

# Labo 4 LibeNMS

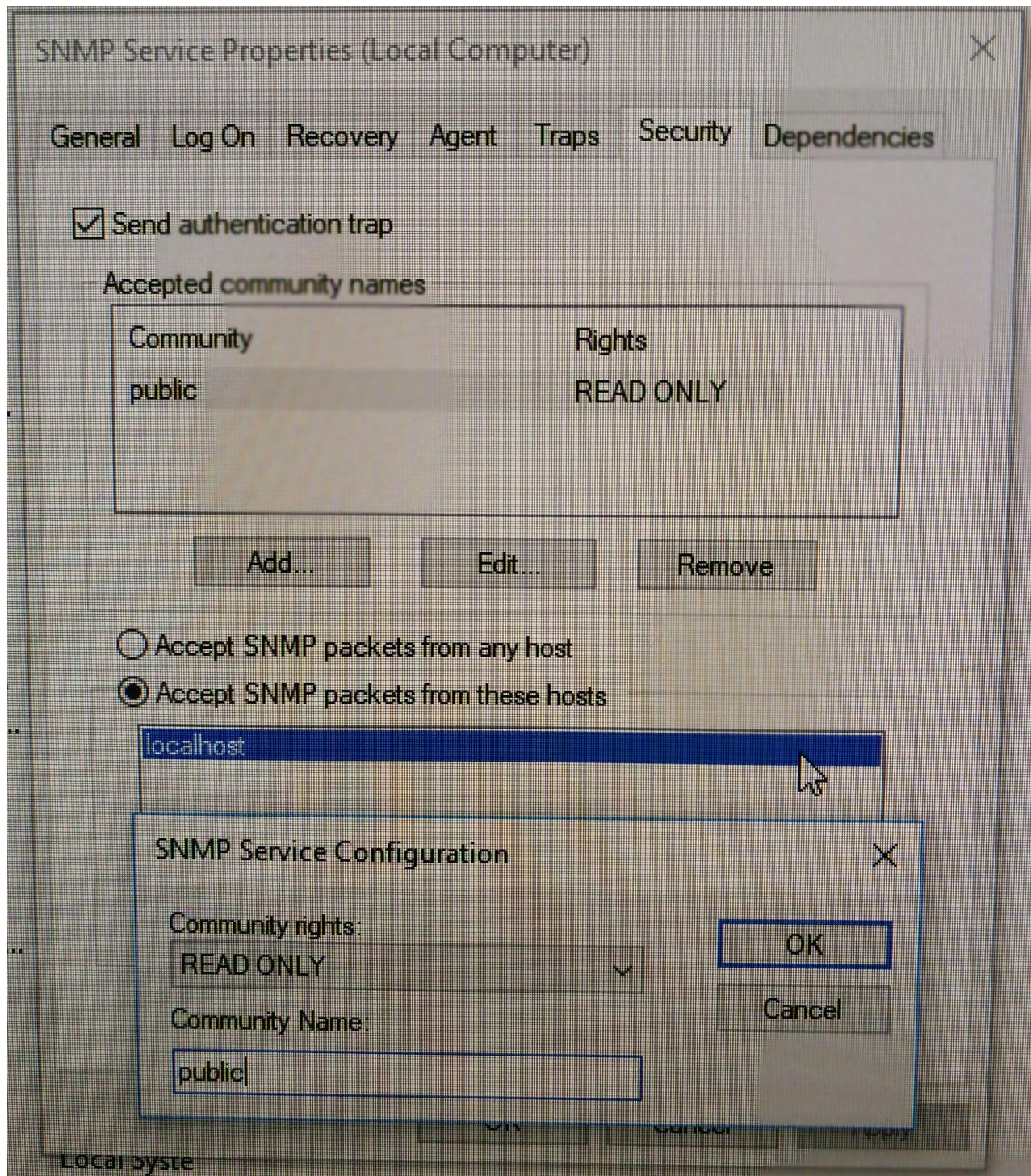
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## Objectif 1: Construire le réseau et réaliser la configuration de base des équipements.

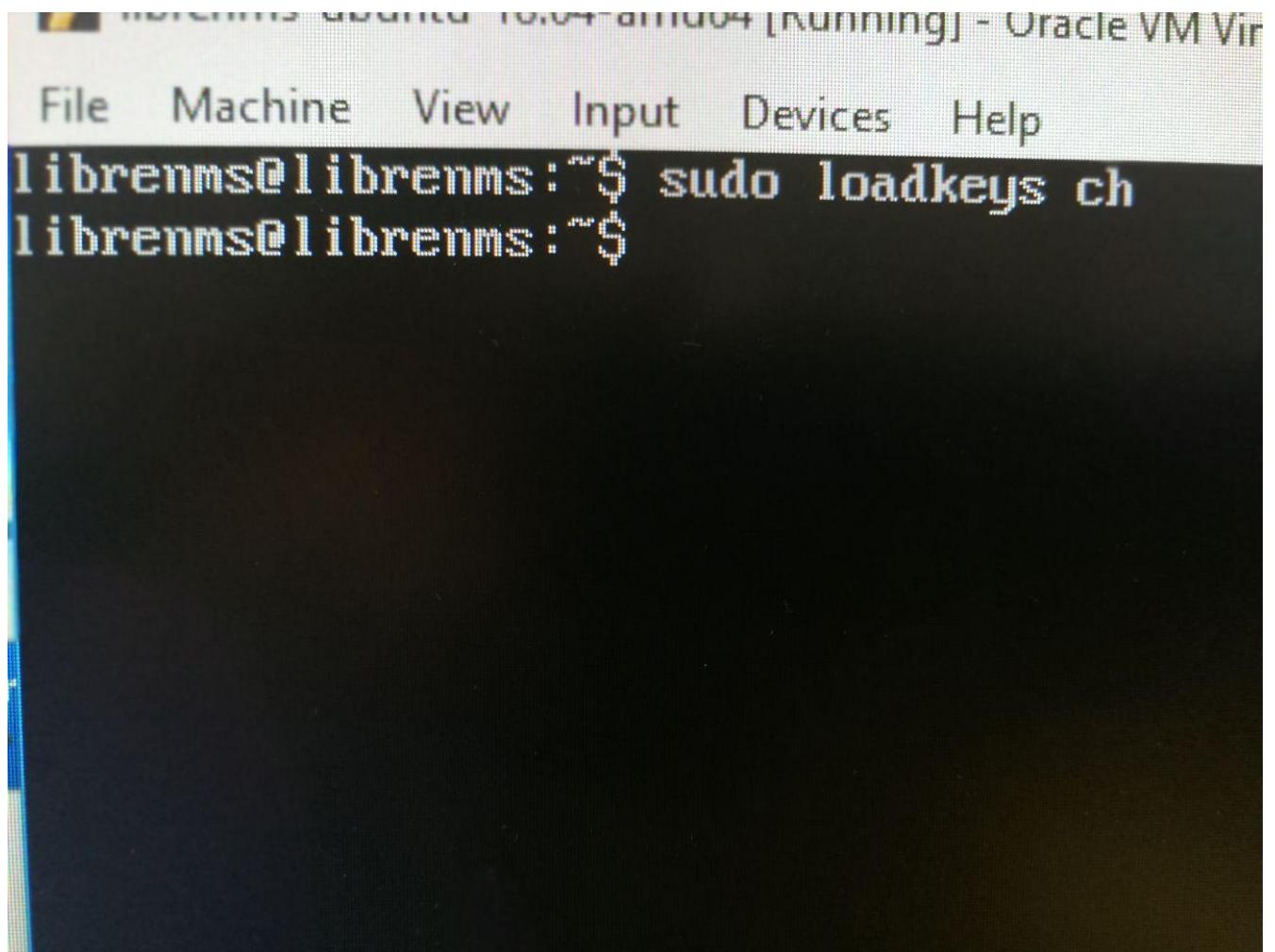
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1. Connecter la machine utilisée sur le réseau Bleu.
2. Configurer la carte réseau de cette machine en mode DHCP.
3. Pour que la machine puisse recevoir des requêtes SNMP, il faut activer le service "SNMP service" et dans les propriétés, aller autoriser les requêtes avec la community string "public".



## Objectif 2 : Configurer la vm avec les serveur LibreNMS

1. Ouvrir la vm sur Virtualbox. (Avec VmWare il faut faire beaucoup de configuration réseau et ce n'est pas très pratique. Nos collègues en ont fait l'expérience. )
2. Configurer la carte réseau sur bridge.
3. Se connecter sur la vm avec les credentials fournis.
  - username : librenms
  - password: CDne3fwdfds
4. Changer le clavier vers le clavier suisse avec commande `sudo loadkeys ch`



A screenshot of a Linux terminal window titled "librenms-ubuntu-10.04-amd64 [Running] - Oracle VM Vir". The window shows a dark terminal interface with white text. At the top, there is a menu bar with "File", "Machine", "View", "Input", "Devices", and "Help". Below the menu, the terminal prompt is "librenms@librenms:~\$". A user has typed the command "sudo loadkeys ch" and is awaiting a response. The terminal background is black, and the text is white.

```
librenms@librenms:~$ sudo loadkeys ch
```

## Objectif 3, Monitoring d'un réseau

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1. Installer python `sudo apt install python`

2. Il faut lancer le script `snmp-scan.py` sur le réseau d'ont fait partie l'ip de notre vm. `python3 snmp-scan.py`

Il faut attendre 2-3 minutes pour le scan soit terminé.

3. Accéder ensuite à l'adresse du serveur LibreNSM ( chez nous à l'adresse 10.192.72.106 ) dans un navigateur. Utiliser les crédentails fournis :

- username : librenms
  - password: CDne3fwdfds

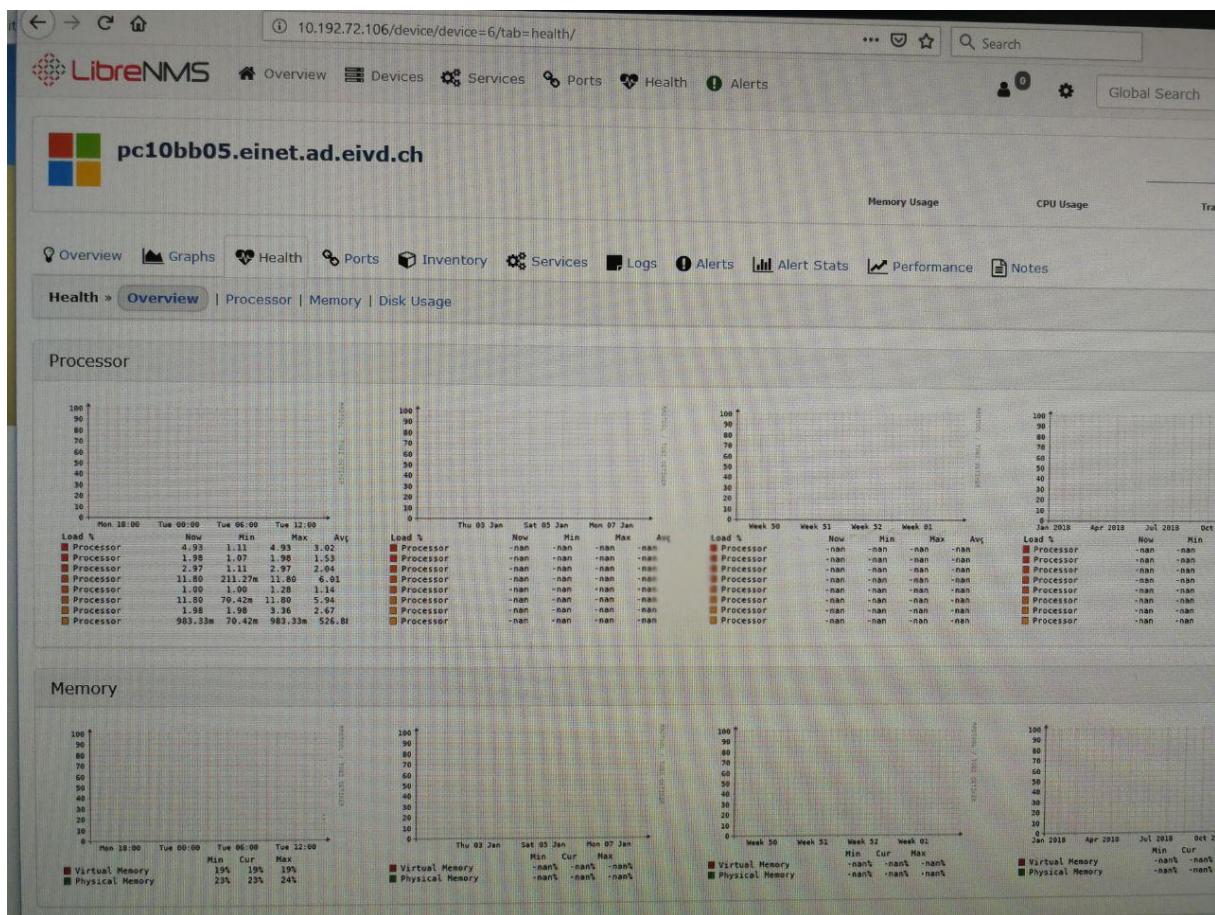
4. Aller dans l'onglet `device` pour voir le résultat du scan.

Devices - LibreNMS							
LibreNMS							
Lists: Basic   Detail		Graphs: Bits   CPU   Load   Memory   Uptime   Storage   Disk I/O   Poller   Ping   Temperature					
<input type="button" value="Search"/> 50 <input type="button" value="All OSes"/> All Versions <input type="button" value="All Platforms"/> All Featuresets <input type="button" value="All Locations"/> All Device Types <input type="button" value="Search"/> <input type="button" value="Update URL"/>							<input type="checkbox"/> Remove Search   <input type="checkbox"/> Remove Header
Vendor	Device	Metrics	Platform	Operating System	Uptime	Location	Actions
EMC	<a href="#">10.192.72.101</a> storage-cluster	3		EMC Flare OS	231d 1h 7m 55s		
EMC	<a href="#">10.192.72.102</a> storage-cluster	3		EMC Flare OS	231d 1h 8m 34s		
	<a href="#">10.192.72.92</a> sn5428-2-k9	13		Generic Device	2d 14h 28m 11s	B16b	
	<a href="#">10.192.72.95</a> sn5428-2-k9	13		Generic Device	2d 14h 28m 28s	B16b	
	<a href="#">10.192.73.137</a> 10.192.73.137			Generic Device			
	<a href="#">localhost</a> librenms	2	Generic x86 64-bit	Linux 4.15.0-43-generic (Ubuntu 18.04)	22m 59s	Unknown	
	<a href="#">pc10bb05.einet.ad.eivd.ch</a> pc10bb05	20	Intel x64	Microsoft Windows (Multiprocessor)	42m 42s		
	<a href="#">pc13bb05.einet.ad.eivd.ch</a> pc13bb05	24	Intel x64	Microsoft Windows (Multiprocessor)	40m 19s		

## Question 2

1. 10.192.72.121

1. Health



## 2. Ports

Port	Traffic	Speed	Media	Mac Address
loopback_1 Loopback Pseudo-Interface 1 127.0.0.1/8	0 bps 0 bps 0 pps 0 pps	1.07 Gbps	Loopback	- MTU 1500
tunnel_32514 6to4 Adapter			Tunnel	-
ethernet_32772 Ethernet 10.192.72.121/23	446.17 kbps 6.9 kbps 40 pps 10 pps	1 Gbps	Ethernet	68:05:ca:18:61:9b MTU 1500
ppp_32768 Local Area Connection* 5			PPP	- MTU 1494
tunnel_32513 Microsoft IP-HTTPS Platform Interface			Tunnel	-
ethernet_32769 Local Area Connection* 6	0 bps 0 bps 0 pps 0 pps	Ethernet	- MTU 1500	Ethernet

## 3. General infos

**pc10bb05.einet.ad.eivd.ch**

Overview Graphs Health Ports Inventory Services Logs !

**Hardware: Intel64 Family 6 Model 58 Stepping 9 AT/AT COMPATIBLE - Software: Windows Version 6.3 (Build 17134 Multiprocessor Free)**

System Name	pc10bb05
Resolved IP	10.192.72.121
Hardware	Intel x64
Operating System	Microsoft Windows (Multiprocessor)
Object ID	.1.3.6.1.4.1.311.1.1.3.1.1
Uptime	52m 28s

**Overall Traffic**

The chart displays overall traffic usage over a period from Monday 18:00 to Tuesday 12:00. The Y-axis represents bandwidth in Mbit/s, ranging from 0 to 1.2 M. The X-axis shows time points: Mon 18:00, Tue 00:00, Tue 06:00, and Tue 12:00. A single data series is shown as a green bar, indicating a usage of 1.2 Mbit/s.

4. Disque usages

The chart shows disk usage for Processor x8 over the same time period. The Y-axis ranges from 0 to 70. The X-axis shows the same time points. A single data series is shown as a green bar, indicating a usage of 1%.

**Memory Pools**

Virtual Memory	19%
Physical Memory	23%

**Storage**

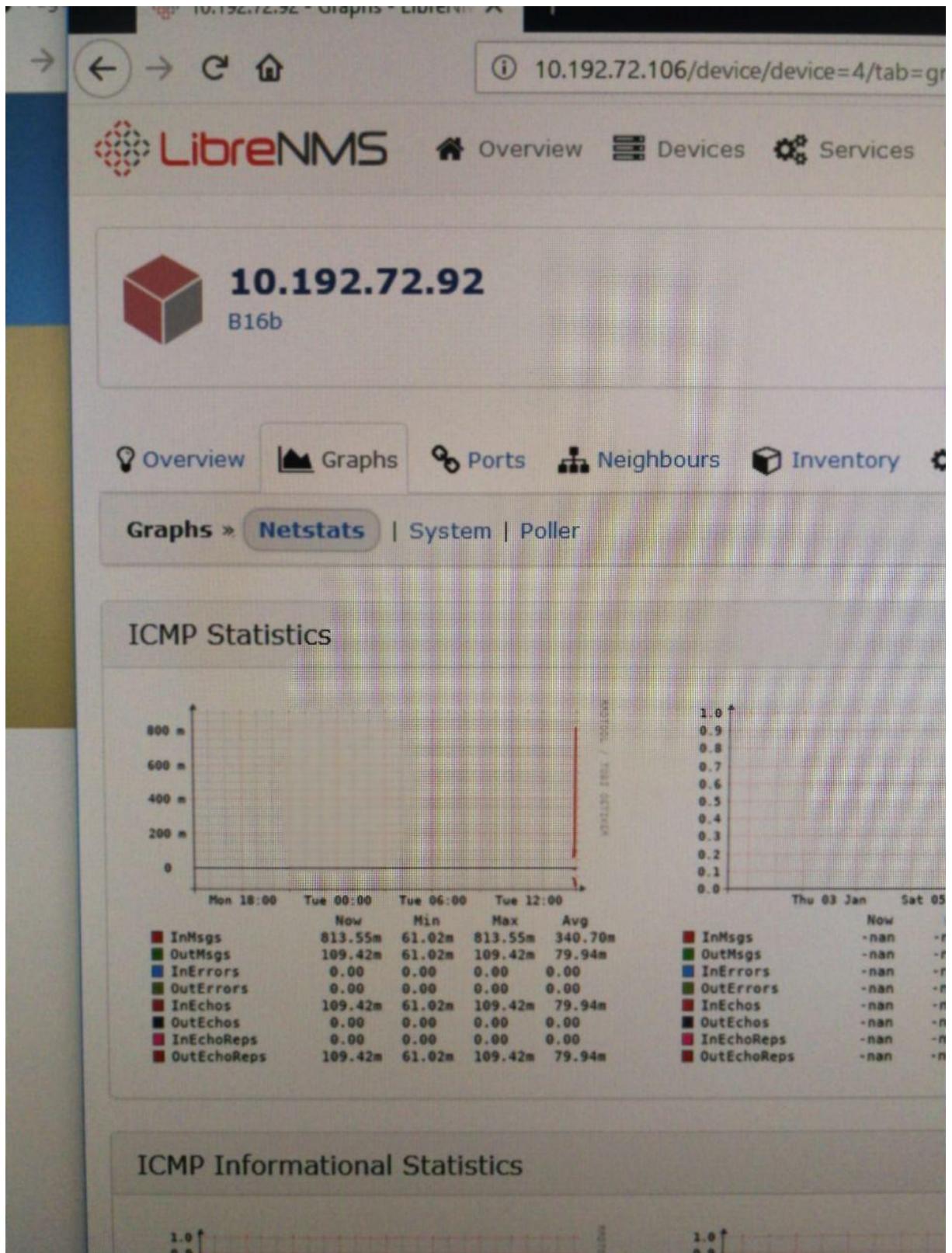
C:\\ Label: Serial Number 4051f0fb	20%
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**Recent Events**

2019-01-08 14:45:36	Ethernet_6	ifAdminStatus: -> up
2019-01-08 14:45:36	Ethernet_6	ifOperStatus: -> up

2. 10.192.71.92

### 1. Net State



## 2. Les Ports

Port	Traffic	Speed	Media	Mac Address	
lo0	0 bps 0 bps 0 pps 0 pps	Loopback	-	MTU 32768	
mgmt	2.7 kbps 24 bps 0 pps 0 pps	100 Mbps fullDuplex	Ethernet	00:0b:5f:1f:c0:20 MTU 1500	→ mgmt on 10.192.72.95 v4
ha		halfDuplex	Ethernet	00:0b:5f:1f:c0:21 MTU 1500	→ ha on 10.192.72.95 v4
ge1	5.1 kbps 2.96 kbps 7 pps 2 pps	1 Gbps fullDuplex	gigabitEthernet	00:0b:5f:1f:c0:3f MTU 1500	→ ge1 on 10.192.72.95 v4
ge2		1 Gbps halfDuplex	gigabitEthernet	00:0b:5f:1f:c0:3e MTU 1500	
fc1	0 bps 0 bps 0 pps 0 pps	2 Gbps	fibreChannel	09:9d:54:00:00:00 MTU 64280	
fc2			fibreChannel	09:9d:b8:00:00:00 MTU 64280	
fc3	0 bps	2 Gbps	fibreChannel	09:9e:1c:00:00:00	

## 3. General infos

10.192.72.92

B16b

Memory Usage

System Name	sn5428-2-k9
Operating System	Generic Device
Object ID	.1.3.6.1.4.1.9.1.529
Contact	name <not set> email <not set> phone <not set> pager <not set>
Uptime	2 days, 14h 43m 9s
Location	B16b
Lat / Lng	N/A

Recent Events

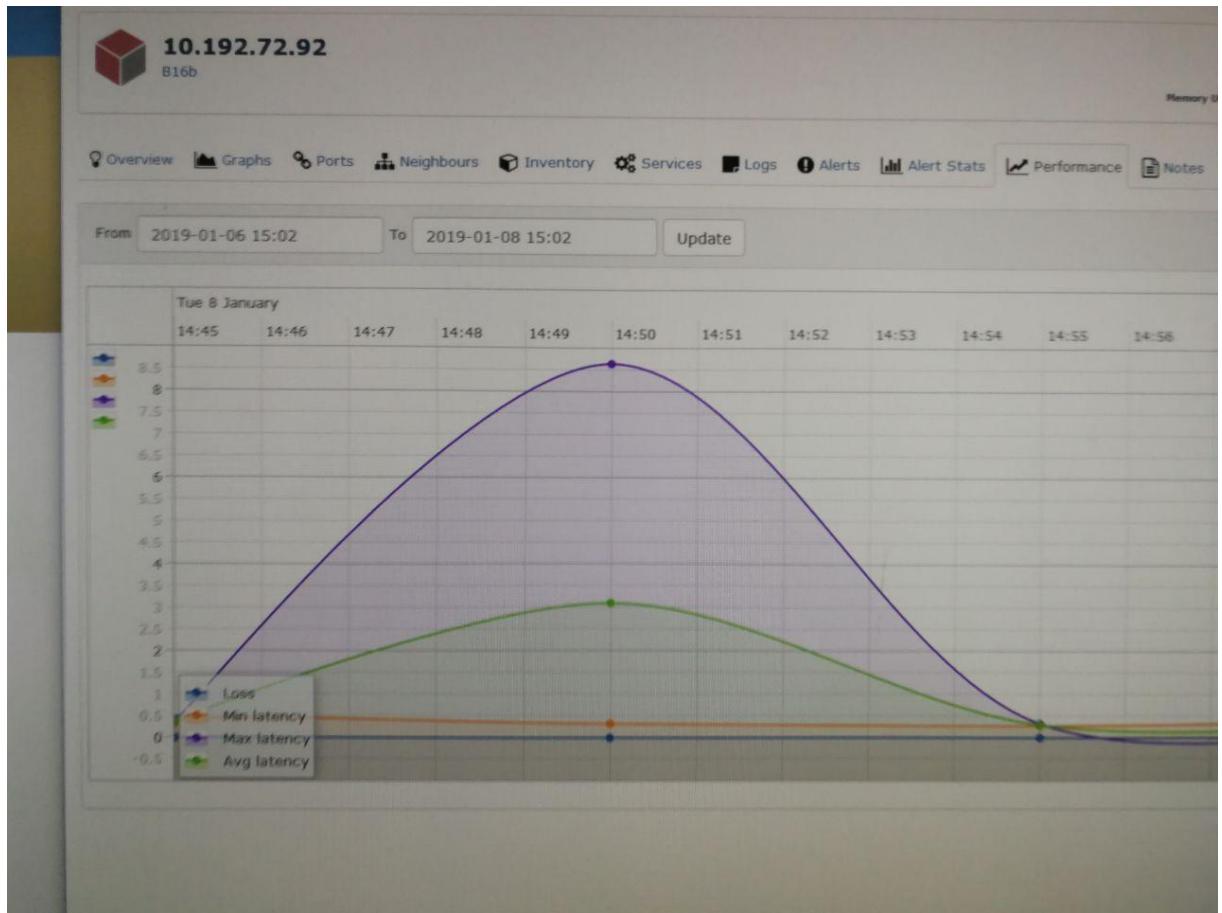
- 2019-01-08 14:46:01 Device Icon changed => generic
- 2019-01-08 14:46:00 sysObjectID -> .1.3.6.1.4.1.9
- 2019-01-08 14:46:00 sysName -> sn5428-2-k9
- 2019-01-08 14:46:00 sysDescr -> Cisco SN 5428-2
- 2019-01-08 14:45:31 fc4 ifType: -> fibreChannel
- 2019-01-08 14:45:31 fc4 ifPhysAddress: -> 099e80000000
- 2019-01-08 14:45:31 fc4 ifPromiscuousMode: -> false
- 2019-01-08 14:45:31 fc4 ifConnectorPresent: -> true
- 2019-01-08 14:45:31 fc5 ifDescr: -> fc5
- 2019-01-08 14:45:31 fc5 ifAlias: -> fc5

Overall Traffic

13 8 5 0

lo0, mgmt, ha, ge1, ge2, fc1, fc2, fc3, fc4, fc5, fc6, fc7, fc8

#### 4. Performance



## Objectif 4

### Question 3

1. Lister la localisation des machines.

-> Devices -> Geo Locations -> All Locations

The screenshot shows the LibreNMS web interface for managing network locations. The top navigation bar includes links for Overview, Devices, Services, Ports, Health, and Alerts, along with user and settings icons. The main content area is titled "Locations" and displays a table of locations with their details:

Location	Coordinates	Devices	Network	Servers	Firewalls	Down	Actions
B16b	N/A	2	0	2	0	0	Traffic Edit
Unknown	N/A	2	0	1	0	0	Traffic Edit

Pagination controls at the bottom of the table allow for navigating through multiple pages of data.

2. "Health", permet de voir la santé des toutes les machines sur plusieurs points en un seul coup d'oeil.

Health :: Memory - LibreNMS

10.192.72.106/health/metric=mempool/view=detail/

LibreNMS

Overview Devices Services Ports Health Alerts

Health » Memory | Processor | Storage | Temperature | Fanspeed | Voltage | State | Toner

Search

Device	Memory	Used
localhost	Physical memory	434.28 MB / 481.46 MB 47.18 MB
localhost	Swap space	130.5 MB / 512 MB 381.5 MB
localhost	Virtual memory	564.78 MB / 993.46 MB 428.68 MB
pc10bb05.einet.ad.eivd.ch	Physical Memory	3.77 GB / 15.89 GB 12.12 GB
pc10bb05.einet.ad.eivd.ch	Virtual Memory	3.58 GB / 18.26 GB 14.69 GB
pc13bb05.einet.ad.eivd.ch	Physical Memory	3.4 GB / 7.91 GB 4.51 GB
pc13bb05.einet.ad.eivd.ch	Virtual Memory	3.22 GB / 9.16 GB 5.94 GB

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Page

Health :: Temperature - LibreNMS

10.192.72.106/health/metric=temperature/view=detail/

LibreNMS

Overview Devices Services Ports Health Alerts

Health » Memory | Processor | Storage | Temperature | Fanspeed | Voltage | State | Toner

Device	Sensor	Current
10.192.73.137	CPU1 Temp	71 °C
10.192.73.137	CPU2 Temp	62 °C
10.192.73.137	System Board Inlet Temp	26 °C

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### 3. Lister les ports de toutes les machines.

The screenshot shows the LibreNMS web interface for managing network ports. The top navigation bar includes links for Overview, Devices, Services, Ports, Health, and Alerts, along with a search bar and user authentication. Below the header, a breadcrumb navigation shows 'Ports lists' and 'Basic'. A toolbar provides filters for 'All Devices', 'Hostname', 'All States', 'All Speeds', 'All Media', 'All Port Types', and search functions. The main content area displays a table of network ports across various devices, with columns for Device, Port, Status (Changed), Speed, Down, Up, Media, Description, and Action. The table lists ten entries, including several bonded interfaces and four Fibre Channel ports (fc1 through fc4).

Device	Port	Status		Speed	Down	Up	Media	Description	Actions
		Changed							
10.192.73.137	bond0	8 months		100Mbps	7.23Kbps	840bps	ethernetCsmacd	bond0	
10.192.72.102	Broadcom NetXtreme Gigabit Ethernet - Packet Scheduler Miniport.	3 months		100Mbps	3.82Kbps	552bps	ethernetCsmacd	Broadcom NetXtreme Gigabit Ethernet - Packet Scheduler Miniport.	
10.192.72.101	Broadcom NetXtreme Gigabit Ethernet - Packet Scheduler Miniport.	3 months		100Mbps	3.58Kbps	520bps	ethernetCsmacd	Broadcom NetXtreme Gigabit Ethernet - Packet Scheduler Miniport.	
10.192.72.102	Broadcom NetXtreme Gigabit Ethernet #2 - Packet Scheduler Miniport.	3 months		100Mbps			ethernetCsmacd	Broadcom NetXtreme Gigabit Ethernet #2 - Packet Scheduler Miniport.	
10.192.72.101	Broadcom NetXtreme Gigabit Ethernet #2 - Packet Scheduler Miniport.	3 months		100Mbps			ethernetCsmacd	Broadcom NetXtreme Gigabit Ethernet #2 - Packet Scheduler Miniport.	
10.192.72.92	fc1	a day		2Gbps			fibreChannel	fc1	
10.192.72.95	fc1	a day		2Gbps			fibreChannel	fc1	
10.192.72.92	fc2	a day		2Gbps			fibreChannel	fc2	
10.192.72.95	fc2	a day		2Gbps			fibreChannel	fc2	
10.192.72.92	fc3	a day		2Gbps			fibreChannel	fc3	
10.192.72.95	fc3	a day		2Gbps			fibreChannel	fc3	
10.192.72.95	fc4	a day		2Gbps			fibreChannel	fc4	

### 4. Dashboard flexible

The screenshot shows the LibreNMS web interface at the URL 10.192.72.106/overview/. The top navigation bar includes links for Page, LibreNMS, Overview, Devices, Services, Ports, Health, and Alerts. Below the navigation is a dashboard section with a 'Default' tab selected, featuring a red trash can icon and a green plus sign icon. A large central box titled 'Device Summary' displays a table of network device statistics:

Summary	Devices	Ports	Services
Up	8	40	0
Down	0	23	0
Ignored	0	0	0
Disabled/Shutdown	0	11	0
Total	8	80	0

## Question 4

Nous voyons bien les possibilités que pourrait offrir LibreNMS dans le cadre de la surveillance d'un réseau. Il permet de mettre à disposition rapidement les informations et l'état de santé du réseau. Cela facilite le travail de l'ingénieur et voilà.