

CH5 Administration centralisée

Problème physique

- L'administrateur a un poste de travail
 - Parfois pour plusieurs sites
 - Une salle de serveurs est bruyante
 - Machines sans interface (ex: routeur)

Solutions

- Telnet / SSH
- VNC, Remote desktop, ...
- Remote virtualization
- Microsoft / Windows
- Mac
- Standard SNMP

SNMP - Idées

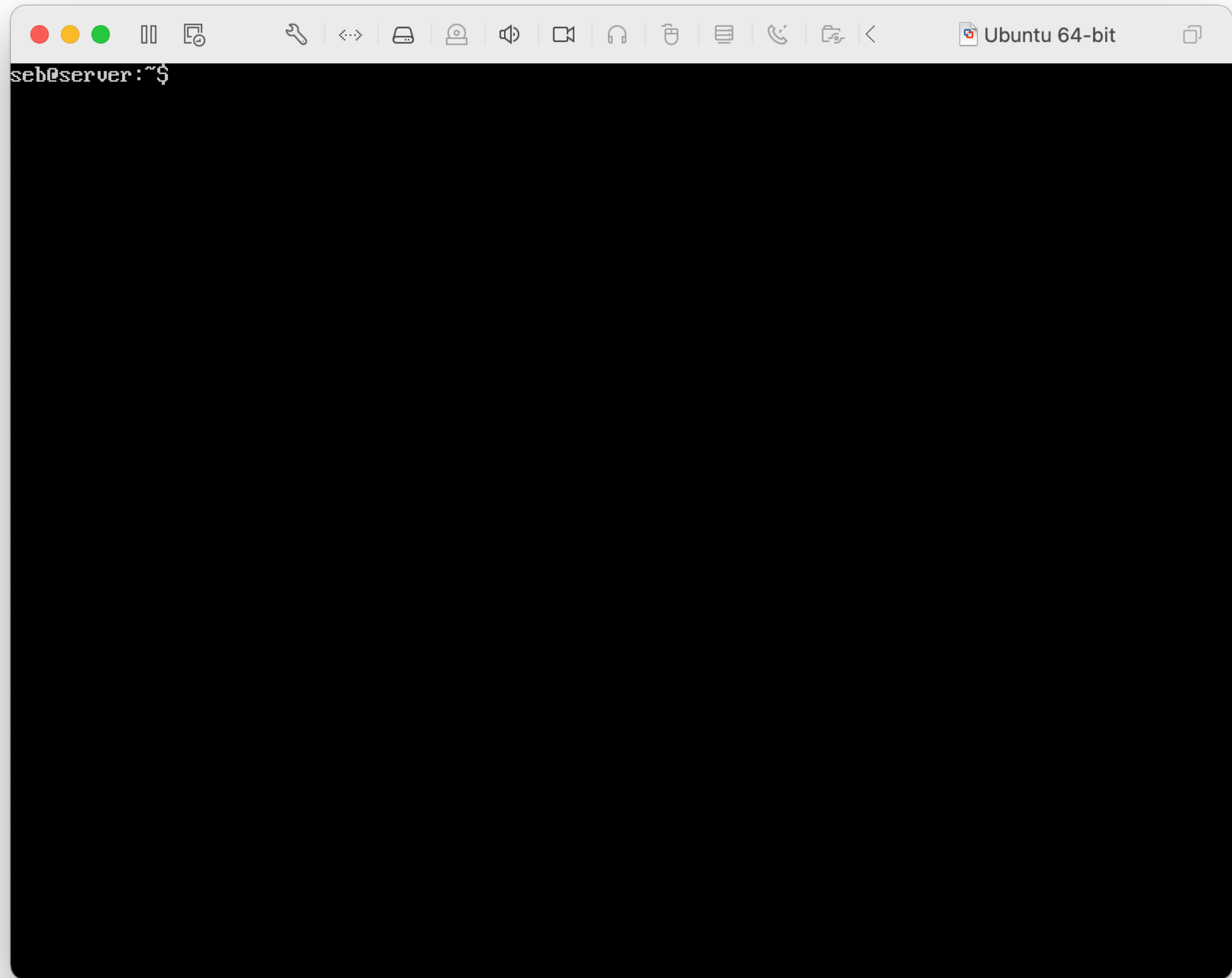
- Regrouper l'information de façon standardisée
- Eviter d'avoir à définir des interfaces (shells, web)
- Pouvoir faire des requêtes sur tout un parc
- Extensible
- Notifications / alarmes

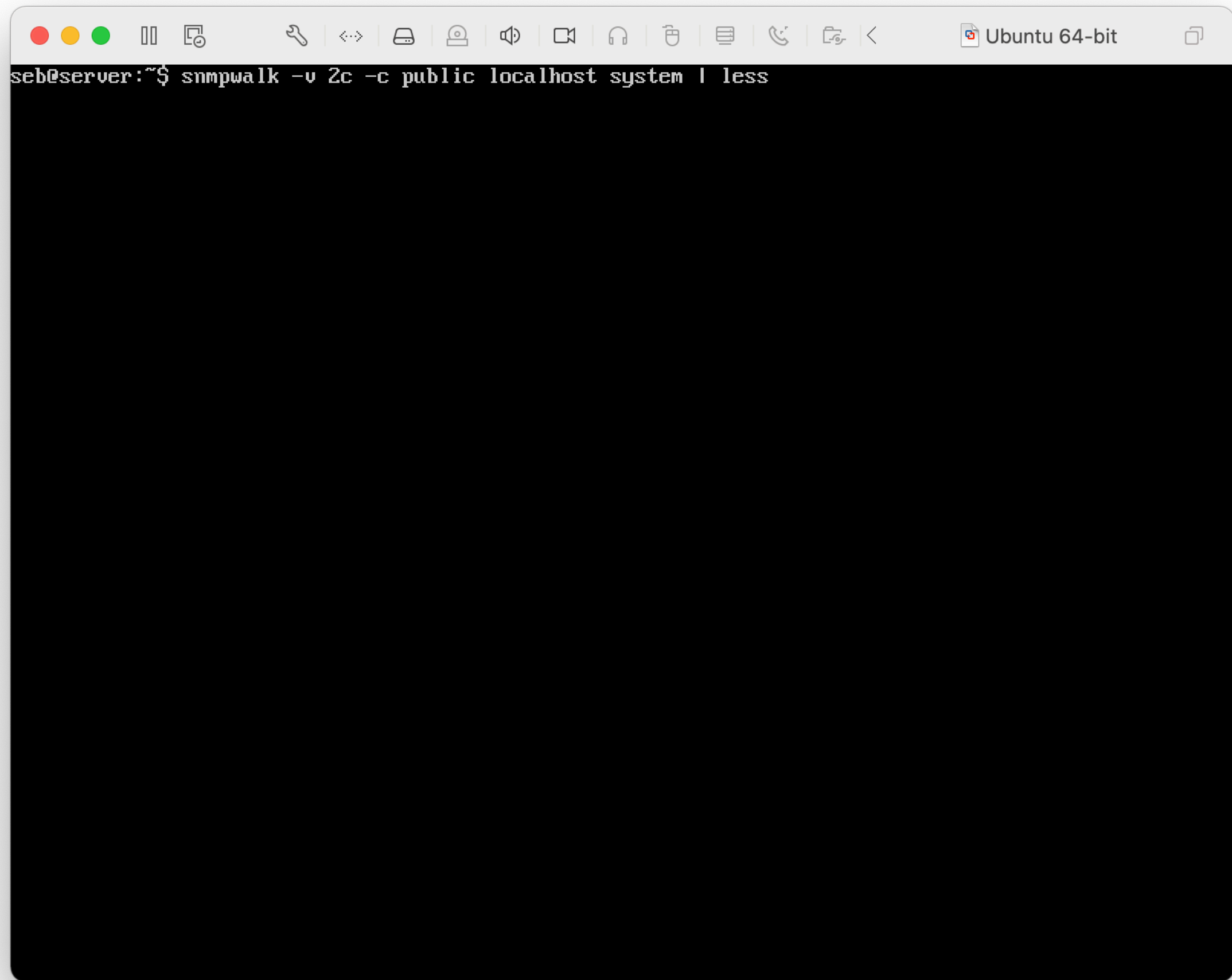
Mais PAS...

- de jolie interface graphique
 - voir outils auxiliaires (collecte, statistiques, présentation)
 - souvent combiné
- de gestion des commandes: on interagit qu'avec des variables

Demo

- `snmpwalk -v 2c -c public localhost system`
- sur une machine fraîchement installée, avec `snmp` et `snmpd`





```
seb@server:~$ snmpwalk -v 2c -c public localhost system | less
```



```
SNMPv2-MIB::sysDescr.0 = STRING: Linux server 4.4.0-131-generic #157-Ubuntu SMP Thu Jul 12 15:51:36
seb@server:~$ snmpwalk -v 2c -c public localhost system | less
SNMPv2-MIB::sysDescr.0 = STRING: Linux server 4.4.0-131-generic #157-Ubuntu SMP Thu Jul 12 15:51:36
UTC 2018 x86_64
SNMPv2-MIB::sysObjectID.0 = OID: NET-SNMP-MIB::netSnmpAgentOIDs.10
DISMAN-EVENT-MIB::sysUpTimeInstance = Timeticks: (162993) 0:27:09.93
SNMPv2-MIB::sysContact.0 = STRING: Me <me@example.org>
SNMPv2-MIB::sysName.0 = STRING: server
SNMPv2-MIB::sysLocation.0 = STRING: Sitting on the Dock of the Bay
SNMPv2-MIB::sysServices.0 = INTEGER: 72
SNMPv2-MIB::sysORLastChange.0 = Timeticks: (0) 0:00:00.00
SNMPv2-MIB::sysORID.1 = OID: SNMP-MPD-MIB::snmpMPDCompliance
SNMPv2-MIB::sysORID.2 = OID: SNMP-USER-BASED-SM-MIB::usmMIBCompliance
SNMPv2-MIB::sysORID.3 = OID: SNMP-FRAMEWORK-MIB::snmpFrameworkMIBCompliance
SNMPv2-MIB::sysORID.4 = OID: SNMPv2-MIB::snmpMIB
SNMPv2-MIB::sysORID.5 = OID: SNMP-VIEW-BASED-ACM-MIB::vacmBasicGroup
SNMPv2-MIB::sysORID.6 = OID: TCP-MIB::tcpMIB
SNMPv2-MIB::sysORID.7 = OID: IP-MIB::ip
SNMPv2-MIB::sysORID.8 = OID: UDP-MIB::udpMIB
SNMPv2-MIB::sysORID.9 = OID: SNMP-NOTIFICATION-MIB::snmpNotifyFullCompliance
SNMPv2-MIB::sysORID.10 = OID: NOTIFICATION-LOG-MIB::notificationLogMIB
SNMPv2-MIB::sysORDescr.1 = STRING: The MIB for Message Processing and Dispatching.
SNMPv2-MIB::sysORDescr.2 = STRING: The management information definitions for the SNMP User-based Se
curity Model.
SNMPv2-MIB::sysORDescr.3 = STRING: The SNMP Management Architecture MIB.
SNMPv2-MIB::sysORDescr.4 = STRING: The MIB module for SNMPv2 entities
SNMPv2-MIB::sysORDescr.5 = STRING: View-based Access Control Model for SNMP.
SNMPv2-MIB::sysORDescr.6 = STRING: The MIB module for managing TCP implementations
SNMPv2-MIB::sysORDescr.7 = STRING: The MIB module for managing IP and ICMP implementations
SNMPv2-MIB::sysORDescr.8 = STRING: The MIB module for managing UDP implementations
SNMPv2-MIB::sysORDescr.9 = STRING: The MIB modules for managing SNMP Notification, plus filtering.
SNMPv2-MIB::sysORDescr.10 = STRING: The MIB module for logging SNMP Notifications.
SNMPv2-MIB::sysORUpTime.1 = Timeticks: (0) 0:00:00.00
SNMPv2-MIB::sysORUpTime.2 = Timeticks: (0) 0:00:00.00
SNMPv2-MIB::sysORUpTime.3 = Timeticks: (0) 0:00:00.00
SNMPv2-MIB::sysORUpTime.4 = Timeticks: (0) 0:00:00.00
SNMPv2-MIB::sysORUpTime.5 = Timeticks: (0) 0:00:00.00
```

Nature des informations de management

- Informations de 3 types :
 - paramètres de configuration
 - état courant (status)
 - statistiques
- A l'origine, SNMP est prévu pour les nœuds réseau (routeurs, switches...)
 - informations liées aux interfaces, au protocoles, compteurs de trafic...

MIB – Management Information Bases

- Types des informations stockées dans un device :
 - flags, settings, compteurs hardware, variables et tables en mémoire, fichiers...

→ base de données logique
- **MIB : Management Information Base**
 - base de données logique des informations de management du réseau
 - structure interne peu importante mais...
 - ... importance quant à la manière d'y accéder
- Concrètement : les vendeurs d'équipements réseau fournissent une ou plusieurs MIBs associées à leur produits

Exemple

LINKSYS®
A Division of Cisco Systems, Inc.

Firmware Version: 1.3.12.6-t

System Management

10/100 4-port VPN RouterRV042

System Summary

Setup

DHCP

System Management

Port Management

Firewall

ProtectLink

VPN

Log

Wizard

Support

Logout

Dual-WAN | Bandwidth Management | SNMP | Diagnostic | Factory Default | Firmware Upgrade | Restart | Setting Backup

SNMP

SNMP : Enable ☒

System Name:

phfactor-firewall

System Contact:

Paul Hubbard

System Location:

Home

Get Community Name:

Cacti

Set Community Name:

Cacti

Trap Community Name:

Cacti

Send SNMP Trap to:

SITEMAP

SNMP, or Simple Network Management Protocol, is a network protocol that provides network administrators with the ability to monitor the status of the RV042 and receive notification of any critical events as they occur on the network.

[More...](#)

CISCO SYSTEMS

Exemple



Example

Logging & SNMP Port Mapping Bonjour IPv6 IPv6 Firewall

This base station supports log messages that may help diagnose a problem.

Syslog Destination Address:

Syslog Level: 5 - Notice

Simple Network Management Protocol (SNMP) allows you to query the base station for statistics including number of wireless clients.

☒ Allow SNMP

☐ Allow SNMP over WAN

SNMP Community String:




AirPort Utility supports reading log messages and viewing statistics via SNMP on your base station.

Logs and Statistics


```
$ snmpwalk -m AIRPORT-BASESTATION-3-MIB -Os -v 2c -c  
yourBasePassword 10.0.1.1 SNMPv2-SMI::enterprises.apple.airport
```

```
sysConfName.0 = STRING: AirGeek Base  
sysConfContact.0 = STRING: Olivier Gutknecht  
sysConfUptime.0 = INTEGER: 512881  
sysConfFirmwareVersion.0 = STRING: 5.5  
wirelessNumber.0 = INTEGER: 3  
wirelessPhysAddress."".17.36.12.8.97 = Hex-STRING: xx xx xx xx xx xx  
[...]  
wirelessType."".17.36.12.8.97 = INTEGER: wds(2)  
wirelessType."".17.36.35.233.195 = INTEGER: sta(1)  
wirelessDataRates."".3.147.236.96.87 = STRING: [ 1 2 5.5 11 18 24 36 48 54  
]  
[...]  
wirelessLastRefreshTime."".17.36.35.233.195 = INTEGER: 0  
wirelessNoise."".3.147.236.96.87 = INTEGER: -45  
wirelessRate."".3.147.236.96.87 = INTEGER: 54  
wirelessNumRX."".3.147.236.96.87 = INTEGER: 193498  
[...]  
wirelessNumTXErrors."".17.36.35.233.195 = INTEGER: 1  
dhcpNumber.0 = INTEGER: 0  
physicalInterfaceCount.0 = INTEGER: 3  
[...]  
physicalInterfaceName.1 = STRING: "wl"  
physicalInterfaceName.2 = STRING: "au"  
[...]  
physicalInterfaceState.1 = INTEGER: linkUp(1)  
physicalInterfaceState.2 = INTEGER: linkDown(0)  
physicalInterfaceState.3 = INTEGER: linkUp(1)  
physicalInterfaceDuplex.1 = INTEGER: half(0)  
physicalInterfaceDuplex.3 = INTEGER: full(1)  
physicalInterfaceNumTX.1 = INTEGER: 2144683  
[...]
```

Le modèle de SNMP

- Quelques notions
 - agents SNMP 
 - management stations
 - requêtes (i.e. commandes) et réponses
 - « objets » 
 - traps 

Le protocole SNMP : les messages

- Les 5 messages de SNMP
 - get-request
 - get-next-request
 - set-request
 - get-response
 - trap

get-request et get-response

- Champs contenus dans un message
 - version
 - **community**
 - command
 - request ID
 - error status
 - error index
 - liste de paires **objets (OID) – valeurs**
- get-request : valeurs NULL
- faiblesse de SNMP v1

Les communities

- Limitation de accès
- Accès read, accès write, à quels objets
- Protection assez basique
- Clear text !
- → SNMP v3

Entièrement de l'arbre Linux

- Démo
- `snmpwalk -v 2c -c public localhost`

```
IF-MIB::ifNumber.0 = INTEGER: 2
IF-MIB::ifIndex.1 = INTEGER: 1
IF-MIB::ifIndex.2 = INTEGER: 2
IF-MIB::ifDescr.1 = STRING: lo
IF-MIB::ifDescr.2 = STRING: Intel Corporation 82545EM Gigabit Ethernet Controller (Copper)
IF-MIB::ifType.1 = INTEGER: softwareLoopback(24)
IF-MIB::ifType.2 = INTEGER: ethernetCsmacd(6)
IF-MIB::ifMtu.1 = INTEGER: 65536
IF-MIB::ifMtu.2 = INTEGER: 1500
IF-MIB::ifSpeed.1 = Gauge32: 100000000
IF-MIB::ifSpeed.2 = Gauge32: 10000000000
IF-MIB::ifPhysAddress.1 = STRING:
IF-MIB::ifPhysAddress.2 = STRING: 0:c:29:a:2d:db
IF-MIB::ifAdminStatus.1 = INTEGER: up(1)
IF-MIB::ifAdminStatus.2 = INTEGER: up(1)
IF-MIB::ifOperStatus.1 = INTEGER: up(1)
IF-MIB::ifOperStatus.2 = INTEGER: up(1)
IF-MIB::ifLastChange.1 = Timeticks: (0) 0:00:00.00
IF-MIB::ifLastChange.2 = Timeticks: (0) 0:00:00.00
IF-MIB::ifInOctets.1 = Counter32: 596067
IF-MIB::ifInOctets.2 = Counter32: 250415442
IF-MIB::ifInUcastPkts.1 = Counter32: 7622
IF-MIB::ifInUcastPkts.2 = Counter32: 169962
IF-MIB::ifInNUcastPkts.1 = Counter32: 0
IF-MIB::ifInNUcastPkts.2 = Counter32: 0
IF-MIB::ifInDiscards.1 = Counter32: 0
IF-MIB::ifInDiscards.2 = Counter32: 0
IF-MIB::ifInErrors.1 = Counter32: 0
IF-MIB::ifInErrors.2 = Counter32: 0
IF-MIB::ifInUnknownProtos.1 = Counter32: 0
IF-MIB::ifInUnknownProtos.2 = Counter32: 0
IF-MIB::ifOutOctets.1 = Counter32: 596067
IF-MIB::ifOutOctets.2 = Counter32: 1269477
IF-MIB::ifOutUcastPkts.1 = Counter32: 7622
IF-MIB::ifOutUcastPkts.2 = Counter32: 18527
IF-MIB::ifOutNUcastPkts.1 = Counter32: 0
:
```

```
HOST-RESOURCES-MIB::hrSWRunName.524 = STRING: "ib_nl_sa_wq"
HOST-RESOURCES-MIB::hrSWRunName.527 = STRING: "ib_cm"
HOST-RESOURCES-MIB::hrSWRunName.528 = STRING: "systemd-udevd"
HOST-RESOURCES-MIB::hrSWRunName.533 = STRING: "iw_cm_wq"
HOST-RESOURCES-MIB::hrSWRunName.535 = STRING: "rdma_cm"
HOST-RESOURCES-MIB::hrSWRunName.571 = STRING: "vmttoolsd"
HOST-RESOURCES-MIB::hrSWRunName.594 = STRING: "systemd-timesyn"
HOST-RESOURCES-MIB::hrSWRunName.890 = STRING: "rsyslogd"
HOST-RESOURCES-MIB::hrSWRunName.891 = STRING: "atd"
HOST-RESOURCES-MIB::hrSWRunName.904 = STRING: "systemd-logind"
HOST-RESOURCES-MIB::hrSWRunName.905 = STRING: "dbus-daemon"
HOST-RESOURCES-MIB::hrSWRunName.917 = STRING: "acpid"
HOST-RESOURCES-MIB::hrSWRunName.918 = STRING: "VGAuthService"
HOST-RESOURCES-MIB::hrSWRunName.921 = STRING: "snapd"
HOST-RESOURCES-MIB::hrSWRunName.922 = STRING: "lxcfs"
HOST-RESOURCES-MIB::hrSWRunName.927 = STRING: "cron"
HOST-RESOURCES-MIB::hrSWRunName.951 = STRING: "mdadm"
HOST-RESOURCES-MIB::hrSWRunName.1131 = STRING: "sshd"
HOST-RESOURCES-MIB::hrSWRunName.1262 = STRING: "iscsid"
HOST-RESOURCES-MIB::hrSWRunName.1263 = STRING: "iscsid"
HOST-RESOURCES-MIB::hrSWRunName.1315 = STRING: "login"
HOST-RESOURCES-MIB::hrSWRunName.1371 = STRING: "systemd"
HOST-RESOURCES-MIB::hrSWRunName.1373 = STRING: "(sd-pam)"
HOST-RESOURCES-MIB::hrSWRunName.1379 = STRING: "bash"
HOST-RESOURCES-MIB::hrSWRunName.30171 = STRING: "accounts-daemon"
HOST-RESOURCES-MIB::hrSWRunName.30177 = STRING: "polkitd"
HOST-RESOURCES-MIB::hrSWRunName.30398 = STRING: "avahi-daemon"
HOST-RESOURCES-MIB::hrSWRunName.30401 = STRING: "avahi-daemon"
HOST-RESOURCES-MIB::hrSWRunName.30519 = STRING: "bluetoothd"
HOST-RESOURCES-MIB::hrSWRunName.30693 = STRING: "cupsd"
HOST-RESOURCES-MIB::hrSWRunName.30890 = STRING: "cups-browsed"
HOST-RESOURCES-MIB::hrSWRunName.39141 = STRING: "login"
HOST-RESOURCES-MIB::hrSWRunName.39705 = STRING: "bash"
HOST-RESOURCES-MIB::hrSWRunName.40623 = STRING: "kworker/0:3"
HOST-RESOURCES-MIB::hrSWRunName.40693 = STRING: "systemd-network"
HOST-RESOURCES-MIB::hrSWRunName.40793 = STRING: "dhclient"
:
```

```
HOST-RESOURCES-MIB::hrSWInstalledName.904 = STRING: "python2.7-2.7.12-1ubuntu0~16.04.3"
HOST-RESOURCES-MIB::hrSWInstalledName.905 = STRING: "python2.7-minimal-2.7.12-1ubuntu0~16.04.3"
HOST-RESOURCES-MIB::hrSWInstalledName.906 = STRING: "python3-3.5.1-3"
HOST-RESOURCES-MIB::hrSWInstalledName.907 = STRING: "python3-apport-2.20.1-0ubuntu2.18"
HOST-RESOURCES-MIB::hrSWInstalledName.908 = STRING: "python3-apt-1.1.0~beta1ubuntu0.16.04.2"
HOST-RESOURCES-MIB::hrSWInstalledName.909 = STRING: "python3-aptdaemon-1.1.1+bzr982-0ubuntu14"
HOST-RESOURCES-MIB::hrSWInstalledName.910 = STRING: "python3-aptdaemon.pkcompat-1.1.1+bzr982-0ubuntu14"
HOST-RESOURCES-MIB::hrSWInstalledName.911 = STRING: "python3-bs4-4.4.1-1"
HOST-RESOURCES-MIB::hrSWInstalledName.912 = STRING: "python3-cairo-1.10.0+dfsg-5build1"
HOST-RESOURCES-MIB::hrSWInstalledName.913 = STRING: "python3-chardet-2.3.0-2"
HOST-RESOURCES-MIB::hrSWInstalledName.914 = STRING: "python3-cups-1.9.73-0ubuntu2"
HOST-RESOURCES-MIB::hrSWInstalledName.915 = STRING: "python3-cupsfilters-1.5.7+20160212-0ubuntu2"
HOST-RESOURCES-MIB::hrSWInstalledName.916 = STRING: "python3-dbus-1.2.0-3"
HOST-RESOURCES-MIB::hrSWInstalledName.917 = STRING: "python3-debian-0.1.27ubuntu2"
HOST-RESOURCES-MIB::hrSWInstalledName.918 = STRING: "python3-defer-1.0.6-2build1"
HOST-RESOURCES-MIB::hrSWInstalledName.919 = STRING: "python3-distupgrade-1:16.04.25"
HOST-RESOURCES-MIB::hrSWInstalledName.920 = STRING: "python3-gi-3.20.0-0ubuntu1"
HOST-RESOURCES-MIB::hrSWInstalledName.921 = STRING: "python3-html5lib-0.999-4"
HOST-RESOURCES-MIB::hrSWInstalledName.922 = STRING: "python3-lxml-3.5.0-1build1"
HOST-RESOURCES-MIB::hrSWInstalledName.923 = STRING: "python3-minimal-3.5.1-3"
HOST-RESOURCES-MIB::hrSWInstalledName.924 = STRING: "python3-newt-0.52.18-1ubuntu2"
HOST-RESOURCES-MIB::hrSWInstalledName.925 = STRING: "python3-pkg-resources-20.7.0-1"
HOST-RESOURCES-MIB::hrSWInstalledName.926 = STRING: "python3-problem-report-2.20.1-0ubuntu2.18"
HOST-RESOURCES-MIB::hrSWInstalledName.927 = STRING: "python3-pycurl-7.43.0-1ubuntu1"
HOST-RESOURCES-MIB::hrSWInstalledName.928 = STRING: "python3-requests-2.9.1-3"
HOST-RESOURCES-MIB::hrSWInstalledName.929 = STRING: "python3-six-1.10.0-3"
HOST-RESOURCES-MIB::hrSWInstalledName.930 = STRING: "python3-software-properties-0.96.20.7"
HOST-RESOURCES-MIB::hrSWInstalledName.931 = STRING: "python3-systemd-231-2build1"
HOST-RESOURCES-MIB::hrSWInstalledName.932 = STRING: "python3-update-manager-1:16.04.13"
HOST-RESOURCES-MIB::hrSWInstalledName.933 = STRING: "python3-urllib3-1.13.1-2ubuntu0.16.04.1"
HOST-RESOURCES-MIB::hrSWInstalledName.934 = STRING: "python3.5-3.5.2-2ubuntu0~16.04.4"
HOST-RESOURCES-MIB::hrSWInstalledName.935 = STRING: "python3.5-minimal-3.5.2-2ubuntu0~16.04.4"
HOST-RESOURCES-MIB::hrSWInstalledName.936 = STRING: "qpdf-8.0.2-3~16.04.1"
HOST-RESOURCES-MIB::hrSWInstalledName.937 = STRING: "qttranslations5-l10n-5.5.1-2build1"
HOST-RESOURCES-MIB::hrSWInstalledName.938 = STRING: "readline-common-6.3-8ubuntu2"
:
```

get-next-request

- Format similaire à get-request et get-response
 - paramètre *command* différent
- Utilité : le problème de la gestion des MIBs
- « walk through the MIB » - **snmpwalk**

Les « traps » (1/2)

- Servent à signaler un problème (panne, dépassement d'un seuil...)
- Message envoyé une seule fois
- Contient
 - version
 - community
 - enterprise : OID permettant de nommer le device qui génère le trap

Les « traps » (2/2)

- generic-trap
 - coldStart
 - warmStart
 - linkDown
 - linkUp
 - authenticationFailure
 - egpNeighborLoss
 - enterpriseSpecific
- specific-trap
- time ticks

Langage de description de données

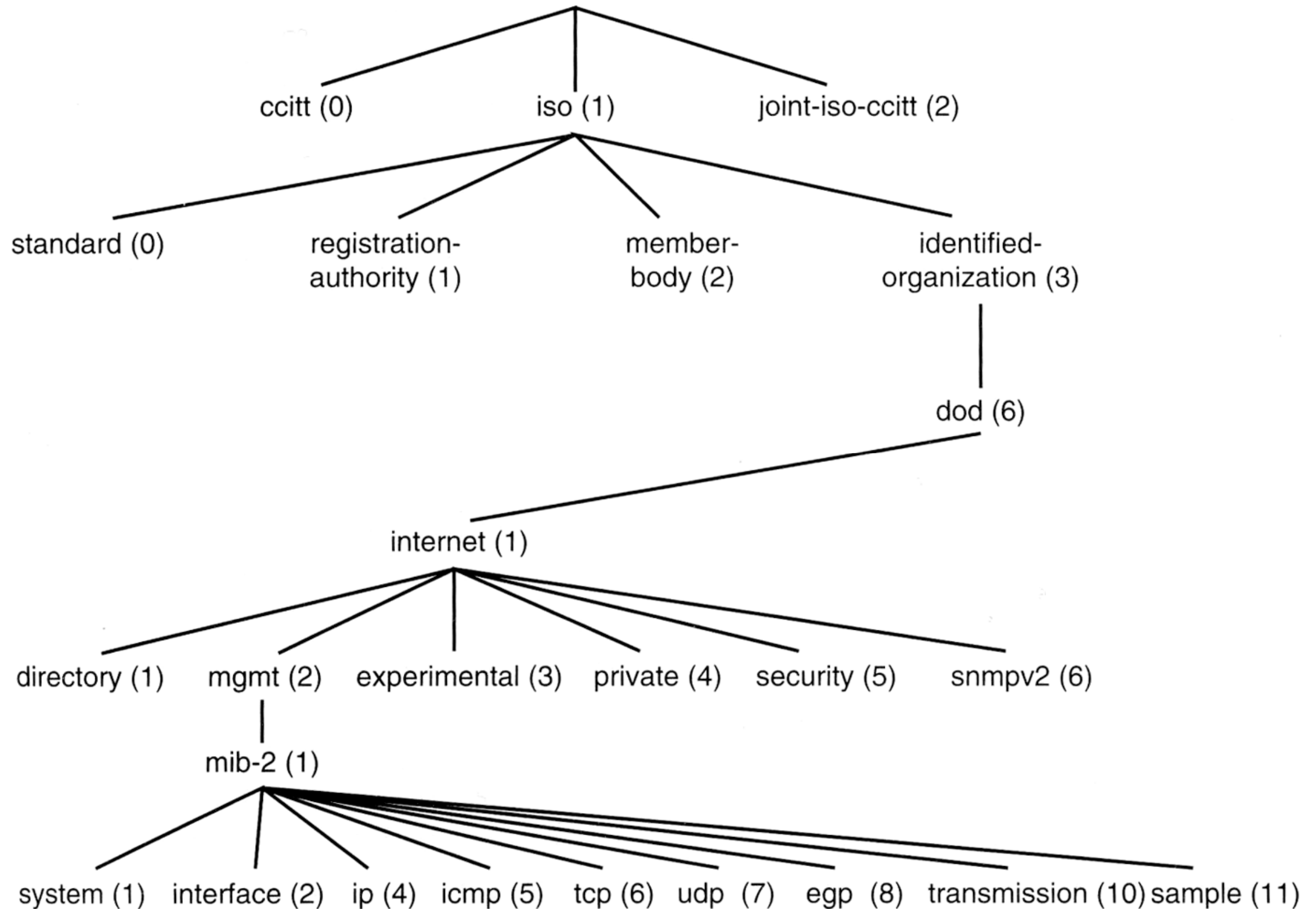
- Définition de sous-types
 - Exemples :
 - *Status ::= INTEGER { up(1), down(2), unknown(3) }*
 - *PacketSize ::= INTEGER (0..1023)*
- Types BIT STRING et OCTET STRING
 - on peut donner une longueur de string et une valeur initiale
- OBJECT IDENTIFIERS
 - manière d'identifier **univoquement** tout objet défini dans un standard officiel

OBJECT IDENTIFIERs

- ASN.1 définit un arbre des standards
 - ISO, CCIT → ITU...
- Chaque objet défini dans chaque standard est placé à un endroit unique de l'arbre
- L'arbre comprend les MIB de SNMP
- Chaque nœud porte un label
- Un objet est identifié par la suite des labels (cf. DN de LDAP)



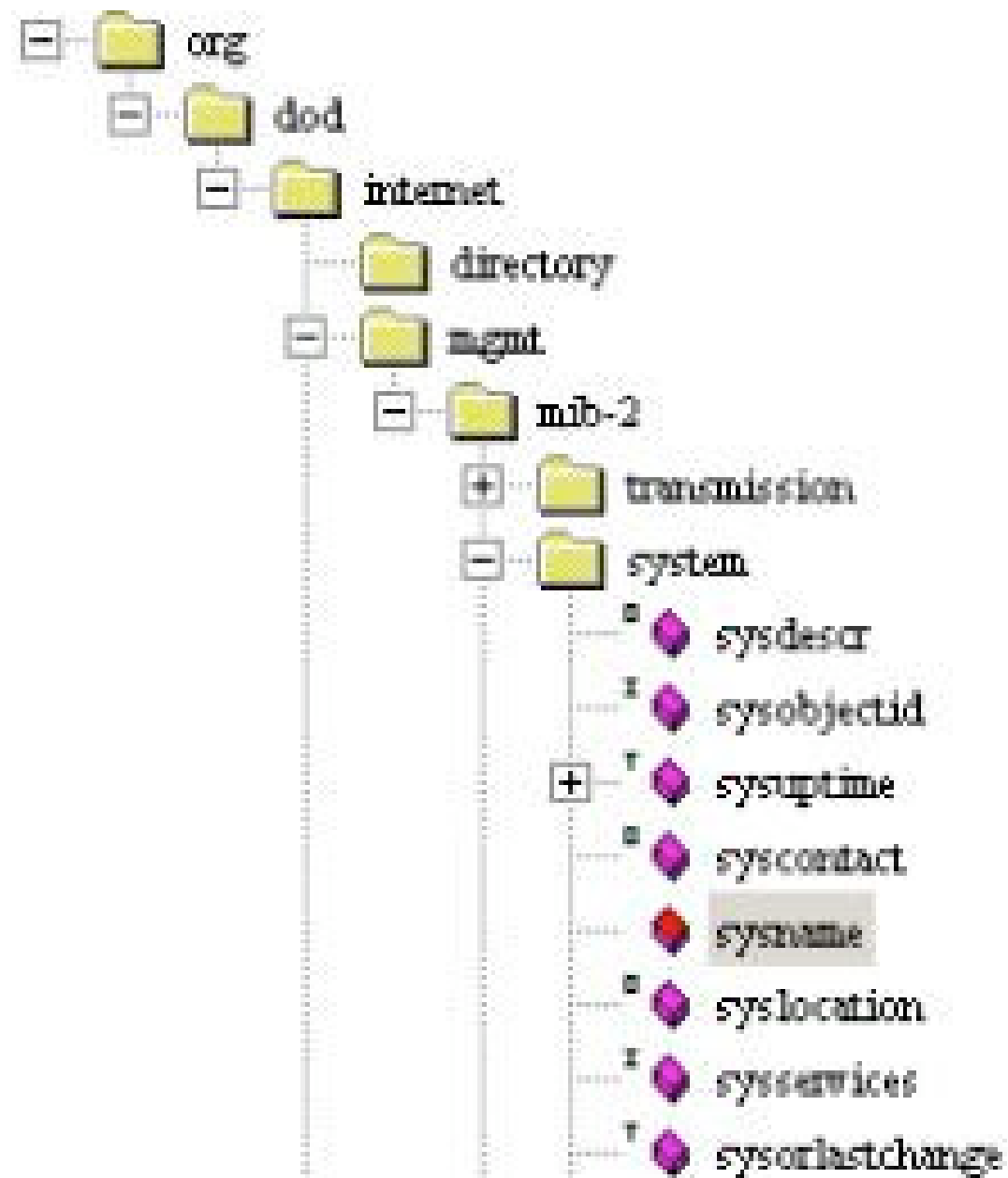
OBJECT IDENTIFIERS



OBJECT IDENTIFIERs

- Exemple d'OID d'un objet de la MIB-2:
 - 1.3.6.1.2.1...
 - {iso identified-organization(3) dod(6) internet(1) mgmt(2) mib-2(1)...}
 - ou encore {1 3 6 1 2 1...}
- Exemple : l'objet **sysname**
 - OID : 1.3.6.1.2.1.1.5.0
 - donne le nom d'un système

OBJECT IDENTIFIERS



Types d'objet de SNMP

- Sous-types des types primitifs d'ASN
- Simples (scalar) ou structurés (tables)
- Quelques types simples (de SNMP v1):
 - Counter
 - Gauge
 - IpAddress
 - Opaque
 - TimeTicks

Exemple d'objet

lostPackets OBJECT TYPE

SYNTAX Counter32 -- use a 32-bit counter

MAX-ACCESS read-only -- the management station may not change it

STATUS current -- this variable is not obsolete (yet)

DESCRIPTION

 "The number of packets lost since last reboot"

::= {experimental 20}

Utilisation de **snmpwalk**

```
root@TW023670:~# snmpwalk -v 2c -c public localhost
SNMPv2-MIB::sysDescr.0 = STRING: Linux TW023670 2.6.12-10-
386 #1 Mon Feb 13 12:13:15 UTC 2006 i686
SNMPv2-MIB::sysObjectID.0 = OID: NET-SNMP-
MIB::netSnmpAgentOIDs.10
SNMPv2-MIB::sysUpTime.0 = Timeticks: (13761) 0:02:17.61
SNMPv2-MIB::sysContact.0 = STRING: Root <root@localhost>
(configuration /etc/snmp/snmpd.local.conf)
SNMPv2-MIB::sysName.0 = STRING: TW023670
SNMPv2-MIB::sysLocation.0 = STRING: Unknown (configuration
/etc/snmp/snmpd.local.conf)
SNMPv2-MIB::sysORLastChange.0 = Timeticks: (2) 0:00:00.02
...
```

Utilisation de **snmpget**

```
root@TW023670:~# snmpget -v 1 -c public localhost  
.1.3.6.1.2.1.1.3.0
```

```
SNMPv2-MIB::sysUpTime.0 = Timeticks: (139876)  
0:23:18.76
```

- Idem en connaissant le nom complet de l'objet sysUpTime :

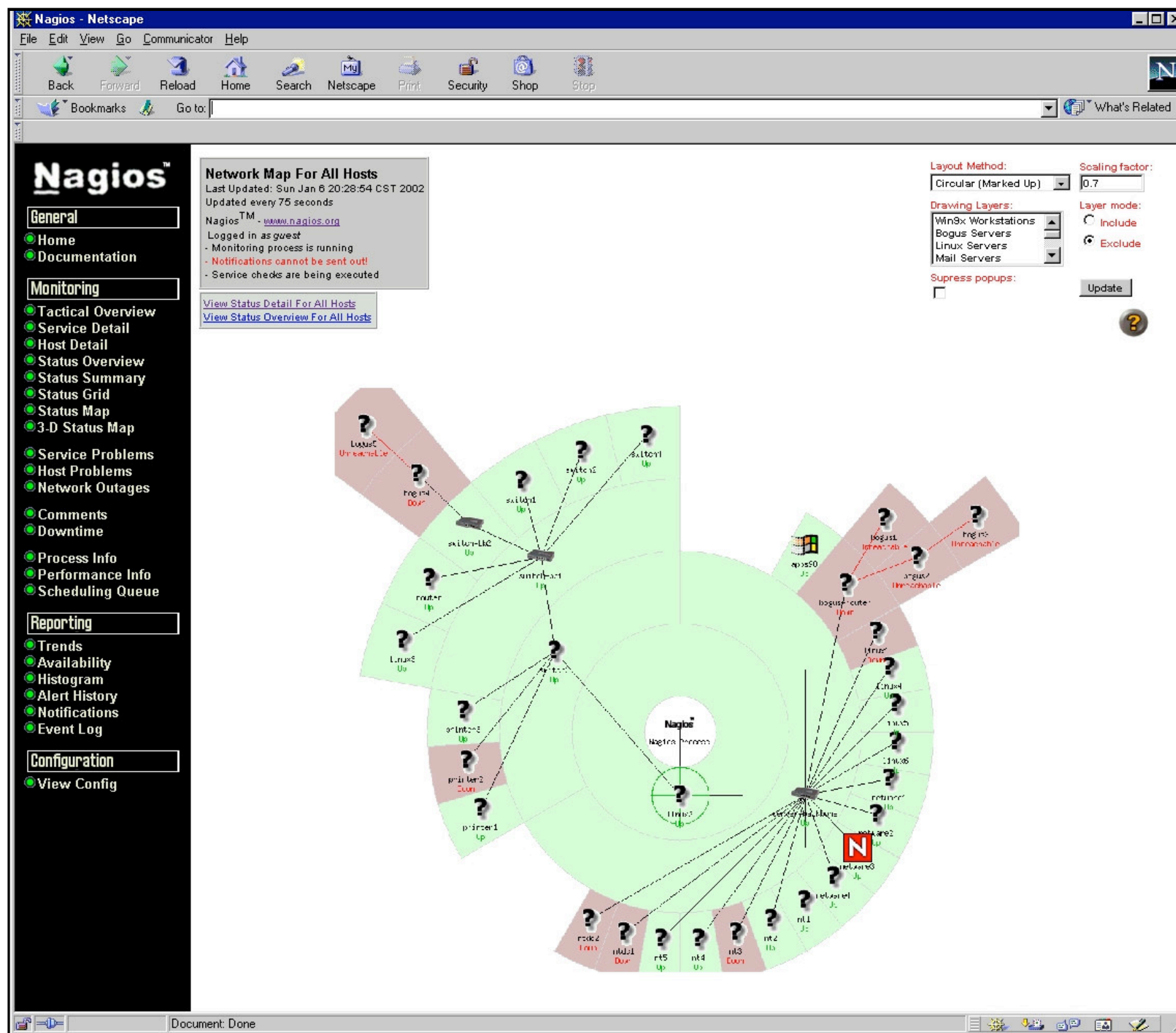
```
root@TW023670:~# snmpget -v 1 -c public localhost  
.iso.org.dod.internet.mgmt.mib-2.system.sysUpTime.0
```

```
SNMPv2-MIB::sysUpTime.0 = Timeticks: (155507)  
0:25:55.07
```

En pratique...



En pratique...



Examples

En pratique...

Alarm Details: EnterpriseDefault

Event Name	EnterpriseDefault
Severity	Normal
Sources	ALL SOURCES
Event Identifier	.iso.org.dod.internet.private.enterprises."
Event Identifier (Numeric)	.1.3.6.1.4.1."
Generic Trap Name	Enterprise Specific (6)
Specific Trap Number	-1
Enterprise ID	.iso.org.dod.internet.private.enterprises
Enterprise ID (Numeric)	.1.3.6.1.4.1
Received Event Type	.1.3.6.1.4.1.2162.4.7.0.1
Received Specific Trap	1
Received Enterprise ID	.1.3.6.1.4.1.2162.4.7
Last Modified By	Host: chandrars; User: chandrars; Program:
Event Instance (UUID)	4b16b000-ea8f-71d7-1b4b-c0a801660000

Event description:

This is the default event format used when an enterprise specific event (trap) is received for which no format has been configured (i.e. no event definition exists).

To configure the event (trap), select HP OpenView Network Node Manager's "Options: Event Configuration" menu item, then "Edit: Add->Event..." and create a definition.

OK Help

Error Alarms Browser

File Actions View Help

Ack	Cor	Severity	Date/Time	Source	Message
<input type="checkbox"/>		Normal	Fri Sep 19 16:06:20	chandrars.india.adventnet.com	Received event .1.3.6.1.4.1.2162.4.7.0.1
<input type="checkbox"/>		Warning	Fri Sep 19 16:06:35	chandrars.india.adventnet.com	Received event .1.3.6.1.4.1.2162.4.7.0.1
<input type="checkbox"/>		Warning	Fri Sep 19 16:07:30	chandrars.india.adventnet.com	Received event .1.3.6.1.4.1.2162.4.7.0.1
<input type="checkbox"/>		Minor	Fri Sep 19 16:12:20	chandrars.india.adventnet.com	Received event .1.3.6.1.4.1.2162.4.7.0.1
<input type="checkbox"/>		Normal	Fri Sep 19 16:12:50	chandrars.india.adventnet.com	Received event .1.3.6.1.4.1.2162.4.7.0.1
<input type="checkbox"/>		Warning	Fri Sep 19 16:15:30	chandrars.india.adventnet.com	Received event .1.3.6.1.4.1.2162.4.7.0.1
<input type="checkbox"/>		Major	Fri Sep 19 16:15:55	chandrars.india.adventnet.com	Received event .1.3.6.1.4.1.2162.4.7.0.1
<input type="checkbox"/>		Major	Fri Sep 19 16:18:30	chandrars.india.adventnet.com	Received event .1.3.6.1.4.1.2162.4.7.0.1
<input type="checkbox"/>		Warning	Fri Sep 19 16:19:35	chandrars.india.adventnet.com	Received event .1.3.6.1.4.1.2162.4.7.0.1
<input type="checkbox"/>		Minor	Fri Sep 19 16:22:00	chandrars.india.adventnet.com	Received event .1.3.6.1.4.1.2162.4.7.0.1
<input type="checkbox"/>		Warning	Fri Sep 19 16:22:10	chandrars.india.adventnet.com	Received event .1.3.6.1.4.1.2162.4.7.0.1
<input type="checkbox"/>		Normal	Fri Sep 19 16:22:55	chandrars.india.adventnet.com	Received event .1.3.6.1.4.1.2162.4.7.0.1

12 Alarms - Critical:0 Major:2 Minor:2 Warning:5 Normal:3

Références

- Deux tutoriels :
 - En français, par Christian Caleca :
<http://christian.caleca.free.fr/snmp/>
 - En anglais :
<http://www.et.put.poznan.pl/snmp/main/mainmenu.html>
- A. S. TANENBAUM, *Computer networks*, Prentice-Hall, 3rd, 1996, pp.630-643