(127), docsCableUpstream(128), docsCableUpstream(129), a12MppSwitch(130), tunnel(131), coffee(132), ces(133), atmSubInterface(134), l2vlan(135), l3ipvlan(136), l3ipxvlan(137), digitalPowerline(138), mediaMailOverIp(139), dtm(140), dcn(141), ipForward(142), msdsl(143), ieee1394(144), ifGsn(145), dvbRccMacLayer(146), dvbRccDownstream(147), dvbRccUpstream(148), atmVirtual(149), mplsTunnel(150), srp(151), voiceOverAtm(152), voiceOverFrameRelay(153), idsl(154), compositeLink(155), ss7SigLink(156), propWirelessP2P(157), frForward(158), rfc1483(159), usb(160), ieee8023adLag(161), bgppolicyAccounting(162), frf16MfrBundle(163), h323Gatekeeper(164), h323Proxy(165), mpls(166), mfsigLink(167), hds12(168), shdsl(169), ds1FDL(170), pos(171), dvbAsiIn(172), dvbAsiOut(173), plc(174), nfas(175), tr008(176), gr303RDT(177), gr303IDT(178), isup(179), propDocsWirelessMacLayer(180), propDocsWirelessDownstream(181), propDocsWirelessUpstream(182), hiperlan2(183), propBWA2Mp(184), sonetOverheadChannel(185), digitalWrapperOverheadChannel(186), aal2(187), radioMAC(188), atmRadio(189), int(190), mvl(191), reachDSL(192), frDlciEndPt(193), atmVclEndPt(194), opticalChannel(195), opticalTransport(196), propAtm(197), voiceOverCable(198), infiniband(199), telink(200), q2931(201), virtualTg(202), sipTg(203), sipSig(204), docsCableUpstreamChannel(205), econet(206), pon155(207), pon622(208), bridge(209), linegroup(210), voiceEMFGD(211), voiceFGDEANA(212), voiceDID(213), mpegTransport(214), stxToFour(215), gtp(216), pdnEtherLoop1(217), pdnEtherLoop2(218), opticalChannelGroup(219), homepna(220), gfp(221), ciscoISLvlan(222), actelisMetaLOOP(223), fcipLink(224), rpr(225), qam(226), lmp(227), cblVectaStar(228), docsCableMcntsDownstream(229), adsl2(230), macSecControlledIF(231), macSecUncontrolledIF(232), aviciOpticalEther(233), atmBond(234), voiceFGDOS(235), mocaVersion1(236), ieee80216WMAN(237), adsl2plus(238), dvbRcsMacLayer(239), dvbTdm(240), dvbRcsTdma(241), x86Laps(242), wwanPP(243), wwanPP2(244), voiceEBS(245), ifPwType(246), ilan(247), pip(248), aluELP(249), gpon(250), vdsl2(251), capwapDot11Profile(252), capwapDot11Bss(253), capwapHtpVirtualRadio(254), bits(255), docsCableUpstreamRfPort(256), cableDownstreamRfPort(257), vmwareVirtualNic(258), ieee802154(259), otnOdu(260), otnOtu(261), ifVfType(262), g9981(263), g9982(264), g9983(265), aluEpon(266), aluEponOnu(267), aluEponPhysicalUni(268), aluEponLogicalLink(269), aluEponOnu(270), vmwareNicTeam(272), docsOfdmDownstream(277), docsOfdmUpstream(278), gfast(279), sdci(280), xboxWireless(281), fastdsl(282)}
), gfast(279), sdci(280), xboxWireless(281), fastdsl(282)}
MAX-ACCESS read-only
STATUS current
DESCRIPTION "The type of interface. Additional values for ifType are assigned by the Internet Assigned Numbers Authority (IANA), through updating the syntax of the IANAifType textual convention."
 ::= { iso(1) org(3) dod(6) internet(1) mgmt(2) mib-2(1) interfaces(2) ifTable(2) ifEntry(1) 3 }
xxxx@xxxx-370E4K:~$

```

E)

```

xxxx@xxxx-370E4K:~$ snmptranslate -Tp -IR system
+--system(1)
|
+-- -R-- String sysDescr(1)
|
|   Textual Convention: DisplayString
|   Size: 0..255
+-- -R-- ObjID sysObjectID(2)
+-- -R-- TimeTicks sysUpTime(3)
|
|   |
|   +--sysUpTimeInstance(0)
|
+-- -RW- String sysContact(4)
|
|   Textual Convention: DisplayString
|   Size: 0..255
+-- -RW- String sysName(5)
|
|   Textual Convention: DisplayString
|   Size: 0..255
+-- -RW- String sysLocation(6)
|
|   Textual Convention: DisplayString
|   Size: 0..255
+-- -R-- INTEGER sysServices(7)
|
|   Range: 0..127
+-- -R-- TimeTicks sysORLastChange(8)
|
|   Textual Convention: TimeStamp
|

```

```

+--sysORTable(9)
|
+--sysOREntry(1)
|   Index: sysORIndex
|
+-- -R-- INTEGER    sysORIndex(1)
|           Range: 1..2147483647
+-- -R-- ObjID      sysORID(2)
+-- -R-- String      sysORDescr(3)
|           Textual Convention: DisplayString
|           Size: 0..255
+-- -R-- TimeTicks  sysORUpTime(4)
|           Textual Convention: TimeStamp

```

```

xxxx@xxx-370E4K:~$ snmptranslate -Tp -IR iso | more
+--iso(1)
|
+--org(3)
|
+--dod(6)
|
+--internet(1)
|
+--directory(1)
|
+--mgmt(2)
|   |
|   +--mib-2(1)
|   |   |
|   |   +--system(1)
|   |   |   |
|   |   |   +-- -R-- String    sysDescr(1)
|   |   |   |           Textual Convention: DisplayString
|   |   |   |           Size: 0..255
|   |   |   +-- -R-- ObjID     sysObjectID(2)
|   |   |   +-- -R-- TimeTicks sysUpTime(3)
|   |   |   |   |
|   |   |   |   +--sysUpTimeInstance(0)
|   |   |   |
|   |   |   +-- -RW- String     sysContact(4)
|   |   |   |           Textual Convention: DisplayString
|   |   |   |           Size: 0..255
|   |   |   +-- -RW- String     sysName(5)
|   |   |   |           Textual Convention: DisplayString
|   |   |   |           Size: 0..255
|   |   |   +-- -RW- String     sysLocation(6)
|   |   |   |           Textual Convention: DisplayString
|   |   |   |           Size: 0..255
|   |   |   +-- -R-- INTEGER    sysServices(7)
|   |   |           Range: 0..127

```