Deploiment Docker

Preparation de machine

Installer Docker   Compose

Ajoute la clé GPG officielle de Docker pour sécuriser l'installation :

le dépôt Docker

```
root@Docker-SSII:~# echo "deb [arch=$(dpkg --print-architecture) signed-by=/usr/share
/keyrings/docker-archive-keyring.gpg] https://download.docker.com/linux/debian $(lsb_
release -cs) stable" | sudo tee /etc/apt/sources.list.d/docker.list > /dev/null
root@Docker-SSII:~#
```

```
root@Docker-SSII:~# sudo apt install docker-ce docker-ce-cli containerd.io -y
Rearoot@Docker-SSII:~# sudo apt update && sudo apt install lsb-release -y
BujHit:1 http://deb.debian.org/debian bookworm InRelease
ReaHit:2 http://security.debian.org bookworm-security InRelease
ThHit:3 http://deb.debian.org/debian bookworm-updates InRelease
roReading package lists... Done
root@Docker-SSII:~# sudo systemctl enable docker
Synchronizing state of docker.service with SysV service script with /lib/systemd/syst
emd-sysv-install.
Executing: /lib/systemd/systemd-sysv-install enable docker
root@Docker-SSII:~#
```

Créer le fichier de configuration du proxy

```
root@Docker-SSII:~# sudo mkdir -p /etc/systemd/system/docker.service.d
root@Docker-SSII:~#
```

```
  GNU nano 7.2       /etc/systemd/system/docker.service.d/http-proxy.conf
[Service]
Environment="HTTP_PROXY=http://192.168.104.3:3128/"
Environment="HTTPS_PROXY=http://192.168.104.3:3128/"
Environment="NO_PROXY=localhost,127.0.0.1"
```

```
  GNU nano 7.2                      /etc/resolv.conf
# --- BEGIN PVE ---
search elev3
nameserver 192.168.104.253
nameserver 192.168.104.254
nameserver 8.8.8.8
# --- END PVE ---
```

```
root@Docker-SSII:~# sudo systemctl daemon-reload
root@Docker-SSII:~# sudo systemctl restart docker
root@Docker-SSII:~#
```

Parfait, tout fonctionne !

Installer Portainer (interface graphique pour Docker) avec :

```
root@Docker-SSII:~# docker volume create portainer_data
docker run -d -p 8000:8000 -p 9443:9443 --name=portainer --restart=always \
-v /var/run/docker.sock:/var/run/docker.sock \
-v portainer_data:/data \
portainer/portainer-ce:latest
```

Ouvre ton navigateur :https://192.168.62.121:9443

       Identifiant : admin : zafarbtssio007@
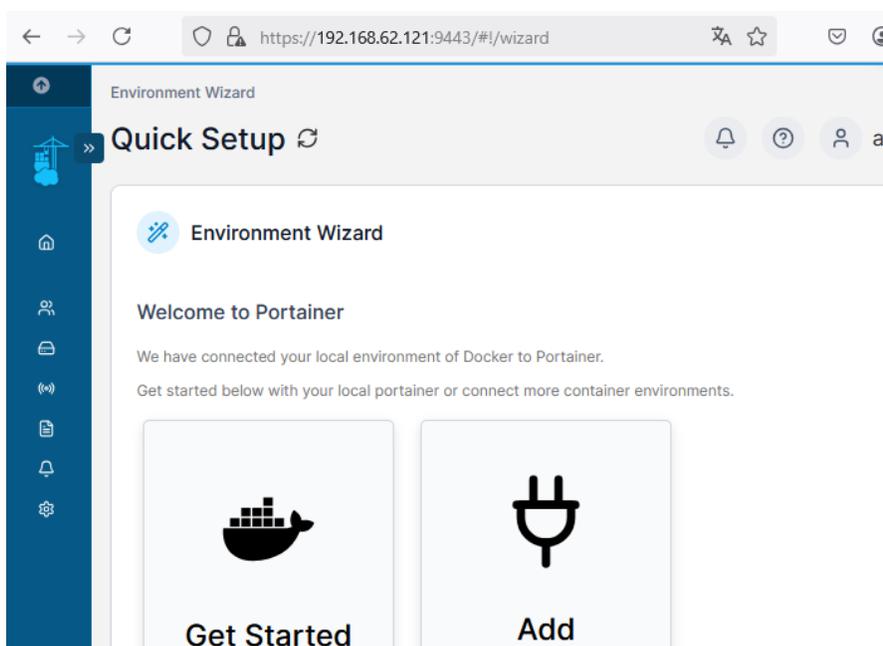

```
root@Docker-SSII:~# docker ps
CONTAINER ID    IMAGE                          COMMAND       CREATED        STATUS
        PORTS
                        NAMES
d118b468fc0c    portainer/portainer-ce:latest    "/portainer"    3 minutes ago    Up 3 mi
nutes    0.0.0.0:8000->8000/tcp, [::]:8000->8000/tcp, 0.0.0.0:9443->9443/tcp, [::]:944
3->9443/tcp, 9000/tcp    portainer
root@Docker-SSII:~#
```

Prometheus + Grafana + Node Exporter

Objectif

- **Grafana** : Interface web pour visualiser les données.
- **Prometheus** : Collecte les métriques des serveurs.
- **Node Exporter** : Envoie les métriques système à Prometheus.
- **(Facultatif) Blackbox Exporter** : Pour superviser un réseau externe.

Crée un **fichier `docker-compose.yml`** :

```
  GNU nano 7.2                        docker-compose.yml
version: '3.7'

services:
  prometheus:
    image: prom/prometheus:latest
    container_name: prometheus
    restart: unless-stopped
    ports:
      - "9090:9090"
    volumes:
      - ./prometheus.yml:/etc/prometheus/prometheus.yml
    command:
      - "--config.file=/etc/prometheus/prometheus.yml"

  node_exporter:
    image: prom/node-exporter:latest
    container_name: node_exporter
    restart: unless-stopped
    ports:
      - "9100:9100"

  grafana:
    image: grafana/grafana:latest
    container_name: grafana
    restart: unless-stopped
    ports:
      - "3000:3000"
    volumes:
      - grafana-data:/var/lib/grafana

volumes:
  grafana-data:
```

Crée un fichier `prometheus.yml` dans le même dossier :

```
  GNU nano 7.2                          prometheus.yml
global:
  scrape_interval: 15s

scrape_configs:
  - job_name: "prometheus"
    static_configs:
      - targets: ["localhost:9090"]

  - job_name: "node"
    static_configs:
      - targets: ["node_exporter:9100"]
```

```
root@Docker-SSII:~/docker# docker compose up -d
```

Dans le même   dossier que
`docker-`

```
root@Docker-SSII:~/docker# ls
docker-compose.yml   prometheus.yml
root@Docker-SSII:~/docker#
```

`compose.yml`,on lance :

Accéder à **Grafana**

http://192.168.62.121:3000 admin : admin

Ajouter Prometheus dans Grafana

Connecte-toi à Grafana.

Va dans **connexion → Data Sources**.

Ajoute une **nouvelle source de données** :

- **Type** : `Prometheus`
- **URL** : `http://prometheus:9090`

Sauvegarde et teste la connexion.
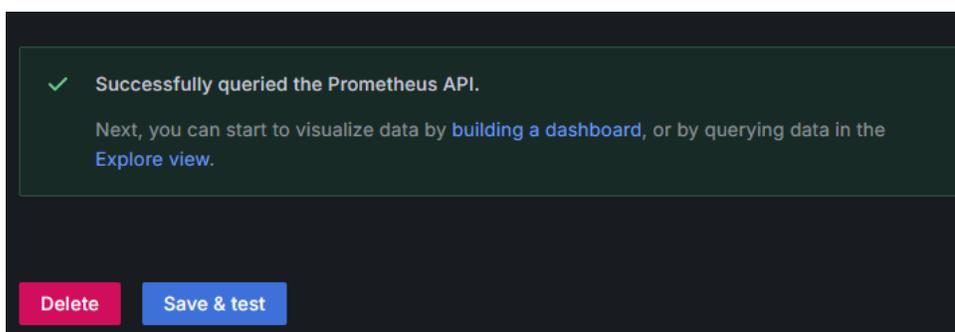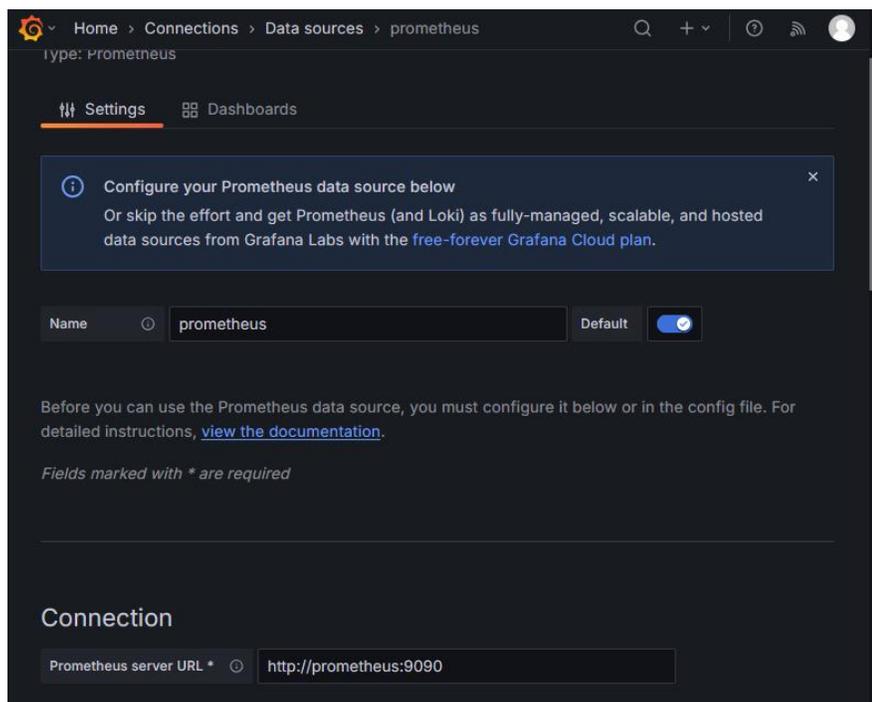
Prometheus dans ton navigateur
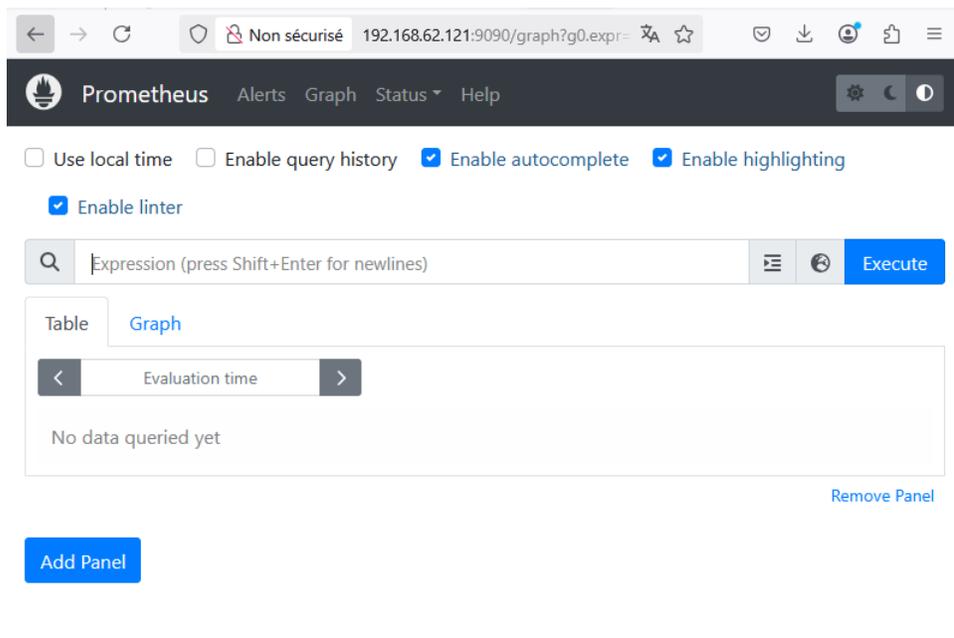
Ajouter un dashboard pour la supervision

Va dans **Dashboards → Import**.

Mets **"1860"** dans l'ID (Template officiel Node Exporter).

Associe-le à ta source **Prometheus**.

Finalement je laise tomber cette service car demande beaucoup de confige on va faire avec nagios+grafana

Nagios avec Grafana

On edit le fichier

```
  GNU nano 7.2                        docker-compose.yml
version: '3'

services:
  nagios:
    image: jasonrivers/nagios:latest
    container_name: nagios
    environment:
      - VIRTUAL_HOST=nagios.local
    ports:
      - "8080:80"    # Port 8080 pour Nagios
    volumes:
      - nagios-data:/usr/local/nagios/etc
    networks:
      - nagios

  grafana:
    image: grafana/grafana:latest
    container_name: grafana
    environment:
      GF_SECURITY_ADMIN_PASSWORD: admin
    ports:
      - "3000:3000"  # Port 3000 pour Grafana
    networks:
      - nagios

networks:
  nagios:
    driver: bridge

volumes:
  nagios-data:
```

```
root@Docker-SSII:~/docker# docker compose up -d
WARN[0000] /root/docker/docker-compose.yml: the attribute `version` is obsolete, it w
ill be ignored, please remove it to avoid potential confusion
[+] Running 32/32
 √ nagios Pulled                                                          75.0s
   √ ff65ddf9395b Pull complete                                           12.1s
   √ 785b9873bdf4 Pull complete                                           63.5s
   √ 0ef9446ba5cc Pull complete                                           63.8s
   √ 53aff88babc4 Pull complete                                           63.9s
   √ d72f92e29533 Pull complete                                           64.1s
   √ 706ed7d4ce0a Pull complete                                           64.7s
   √ d3245570f968 Pull complete                                           65.1s
   √ e58e184b986a Pull complete                                           65.2s
   √ eeb77e6dde3e Pull complete                                           65.4s
   √ 0bd0f5795eeb Pull complete                                           65.5s
   √ 71bfb306f8cb Pull complete                                           65.6s
   √ 738fc7520889 Pull complete                                           66.8s
   √ fe8a6b2cf4e3 Pull complete                                           67.0s
   √ e6f8fab512d1 Pull complete                                           67.1s
   √ 15f36d0b0439 Pull complete                                           67.3s
   √ a2fc4187e3b4 Pull complete                                           67.9s
   √ 3d5785144815 Pull complete                                           68.0s
   √ 566cdc02555d Pull complete                                           68.1s
   √ c700be87d617 Pull complete                                           68.2s
   √ 4f4fb700ef54 Pull complete                                           68.3s
   √ b69c76bd2b6b Pull complete                                           69.9s
   √ d5aa2a3a6539 Pull complete                                           70.0s
   √ 8fb30af17153 Pull complete                                           70.2s
   √ 9ffe54c5c139 Pull complete                                           70.2s
   √ 279b28aefa10 Pull complete                                           70.3s
   √ a900dfcceb38 Pull complete                                           70.4s
   √ 9a90645e352c Pull complete                                           70.5s
   √ 8e911c59da28 Pull complete                                           70.6s
   √ c219d58cc3f9 Pull complete                                           70.6s
   √ b0e280e9aa8c Pull complete                                           71.0s
   √ 8c389e58e867 Pull complete                                           71.1s
[+] Running 2/2
 √ Network docker_nagios          Created                                 0.2s
 √ Volume "docker_nagios-data"    Created                                 0.0s
[+] Running 4/4d orphan containers ([librenms-mysql]) for this project. If you remove
 √ Network docker_nagios          Created                                 0.2s
 √ Volume "docker_nagios-data"    Created                                 0.0s
 √ Container grafana              Started                                 11.3s
 √ Container nagios               Started                                 11.1s
```

```
root@Docker-SSII:~/docker# docker ps
CONTAINER ID    IMAGE                        COMMAND                CREATED
STATUS          PORTS                        NAMES
bce2399a0f6f    grafana/grafana:latest       "/run.sh"              19 seconds ago
Up 11 seconds    0.0.0.0:3000->3000/tcp, [::]:3000->3000/tcp    grafana
79dec7d9410d    jasonrivers/nagios:latest    "/usr/local/bin/star…"  19 seconds ago
Up 11 seconds    5667/tcp, 0.0.0.0:8080->80/tcp, [::]:8080->80/tcp    nagios
416f5b30271b    mariadb:latest               "docker-entrypoint.s…"  12 minutes ago
Up 12 minutes    3306/tcp                     librenms-mysql
root@Docker-SSII:~/docker# 
```

Accède à l'interface web de Nagios : http://192.168.62.121:8080

Accède à l'interface de Grafana : http://192.168.62.121:3000
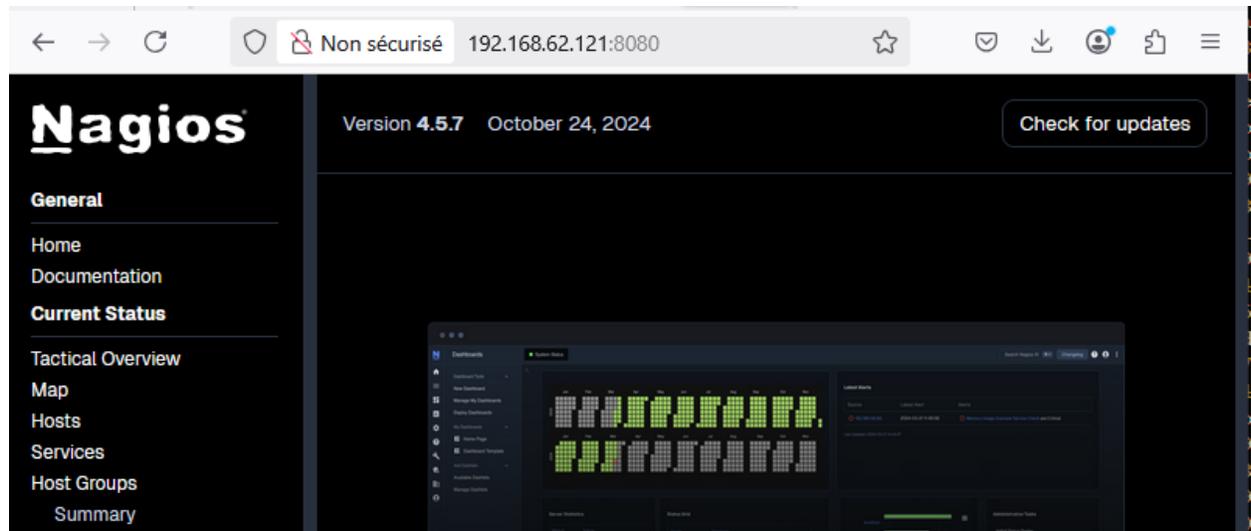
Lorsque tu utilises **Nagios** dans un conteneur Docker, la méthode pour ajouter un hôte est légèrement différente car tu n'as pas accès directement aux fichiers de configuration comme tu le ferais sur une machine physique.

Voici les étapes pour ajouter un hôte dans **Nagios** qui fonctionne dans Docker et redémarrer le service correctement.
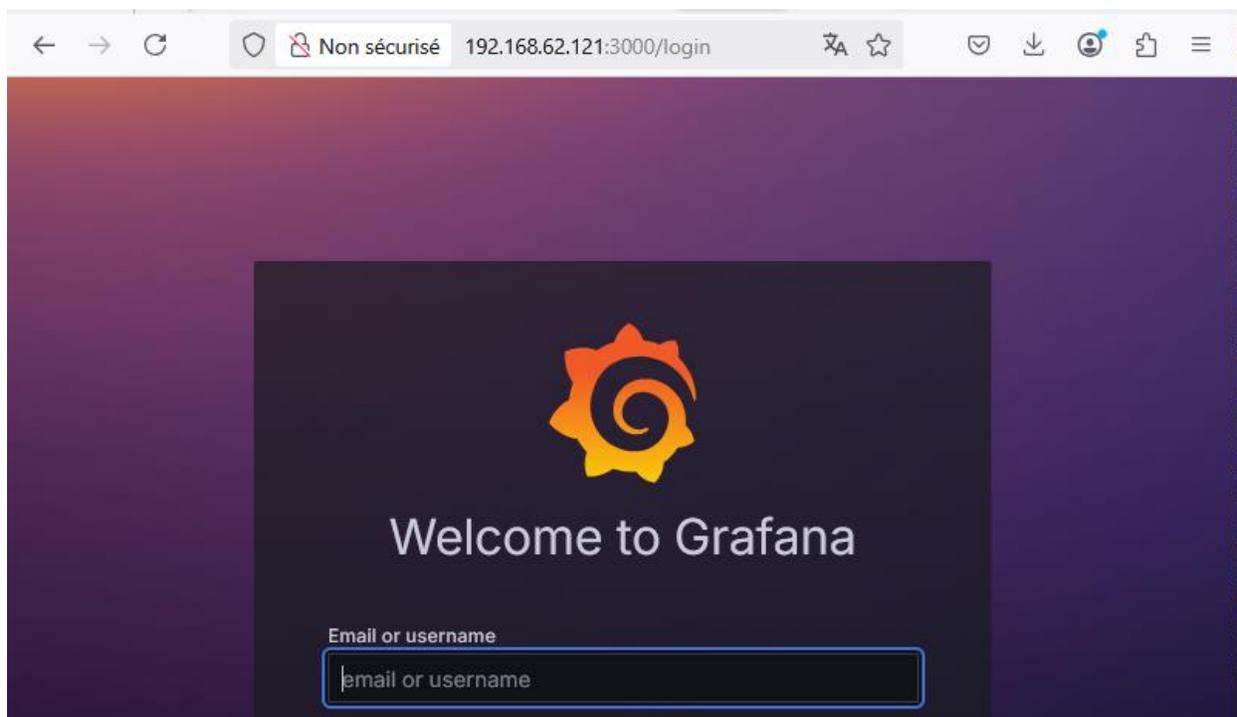
Étape 1 : Accéder au conteneur Nagios

Cela va te connecter à un terminal à l'intérieur du conteneur **Nagios**.

Étape 2 : Modifier la configuration de Nagios

```
root@79dec7d9410d:/opt/nagios/etc# ls
cgi.cfg  htpasswd.users  nagios.cfg  objects      send_nsca.cfg
conf.d   monitor         nsca.cfg    resource.cfg
root@79dec7d9410d:/opt/nagios/etc#
```

```
root@79dec7d9410d:/opt/nagios/etc# nano nagios.cfg
bash: nano: command not found
root@79dec7d9410d:/opt/nagios/etc# vi nagios.cfg
bash: vi: command not found
```

Le nagios c'est un peu coomplique avec docker de lalle configurer les ficher pour ajouter les device don je supprime cette conteneu et ajoute librenms

```
root@Docker-SSII:~/docker# docker stop nagios
nagios
root@Docker-SSII:~/docker# docker rm nagios
nagios
root@Docker-SSII:~/docker#
```

Avec Librenms :

```
  GNU nano 7.2                        docker-compose.yml
version: '3'

services:
  librenms:
    image: librenms/librenms:latest
    container_name: librenms
    environment:
      DB_HOST: librenms-mysql
      DB_NAME: librenms
      DB_USER: root
      DB_PASS: librenms
    volumes:
      - librenms-data:/opt/librenms
    ports:
      - "8081:8000"  # Changer ici 8000    8081
    depends_on:
      - mysql
    networks:
      - librenms   # R  seau d  fini ici

  grafana:
    image: grafana/grafana:latest
    container_name: grafana
    environment:
      GF_SECURITY_ADMIN_PASSWORD: admin
    ports:
      - "3000:3000"  # Port 3000 pour Grafana
    networks:
      - librenms   # Utilisation du m  me r  seau librenms

  mysql:
    image: mariadb:latest
    container_name: librenms-mysql
    environment:
      MYSQL_ROOT_PASSWORD: librenms
      MYSQL_DATABASE: librenms
    volumes:
      - librenms-mysql-data:/var/lib/mysql
    networks:
      - librenms   # Assure-toi d'ajouter mysql au r  seau librenms
```

On suite in redemare les service

```
root@Docker-SSII:~/docker# docker compose down
WARN[0000] /root/docker/docker-compose.yml: the attribute `version` is obsolete, it w
ill be ignored, please remove it to avoid potential confusion
[+] Running 3/3
 ✓ Container librenms-mysql  Removed                                        9.6s
 ✓ Container grafana         Removed                                        5.0s
 ✓ Network docker_librenms   Removed                                        0.2s
root@Docker-SSII:~/docker# docker compose up -d
WARN[0000] /root/docker/docker-compose.yml: the attribute `version` is obsolete, it w
ill be ignored, please remove it to avoid potential confusion
[+] Running 0/1
 ⠋ Network docker_librenms  Creating                                        0.0s
WARN[0000] Found orphan containers ([nagios]) for this project. If you removed or ren
[+] Running 4/4ce in your compose file, you can run this command with the --remove-or
 ✓ Network docker_librenms   Created                                       0.1s
 ✓ Container librenms-mysql  Started                                        2.0s
 ✓ Container grafana         Started                                        2.0s
 ✓ Container librenms        Started                                        2.0s
root@Docker-SSII:~/docker#
```
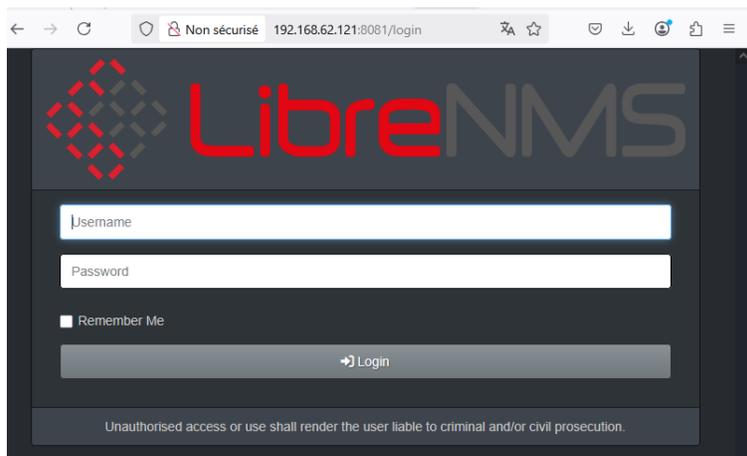
Ajoute un device pour superviser
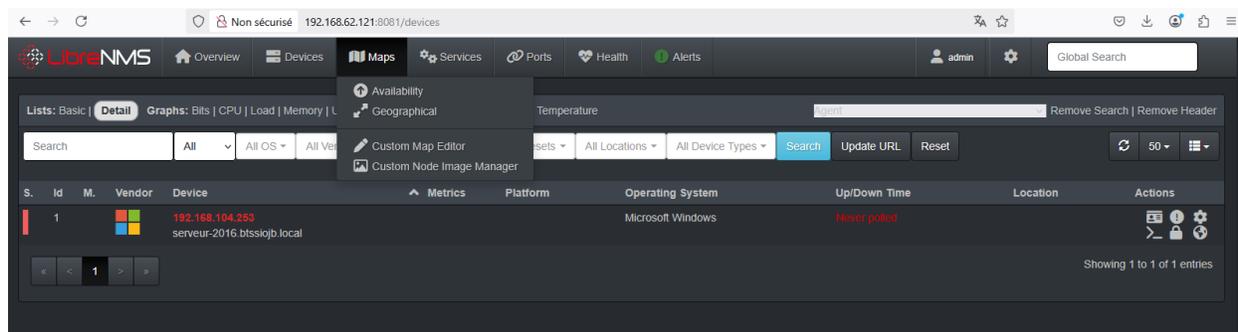
connecter LibreNMS à Grafana pour visualiser les métriques dans Grafana.

ibreNMS n'envoie pas directement des données à Grafana, il faut une base **InfluxDB** comme pont.

```
root@Docker-SSII:~/docker# docker ps
CONTAINER ID    IMAGE                      COMMAND              CREATED        STA
TUS       PORTS
      NAMES
004d322916b3    librenms/librenms:latest   "/init"              19 hours ago   Up
19 hours   162/tcp, 162/udp, 514/tcp, 514/udp, 0.0.0.0:8081->8000/tcp, [::]:8081->800
0/tcp    librenms
bcee2090f9a0    mariadb:latest             "docker-entrypoint.s…"  19 hours ago   Up
19 hours   3306/tcp
      librenms-mysql
7b2155f20148    grafana/grafana:latest     "/run.sh"            19 hours ago   Up
19 hours   0.0.0.0:3000->3000/tcp, [::]:3000->3000/tcp
      grafana
root@Docker-SSII:~/docker# docker run -d --name influxdb \
  -p 8086:8086 \
  -v $(pwd)/influxdb:/var/lib/influxdb \
  influxdb
Unable to find image 'influxdb:latest' locally
latest: Pulling from library/influxdb
6e909acdb790: Extracting  26.84MB/28.2MB
fd316d5ef10c: Download complete
be6c6bf9a35c: Download complete
68da9976e85a: Download complete
d8a0c055350c: Download complete
ed361e527918: Downloading  27.44MB/100.3MB
dab1f1c7b533: Download complete
2cda0db1fd06: Download complete
13b273930612: Download complete
b187d1b203dc: Download complete
```

2️⃣ Configurer LibreNMS pour envoyer les données à InfluxDB

```
root@Docker-SSII:~/docker# docker exec -it librenms bash
004d322916b3:/opt/librenms#
```

```
Status: Downloaded newer image for restic/restic:latest
Creating librenms_db        ... done
Creating librenms_redis     ... done
Creating librenms           ... done
Creating librenms_memcached ... done
Creating restic_backup      ... done
Creating librenms           ... done
root@Docker-SSII:~/docker/librenms# docker ps
CONTAINER ID    IMAGE                          COMMAND                  CREATED
    STATUS           PORTS
                                                                        NAMES
819923b2727f    librenms/librenms:latest       "/init"                  14 seconds ag
o   Up 10 seconds    162/tcp, 514/tcp, 162/udp, 0.0.0.0:514->514/udp, :::514->514/udp,
 0.0.0.0:8081->8000/tcp, :::8081->8000/tcp                              librenms
fd5df18f7a19    restic/restic:latest           "tail -f /dev/null"      14 seconds ag
o   Up 10 seconds
                                                                        restic_backup
c2474e65a8bb    minio/minio:latest             "/usr/bin/docker-ent…"   21 seconds ag
o   Up 13 seconds    0.0.0.0:9001->9001/tcp, :::9001->9001/tcp, 0.0.0.0:9002->9000/tcp
, :::9002->9000/tcp                                                     minio_backup
d200560a8166    mariadb:10.5                   "docker-entrypoint.s…"   21 seconds ag
o   Up 13 seconds    3306/tcp
                                                                        librenms_db
1d2187abf23e    redis:alpine                   "docker-entrypoint.s…"   21 seconds ag
o   Up 13 seconds    6379/tcp
                                                                        librenms_redis
52a77c6c8d79    portainer/portainer-ce:latest  "/portainer"             21 seconds ag
o   Up 13 seconds    0.0.0.0:8000->8000/tcp, :::8000->8000/tcp, 0.0.0.0:9000->9000/tcp
, :::9000->9000/tcp, 0.0.0.0:9443->9443/tcp, :::9443->9443/tcp    portainer
9c903c54d4f6    memcached:alpine               "docker-entrypoint.s…"   21 seconds ag
o   Up 13 seconds    11211/tcp
                                                                        librenms_memcached
root@Docker-SSII:~/docker/librenms#
```

Librenms http://192.168.62.121:8081

- Identifiant : librenms

- Mot de passe : `librenms`
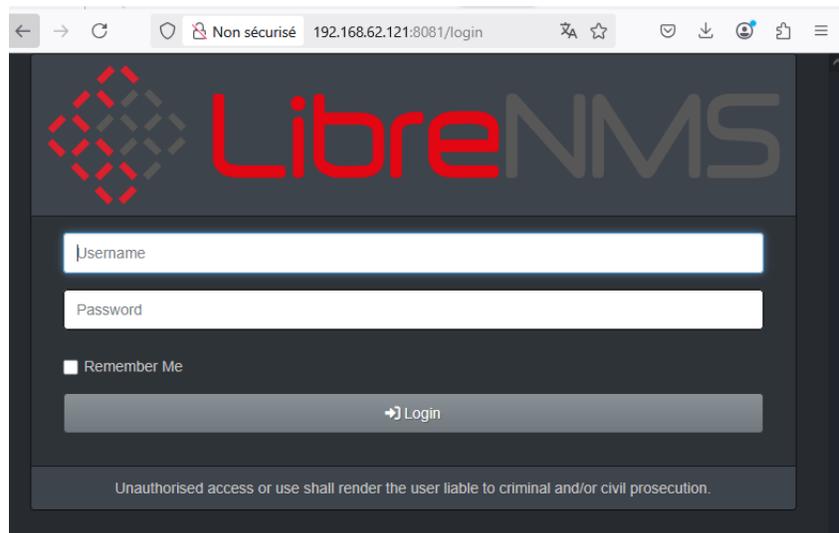

```
/opt/librenms # echo "nameserver 8.8.8.8" > /etc/resolv.conf
/opt/librenms #
/opt/librenms # apk update
```

MinIO (Console de sauvegarde) : `http://192.168.62.121:9001`

- Identifiant : `admin`
- Mot de passe : `admin123`